Westside Canal Battery Storage Project

Draft Environmental Impact Report

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EXECUTIVE SUMMARY

This Draft Environmental Impact Report (EIR) has been prepared in compliance with the California Environmental Quality Act (CEQA) Public Resources Code [PRC] Section 21000 et seq., the CEQA Guidelines (Section 1500 et seq.) as promulgated by the California Resources Agency and the Governor's Office of Planning and Research (OPR). The purpose of this environmental document is to assess the potential environmental effect associated with the Westside Canal Battery Storage Project (Project) and to propose mitigation measures where required, to reduce significant impacts.

Project Overview

Consolidated Edison Development (CED) Westside Canal Battery Storage, LLC (Applicant) is proposing to develop, design, construct, own, operate, and decommission the Westside Canal Battery Storage Project, a utility-scale energy storage complex with the capacity of up to 2,000 Megawatts (MW) at full build out. The Project Site is located in the unincorporated Mount Signal area of Imperial County, approximately eight miles southwest of the City of El Centro and approximately five miles north of the U.S.-Mexico border. The Project Site encompasses approximately 163 acres of land, 148 of which are owned by the Applicant, and the remaining land is owned by the BLM, Imperial Irrigation District (IID), and a private landowner. The application for the Project proposes a General Plan Amendment to change the land use designation of the Project Site from Agriculture to Industry, and Zone Change to change the zoning from Heavy Agriculture (A-3) to Medium Industrial (M-2) zoning. A Conditional Use Permit would be required and specifically limited to energy production/use.

The Project would store energy generated from the electrical grid, and optimally discharge that energy back into the grid upon demand. The Project would be constructed in multiple phases over a 10-year period with each phase ranging from approximately 25 MW to 400 MW. For the purposes of this analysis, Project construction is assumed to occur over three to five phases. Given the approximately 10-year development of the Project, the expected end date of the Project life cycle would be 30 years from the construction of the final phase, or no more than 40 years after the effective date of the Conditional Use Permit.

The Project would be comprised of Li-ion and/or flow battery energy storage system facilities, a behind-the-meter solar energy component, a new on-site 230-kilowatt (kW) loop-in switching station, a 34.5 kV to 230 kV Project substation, underground electrical cables, and permanent vehicular access to and from the Project Site over a proposed clear-span bridge spanning IID's Westside Main Canal. The proposed loop-in switching station would connect the Project to the existing IID Campo Verde-Imperial Valley 230 kV radial gen-tie line, which connects to the Imperial Valley (IV) Substation and the California Independent System Operator (CAISO), approximately one-third mile south of the Project Site. The Applicant has submitted the necessary Interconnection Request Applications to the CAISO and IID.

The Project complements both the existing operational renewable energy facilities, and those planned for future development in Imperial County (County) and supports the broader Southern California's bulk electrical transmission system by serving as a firm, dispatchable resource.

Purpose of a Draft Environmental Impact Report

The purpose of a Draft EIR is to analyze the potential environmental impacts associated with a project. CEQA Section 15002 states that the purpose is to: inform the public and governmental decision makers of the potential significant impacts of a project; identify the ways that environmental damage can be avoided or significantly reduced; prevent significant avoidable damage to the environment by requiring changes in

projects through the use of alternatives or mitigation measures when the government agency finds the changes to be feasible; and disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved. Section 15124(b) of the California Environmental Quality Act (CEQA) Guidelines requires that an Environmental Impact Report (EIR) include a statement of objectives sought by the Project. These objectives identify the underlying purpose of the Project and provide a basis for identification of alternatives evaluated in the EIR. A clearly written statement of objectives allows the lead agency to develop a reasonable range of alternatives to evaluate in the EIR and aids the decision-makers in preparing findings or a statement of overriding considerations, if necessary.

This EIR evaluates the Project in Imperial County, California. Per CEQA, the Imperial County Planning & Development Services (ICPDS) is the Lead Agency. This Executive Summary (ES) is intended to provide an overview of the Project and its environmental effects.

Project Objectives

Pursuant to CEQA Section 15124(d), objectives have been identified for the Project. A primary objective is to develop a project that will produce public benefits for the County, the Southern California Region, and the State of California. The following is a list of key public benefits that are fundamental to the Project's objectives:

- To construct and operate utility-scale energy storage technologies that are safe, efficient, and environmentally responsible
- To provide load-serving entities and system operators the ability to effectively manage intermittent renewable generation on the grid, thereby creating reliable, dispatchable generation as a firm, dispatchable resource
- To facilitate deployment of additional renewable energy resources in furtherance of the State of California Renewable Portfolio Standard
- To develop an up to 2,000 MW energy storage facility on previously disturbed land that is no longer used for agricultural production
- To promote local economic development by maximizing the utilization of the local workforce for a variety of trades and businesses

Required Approvals

Table ES-1, Agency Permits and Environmental Review Requirements, lists the anticipated permits potentially required for the Project.

Table ES- 1 Agency Permits and Environmental Review Requirements

Agency	Permits and Other Approvals
Imperial County	General Plan Amendment Zone Change Conditional Use Permit Development Agreement Grading Permit Conceptual Drainage Plan Domestic Wastewater/Septic System Permit

Agency	Permits and Other Approvals
	Fire Suppression Plan Transportation Permits Mechanical Permits Electrical Permits Structural/Foundation Permits Haul Route Plan Rule 310 Dust Control Plan & Rule 801 Compliance National Pollutant Discharge Elimination System (NPDES) Construction General Permit NPDES General Permit for MS4 Compliance AB 52 Consultation
Imperial Irrigation District	Generator Interconnection Agreement
California Independent System Operator	Generator Interconnection Agreement
United States Army Corps of Engineers	Clean Water Act Section 404
Regional Water Quality Control Board	Clean Water Act Section 401
California Department of Fish and Wildlife	California Fish and Game Code 1600
Imperial County Air Pollution Control District	Dust Control Plan

Environmental Impacts

Impacts Determined to Require No Further Consideration in This Environmental Impact Report

Based upon information contained in the Initial Study (IS) and Notice of Preparation (NOP), the Project was determined to have no impact or less than significant impacts associated with the topics below. Therefore, these topics were not addressed in this Draft EIR. However, the rationale for eliminating these topics is briefly discussed below.

Cultural Resources

To be considered historically significant, a resource must meet one of the four criteria for listing outlined in the California Register of Historical Resources (CRHR) (CEQA Guidelines 15064.5(a)(3)) and noted below:

a) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

b) Is associated with the lives of persons important in our past;

c) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

d) Has yielded, or may be likely to yield, information important in prehistory or history.

Literature review and cultural resources surveys of the Project study area did not identify any other historical sites within the Project study area and the Project would have no impact to the significance of a historical resource as identified in Section 15064.5. However, a section of the Westside Main Canal is eligible for listing on the National Register of Historic Places and CRHR on the local and state levels under Criterion A for its significance in association with development of the Imperial Valley. The Westside Main Canal would be impacted by the Project due to the construction of the clear-span bridge across the Westside Main Canal

to provide vehicular access from Liebert Road. The proposed bridge would not result in physical alteration of the Westside Main Canal itself. Because there are other visual impacts along the Westside Main Canal including other bridges and impacts from maintenance improvements such as dredging and concrete lining, the proposed bridge will not affect the qualities or values that qualify the resource for listing in the National Register of Historic Places or CRHR. The Westside Main Canal would still maintain its association with the development of agriculture in the Imperial Valley. The potential for intact subsurface prehistoric or historic historical sources to be present on the Project property is considered very low due to the extensive disturbance owed to agricultural activities. Although the potential for currently encountering subsurface human remains within the Project footprint is unlikely, there remains a possibility that human remains could be present beneath the ground surface, and that such remains could be exposed during Project construction. In the event that evidence of human remains is discovered, construction activities within 50 feet of the discovery shall be halted or diverted, and the County Coroner will be notified (Section 7050.5 of the Health and Safety Code). No subsurface disturbance will occur during Project operation. Decommissioning activities will involve the removal of some Project components. The ground disturbance that would occur as a result of decommissioning would be in the same locations of disturbance that occurred during the construction of the Project. Additional ground disturbances outside of those during construction are not anticipated. Therefore, no further disturbance of potential human remains is anticipated to occur.

Energy

The construction and operation of the Project would include the consumption of water, electricity, and fossil fuel resources. The energy required for the production of new materials would result in the irretrievable commitment of natural resources. The amount and rate of consumption of resources for the anticipated equipment and materials required for the construction of the Project would not result in significant environmental impacts or the unnecessary, inefficient, or wasteful use of resources. The Project would provide up to approximately 400 MW (per phase) of firm, dispatchable energy at times when demand is highest. This energy resource would be used to create other goods or more efficiently power regional services, thus ensuring that no wasteful or inefficient consumption of energy resources would occur and offset demand which would otherwise be met by less efficient methods of energy generation.

The Project would be compliant with all state and local plans for renewable energy or energy efficiency because it would develop a firm, dispatchable source of power helping to offset the use of nonrenewable resources and contribute to an overall reduction of nonrenewable resources currently used to generate electricity. The Project would increase the effectiveness of other regional renewable projects by increasing the region's energy storage capacity. Therefore, the Project would have no impact on a state or local energy plan.

Mineral Resources

The Project Site is currently zoned for agricultural use. The Site is not utilized for mineral resource production. According to the California Department of Conservation, there are no mapped mineral resource zones in or near the Project Site. Therefore, the Project would not result in a significant impact on the availability of a known mineral resource or mineral resource zone.

Noise

Noise associated with construction of the Project would potentially result in short-term impacts to the surrounding properties; however, there are no nearby residences which would be affected by the noise associated with either the construction or operation of the Project. The construction activities would only occur between Monday through Friday between the hours of 7:00 a.m. and 7:00 p.m., or Saturday between the hours of 9:00 a.m. and 5:00 p.m., which would be in compliant with the time-of-day restrictions and noise level limits set forth in the County's General Plan Noise Element. However, during hot weather, it may be necessary to commence work earlier than the designated times to avoid pouring concrete during high

ambient temperatures. If construction is to occur outside the County's specified working hours, coordination with the County would occur in advance of these activities. As modeled in the Noise Technical Report (Appendix M), the noise associated with the Project operation would attenuate to less than 60 dB(a) (A-weighted decibels) Leq(8h)[1] which would not exceed the 70 dB(a) property line noise level limit. Therefore, the Project would not result in a generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project exceeding standards established in the local general plan, noise ordinance, or applicable standards.

The nearest sensitive receptor to the Project is a residence located 0.85 mile from the Project's property line. The main vibratory sources from the Project would be generated during the temporary and short-term construction activities. The General Plan or Noise Ordinance does not contain any specific performance standards or vibration, therefore, a vibration analysis exceeding 0.1 peak particle velocity (PPV) would be considered the threshold of concern. At this level, the vibration would be barely perceptible by humans, with a doubling of vibration level still required to potentially generate damage to structures. For demonstration, a typical piece of construction such as a large bulldozer produces 0.0048 PPV at 175 feet. As the nearest sensitive receptor is located 0.85 miles from the Project's property line, the PPV produced by a large bulldozer would be significantly less than the 0.1 PPV threshold of concern. Therefore, vibration generated by the Project would not result in a significant impact to nearby sensitive receptors.

The Project is not located within the bounds of any airport land use plan, as outlined in the County Airport Land Use Compatibility Plan. Therefore, the Project would not impact a private airstrip or airport land use plan.

Population and Housing

Due to the longevity of the construction activities, approximately 10 years, it is assumed that the construction workforce would likely be expected to be filled by the local workforce. During operations, workers would be present at the Project Site for maintenance activities. Typical maintenance would be expected to require up to 20 employees at full buildout. The maintenance staff would be expected to be filled by the local workforce that has readily available labor and would not induce unplanned population growth. Therefore, the Project would not have the potential to cause substantial direct or indirect population growth.

As the Project Site is currently zoned as Heavy Agriculture, the Project would not remove any available housing units or displace existing people or housing. Therefore, the Project would not impact population and housing.

Public Services

Increased demand in fire protection, emergency services, and police services are typically correlated with an increase in residential population. Approximately 20 full time employees would remain for Project O&M after Project buildout. This relatively small number of permanent employees would not result in a significant increase in the need for fire protection and emergency services. The Project includes an on-site fire protection system for all battery systems and additional security measures, such as an eight-foot tall barbed wired-topped fence, a camera equipped call button at the front gate, security cameras throughout the Project Site, and an on-site security guard during non-active construction hours. Therefore, the Project would not cause a substantial increase in the demand for police and fire protection services.

As the Project does not include a housing element, there would be no increase in residential population size. Therefore, the Project would not impact schools, parks, or other public facilities.

[1] An averaged 8-hr equivalent continuous A-weighted sound pressure level, measured in dB (A), referenced to 20 micro Pascals in air. LAeq,8h must be determined in accordance with AS/NZS 1269.

Recreation

The Project is limited to a battery energy storage facility and does not include a component that would result in population growth or increased demand for recreational facilities. Therefore, the Project would not impact parks or other recreational facilities.

Transportation

A Traffic Impact Analysis was prepared for the Project and is included as Appendix L in the EIR. The traffic analysis concluded, based on the significance criteria of the County and Caltrans, that roadway segments would operate as Level of Service B or better with the Project. The Project is anticipated to generate an increase in construction related traffic. Although an increase is expected, the Project-related traffic is still considered lower than the County's threshold of significance as operating at Level of Service B or better. As such, the Project would not result in a significant conflict with a program plan, ordinance, policy addressing the circulation systems, or with CEQA Guidelines Section 15064.3 subdivision (b).

According to the County of San Diego Transportation Study Guide, a detailed transportation Vehicle Miles Traveled (VMT) analysis is not required for projects that generate less than 110 daily vehicle trips. During operations, the Project would generate only 40 trips per day. VMT analyses are also not required to address construction traffic since these trips are temporary in nature. Therefore, the Traffic Impact Analysis concluded the Project is presumed to have a less than significant VMT impact due to Project-generated trips, and a detailed transportation VMT analysis was not warranted.

The Project is located in a rural portion of the County with low traffic volumes. The Project would not increase hazards due to a geometric design or an incompatible use with surrounding agricultural land.

The Project includes a clear-span bridge over the Westside Main Canal to provide access to the Project Site from the north. Additional access roads would be paved on the north and south sides of the Westside Main Canal providing access. Until the bridge construction is complete, temporary access is proposed from the south of the Project Site off State Route 98, or from the north of the Project Site at I-8 to Wixom Road. Temporary and permanent access ensures adequate access would consistently be provided. Therefore, the Project would result in less than significant impacts to inadequate emergency access.

Wildfires

The Project is not located in a State Responsibility Area, or near a State Responsibility Area, or on lands classified as a Very High Fire Hazard Severity Zone. Under these significance thresholds, the Project would not significantly impact an adopted emergency response or evacuation plans, exacerbate wildfire risks, or expose people or structures to significant risks as a result of runoff, instability, or drainage changes. Therefore, impacts to wildfire would be less than significant.

Summary of Significant Impact and Mitigation Measures that Reduce or Avoid the Significant Impacts

The analysis contained in the Draft EIR determined that the Project would result in either less-than-significant impacts or less-than-significant impacts after mitigation is implemented for the following resources:

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Tribal Cultural Resources
- Utilities and Service Systems

These impacts are evaluated in detail in Chapter 3 of this Draft EIR and are summarized in Table ES-2 at the end of this Executive Summary.

Cumulative Impacts

The analysis contained in the Draft EIR determined that no cumulative impacts or less than significant cumulative impacts would result from Project implementation.

Significant Irreversible Environmental Changes

Implementation of the Project would commit nonrenewable (e.g., petroleum) or slowly renewable (e.g., timber) resources during Project construction and operation. In order to construct the Project, machinery, equipment, materials (e.g., lumber, sand, gravel) and workers would be required, representing an irreversible commitment of some of these resources. Similarly, during operation, some of these resources (e.g., energy, electricity) would again be needed, representing a long-term commitment and permanent investment. The consumption and use of some of these resources would limit their availability for future generations. In addition, construction of the Project would also irreversibly change existing views to the Site from adjacent areas. However, it should be noted that the on-site PV solar generation will serve as station auxiliary power and would assist in meeting a portion of the energy needs of the facility during each phase of development, and once fully operational, thereby reducing its consumption of fossil fuels or contribution to greenhouse gases (GHGs).

One of the objectives of the Project is to construct and operate a battery energy storage facility that is safe, efficient, and environmentally responsible. The Project would develop a facility that would store energy generated from the electrical grid, and optimally discharge that energy back into the grid upon demand. As discussed above, resources that would be consumed as a result of Project implementation include water, electricity, and fossil fuels during construction and operations; however, the amount and rate of consumption of these resources would not result in significant environmental impacts or the unnecessary, inefficient, or wasteful use of resources over the long-term. Compliance with all applicable building codes, as well as County policies and the mitigation measures identified in this EIR, would help ensure that natural resources are conserved to the extent feasible.

Growth Inducement

The overall objective of the Project is to provide a utility-scale energy storage complex incorporating Li-ion battery systems and/or flow battery technologies. In addition, the Project is not intended to facilitate growth through the construction of infrastructure that would encourage urban uses (e.g., housing,

retail/commercial, roadways) but instead allows excess energy to be stored and later dispatched optimally back into the existing electrical grid as firm, reliable generation when needed. By constructing the facility, load-serving entities and system operators would be better able to manage and convert intermittent renewable generation into reliable, dispatchable generation upon demand. This would also help the state to meets its energy needs. Therefore, the Proposed Project is not considered growth inducing.

Areas of Controversy

Section 15123(b)(2) of the CEQA Guidelines requires that an EIR identify areas of controversy as well as issues to be resolved known to the Lead Agency, including issues raised by other agencies and the public. A primary issue associated with this energy storage project is the corresponding land use compatibility, as well as fiscal and economic impacts to the County.

Table ES- 2 Summaries of Impacts and Mitigation Measures

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
Aesthetics			
	Less than significant	No mitigation measures are warranted.	Not applicable
Agricultural and Forestry Resources			
Impact 3.2-a: Prime Farmland, Unique Farmland, or Farmland of Statewide Importance	Significant impact	**MM AG-1: Payment of Agricultural and Other Benefit Fees** One of the following options included below is to be implemented prior to the issuance of a grading permit or building permit for the Project: **Mitigation for Non-Prime Farmland** **Option 1:** Provide Agricultural Conservation Easement(s). The Permittee shall procure Agricultural Conservation Easements on a "1 on 1" basis on land of equal size, of equal quality farmland, outside the path of development. The conservation easement shall meet Department of Conservation regulations and shall be recorded prior to issuance of any grading or building permits; or **Option 2:** Pay Agricultural In-Lieu Mitigation Fee. The Permittee shall pay an "Agricultural In-Lieu Mitigation Fee" in the amount of 20 percent of the fair market value per acre for the total acres of the proposed site based on five comparable sales of land used for agricultural purposes as of the effective date of the permit, including program costs on a cost recovery/time and material basis. The Agricultural In-Lieu Mitigation Fee, will be placed in a trust account administered by the Imperial County Agricultural Commissioner's office and will be used for such purposes as the acquisition, stewardship, preservation, and enhancement of agricultural lands within Imperial County; or, **Option 3:** Public Benefit Agreement. The Permittee and County shall voluntarily enter into an enforceable Public Benefit Agreement or Development Agreement that includes an Agricultural Benefit Fee payment that is 1) consistent with Board Resolution 2012-005; 2) the Agricultural Benefit Fee must be held by the County in a restricted account to be used by the County only for such	Less than significant

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		purposes as the stewardship, preservation and enhancement of agricultural lands within Imperial County and to implement the goals and objectives of the Agricultural Benefit program, as specified in the Development Agreement, including addressing the mitigation of agricultural job loss on the local economy.	
Impact 3.2-b: Williamson Act contract	Potentially significant impact	**MM AG-1: Payment of Agricultural and Other Benefit Fees**	Less than significant
Impact 3.2-c: Conversion of Farmland to non-agriculture use	Potentially significant impact	**MM AG-1: Payment of Agricultural and Other Benefit Fees**	Less than significant
Air Quality			
Impact 3.3-b: Cumulative increase of criteria pollutants	Less than significant, and no mitigation required; however, per requirements of ICAPCD, the standard mitigation measures would be implemented during construction and operation of the Project.	**MM AIR-1: Regulation VIII (Fugitive Dust Control Measures)** All construction sites, regardless of size, must comply with the requirements contained within Regulation VIII. *Standard Mitigation Measures for Fugitive Dust (PM10) Control* a) All disturbed areas, including Bulk Material storage which is not being actively utilized, shall be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps, or other suitable material such as vegetative ground cover. b) All on-site and off-site unpaved roads would be effectively stabilized, and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering. c) All unpaved traffic areas 1 acre or more with 75 or more average vehicle trips per day would be effectively stabilized and visible emission shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering. d) The transport of Bulk Materials shall be completely covered unless 6 inches of freeboard space from the top of the container is maintained with no spillage and loss of Bulk Material. In addition, the cargo compartment of all Haul Trucks is to be cleaned and/or washed at delivery site after removal of Bulk Material. e) All Track-Out or Carry-Out would be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an urban area. f) Movement of Bulk Material handling or transfer shall be stabilized prior to handling or at points of	Less than significant

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		transfer with application of sufficient amounts of water, chemical stabilizers or by sheltering or enclosing the operation and transfer line. g) The construction of any new unpaved road is prohibited within any area with a population of 500 or more unless the road meets the definition of a temporary unpaved road. Any temporary unpaved road shall be effectively stabilized, and visible emissions shall be limited to no greater than 20 opacity for dust emission by paving, chemical stabilizers, dust suppressants and/or watering. **MM AIR-2: Construction Equipment Control Measures** *Standard Mitigation Measures for Equipment Exhaust Emissions Control* a) Use of equipment with alternative fueled or catalyst-equipped diesel engine, including for all off-road and portable diesel-powered equipment. b) Minimize idling time either by shutting equipment off when not in use or limit the idling time to a maximum of 5 minutes. c) Limit, to the extent feasible, the hours of operation of heavy-duty equipment and/or the number of equipment in use. d) Replace fossil fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set). *Required Mitigation Measures for Construction Equipment Mobilization* a) The 1.2-mile portion of the access road from the IV Substation to the project site shall be covered with construction mats. b) No more than eight pieces of construction equipment shall be delivered to the project site in one day. c) A speed limit of 15 mph on the access road shall be enforced. *Required Mitigation Measures for Construction Activities* a) The 1.2-mile portion of the southern access road from the IV Substation to the project site shall be covered with construction mats. b) A material delivery speed limit of 15 mph on the access road shall be enforced. c) For material deliveries from the south, one of the following dust suppressant measures would be required for the 4.4-mile service road: d) A water truck shall apply water every 3 hours, or as deliveries occur; or e) A chemical dust suppressant shall be applied. f) For the 0.3-mile portion of the northern access route that is unpaved (south of Wixom Road to	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		the worker parking area) one of the following dust suppressant measures would be required: • A water truck shall apply water every 3 hours, or as worker access occurs; or • A chemical dust suppressant shall be applied. • A water truck shall apply water to all active on-site grading areas every 3 hours. *Enhanced Mitigation Measures for Construction Equipment* To help provide a greater degree of reduction of PM emissions from construction combustion equipment, ICAPCD recommends the following enhanced measures: a) Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing of construction activity during the peak hour of vehicular traffic on adjacent roadways. b) Implement activity management (e.g., rescheduling activities to reduce short-term impacts). **MM AIR-3: Operational Dust Control Plan** To help reduce fugitive dust emissions from on-site unpaved roads and accumulation of small dunes during operations, an Operational Dust Control Plan (ODCP) would be prepared. The ODCP would include strategies for how dust emissions would be controlled and maintained during Project operations. The ODCP would be submitted to the ICAPCD for approval prior to the issuance of a Certificate of Occupancy.	
Impact 3.3-c: Sensitive Receptors	Less than significant, and no mitigation required; however, per requirements of ICAPCD, the standard mitigation measures would be implemented during construction and operation of the Project.	**MM AIR-1: Regulation VIII (Fugitive Dust Control Measures.** **MM AIR-2: Construction Equipment Control Measures** **MM AIR-3: Operational Dust Control Plan**	Less than significant

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
Biological Resources			
Impact 3.3-a: Habitat modifications, candidate, sensitive, or special status species	Potentially significant impact	**MM BR-1: Compensation for Permanent and Temporary Impacts to Vegetative Communities** To compensate for permanent and temporary impacts to on-site vegetative communities, within the Project Site, habitat (which may include preservation areas within portions of the Project Site not impacted by construction or mitigation lands outside of the main Project Site) that contains the same quality of vegetative communities impacted by the Project and that is not already public land shall be preserved and managed in perpetuity at the following ratios – temporary impacts to native vegetation communities shall be mitigated at a 1:1 mitigation ratio (one acre preserved/restored for each acre impacted) and permanent impacts shall be mitigated at a ratio of 2:1. Impacts to CDFW listed sensitive or riparian communities shall be mitigated at a ratio of 3:1. Land acquired/dedicated for impacts to native vegetation communities must be with lands occupied by habitat of a similar type and quality. Prior to the disturbance of vegetation, the Applicant shall obtain County approval of preserved and/or mitigation lands as well as documentation of a recorded conservation easement. The compensation for the loss of habitats may be achieved either by a) on-site habitat creation or enhancement habitats with similar species composition to those present prior to construction, b) off-site creation or enhancement of, or c) participation in an established mitigation bank program. Prior to the removal of native vegetation, if on- or off-site mitigation is required, a Habitat Restoration Plan (HRP) shall be prepared that will guide all restoration and monitoring activities (refer to MM BR-2 for details on the plan requirements). **MM BR-2: Develop a Habitat Restoration Plan** The Applicant shall restore temporarily disturbed areas to pre-construction conditions or better prior to the issuance of a grading permit and removal of any vegetation and/or wetland habitat. To this end, the Applicant shall retain a County qualified biologist, knowledgeable in the area(s) of annual grassland and wetland habitat restoration, to prepare a Habitat Restoration Plan (HRP). The Applicant shall submit the HRP to the County for approval (in consultation with CDFW and USFWS). The biologist will also be responsible for monitoring the implementation of the plan as well as the progress on achieving the established success criteria. The HRP shall expressly identify the process by which all disturbed areas shall be restored to pre-construction conditions or better. The plan will address restoration and revegetation related to disturbance from construction. It will also address restoration and revegetation required after decommissioning of the Project should this be	Less than significant

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		required. The decommissioning plan shall include, at a minimum, the following items: a) Figures depicting areas proposed for temporary disturbance/mitigation lands – The HRP shall include detailed figures indicating the locations and vegetation types of areas proposed for temporary disturbance. These figures shall be updated, as necessary, to reflect current Site conditions should they change. b) Proposed species for restoration/revegetation – The species palate proposed for restoration/revegetation shall include a combination of native annual and perennial species known to currently occur on the Project site and in adjacent habitats. c) Seed source and collection guidelines – Seeds shall first be collected from the stock of native plants occurring on the proposed Project site, during the appropriate collection period (late spring through the summer, depending on the species) and prior to disturbance from construction activities. Additional seed may be collected from stock within a 25-mile radius will be collected to maintain local genetic integrity. If seed collection from these areas is not possible then a seed source must be obtained from a local seed supplier familiar with native species. Seed will be limited to the species and quantity specified in the seed mix palette prepared for the Project. All seed will originate from the Project region, within +/- 1000 feet elevation of the Project site. The seed supplier chosen will provide a list of three references with the bid proposal. The references will include year, contact names, and telephone numbers. Seeds will be tested for percent purity, percent germination, number of pure live seeds per pound, and weed seed content. Seed testing will be the responsibility of the seed supplier. d) Planting methodology – A description of the preferred methods proposed for container plant installation or seeding shall be provided (e.g., hydroseeding, drill seeding, broadcast seeding, etc.). Additionally, a discussion on timing of seeding, type of irrigation system proposed, potential need of irrigation, type and duration of irrigation, and erosion controls proposed for revegetation activities shall be included. e) Invasive, non-native vegetation Control – A comprehensive discussion on weed control for the Project site will be developed and included in the HRP. This will serve to prevent the type conversion of natural habitats to those dominated by invasive species known to occur in the area.	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		f) Monitoring program – Areas subject to restoration/revegetation shall be monitored to assess conditions and to make recommendations for successful habitat establishment. Monitoring will be performed by a County qualified biologist(s), knowledge- able in the area of annual grassland habitat restoration. Monitoring should include, at a minimum, the following: 1. Qualitative Monitoring – Qualitative monitoring surveys will be performed monthly in all restored/revegetated areas for the first year following planting in any phase of the Project. Qualitative monitoring will be on a quarterly schedule thereafter, until final completion approval of each restoration/revegetation area. Qualitative surveys will assess native plant species performance, including growth and survival, germination success, reproduction, plant fitness and health as well as pest or invasive plant problems. A County qualified wildlife biologist will assist in monitoring surveys and will actively search for mammal and other wildlife use. Monitoring at this stage will indicate need for remediation or maintenance work well in advance of final success/failure determination. The monitoring reports will describe site progress and conditions and list all observations pertinent to eventual success, and make recommendations as appropriate reg. remedial work, maintenance, etc. 2. Quantitative Monitoring – Quantitative monitoring will occur annually for years one to five or until the success criteria are met. Within each revegetation area, as shown figures referenced above, the biologist will collect data in a series of 1 m2 quadrats to estimate cover and density of each plant species within the revegetated areas. Data will be used to measure native species growth performance, to estimate native and non-native species coverage, seed mix germination, native species recruitment and reproduction, and species diversity. Additionally, within wetland habitat restoration areas, the biologist shall conduct sampling events to document the presence of hydric soil characteristics/indicators (if present). Based on these results, the biologist will make recommendations for maintenance or remedial work on the site and for adjustments to the approved seed mix.	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		a) Success criteria – Criteria for successful restoration/revegetation of disturbed areas shall be provided. b) Reporting – Reporting will include progress reports summarizing site status and recommended remedial measures that will be submitted by the biologist to the County quarterly, with the exception of the site visits immediately preceding the development of each annual status report (see below). Each progress report will list estimated species coverage and diversity, species health and overall vigor, the establishment of volunteer native species, topographical/soils conditions, problem weed species, the use of the site by wildlife species, significant drought stress, and any recommended remedial measures deemed necessary to ensure compliance with specified performance criteria. One annual site status report that summarizes site conditions will be forwarded by the biologist to the County, the USFWS and the CDFW at the end of each year following implementation of this plan until the established success criteria have been met. Each annual report will list species coverage and diversity measured during yearly quantitative surveys, compliance/non-compliance with required performance standards, species health and overall vigor, the establishment of volunteer native species, hydrological and topographical conditions, the use of the site by wildlife species, and the presence of invasive weed species. In the event of substantial non-compliance with the required performance criteria, the reports will include remedial measures deemed necessary to ensure future compliance with specified performance criteria. Each annual report will include, at the minimum: 1. The name, title, and company of all persons involved in restoration monitoring and report preparation 2. Maps or aerials showing restoration areas, transect locations, and photo documentation locations. 3. An explanation of the methods used to perform the work, including the number of acres treated for removal of non-native plants 4. An assessment of the treatment success. **MM BR-3: Implement a Worker Environmental Education Program** Prior to any Project activities on the Site (i.e., surveying, mobilization, fencing, grading, or construction), a Worker Environmental Education Program (WEEP) shall be prepared and implemented by a qualified biologist(s). The	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		WEEP shall be submitted to the County for review and approval prior to issuance of construction permits and implemented throughout the duration of the construction activities. The WEEP shall be put into action prior to the beginning of any Site related activities, including but not limited to those activities listed above, and implemented throughout the duration of Project construction. The WEEP, shall include, at a minimum, the following items: a) Training materials and briefings shall include, but not be limited to a discussion of the Federal and State Endangered Species Acts, BGEPA, and the MBTA; the consequences of non-compliance with these acts; identification and values of plant and wildlife species and significant natural plant community habitats; hazardous substance spill prevention and containment measures; a contact person and phone number in the event of the discovery of dead or injured wildlife; and a review of mitigation requirements. b) A discussion of measures to be implemented for avoidance of the sensitive resources discussed above and the identification of an on-site contact in the event of the discovery of sensitive species on the Site. c) Protocols to be followed when roadkill is encountered in the work area or along access roads to minimize potential for additional mortality of scavengers, including listed species such as the California condor and the identification of an on-site representative to whom the roadkill will be reported. Roadkill shall be reported to the appropriate local animal control agency within 24 hours. d) Maps showing the known locations of special-status wildlife, populations of rare plants and sensitive vegetative communities, seasonal depressions and known waterbodies, wetland habitat, exclusion areas, and other construction limitations (e.g., limited operating periods, etc.). These features shall be included on the Project's plans and specifications drawings. e) Literature and photographs or illustrations of potentially occurring special-status plant and/or wildlife species will be provided to all Project contractors and heavy equipment operators. f) The Applicant shall provide to the County evidence that all on-site construction and security personnel have completed the WEEP prior to the start of Site mobilization. A special hardhat sticker or wallet size card shall be issued to all personnel completing the training, which shall be carried with the trained personnel at all times while on the Project Site. All new personnel shall receive this training and may work in the field for no more than five days	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		without participating in the WEEP. A log of all personnel who have completed the WEEP training shall be kept on Site. g) A weather protected bulletin board or binder shall be centrally placed or kept on-site (e.g., in the break room, construction foreman's vehicle, construction trailer, etc.) for the duration of the construction. This board or binder will provide key provisions of regulations or Project conditions as they relate to biological resources or as they apply to grading activities. This information shall be easily accessible for personnel in all active work areas. h) Develop a standalone version of the WEEP, that covers all previously discussed items above, and that can be used as a reference for maintenance personnel during Project operations. **MM BR-4: Implementation of Best Management Practices** BMPs will be implemented as standard operating procedures during all ground disturbance, construction, and operation related activities to avoid or minimize Project impacts on biological resources. These BMPs will include but are not limited to the following: a) Compliance with BMPs will be documented and provided to the County in a written report on an annual basis. The report shall include a summary of the construction activities completed, a review of the sensitive plants and wildlife encountered, a list of compliance actions and any remedial actions taken to correct the actions, and the status of ongoing mitigation efforts. b) Prior to ground disturbance of any kind the Project work areas shall be clearly delineated by stakes, flags, or other clearly identifiable system. c) Vehicles and equipment shall be parked on pavement, existing roads, and previously disturbed areas to the extent practicable. d) Speed limit signs, imposing a speed limit of 15 miles per hour, will be installed throughout the Project Site prior to initiation of Site disturbance and/or construction. To minimize disturbance of areas outside of the construction zone, all Project-related vehicle traffic shall be restricted to established roads, construction areas, and other designated areas. These areas will be included in preconstruction surveys and to the extent possible, should be established in locations disturbed by previous activities to prevent further impacts. Off-road traffic outside of designated Project areas will be prohibited. e) No vehicles or equipment shall be refueled within 100 feet of an ephemeral drainage or wetland unless a bermed and lined refueling area is	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		constructed. Spill kits shall be maintained on-site in sufficient quantity to accommodate at least three complete vehicle tank failures of 50 gallons each. Any vehicles driven and/or operated within or adjacent to drainages or wetlands shall be checked and maintained daily to prevent leaks of materials. f) All general trash, food-related trash items (e.g., wrappers, cans, bottles, food scraps, cigarettes, etc.) and other human-generated debris will be stored in animal proof containers and/or removed from the Site each day. No deliberate feeding of wildlife will be allowed. g) All pipes and culverts with a diameter of greater than 4 inches shall be capped or taped closed. Prior to capping or taping the pipe/culvert shall be inspected for the presence of wildlife. If encountered the wildlife shall be allowed to escape unimpeded. h) No firearms will be allowed on the Project Site, unless otherwise approved for security personnel. i) To prevent harassment or mortality of listed, special-status species and common wildlife, or destruction of their habitats no domesticated animals of any kind shall be permitted in any Project area. j) Use of chemicals, fuels, lubricants, or biocides will comply with all local, state, and federal regulations. All uses of such compounds shall observe label and other restrictions mandated by the U.S. EPA, California Department of Food and Agriculture, and other state and federal legislation, as well as additional Project-related restrictions deemed necessary by the USFWS and CDFW. Use of rodenticides is restricted. k) Any contractor or employee that inadvertently kills or injures a special-status animal, or finds one either dead, injured, or entrapped, will immediately report the incident to the on-site representative identified in the WEEP. The representative will contact the USFWS, CDFW, and County by telephone by the end of the day, or at the beginning of the next working day if the agency office is closed. In addition, formal notification shall be provided in writing within three working days of the incident or finding. Notification will include the date, time, location, and circumstances of the incident. Any threatened or endangered species found dead or injured will be turned over immediately to CDFW for care, analysis, or disposition. l) During the Site disturbance and/or construction phase, grading and construction activities before dawn and after dusk, is prohibited.	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		m) Avoidance and minimization of vegetation removal within active construction areas, including the flagging of sensitive vegetative communities or plants. n) Avoidance and minimization of construction activities resulting in impacts to wetlands, streambeds, and banks of any ephemeral drainage unless permitted to do so. o) All excavation, steep-walled holes, or trenches in excess of 6 inches in depth will be covered at the close of each working day by plywood or similar materials or provided with one or more escape ramps constructed of earth dirt fill or wooden planks. Trenches will also be inspected for entrapped wildlife each morning prior to onset of construction activities and immediately prior to covering with plywood at the end of each working day. Before such holes or trenches are filled, they will be thoroughly inspected for entrapped wildlife. Any wildlife discovered will be allowed to escape before construction activities are allowed to resume or removed from the trench or hole by a qualified biologist holding the appropriate permits (if required). p) New light sources will be minimized, and lighting will be designed (e.g., using down- cast lights) to limit the lighted area to the minimum necessary. **MM BR-5: Wildlife Pre-Construction Surveys and Biological Monitoring** Prior to ground disturbance or vegetation clearing within the Project Site, a qualified biologist shall conduct surveys for wildlife (no more than 72 hours prior to Site disturbing activities) where suitable habitat is present and directly impacted by construction activities. Wildlife found within the Project Site or in areas potentially affected by the Project will be relocated to the nearest suitable habitat that will not be affected by the Project prior to the start of construction. Special-status species found within a Project impact area shall be relocated by an authorized biologist to suitable habitat outside the impact area. **MM BR-6: Implement Biological Construction Monitoring** Prior to the commencement of ground disturbance or Site mobilization activities the Applicant shall retain a qualified biologist(s), for the duration of Project construction, with demonstrated expertise with listed and/or special-status plants, terrestrial mammals, and reptiles to monitor(s), on a daily basis, all construction activities. The qualified biologist(s) shall be present at all times during ground-disturbing activities immediately adjacent to, or within, habitat that supports populations of the listed or special-status species identified within the Project boundaries. Any listed or special-status plants shall be flagged for avoidance. Any special-status terrestrial species found within a Project impact area shall be relocated by the	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		authorized biologist and relocated to suitable habitat outside the impact area. If the installation of exclusion fencing is deemed necessary by the authorized biologist, the authorized biologist shall direct the installation of the fence. Clearance surveys for special-status species shall be conducted by the authorized biologist prior to the initiation of construction each day. If the biological monitor observes a dead or injured listed or special-status wildlife species on the construction Site during construction, a written report shall be sent to the County, CDFW and/or USFWS within five calendar days. The report will include the date, time of the finding or incident (if known), and location of the carcass and circumstances of its death (if known). The biological monitor shall, immediately upon finding the remains, coordinate with the on-site construction foreman to discuss the events that caused the mortality (if known), and implement measures to prevent future incidents. Details of these measures shall be included with the report. Species remains shall be collected and frozen as soon as possible, and CDFW and/or USFWS shall be contacted regarding ultimate disposal of the remains. **MM BR-7: Conduct Pre-construction Surveys for Nesting and Breeding Birds and Implementation of Avoidance Measures** Prior to any Site disturbance (i.e., mobilization, staging, grading or construction), the Applicant shall retain a qualified biologist(s) to conduct pre-construction surveys for nesting birds within the recognized breeding season (generally February 15 – September 15 but may start earlier for some raptor species) in all areas within 500 feet of Project components (staging areas, substation sites, battery facility structures including, solar arrays, and access road locations). The required survey dates may be modified based on local conditions, as determined by the qualified biologist(s), with the approval of the County, in consultation with the USFWS and/or CDFW. Measures intended to exclude nesting birds shall not be implemented without prior approval by the County in consultation with USFWS and/or CDFW and shall not exceed County noise standards. If breeding birds with active nests are found prior to or during construction, a biological monitor shall establish a 300-foot buffer around the nest for ground-based construction activities and no activities will be allowed within the buffer(s) until the young have fledged from the nest or the nest fails. The prescribed buffers may be adjusted to reflect existing conditions including ambient noise, topography, and disturbance with the approval of the County, CDFW and USFWS as appropriate. The biological monitor(s) shall conduct regular monitoring of the nest to determine success/failure and to help ensure that Project activities are not conducted within the buffer(s) until the nesting cycle is complete or the nest fails. The biological monitor(s) shall be responsible for documenting the	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		results of the surveys and ongoing monitoring and will provide a copy of the monitoring reports for impact areas to the respective agencies. If for any reason a bird nest must be removed during the nesting season, the Applicant shall provide written documentation providing concurrence from the USFWS and CDFW authorizing the nest relocation. Additionally, the Applicant shall provide a written report documenting the relocation efforts. The report shall include what actions were taken to avoid moving the nest, the location of the nest, what species is being relocated, the number and condition of the eggs taken from the nest, the location of where the eggs are incubated, the survival rate, the location of the nests where the chicks are relocated, and whether the birds were accepted by the adopted parent. Surveys shall be conducted to include all structural components, related structures, as well as all construction equipment. If birds are found to be nesting in facility structures, buffers as described above shall be implemented. If birds are found to be nesting in construction equipment, that equipment shall not be used until the young have fledged the nest or, if no young are present, until after the breeding season has passed. If trees are to be removed as part of Project-related construction activities, they will be done so outside of the nesting season to avoid additional impacts to nesting raptors. If removal during the nesting season cannot be avoided, the biological monitor must confirm that the nest is vacant prior to its removal. If nests are found within these structures and contain eggs or young, the biological monitor shall allow no activities within a 300-foot buffer for nesting birds and/or a 500-foot buffer for raptors until the young have fledged the nest. **MM BR-8: Implement Avian Power Line Interaction Committee guidelines** The Applicant will be required to construct all transmission facilities, towers, poles, and lines in accordance with and comply with all policies set forth in the Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006 and Reducing Avian Collisions with Power Lines: The State of the Art in 2012 (APLIC), to minimize avian electrocutions as a result of the construction of the Project. Details of design components shall be indicated on all construction plans and measures to comply with Avian Power Line Interaction Committee (APLIC) policies and guidelines shall be detailed in a separate attachment, all of which will be submitted with the construction permit application. The Applicant shall be required to monitor for new versions of the APLIC guidelines and update designs or implement new measures as needed during Project construction, provided these actions do not require the purchase of previously ordered transmission line structures. A review of compliance with submitted materials will be conducted prior to the final County inspection.	

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		MM BR-9: Conduct Pre-construction Surveys for State and Federally Threatened, Endangered, Proposed, Petitioned, and Candidate Plants and Implementation of Avoidance Measures Prior to initial ground disturbance and for undisturbed areas in subsequent construction years, the Applicant shall conduct pre- construction surveys for State and federally listed Threatened and Endangered, Proposed, Petitioned, and Candidate plants in all areas subject to ground-disturbing activity, including, but not limited to, battery facility structures including, access roads, poles/towers, solar array footing preparation, construction areas, and assembly yards. The surveys shall be conducted during the appropriate blooming period(s) by a qualified plant ecologist/biologist according to protocols established by the USFWS, CDFW, and CNPS. All listed plant species found shall be marked and avoided. Any populations of special-status plants found during surveys will be fully described, mapped, and a CNPS Field Survey Form or written equivalent shall be prepared. These surveys must be accomplished during a year in which rainfall totals are at least 80 percent of average and in which the temporal distribution of rainfall is not highly abnormal (e.g., with most rainfall occurring very early or late in the season) to be reasonably certain of the presence/absence of rare plant species, unless surveys of reference populations document that precipitation conditions would not have adversely affected the ability to detect the species. This condition may be waived with the approval of the County after consultation with the CDFW and USFWS. If a listed plant species cannot be avoided, consultation with USFWS and CDFW will occur. Prior to Site grading or vegetation removal, any populations of listed plant species identified during the surveys within the Project limits and beyond, shall be protected and a buffer zone placed around each population. The buffer zone shall be established around these areas and shall be of sufficient size to eliminate potential disturbance to the plants from human activity and any other potential sources of disturbance including human trampling, erosion, and dust. The size of the buffer depends upon the proposed use of the immediately adjacent lands and includes consideration of the plant's ecological requirements (e.g., sunlight, moisture, shade tolerance, physical and chemical characteristics of soils) that are identified by a qualified plant ecologist and/or botanist. The buffer for herbaceous and shrub species shall be, at minimum, 50 feet from the perimeter of the population or the individual. A smaller buffer may be established, provided there are adequate measures in place to avoid the take of the species, with the approval of the USFWS, CDFW, and County. Where impacts to listed plants are determined to be unavoidable, the USFWS and/or CDFW shall be consulted for authorization. Additional mitigation measures to protect or restore listed plant species or their	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		habitat, including but not limited to a salvage plan including seed collection and replanting, may be required by the USFWS or CDFW before impacts are authorized, whichever is appropriate. **MM BR-10: Compensate for Impacts to State and Federally Threatened, Endangered, Proposed, Petitioned, and Candidate Plants** To compensate for permanent impacts to State and Federally Threatened, Endangered, Proposed, Petitioned and Candidate plants, habitat (which may include preservation areas within the undisturbed areas of the Project footprint, mitigation lands outside of the main Project Site or a combination of both) that is not already public land shall be preserved and managed in perpetuity at a 1:1 mitigation ratio (one acre preserved for each acre impacted). Prior to the disturbance of habitat for or take of listed plant species the Applicant will be required to obtain County approval of preserved and/or mitigation lands as well as provide documentation of a recorded conservation easement(s). Compensation for temporary impacts shall include land acquisition and/or preservation at a 0.5:1 ratio. The preserved habitat for a significantly impacted plant species shall be of equal or greater habitat quality to the impacted areas in terms of soil features, extent of disturbance, vegetation structure, and will contain verified extant populations, of the same size or greater, of the State or Federally listed plants that are impacted. Habitat shall be preserved through the use of permanent open space easements. Mitigation lands cannot be located on land that is currently held publicly. Mitigation lands may include (depending on the habitat requirements of particular species): • Areas outside the Project boundary, but within the general Project region • Preservation areas within portions of the Project Site that are at least 100 feet from Project components and are either (1) not permanently impacted by construction and operation of the Project, or (2) temporarily disturbed and then restored according to the requirements in Mitigation Measure BR-2; and • Degraded areas (e.g., areas that have been actively dry-farmed) that are restored to high quality habitat through the implementation of a County-approved restoration plan. Criteria for appropriate mitigation land are species-specific; the following factors must be considered in assessing the quality of potential mitigation habitat: (1) Current land use; (2) Location (e.g., habitat corridor, part of a large block of existing habitat, adjacency to source populations, proximity to Project facilities or other potential sources of disturbance); (3) Vegetation composition and structure; (4) Slope; (5) Soil composition and drainage; and (6) Level of occupancy or use by relevant species.	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		The Applicant shall either provide open space easements or provide funds for the acquisition of such easements to a “qualified easement holder” (defined below). The CDFW is a qualified easement holder. To qualify as a “qualified easement holder” a private land trust must have the following: • Substantial experience managing open space easements that are created to meet mitigation requirements for impacts to sensitive species • Adopted the Land Trust Alliance’s Standards and Practices • A stewardship endowment fund to pay for its perpetual stewardship obligations The County shall determine whether a proposed easement holder meets these requirements. The Applicant shall also be responsible for donating to the conservation easement holder fees sufficient to cover: (1) Administrative costs incurred in the creation of the conservation easement (appraisal, documenting baseline conditions, etc.) and (2) Funds in the form of a non-wasting endowment to cover the cost of monitoring and enforcing the terms of the conservation easement in perpetuity. The amount of these administrative and stewardship fees shall be determined by the conservation easement holder in consultation with the County. Open space easement(s) shall also be subject to the following conditions: • The locations of acceptable easement(s) shall be developed with approval of CDFW and USFWS. • The primary purpose of the easement(s) shall be conservation of impacted species and habitats, but the conservation easement(s) shall also allow livestock grazing when and where it is deemed beneficial for the habitat needs of impacted species. Open space easement(s) shall: • Be held in perpetuity by a qualified easement holder (defined above). • Be subject to a legally binding agreement that shall: (1) Be recorded with the County Recorder(s); and (2) Name CDFW or another organization to which the easement(s) will be conveyed if the original holder is dissolved. • Be subject to the management requirements outlined in Mitigation Measure BR-2. However, if lands acquired or protected for the compensation of permanent impacts to wildlife and/or vegetative communities (discussed above) contain similar sized populations of the impacted listed plant species, no further mitigation would be required.	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		MM BR-11: Conduct Pre-construction Surveys for Special-Status Plants and Implement Avoidance Measures Prior to initial ground disturbance and for undisturbed areas in subsequent construction years, the Applicant shall conduct pre-construction surveys for special-status plant species in all areas subject to ground-disturbing activity, including, but not limited to, battery facility structures including, access roads, poles/towers, construction areas, and assembly yards. The surveys shall be conducted during the appropriate blooming period(s) by a qualified plant ecologist/biologist according to protocols established by the USFWS, CDFW, and CNPS. All listed plant species found shall be marked and avoided. Any populations of special-status plants found during surveys will be fully described, mapped, and a CNPS Field Survey Form or written equivalent shall be prepared. These surveys must be accomplished during a year in which rainfall totals are at least 80 percent of average and in which the temporal distribution of rainfall is not highly abnormal (e.g., with most of the rainfall occurring very early or late in the season) to be reasonably certain of the presence/absence of rare plant species, unless surveys of reference populations document that precipitation conditions would not have adversely affected the detectability of the species. Prior to Site grading, any populations of special-status plant species identified during the surveys shall be protected by a buffer zone. The buffer zone shall be established around these areas and shall be of sufficient size to eliminate potential disturbance to the plants from human activity and any other potential sources of disturbance including human trampling, erosion, and dust. The size of the buffer depends upon the proposed use of the immediately adjacent lands and includes consideration of the plant's ecological requirements (e.g., sunlight, moisture, shade tolerance, physical and chemical characteristics of soils) that are identified by a qualified plant ecologist and/or botanist. The buffer for herbaceous and shrub species shall be, at minimum, 50 feet from the perimeter of the population or the individual. A smaller buffer may be established, provided there are adequate measures in place to avoid the take of the species, with the approval of the USFWS, CDFW, and County. Highly visible flagging shall be placed along the buffer area and remain in good working order during the duration of any construction activities in the area. If Project related impacts result in the loss of more than 10 percent of the on-site population of any Special-Status plant species, compensatory mitigation will be required as described below. **MM BR-12: Compensate for Impacts to Special-Status Plant Species** If Project related impacts result in the loss of more than 10 percent of the on-site population of any Special-Status	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		plant species, compensatory mitigation will be required. Prior to the disturbance of habitat for or take of Special-Status plants/populations the Applicant must receive County approval of preserved and/or mitigation lands as well as present documentation of a recorded conservation easement(s). Compensation will be required for all impacts that exceed the 10 percent threshold (e.g., impacts to 15 percent of a population will only require compensation for 5 percent or the amount of impacts that exceed the 10 percent threshold). To compensate for permanent impacts to special-status plant species, habitat (which may include preservation of areas within the undisturbed areas of the Project footprint, mitigation lands outside of the main Project Site or a combination of both) that is not already public land shall be preserved and managed in perpetuity at a 1:1 mitigation ratio (one acre preserved for each acre impacted). Compensation for temporary impacts shall include land acquisition and/or preservation at a 0.5:1 ratio. The preserved habitat for a significantly impacted plant species shall be of equal or greater habitat quality to the impacted areas in terms of soil features, extent of disturbance, vegetation structure, and will contain verified extant populations, of the same size or greater, of the special-status plants that are impacted. Impacts could include direct impacts resulting from loss of habitat or indirect impacts if a significant population or portion thereof is unable to be avoided. Habitat shall be preserved by using permanent open space easements. Mitigation lands cannot be located on land that is currently publicly held. Mitigation lands may include (depending on the habitat requirements of particular species) the following: • Areas outside the Project boundary, but within the County • Preservation areas within portions of the Project Site that are at least 100 feet from Project facilities and are either (1) not permanently impacted by construction and operation of the Project, or (2) are temporarily disturbed and then restored according to the requirements in Mitigation Measure BR-2 • Criteria for appropriate mitigation land are species-specific; however, the following factors must be considered in assessing the quality of potential mitigation habitat: (1) Current land use; (2) Location (e.g., habitat corridor, part of a large block of existing habitat, adjacency to source populations, proximity to Project facilities or other potential sources of disturbance); (3) Vegetation composition and structure; (4) Slope; (5) Soil composition and drainage; and (6) Level of occupancy or use by relevant species The Applicant shall either provide open space easements or provide funds for the acquisition of open space easements to a “qualified easement holder” (defined	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		below). CDFW is a qualified easement holder. To qualify as a "qualified easement holder" a private land trust must have the following: • Substantial experience managing open space easements that are created to meet mitigation requirements for impacts to special status species • Adopted the Land Trust Alliance's Standards and Practices • A stewardship endowment fund to pay for its perpetual stewardship obligations The County shall determine whether a proposed easement holder meets these requirements. The County shall determine whether a proposed easement holder meets these requirements. The Applicant shall also be responsible for donating to the easement holder fees sufficient to cover: (1) Administrative costs incurred in the creation of the easement (appraisal, documenting baseline conditions, etc.) and (2) Funds in the form of a non-wasting endowment to cover the cost of monitoring and enforcing the terms of the easement in perpetuity. The amount of these administrative and stewardship fees shall be determined by the easement holder in consultation with the County. Open space easement(s) shall also be subject to the following conditions: • The locations of acceptable easement(s) shall be developed with approval of CDFW and USFWS • The primary purpose of the easement(s) shall be conservation of impacted species and habitats, but the easement(s) shall also allow livestock grazing when and where it is deemed beneficial for the habitat needs of impacted species Open space easement(s) shall: • Be held in perpetuity by a qualified easement holder (defined above) • Be subject to a legally binding agreement that shall: (1) Be recorded with the County Recorder(s); and (2) Name CDFW or another organization to which the easement(s) will be conveyed if the original holder is dissolved • Be subject to the management requirements outlined in Mitigation Measure BR-2 If lands acquired or protected for the compensation of permanent impacts to wildlife and/or vegetative communities contain similar sized populations of the impacted special-status plant species, of equal or greater habitat value, these mitigation lands may be used to achieve the required compensation ratios for special-status plant species.	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		MM BR-13: Complete Focused Pre-Construction Surveys for American Badger Surveys and Implementation of Avoidance Measures No more than 30 days prior to the commencement of construction activities, the Applicant shall retain a qualified biologist to conduct pre-construction surveys for American badger within suitable habitat on the Project Site. If present, occupied badger dens shall be flagged and ground-disturbing activities avoided within 50 feet of the occupied den. Maternity dens shall be avoided during pup-rearing season (15 February through 1 July) and a minimum 200-foot buffer established. The extent of buffers shall be flagged in the field utilizing a method highly visible by construction crews. Buffers may be modified with the concurrence of the CDFW. Maternity dens shall be flagged for avoidance, identified on construction maps, and a biological monitor shall be present during construction to monitor for adequate protection of all identified dens and to help ensure that all flagging is kept in good working order. If avoidance of a non-maternity den (impacts to maternity dens is not allowed) is not feasible, badgers shall be relocated by slowly excavating the burrow (either by hand or mechanized equipment under the direct supervision of the biologist, removing no more than 4 inches at a time) before or after the rearing season (15 February through 1 July). Any passive relocation of badgers shall occur only after consultation with the CDFW and the biological monitor. Prior to the final County inspection or occupancy, whichever comes first, a written report documenting all badger related activities (e.g., den flagging, monitoring, badger removal, etc.) shall be provided to the County. A copy of the report will also be provided to the CDFW. **MM BR-14: Pre-Construction Surveys and Avoidance/Relocation Measures for Flat-tailed Horned Lizard** Focused pre-construction surveys shall be conducted for flat-tailed horned lizard. During construction, areas of active surface disturbance shall be surveyed periodically, at least hourly, when surface temperatures exceed 29°C (85°F) for the presence of flat-tailed horned lizard. Flat-tailed horned lizards would be removed from harm's way during construction activities by the on-site biological monitor(s). To the extent feasible, methods to find flat-tailed horned lizards would be designed to achieve a maximal capture rate and would include, but not be limited to using strip transects, tracking, and raking around shrubs. During construction, the minimum survey effort would be 30 minutes per 0.40 hectare (one acre). Persons that handle flat-tailed horned lizards would first obtain all necessary permits and authorization from the CDFW. A Horned Lizard Observation Data Sheet and a Project Reporting Form, per Appendix 8 of the Rangewide Management Strategy, would also need to be completed. During construction, quarterly reports describing flat-tailed	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		horned lizards removal activity would be submitted to the USFWS, CDFW, and the County. The removal of flat-tailed horned lizard out of harm's way would include relocation to nearby suitable habitat in low-impact areas of the Yuba Management Area, which is located to the west and south of the Project Site. Relocated flat-tailed horned lizards would be placed in the shade of a large shrub in undisturbed habitat. If surface temperatures in the sun are less than 24°C (75°F) or exceed 38°C (100°F), a qualified biologist, if authorized, would hold the flat- tailed horned lizard for later release. Initially, captured flat-tailed horned lizards would be held in a cloth bag, cooler, or other appropriate clean, dry container from which the lizard cannot escape. Lizards would be held at temperatures between 75°F and 90°F and would not be exposed to direct sunlight. Release would occur as soon as possible after capture and during daylight hours. The qualified biologist would be allowed some judgment and discretion when relocating lizards to maximize survival of flat-tailed horned lizards found in the Project area. • To the maximum extent practicable, grading in flat-tailed horned lizard habitat would be conducted during the active season, which is defined as March 1 through September 30, or when ground temperatures are between 24°C (75°F) and 38°C (100°F). If grading cannot be conducted during this time, any flat-tailed horned lizards found would be removed to low-impact areas (see above) where suitable burrowing habitat exists, (e.g., sandy substrates and shrub cover). **MM BR-15: Compensation for Impacts to Flat-Tailed Horned Lizard** Pursuant to Title 43 CFR and the Federal Land Policy and Management Act of 1976, federal land management agencies may permit actions that result in flat-tailed horned lizard habitat loss on their lands; however, for losses both within and outside the Management Areas, compensation is charged if residual effects would occur after all reasonable on-site mitigation has been applied. The goal of compensation is to prevent the net loss of flat-tailed horned lizard habitat and make the net effect of a project neutral or positive to flat-tailed horned lizards by maintaining a habitat base for flat-tailed horned lizards. To achieve this goal, compensation will be based on the acreage of flat-tailed horned lizard habitat lost after all reasonable on-site mitigation has been applied at a 1:1 ratio for habitat lost outside a flat-tailed horned lizard Management Area. For this Project, compensation will be required for a loss of approximately 54 acres of flat-tailed horned lizard habitat.	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		MM BR-16: Develop a Habitat Mitigation and Monitoring Plan To help ensure the success of on-site preserved land and acquired mitigation lands, required for compensation of permanent impacts to vegetative communities and listed or special-status plants and wildlife, the Applicant shall retain a qualified biologist to prepare a Habitat Monitoring and Mitigation Plan (HMMP). The HMMP will be submitted to the County for approval, prior to the issuance of a construction permit. Prior to the final County inspection final impact acreages must be presented to the County and acquisition of off-site lands must be verified. The HMMP will include, at a minimum, the following information: a) Summary of anticipated habitat impacts and the proposed mitigation. b) Detailed description of the location and boundaries of undisturbed Project areas proposed for preservation, off-site mitigation lands and a description of existing site-wide conditions. The HMMP shall include detailed analysis showing that the mitigation lands meet the performance criteria outlined in MM BR-2 (Develop a Habitat Restoration Plan) and MM BR-15 (Compensate for Impacts to Flat-Tailed Horned Lizard). c) Discussion of measures to be undertaken to enhance (e.g., through focused management) the on-site preserved habitat and off-site mitigation lands for listed and special-status species. d) Description of management and maintenance measures (e.g., vegetation management, fencing maintenance, etc.). e) Discussion of habitat and species monitoring measures for on-site preservation areas and off-site mitigation lands, including specific, objectives, performance criteria, monitoring methods, data analysis, reporting requirements, monitoring schedule, etc. f) Development of a monitoring strategy for the monitoring of indirect impacts to vegetation and wildlife from alteration to the solar and hydric regimes as a result of Project facilities. g) Development of a monitoring strategy, which shall serve to document the persistence of flat-tailed horned lizard populations within the Project Site and on mitigation lands. This monitoring will be conducted for a minimum of 5 years after the completion of construction activities. The strategy should include, at the minimum, the following: h) Documentation of pre-Project population levels for the species noted above, based on results of	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		focused pre-construction surveys and previously supplied Applicant data. i) On-going monitoring of species populations upon completion of construction activities, while the Project is in operation, for a minimum of three years. j) Monitoring of reference populations for this species in areas that contain undisturbed habitat, such as the Yuba Management Area. k) An analysis of the comparison of percent changes in population levels at the Project and reference sites to be used in the determination of additional compensatory mitigation. l) The applicant shall prepare a contingency plan for mitigation elements that do not meet performance or final success criteria within 5 years. This plan will include specific triggers for remediation if performance criteria are not being met and a description of the process by which remediation of problems with the mitigation site (e.g., presence of noxious weeds) will occur. **MM BR-17: Burrowing Owl Protection Measures** The following measures shall be implemented during Project construction, operation, and decommissioning with respect to burrowing owls: • A qualified biologist(s) shall be on-site during all construction activities in suitable burrowing owl habitat. A qualified biologist (i.e., a biologist with previous burrowing owl survey experience) shall conduct pre-construction clearance surveys of the permanent and temporary impact areas to locate active breeding or wintering burrowing owl burrows no more than 14 days prior to construction. The survey methodology shall be consistent with the methods outlined in the CDFG Staff Report (CDFG 2012). Copies of the survey results shall be submitted to CDFW and the County. • If no burrowing owls are detected, no further mitigation is necessary. If burrowing owls are detected, no ground-disturbing activities, such as road construction or facility construction, shall be permitted except in accordance with the staff report or by written authorization of CDFW staff. Burrowing owls shall not be excluded from burrows unless or until a Burrowing Owl Exclusion Plan is developed by the lead biologist and approved by the applicable local CDFW office and submitted to the County. The plan shall adhere to the requirements set forth in the Burrowing Owl Mitigation Staff Report (CDFW 2012). • In accordance with the Burrowing Owl Exclusion Plan, a qualified biologist shall excavate burrows	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		using hand tools. Sections of flexible plastic pipe or burlap bag shall be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow. One-way doors shall be installed at the entrance to the active burrow and other potentially active burrows within 160 feet of the active burrow. Forty-eight hours after the installation of the one-way doors, the doors can be removed, and ground-disturbing activities can proceed. Alternatively, burrows can be filled to prevent reoccupation. • During construction activities, monthly and final compliance reports shall be provided to CDFW, the County, and other applicable resource agencies documenting the effectiveness of mitigation measures and the level of burrowing owl take associated with the Project. **MM BR-18: Compensation for Impacts to Burrowing Owl** Should burrowing owls be found on-site, compensatory mitigation for lost breeding or wintering habitat shall be implemented on-site or off-site in accordance with Burrowing Owl Mitigation Staff Report guidance and in consultation with CDFW. At a minimum, the following recommendations shall be implemented: • Temporarily disturbed habitat shall be restored, if feasible, to pre-Project conditions, including decompaction soil and revegetating. • Permanent impacts to nesting, occupied and satellite burrows, and burrowing owl habitat shall be mitigated such that the habitat acreage, number of burrows, and burrowing owl impacted are replaced at a 1:1 ratio based on a site-specific analysis that shall include the following: • Permanent conservation of similar vegetation communities to provide for burrowing owl nesting, foraging, wintering, and dispersal (i.e., during breeding and nonbreeding seasons) comparable to or better than that of the impact area, and with sufficiently large acreage, and presence of fossorial mammals. • Permanently protect mitigation lands through a conservation easement deeded to a nonprofit conservation organization or public agency with a conservation mission. If the Project is located within the service area of a CDFW-approved burrowing owl conservation bank, the applicant may purchase available burrowing owl conservation bank. If the acquired lands or mitigation credits for other wildlife species or vegetation communities can be managed to support burrowing owl, the proposed mitigation lands	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		could be aggregated so that the purchase of mitigation lands for one species could cover all or a portion of the mitigation requirements for the remaining species. Mitigation lands shall not already be public land.	
Impact 3.4-b: Riparian habitat or other sensitive natural community	Potentially significant impact	**MM BR-2: Develop a Habitat Restoration Plan** **MM BR-3: Implement a Worker Environmental Education Program** **MM BR-4: Implementation of Best Management Practices** **MM BR-5: Wildlife Pre-Construction Surveys and Biological Monitoring** **MM BR-6: Implement Biological Construction Monitoring** **MM BR-16: Develop a Habitat Mitigation and Monitoring Plan**	Less than significant
Impact 3.4-c: State or federally protected wetlands	Potentially significant impact	**MM BR-2: Develop a Habitat Restoration Plan** **MM BR-3: Implement a Worker Environmental Education Program** **MM BR-4: Implementation of Best Management Practices** **MM BR-5: Wildlife Pre-Construction Surveys and Biological Monitoring** **MM BR-6: Implement Biological Construction Monitoring** **MM BR-16: Develop a Habitat Mitigation and Monitoring Plan**	Less than significant
Geology and Soils			
Impact 3.5-a: Substantial soil erosion or loss of topsoil	Potentially significant impact	**MM HYD-1: Prepare Stormwater Pollution Prevention Plan and Implement Best Management Practices** Prior to issuance of any grading permit, the Project applicant or its contractor shall prepare a Project-specific SWPPP and be responsible for securing coverage under SWRCB's NPDES stormwater permit for general construction activity (Order 2009-0009-DWQ). The SWPPP shall detail the treatment measures and BMPs to control pollutants that shall be implemented and complied with during both the construction and decommissioning of the Project. Example BMPs may include but not limited to the following practices: • Designation of restricted-entry zones, • Sediment tracking control measures (e.g., crushed stone or riffle metal plate at construction entrance), • Truck washdown areas, • Diversion of runoff away from disturbed areas, • Protective measures for sensitive areas, outlet protection,	Less than significant

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		• Provision mulching for soil stabilization during construction, and provision for revegetation upon completion of construction within a given area, • Treatment measures to trap sediment once it has been mobilized, such as straw bale barriers, straw mulching, fiber rolls and wattles, silt fencing, and siltation or sediment ponds.	
Impact 3.5-e: Destroy unique paleontological resource or site or unique geological feature	Potentially significant impact	**GEO-1: Inadvertent Discovery** In the event that unanticipated paleontological resources or unique geologic resources are encountered during ground-disturbing activities, work must cease within 50 feet of the discovery and a paleontologist shall be hired to assess the scientific significance of the find. The consulting paleontologist shall have knowledge of local paleontology and the minimum levels of experience and expertise as defined by the Society of Vertebrate Paleontology's Standard Procedures (2010) for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. If any paleontological resources or unique geologic features are found within the Project Site, the consulting paleontologist shall prepare a paleontological Treatment and Monitoring Plan to include the methods that will be used to protect paleontological resources that may exist within the Site, as well as procedures for monitoring, fossil preparation and identification, curation of specimens into an accredited repository, and preparation of a report at the conclusion of the monitoring program.	Less than significant
Greenhouse Gases			
	Less than significant	No mitigation measures are warranted.	Not applicable
Hazards and Hazardous Materials			
Impact 3.7-a: Routine transport, use, or disposal of hazardous materials	Potentially significant impact	**MM AIR-1: Regulation VIII (Fugitive Dust Control Measures)** **MM HYD-1: Prepare Stormwater Pollution Prevent Plan and Implement Best Management Practices**	Less than significant
Hydrology and Water Quality			
Impact 3.8-a: Violate water quality standards	Potentially significant impact	**MM HYD-1: Prepare Stormwater Pollution Prevent Plan and Implement Best Management Practices** Prior to issuance of any grading permit, the Applicant or its contractor shall prepare a Project-specific SWPPP and be responsible for securing coverage under SWRCB's NPDES stormwater permit for general construction activity (Order 2009-0009-DWQ). The SWPPP shall detail the treatment measures and BMPs to control pollutants that shall be implemented and complied with during both the construction and decommissioning of the Project. Example BMPs may include but are not limited to the following practices: • Designation of restricted-entry zones	Less than significant

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		• Sediment tracking control measures (e.g., crushed stone or riffle metal plate at construction entrance) • Truck washdown areas • Diversion of runoff away from disturbed areas • Protective measures for sensitive areas, outlet protection • Provision mulching for soil stabilization during construction, and provision for revegetation upon completion of construction within a given area • Treatment measures to trap sediment once it has been mobilized, such as straw bale barriers, straw mulching, fiber rolls and wattles, silt fencing, and siltation or sediment ponds **MM HYD-2: Final Project Drainage Plan** Prior to issuance of any grading permit, the applicant shall submit a Final Project Drainage Plan. The Drainage Plan shall adhere to the County's Engineering Guidelines Manual, IID "Draft" Hydrology Manual, or other recognized source with approval by the County Engineer to control and manage the discharge of stormwater to the proposed retention basins. Retention basins shall be integrated into the Drainage Plan to the maximum extent practical. The Drainage Plan shall provide both short- and long-term drainage solutions to ensure the proper sequencing of drainage facilities and management of runoff generated from the Project's impervious surfaces, as necessary.	
Impact 3.8-b: Erosion or siltation, flooding, or runoff on-site or off-site	Potentially significant impact	**MM HYD-1: Prepare Stormwater Pollution Prevention Plan and Implement Best Management Practices** **MM HYD-2: Final Project Drainage Plan**	Less than significant
Land Use and Planning			
	Less than significant	No mitigation measures are warranted.	Not applicable
Tribal Cultural Resources			
Impact 3.10-a: Cause a substantial change in the significance of a tribal cultural resource	Potentially significant impact	**MM CULT–1: Workers Environmental Awareness Program** A qualified archaeologist shall be retained to prepare a cultural resource focused Workers Environmental Awareness Program (WEAP) training that shall be given to all ground disturbing construction personnel to minimize harm to undiscovered archaeological resources or potential tribal resources that may be discovered during construction. All Site workers shall be required to complete WEAP Training with a focus on cultural resources, including education on the consequences of unauthorized collection of artifacts and that reviews discovery protocol. WEAP training shall also explain the protocol for notification, and requirements to retain a qualified archaeologist to evaluate any unexpected finds,	Less than significant

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance after Mitigation
		as well as protocols regarding notification of tribal representatives. **MM CULT-2: Continued Consultation with the San Pasqual Band of Mission Indians** If no other responses to Imperial County's invitation to consult on the Project are received, prior to construction, the County shall continue consultation with the San Pasqual Band of Mission Indians (San Pasqual). If the County, as the lead agency, determines through continued consultation that there is substantial evidence the Project may adversely impact a yet unidentified Tribal Cultural Resource that meets criteria established in Public Resources Code Section 5024.1, the County shall determine if measures are needed to minimize potential impacts to TCRs including: • Requirements for Native American Monitoring of Project Ground Disturbing Activities • Development of an Unexpected Discovery Plan for Archaeological Resources • Development of a Treatment Plan for Artifacts Considered to be Tribal Cultural Resources If the County, through continued consultation efforts, determines there is not substantial evidence to support the existence of potential TCRs at the Project site, no additional measures shall be required.	
Utilities and Service Systems			
Impact 3.11-a: Relocation or construction of new facilities	Potentially significant impact	**MM HYD-1: Prepare Stormwater Pollution Prevention Plan and Implement Best Management Practices** **MM HYD-2: Final Project Drainage Plan**	Less than significant

Notes:
APLIC = Avian Power Line Interaction Committee
BGEPA = Bald and Golden Eagle Protection Act
BMP = Best Management Practices
CDFW = California Department of Fish and Wildlife
CFR = Code of Federal Regulations
CNPS = California Native Plant Society
ESA = Endangered Species Act
HMMP = Habitat Mitigation and Monitoring Plan
HRP = Habitat Restoration Plan
ICAPCD = Imperial County Air Pollution Control District
MBTA = Migratory Bird Treaty Act
NPDES = National Pollution Discharge Elimination Permit
ODCP = Occupational Dust Control Plan
PM = particulate matter
PM10 = particulate matter of 10 microns or less
SWPPP = Stormwater Pollution Prevention Plan
USFWS = U.S. Fish and Wildlife Service
WEAP = Workers Environmental Awareness Program
WEEP = Worker Environmental Education Program

Acronyms and Abbreviations

˚F	degrees Fahrenheit
µg/m^3	micrograms per cubic meter
2017 Scoping Plan	2017 Climate Change Scoping Plan
A3 or A-3	Agricultural Zone
AAQS	ambient air quality standards
AB	Assembly Bill
AC	Alternating Current
AF	acre-feet
AFY	acre-feet per year
ALOHA	Areal Locations of Hazardous Atmospheres
ALUC	Airport Land Use Commission
APMP	Advanced Protection Management Program
APLIC	Avian Power Line Interaction Committee
APN	Assessor Parcel Number
Applicant	Consolidated Edison Development, Inc.
AQMPs	air quality management plans
ASTM	American Society for Testing and Materials
ATCM	airborne toxic control measure
BAU	"business as usual"
BESS	Battery Energy Storage System
BGEPA	Bald and Golden Eagle Protection Act
bgs	below ground level
BLM	Bureau of Land Management
BMP	Best Management Practices
BMS	Battery Management System
BOUW	burrowing owl
BP	Before Present
BTM	behind-the-meter
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAC	County Agricultural Commissioner
CAD	Computer-Aided Design
CAFE	Corporate Average Fuel Economy
CAISO	California Independent System Operator
CalARP	California Accidental Release Prevention
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CALGreen	California Green Building Standards
Cal/OSHA	California Occupational Safety and Health Administration

Caltrans	California Department of Transportation
Canal	Westside Main Canal
CARB	California Air Resources Board
CBC	California Building Code
CBP	Customs and Border Protection
CCA	community choice aggregators
CCAA	California Clean Air Act
CCR	California Code of Regulations
CD	compact disc
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CdTe	cadmium telluride
CEC	California Energy Commission
CED	Consolidated Edison Development, Inc.
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFC	California Fire Code
CFCs	chlorofluorocarbons
CFR	Code of Federal Regulations
CGPM	coarse-grained porphyritic metavolcanic
CGS	California Geologic Survey
CH_4	methane
CHRIS	California Historical Resources Information System
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
County	County of Imperial
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CTR	California Toxics Rule
CUP	Conditional Use Permit
CUPA	Certified Unified Program Agencies
CVSR	California Valley Solar Ranch
CWA	Clean Water Act
D.	Decision
DC	Direct Current
DCH	Designated Critical Habitat
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DEIR	Draft Environmental Impact Report
DOA	Department of the Army

DOC	Department of Conservation
DOT	Department of Transportation
DPM	diesel particulate matter
DPR	Department of Parks and Recreation
DTSC	Department of Toxic Substances Control
EI	Expansion Index
EIA	Economic Impact Analysis
EIR	Environmental Impact Report
EMF	electromagnetic fields
EMFAC2014	EMission FACtor Model 2014
EO	Executive Order
EOP	Emergency Operations Plan
EPA	Environmental Protection Agency
ES	Executive Summary
ESA	Environmental Site Assessment
ESP	electric service providers
ESS	energy storage system
FAR	fire-effected rock
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FFMP	Farmland Mapping and Monitoring Program
FGC	Fish and Game Code
FGM	fine-grained metavolcanic
FGPM	fine-grained porphyritic metavolcanic
FIA	Fiscal Impact Analysis
FR	Federal Register
General Plan	Imperial County General Plan
GHG	greenhouse gas
GPA	General Plan Amendment
gpd	gallons per day
gpm	gallons per minute
GW	gigawatt
GWP	global warming potential
H_2S	hydrogen sulfide
HDD	horizontal directional drilling
HFCs	hydrofluorocarbons
HMMP	Habitat Mitigation and Monitoring Plan
HRP	Habitat Restoration Plan
HVAC	Heating, Ventilation, and Air Conditioning
HWCL	Hazardous Waste Control Law
I-8	Interstate 8
IBC	International Building Code
ICAPCD	Imperial County Air Pollution Control District

ICC	Interagency Coordinating Committee
ICDPW	Imperial County Department of Public Works
ICFD	Imperial County Fire Department
ICPDS	Imperial County Planning & Development Services
ICS	Incident Command System
IID	Imperial Irrigation District
IOU	investor-owned utilities
IPCC	Intergovernmental Panel on Climate Change
IRP	Integrated Resource Plan
IRWMP	Integrated Regional Water Management Plan
IS	Initial Study
ISO	Independent System Operator
ITE	Institute of Transportation Engineers
IV Substation	Imperial Valley Substation
IVTA	Imperial Valley Telecommunications Authority
IWSP	Interim Water Supply Policy
JIA	Employment/Jobs Impact Analysis
KOP	Key Observation Point
kV	kilovolt
kW	kilowat
LAMP	Local Agency Management Program
LCFS	low carbon fuel standard
LESA	Land Evaluation and Site Assessment
Li-ion	lithium-ion
LOS	Level of Service
LSAA	Lake or Streambed Alternation Agreement
LSEs	Load Serving Entities
M-2	Medium Industrial
MBTA	Migratory Bird Treaty Act
mm	millimeter
MM	Mitigation Measure
MMRP	Mitigation Monitoring and Reporting Program
$MMTCO_2e$	million metric tons of cardon dioxide equivalents
mpg	miles per gallon
mph	miles per hour removed this from 3.1 chapter. May be elsewhere?
MPO	Metropolitan Planning Organization
MSDS	Material Safety Data Sheet
MSL	mean sea level 3.1.2.3
MT	metric tons
$MTCO_2e$	metric tons of carbon dioxide equivalents
MW	Megawatts
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards

NAHC	Native American Heritage Commission
NEHRP	National Earthquake Hazards Reduction Program
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NIST	National Institute of Standards and Technology
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOC	Notice of Completion
NOD	Notice of Detemination
NOI	Notice of Intent
NOP	Notice of Preparation
NO_X	nitrogen oxides
NPDES	National Pollution Discharge Elimination Permit
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Services
NRHP	National Register of Historic Places
NSF	National Science Foundation
NTR	National Toxics Rule
O&M	Operations and Maintenance
O_3	ozone
ODCP	Operational Dust Control Plan
OES	Office of Emergency Services
OHWM	ordinary high-water mark
OPR	Office of Planning and Research
OSHA	Occupation Safety and Health Act
OWTS	on-site wastewater treatment system
PCB	polychlorinated biphenyl
Pb	lead
PFCs	perfluorocarbons
PGI	Preliminary Geotechnical Investigation
PHD	Public Health Department
PLP	Polarized Light Pollution
PM	Particulate Matter
POU	public-owned utilities
ppm	parts per million
PPV	peak particle velocity
PV	photovoltaic
PRC	Public Resources Code
Project	Westside Canal Battery Storage Project
PSD	Prevention of Significant Deterioration
PV	Photovoltaic

Qa-Qc	Quaternary-aged alluvial deposits and Cahuilla Beds
RCRA	Resource Conservation and Recovery Act
RECON	RECON Environmental, Inc.
RHA	Rivers and Harbors Act
ROG	reactive organic gases
RPS	Renewable Portfolio Standard
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCADA	Supervisory Control and Data Acquisition
SCAG	Southern California Association of Government
SCAQMD	South Coast Air Quality Management District
SCIC	South Coastal Information Center
SCS	"Sustainable Communities Strategy"
SDS	Safety Data Sheet
SEMS	Standardized Emergency Management System
SF_6	Sulfur hexafluoride
SHMA	Seismic Hazards Mapping Act
SIP	State Implementation Plan
S-Line	S-Transmission line
SO_2	sulfur dioxide
SO_X	sulfur oxides
SPCC	Spill Containment, Countermeasure, and Control
SR	State Route
SSA	Streambed Alternation Agreement
SSAB	Salton Sea Air Basin
SSC	Species of Special Concern
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TCMs	transportation control measures
TCR	tribal cultural resources
TMDL	total maximum daily load
TUA	Traditional Use Area
U.S.	United States
U.S.C.	United States Code
UL	Underwriters Laboratory
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United Stated Geological Survey
V	volt
VHFHSZ	Very High Fire Hazard Severity Zone
VOCs	volatile organic compounds
VRP	visibility reducing particles

WEAP	Workers Environmental Awareness Program
WEEP	Worker Environmental Education Program
WOTS	waters of the State
WOTUS	waters of the United States
WQS	water quality standards
WSA	Water Supply Assessment

1.0 INTRODUCTION

1.1 PURPOSE OF THE DOCUMENT

The purpose of this Draft Environmental Impact Report (EIR or Draft EIR) is to inform decision-makers and the public of the potential environmental impacts that could result from the Westside Canal Battery Storage Project (Project). An EIR is the most comprehensive form of environmental documentation under California Environmental Quality Act (Public Resources Code [PRC] Section 21000 et seq.) (CEQA) and the CEQA Guidelines.[1] It provides the information needed to assess the environmental consequences of a proposed project to the extent feasible. EIRs are intended to provide an objective, factually supported, full-disclosure analysis of the environmental consequences associated with a proposed project that has the potential to result in significant, adverse environmental impacts. An EIR is one of the various decision-making tools used by a lead agency to consider the merits of a project that is subject to its discretionary authority.

CEQA requires the preparation of an EIR prior to approving any project that may have a significant effect on the environment. For the purposes of CEQA, the term "project" refers to the whole of an action which has the potential for resulting in a direct physical change or a reasonably foreseeable indirect physical change in the environment (CEQA Guidelines Section 15378[a]). With respect to the Westside Canal Battery Storage Project, the Imperial County (County) has determined that the proposed development is a "project" within the definition of CEQA.

The Project applicant is Consolidated Edison Development, Inc. (CED or Applicant). The lead agency, as defined by CEQA, is Imperial County; and the County is responsible for reviewing and approving the required environmental and planning permits.

As described in Sections 15121(a) and 15362 of the CEQA Guidelines, an EIR is an informational document that informs public agency decision-makers and the public of the significant environmental effects of a project, identifies possible ways to minimize the significant effects, and describes reasonable alternatives to the project. The purpose of this EIR, therefore, is to focus the discussion on the Project's potential effects on the environment that the lead agency has determined may be significant. In addition, feasible mitigation measures are recommended, when applicable, to reduce or avoid significant environmental impacts.

The EIR is prepared by and under the direction of the Imperial County Planning & Development Services (ICPDS), which also has primary responsibility for recommending approval and implementation of the Project. Project approval and certification of the EIR must be considered by the County Planning Commission and County Board of Supervisors.

The EIR process is explained in detail below in Section 1.4 (Review and Certification Process).

1.2 PROJECT OVERVIEW

The Applicant is proposing to construct, operate, and eventually decommission a battery energy storage facility on approximately 163 acres. The Project would be located in the unincorporated Mount Signal area of the County, approximately 8 miles southwest of the City of El Centro and approximately 5 miles north of the U.S.-Mexico border (Figure 1.2-1). The Project Site comprises two parcels, Assessor Parcel Number (APN) 051-350-010 and APN 051-350-011, totaling approximately 148 acres (Project Site). The Project will utilize portions of two additional parcels located north of the Westside Main Canal (APN 051-350-019 owned

[1] All references to "CEQA Guidelines" herein shall mean Title 14, California Code of Regulations Section 15000 et seq.)

by Imperial Irrigation District [IID] and APN 051-350-018 owned by a private landowner) for Site access and as a temporary construction staging area. The Project will also access a small portion of APN 051-350-009 that is within the IID easement for connection to the existing IID Campo Verde-Imperial Valley 230 kilovolt (kV) radial gen-tie line during the construction of a substation on the Project Site. The total proposed Project development footprint, encompassing both temporary and permanent impacts, would be approximately 163 acres. The Applicant is proposing to develop, design, construct, own, operate, and maintain the Westside Canal Battery Storage Project, a utility-scale energy storage complex with the capacity of up to 2,000 Megawatts (MW) at full build-out. The Project would be constructed in multiple phases over a 10-year development period, with each phase ranging from approximately 25 MW to 400 MW. For the purposes of this analysis, Project construction is assumed to occur over three to five phases. Given the approximately 10-year development of the Project, the expected end date of the Project life cycle would be 30 years from the construction of the final phase, or no more than 40 years after the effective date of the Conditional Use Permit. The Project would store energy generated from the electrical grid, and optimally discharge that energy back into the grid as firm, reliable generation and/or grid services. Figure 1.2-2 illustrates the Project Site. A detailed description of the Project is provided in Chapter 2 of this EIR.

1.3 UNDERLYING PURPOSE AND STATEMENT OF OBJECTIVES OF THE PROPOSED PROJECT

1.3.1 Underlying Purpose

Development of the Project will provide a utility-scale energy storage complex incorporating lithium-ion (Li-ion) battery systems and/or flow battery technologies throughout the Site. The Project will allow excess, intermittent renewable energy to be stored and later dispatched optimally back into the existing electrical grid as firm, reliable generation when needed. The Project would complement currently operating clean energy solar and wind projects, as well as those planned for development in the County, and would support the broader Southern California bulk electric system by serving as a transmission asset.

1.3.2 Project Objectives

The Project is pursuing the following objectives:

- To construct and operate utility-scale energy storage technologies that are safe, efficient, and environmentally responsible
- To provide load-serving entities and system operators the ability to effectively manage intermittent renewable generation on the grid, thereby creating reliable, dispatchable generation as a firm, dispatchable resource
- To facilitate deployment of additional renewable energy resources in furtherance of the State of California Renewable Portfolio Standard
- To develop an up-to-2,000 MW energy storage facility on previously disturbed land that is no longer used for agricultural production
- To promote local economic development by maximizing the utilization of the local workforce for a variety of trades and businesses

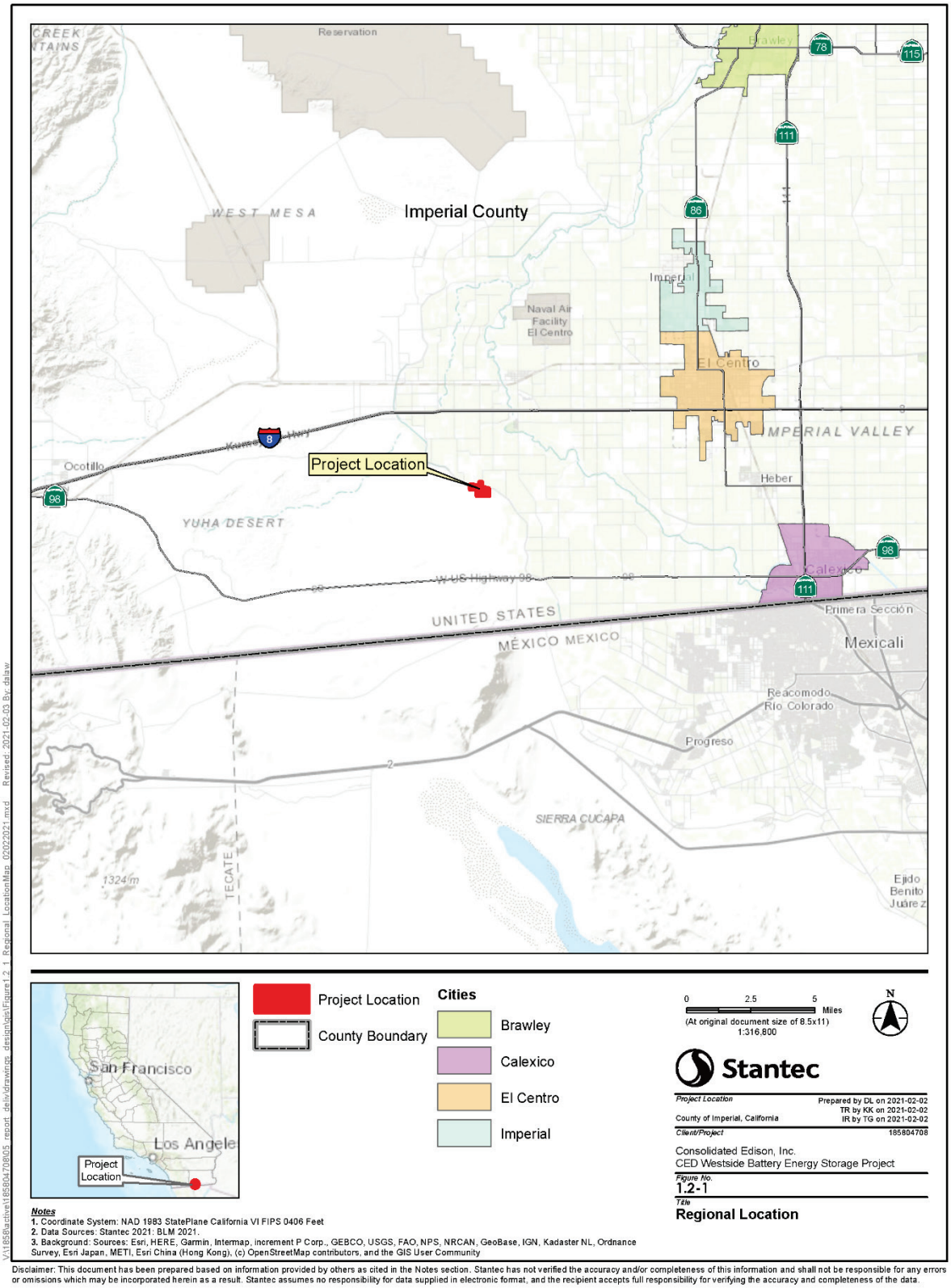

Figure 1.2-1 Regional Location

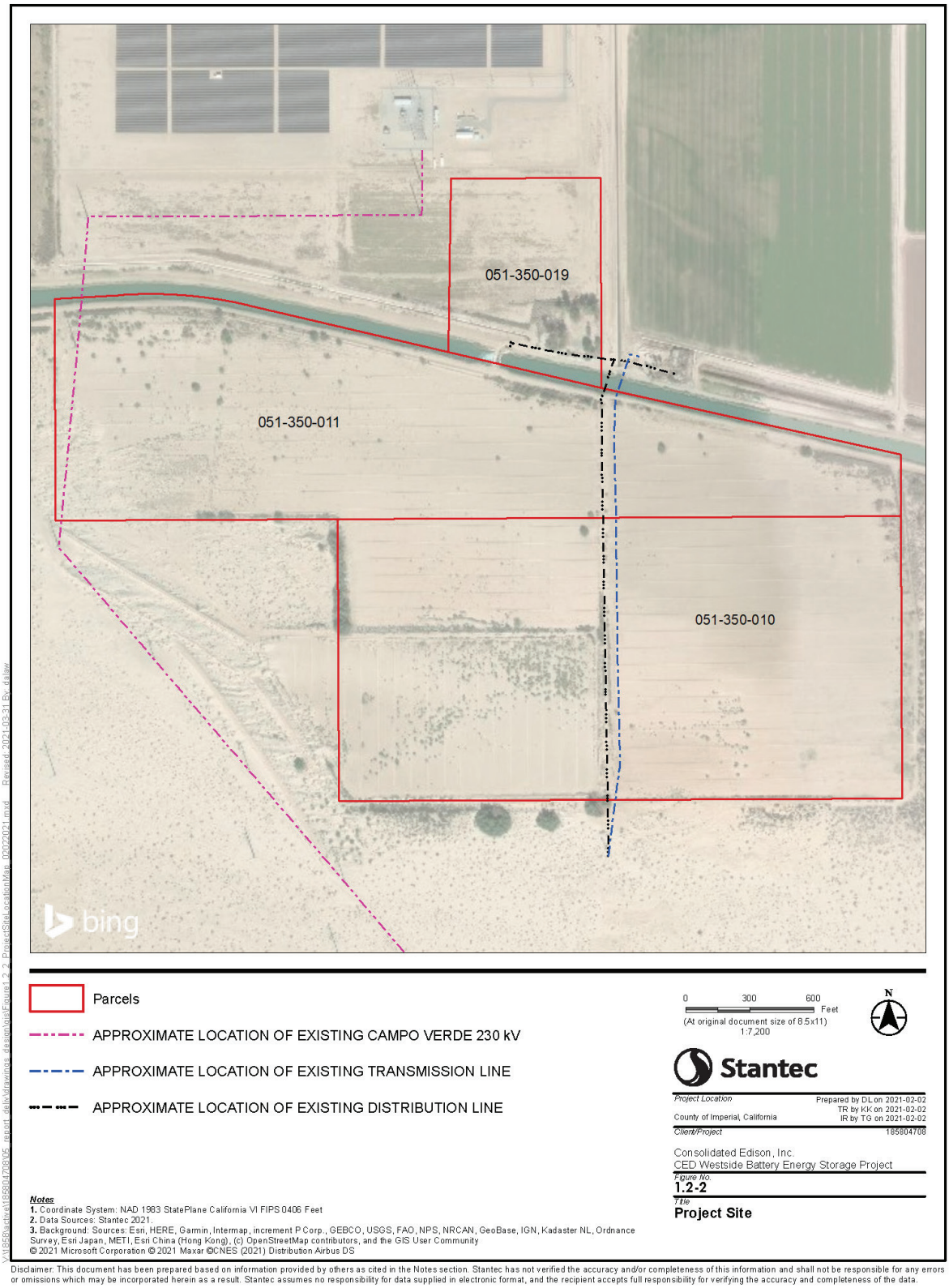

Figure 1.2-2 Project Site

1.4 REVIEW AND CERTIFICATION PROCESS

The following is an overview of the environmental review and certification process for the Project:

1.4.1 Notice of Preparation

The CEQA process is initiated when the lead agency identifies a proposed project. The lead agency then prepares an Initial Study (IS) to identify the preliminary environmental impacts of a project. An IS for the Project was prepared and determined that its implementation could have significant environmental impacts and an EIR is required. The County issued a Notice of Preparation (NOP)[2] for the preparation of an EIR (State Clearinghouse No. 2020040122) for the Westside Canal Battery Storage Project on April 13, 2020. Circulation of the NOP ended on May 18, 2020. The Project NOP and IS are attached hereto as Appendix A. During the public review period, the County, as lead agency, requested comments from agencies, interested parties, stakeholders, and the public on the scope and content of the environmental information to be included in the Draft EIR. Section 1.7 contains an overview of the comments received on the NOP.

1.4.2 Draft Environmental Impact Report

After the close of the 35-day NOP (30-day minimum per CEQA plus 5 days per Imperial County Guidelines) review and comment period, the lead agency continued the preparation of the Draft EIR and associated technical studies (if any). This Draft EIR includes a detailed description of the Project, environmental setting, identification of Project impacts and mitigation measures for impacts found to be significant. An analysis of Project alternatives as well as a discussion of cumulative impacts and other CEQA-required considerations are also provided. Upon completion of the Draft EIR, a Notice of Completion (NOC) will be filed with the California State Office of Planning and Research (OPR) by Imperial County. The NOC signals the start of the public review period for the Draft EIR (CEQA Guidelines Section 15085).

1.4.3 Public Notice/Public Review

The Draft EIR public review and comment period should be no less than 30 days and no longer than 60 days. In the case of the Project, the review period will be 50 days (45-day minimum per CEQA, plus 5 days per Imperial County Guidelines to distribute the EIR).

The NOC for the Project was filed on April 7, 2021 at the State Clearinghouse which started the 50-day review period. Concurrent with the NOC, a Notice of Availability (NOA) is prepared to inform agencies and the public of the document and the locations where the document can be reviewed. The NOA is sent to public agencies and interested parties and published within a general circulation newspaper for the area. The NOA was published on April 7, 2021 in the *Imperial Valley Press* newspaper. In addition, the NOA was posted on the County's website and at local libraries. Public comment on the Draft EIR will be accepted in written form. Details on where to send questions or comments are provided in subsection 1.7, below. The public review and comment period closes on May 31, 2021.

1.4.4 Response to Comments/Final EIR

After the close of the 50-day review and comment period, a Final EIR would be prepared. The Final EIR includes written responses to all comments received during the public review and comment period, and revision(s) to the Draft EIR. In addition, the Lead Agency must prepare a Findings of Fact for each significant effect identified; a Statement of Overriding Considerations if there are significant impacts that cannot be

[2] An NOP is prepared to notify public agencies and the general public that the lead agency is starting the preparation of an EIR for the project.

mitigated; and a Mitigation Monitoring and Reporting Program (MMRP) to help ensure that all proposed mitigation measures are implemented.

1.4.5 Certification of the EIR

The Final EIR would be considered by the County's Planning Commission and the County Board of Supervisors when taking action on the Project. If the Project is approved, CEQA requires the County to adopt findings describing how each of the significant impacts identified in the EIR is being mitigated. The findings are required to describe the reasons why significant unavoidable impacts, if any, cannot be mitigated. In this case, all significant effects of the Project would be mitigated to less-than-significant levels by the adoption of feasible mitigation measures. The findings will also describe the Project alternatives analyzed in the EIR and explain whether any alternative or portion of an alternative has been adopted. The County Board of Supervisors may certify and approve the final EIR or may choose to not approve the Project.

Subsequent to certification of the final EIR by the County Board of Supervisors, the Notice of Determination (NOD) is filed with the County Clerk's Office and State Clearinghouse within 5 days after certification. This begins a 30-day statute of limitations on legal challenges to the CEQA approval by the lead agency. The ability to challenge the approval in court may be limited to those persons who objected to the approval of the Project and issues that were presented to the lead agency by any person in writing during the public review and comment periods regarding the EIR.

1.4.6 Mitigation Monitoring and Reporting Program

Section 21081.6 of the PRC and Sections 15091(d) and 15097 of the CEQA Guidelines require public agencies "to adopt a reporting or monitoring program for changes to the project, which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment." An MMRP is intended to confirm that adopted mitigation measures are successfully implemented, and a monitoring strategy has been prepared for each mitigation measure identified in the EIR. All measures are intended to offset, to the degree possible, potential significant adverse effects under CEQA.

A summary table would be prepared as part of the final EIR to assist the responsible parties in implementing the MMRP. The table will summarize the potential environmental impacts for each resource category for which mitigation measures are proposed in the EIR, identify individual mitigation measures, describe the methods for implementation and verification of each measure, and identify the responsible party or parties. Impacts for which mitigation measures are proposed will be listed under the various resource categories in the EIR. The order in which mitigation measures are presented (by resource category) will follow the sequence established in the EIR.

The MMRP will be considered for adoption by the County Board of Supervisors when it considers approving the Project. If adopted, the ICPDS will incorporate the MMRP requirements into the appropriate permits and Project specifications (e.g., engineering specifications, engineering construction permits). The MMRP will be kept on file at the ICPDS, 801 Main Street, El Centro, CA 92243.

The MMRP will be prepared to confirm that all required mitigation measures are implemented and completed according to schedule and maintained in a satisfactory manner throughout implementation of the Project. The MMRP may be modified by the ICPDS in response to changing conditions or circumstances.

1.5 AGENCIES' ROLES AND RESPONSIBILITIES

1.5.1 Imperial County

As noted above in Section 1.1, Imperial County is designated as the CEQA lead agency for the Project. The land use designation for the Project Site is Agriculture according to the Imperial County General plan (General Plan). The zoning designation of the Project is Heavy Agricultural (A-3). The application for the Project requests approval of a General Plan Amendment, a Zone Change, and a Conditional Use Permit (CUP).

The Imperial County Code of Ordinances Title 9, Division 5 (Zoning Areas Established), identifies permitted uses within various zones as well as uses requiring a CUP. Imperial County Code Section 90508.0 addresses uses in the Heavy Agriculture zone. Per Section 90508.02, the following uses are permitted subject to approval of a CUP from the County: solar energy electrical generator, electrical power generating plant, major facilities relating to the generation and transmission of electrical energy, and resource extraction and energy development. Unlike a solar project, a battery energy storage project is not allowed in a Heavy Agriculture zone. Therefore, a zone change is proposed to allow Project development pursuant to approval of a CUP.

1.5.2 Other Agency Reviews and/or Consultants

1.5.2.1 Federal

United States Army Corps of Engineers

The United States Army Corps of Engineers (USACE) possesses jurisdiction over waters of the United States and jurisdictional wetlands pursuant to the federal Clean Water Act (CWA). The USACE regulates the discharge of dredge/fill material into such waters, including ditches and drains that could be jurisdictional. A Jurisdictional Delineation Report following the guidelines set forth by USACE was conducted for the Project Site on February 5, 2019 (included in Appendix E.4 of this EIR). The Project has the potential to impact jurisdictional waters; and therefore, a Section 404 Permit may be required from USACE.

United States Fish and Wildlife Service

The United States Fish and Wildlife Service (USFWS) is responsible for oversight of the Federal Endangered Species Act (FESA) and the Migratory Bird Treaty Act (MBTA). Biological surveys of the area were conducted to determine if critical habitat and federally listed species are present or are expected to occur in the Project area (included in Appendix E.1 of this EIR). A Biological Report was prepared by the RECON on January 18, 2021, and the report found that the Project would not result in cumulative impacts to sensitive resources, and all potential impacts would be mitigated to a less-than-significant level. Mitigation and monitoring recommendations are included in the report which could be reviewed in Appendix E.1 of this EIR.

1.5.2.2 State

California Department of Transportation

The California Department of Transportation (Caltrans) manages and oversees the road rights-of-way owned by the State. Encroachment Permit approvals from Caltrans before construction would be required for the Project. Caltrans District 11 provided comments to the Project and recommended a Traffic Control

Plan to be submitted to Caltrans District 11, including the interchange at Interstate 8 (I-8) and Westside Road, at least 30 days prior to the start of any construction. In addition, potential traffic to the Project shall not be unreasonably delayed. The Traffic Control Plan must outline suggested detours to use during closures, including routes and signage. Potential impacts to the highway facilities (I-8 and State Route 98) and traveling public from the detour, demolition, and other construction activities should be discussed and addressed with Caltrans District 11 before Project work begins.

California Department of Fish and Wildlife

The California Department of Fish and Wildlife (CDFW) is responsible for overseeing the California Endangered Species Act (CESA), approving Streambed Alteration Agreements (Section 1602 of the California Fish and Game Code) (SAA), and enforcing the California Native Plant Protection Act. The CDFW would take action associated with any activity where a listed candidate, threatened or endangered species under CESA may be present in the Project area and a state agency is acting as lead agency for CEQA compliance. CDFW would also consider issuance of a Section 2081 incidental take permit for state-only listed species and a Section 2081.1 consistency determination for the effects on species that are both state and federally listed.

A Biological Resources Report and a Burrowing Owl Survey were prepared by RECON Environmental for the proposed Project (these reports are included in Appendix E.1, E.2 and E.3 of this EIR). The applicant will consult with CDFW prior to the start of Project construction. CDFW will review the Project for potential effects on state listed species and determine the extent of its jurisdiction under California Fish and Wildlife Code Section 1602for impacts on drainages from construction, if applicable.

California Regional Water Quality Control Board, Colorado River Basin Region 7

The California Regional Water Quality Control Board (RWQCB), Colorado River Basin Region 7 is responsible for regulating water quality. Construction of the Project would be covered under General Permit for Discharges of Storm Water Associated with Construction Activity (NPDES No. CAS000002) (Construction General Permit Order 2010-2014-DWQ, effective February 14, 2011). The permit requires the applicant to file a public Notice of Intent (NOI) to discharge stormwater and to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP).

California Department of Toxic Substances Control

The California Department of Toxic Substances Control (DTSC) oversees toxic substances procedures and remediation. If the Project is required to submit a Hazardous Materials Management Plan, a Spill Containment, Countermeasure, and Control (SPCC) Plan and/or Hazardous Materials Transportation Plans, DTSC would be responsible for review of these documents. A Hazard Consequences Analysis Report was prepared by Stantec on April 6, 2020 and is included in Appendix H of this EIR. The report concludes that the estimated maximum toxic endpoint distance is primarily within the Project Site's boundary, but does extend to the adjacent undeveloped parcel, which is also controlled by the Applicant.

California Environmental Protection Agency

The California Environmental Protection Agency (CalEPA) oversees various aspects of environmental protection throughout the state. CalEPA will be among the agencies that will be noticed during the public review period and have the opportunity to comment on the Project.

California Native American Heritage Commission

The California Native American Heritage Commission (NAHC) strives for the preservation and protection of Native American human remains and associated grave goods. The NAHC recommended that the County consult with the appropriate California Native American Tribes. The County has performed the necessary consultation.

California Occupational Safety and Health Administration

The California Occupational Safety and Health Administration (Cal/OSHA) is responsible for protecting workers and the public from safety hazards. Cal/OSHA will review the Hazardous Materials Management Plan for the Project, as applicable.

1.5.2.3 Local

Imperial Irrigation District

The IID owns and operates the raw water canal system, drainage system and electrical grid in Imperial and Coachella Valleys. IID is responsible for maintaining its water and energy facilities so that it may service its customers. The Project must obtain rights from IID for the Project to encroach into IID canals, drains, and electrical rights-of-way. The Project must obtain approval from IID for water service from IID canals and electrical service from the IID electrical distribution system and obtain backfeed and station service agreements with IID.

Imperial County Department of Public Works

The Imperial County Department of Public Works (ICDPW) manages and oversees the road rights-of-way owned by the County and regulates the approval of Project stormwater design within the unincorporated County. The Project must also obtain approval of grading and civil improvement plans and traffic control plans from ICPDW.

Imperial County Air Pollution Control District

The Imperial County Air Pollution Control District (ICAPCD) is responsible for enforcing air emission requirements to protect public health in the County. These requirements apply to various activities including construction, and operational activities associated with various land uses. The Project will prepare a Dust Control Plan to comply with Rule 801 of the County's Rules and Regulations for Construction and Earthmoving Activities. The Project would also be subject to the ICAPCD's Rule 310 Operational and Development Fees.

Imperial County Fire Department

The Imperial County Fire Department (ICFD) would provide fire protection service to the Project. The Fire Department received a copy of the NOP and was consulted during preparation of this EIR. The Fire Department will review the Project including the final design of the proposed fire safety system and to ensure adequacy of emergency access and circulation.

Imperial County Sheriff's Office

The Imperial County Sheriff's Office would provide law enforcement service to the Project, as necessary. The Sheriff's Office received a copy of the NOP and will review the Project, including the final design, for

adequate emergency access. The Sheriff's Office was also consulted for input during preparation of this EIR.

1.6 RELATIONSHIP TO STATUTES, REGULATIONS AND OTHER PLANS

1.6.1 State

1.6.1.1 Renewables Portfolio Standard Program

The California Renewables Portfolio Standard (RPS) program was established in 2002 by Senate Bill (SB) 1078 (Sher, 2002) with the initial requirement that 20 percent of electricity retail sales must be served by renewable resources by 2017. The program was accelerated in 2006 under SB 107 (Simitian, 2006), which requires that the 20 percent mandate be met by 2010. In April 2011, SB 2 (1X) (Simitian) was signed into law, which codified a 33 percent RPS requirement to be achieved by 2020. In 2015, SB 350 (de León, 2015) was signed into law, which mandated a 50 percent RPS by December 31, 2030. SB 350 include interim annual RPS targets with three-year compliance periods. In addition, SB 350 requires 65 percent of RPS procurement must be derived from long-term contacts of ten or more years. In 2018, SB 100 (de León, 2018) was signed into law, which again increases the RPS to 60 percent by 2030 and requires all state's electricity to come from carbon-free resources by 2045. SB 100 became effective on January 1, 2019.

The California Public Utilities Commission (CPUC) implements and administers RPS compliance rules for certain California retail sellers of electricity, including large and small investor-owned utilities, electric service providers and community choice aggregators. The California Energy Commission (CEC) is responsible for the certification of electrical generation facilities as eligible renewable energy resources and adopting regulations for the enforcement of RPS procurement requirements of Public Owned Utilities (POUs).

The Westside Canal Battery Storage Project, which would be capable of storing and discharging up to 2,000 MWs of electricity at full build-out, would help California meet its statutory and regulatory goals for renewable electricity generation.

1.6.1.2 California Global Warming Solutions Act Of 2006, Assembly Bill 32

This California Global Warming Solutions Act of 2006, Assembly Bill (AB) 32 (Statutes 2006; Chapter 488; Health and Safety Code Sections 38500 et. seq) requires the California Air Resources Board (CARB) to prepare and approve a Scoping Plan for achieving the maximum technologically feasible and cost-effective reductions in greenhouse gas (GHG) emissions from sources or categories of sources of GHGs by 2020, and update the Scoping Plan every five years; maintain and continue reductions in emissions of GHG beyond 2020; identify the statewide level of GHG emissions in 1990 to serve as the emissions limit to be achieved by 2020; identify and adopt regulations for discrete early actions that could be enforceable on or before January 1, 2010; adopt a regulation that establishes a system of market-based declining annual aggregate emission limits for sources or categories of sources that emit GHG emissions; convene an Environmental Justice Advisory Committee to advise CARB in developing and updating the Scoping Plan and any other pertinent matter in implementing AB 32; and appoint an Economic and Technology Advancement Advisory Committee to provide recommendations for technologies, research and GHG emission reduction measures.

1.6.1.3 Senate Bill 32 (2016 Pavley)

SB 32 expanded upon the requirements of the California Global Warming Solutions Act of 2006 by requiring the CARB to ensure that statewide GHG emissions are reduced to 50 percent below the 1990 level by 2030.

1.6.1.4 Title 17 California Code of Regulations

Title 17 California Code of Regulations, Subchapter 20, Article 2, Sections 95100 et seq. are CARB regulations that implement mandatory GHG emissions reporting as part of the California Global Warming Solutions Act of 2006.

1.6.1.5 California Endangered Species Act

CESA is codified beginning at Fish and Game Code Section 2050. This section prohibits "take" of any species listed as an endangered or threatened species. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take that is incidental to otherwise lawful activity through take authorization issued by CDFW. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species. Early consultation is also helpful in developing appropriate mitigation to offset losses of listed species populations and their essential habitats. The applicant will consult with the CDFW regarding any issues arising under CESA.

1.6.1.6 California Lake and Streambed Program

The CDFW is responsible for conserving, protecting, and managing California's fish, wildlife, and native plant resources. The California Lake and Streambed Program (Fish and Game Code Sections 1601 to 1603) requires an entity to notify CDFW prior to constructing any project that would divert, obstruct or change the natural flow, bed, channel, or bank of any river, stream, or lake. CDFW is required to propose reasonable project changes and/or mitigation to protect the resource in cases where an existing fish or wildlife resource may be substantially adversely affected. Changes or mitigations are formalized in a SAA between CDFW, the County and the Applicant.

1.6.2 Local

1.6.2.1 Imperial County General Plan and Land Use Ordinance

The General Plan provides guidance on future growth in the County. Any development within the jurisdiction of the County must be consistent with the General Plan and the Land Use Ordinance (Title 9, Division 2).

1.6.2.2 Imperial County Air Pollution Control District

The ICAPCD will review the proposed Project for consistency with the ICAPCD CEQA Air Quality Handbook, the 1991 Air Quality Attainment Plan, and the State Implementation Plan for PM_{10} in the Imperial Valley.

1.7 PUBLIC PARTICIPATION OPPORTUNITIES/COMMENTS AND COORDINATION

Public participation is an essential part of the CEQA process and can be done formal or informally. The following section discusses the public participation process implemented by the County.

1.7.1 Notice of Preparation

The NOP for the proposed Project was issued by the County on April 13, 2020. Five (5) letters were received in response to the NOP from various agencies and individuals. A summary of the areas of concern or issue

raised in these letters is summarized in Table 1.7-1. The comment letters received during the public review period for the NOP are included as Appendix A.2 of this EIR.

Table 1.7-1 NOP Comment Summary

Number	Agency/Individual	Issue Noted or Area of Controversy
1	Department of Transportation, District 11 Maurice Eaton, Branch Chief	• Traffic Control Plan is to be submitted to Caltrans District 11, including the interchange at I-8/ Westside Road, at least 30 days prior to the start of any construction. Traffic shall not be unreasonably delayed. The plan shall also outline suggested detours to use during closures, including routes and signage. • Potential impacts to the highway facilities (I-8 and SR-98) and traveling public from the detour, demolition and other construction activities should be discussed and addressed before work begins. The above issues are addressed in Appendix A, Initial Study, and Appendix L, Transportation Impact Analysis.
2	DTSC Imperial Certified Unified Program Agencies (CUPA) Robert Krug Supervisor/ Environmental Scientist	• Prior to start of business operations, CED informs DTSC Imperial CUPA of their operations, and storage/use of hazardous materials, hazardous waste, underground storage tanks, above-ground storage tanks or be a California Accidental Release Prevention (CalARP) facility. If so, they are not allowed to operate without a permit. The above issues are addressed in Section 3.7, Hazards and Hazardous Materials.
3	Imperial Irrigation District Donald Vargas Compliance Administrator II	The letter made several general comments about submittal requirements, fees, cost responsibility, and provided contact information. Comments were also made with regard to environmental concerns and are noted below. For full comment letter, please refer to the letter in Appendix A.2. • Noted that a distribution rated circuit study will be required due to limited electrical capacity. Any improvements identified in the circuit study to serve the Project's electrical loads shall be the financial responsibility of the applicant. Project may require a transmission backfeed agreement. • Noted IID water facilities that may be impacted include Westside Main Canal, Fern Side Main Canal, Fern Canal, Dixie Drain No. 3, Dixie Drain No. 3a, and the Fig Drain. • Raised concern regarding impact from Project and Site runoff and proposed stormwater retention facilities drainage on IID drains and requested a comprehensive IID hydraulic drainage system analysis. • Noted that IID's canals or drain banks may not be used to access the Project Site. Any abandonment of easements or facilities shall be approved by IID based on systems (irrigation, drainage, power, etc.) needs. • Noted that any construction or operation on IID property or within its existing and proposed right of way or easements will require an encroachment permit, or encroachment agreement (depending on the circumstances). IID encroachment permit is required to utilize existing surface-water drainpipe connections to drains and receive drainage service form IID. • Noted that any new, relocated, modified, or reconstructed IID facilities required for and by the Project (which can include but is not limited to electrical utility substations, electrical transmission and distribution line, etc.) need to be included as part of the Project's CEQA and/or National Environmental Policy Act (NEPA) documentation, environmental impact analysis and mitigation. • Noted that piecemealing or segmenting, rather than evaluating the whole of the Project in one environmental document, is explicitly forbidden by CEQA. • Noted that any change in the Project (site plan, etc.) as well as all off-site improvements outside IID right-of-way will be further reviewed for impact to IID's ability to operate and maintain district facilities.

Number	Agency/Individual	Issue Noted or Area of Controversy
		• Noted that all permanent and temporary aspects of the Project need to be evaluated. • Raised concern regarding the roads, bridge, and on-site development as well as any temporary access that could impact the Westside Main Canal. Also raised concern about the short review time with respect to construction schedule. • Requested clarification on stormwater retention and retention basins and their impact on the Westside Main Canal. • Raised concern the septic leach field and any potential of effluent transmission to the Westside Main Canal. • Provided clarification on water service connections and noted that horizontal directional drilling would not be allowed. • Raised concern regarding capacity of retention and retention basins and also potential for off-site runoff such as desert washes to flow into the Project Site and require additional retention volumes. • Requested that access roads be clearly discussed for both permanent and temporary access. The comments also indicate the potential need for encroachment permit and application process to assess impact on IID's operations and maintenance. • Raised concern regarding water source and adequate capacity for fire suppression and noted that no "tapping" of the Westside Main Canal shall be permitted. Nevertheless, water can be obtained in accordance with IID policies. • Raised concern regarding Site's high potential for expansive soils, and that work on the Westside Main Canal bank is restricted and typically not allowed to outside entities. • Raised concerns regarding Project grading near the Westside Main Canal. • Raised concerns regarding Project construction and public traffic with respect to conditions of the Westside Main Canal bank soils, structural strength, nearness to the water, traffic speed, traffic safety, traffic control, coexistence with IID Operations and Maintenance activities and potential conflicts. • Raised concern regarding potable water to be provided by IID. The above issues are addressed in Section 3.7, Hazards and Hazardous Materials.
4	Air Pollution Control District Curtis Blondell Environmental Coordinator	• Recommended that a CalEEMod (California Emissions Estimator Model) be used to determine the threshold of NOx emissions from construction equipment. • Noted that the Air District would like to reserve comments until it reviews the EIR. The above issues are addressed in Section 3.3, Air Quality
5	Imperial County Fire Department Andrew Loper Lieutenant/Fire Prevention Specialist	• Requested additional time to provide comments.

1.7.2 Scoping Meeting

Pursuant to CEQA Guidelines Section 15083, a public scoping meeting was held for the proposed Project to solicit input on the scope and content of the EIR. The scoping meeting was conducted by the County as the Lead Agency and took place on May 28, 2020 at 1:30 PM at the Board of Supervisors meeting room. No members of the public attended the meeting, and no comments were received.

1.7.3 Airport Land Use Commission Meeting

The Project was presented to the Airport Land Use Commission (ALUC) at a meeting on June 17, 2020, and meeting minutes are included in Appendix A. While the Project Site is outside an ALUC compatibility zone, it was submitted to ALUC for review because it includes a General Plan amendment. The Project was found to be consistent with the 1996 Airport land Use Compatibility Plan.

1.8 AVAILABILITY OF REPORTS

This Draft EIR, appendices, and documents incorporated by reference are available for public review at the ICPDS, 801 Main Street, El Centro, California, 92243, during normal business hours Monday through Friday. Electronic copies are also available for review at the City of El Centro Public Library, 1140 North Imperial Avenue, El Centro, California. Documents at these locations may be reviewed during regular business hours. This document is available for review online at the ICPDS's website: http://www.icpds.com.

All comments on the Draft EIR should be directed to:

David Black, Planner III
Email: DavidBlack@co.imperial.ca.us
Imperial County Planning & Development Services
801 Main Street, El Centro, California 92243

Upon completion of the public review period, written responses to all environmental issues raised will be prepared and made available for review by the commenting agencies at least 10 days prior to any public hearing on the proposed Project at which the certification of the Final EIR will be considered. Comments received and the responses to comments will be included as part of the record for consideration by decision-makers for the Project. Additional information on this process may be obtained by contacting the ICPDS at (442) 265-1736.

1.9 STRUCTURE OF THIS EIR

1.9.1 Draft EIR

This Draft EIR is arranged into the following sections, which contain the contents of an EIR as required by CEQA Guidelines Sections 15120 through 15132.

Executive Summary. This chapter provides a summary of the proposed Project, including a summary of Project impacts, mitigation measures, and alternatives to the proposed Project.

Chapter 1.0 – Introduction. This chapter explains the purposed of the document including Project terminology and overview of the Project; identifies the purpose and objectives of the Project; explains the review and certification process; identifies agencies responsible for review and/or consultation regarding the Project; explains the Project's relationship to statutes, regulations and other plans; identifies public participation opportunities and summarizes comments received on the NOP; provides information regarding the availability; and, outlines the structure of the document.

Chapter 2.0 – Project Description. This chapter provides a detailed description of the Project and its various components; identifies the Project's location and land ownership; specifies the General Plan and zoning designations; provides details regarding the Project's construction, operations, and decommissioning; identifies alternatives under consideration; and explains the intended uses of the EIR and authorizing actions.

Chapter 3.0 – General Environmental Setting. This chapter provides an evaluation of the 11 resource areas determined for inclusion in the EIR by the Initial Study. Each resource area includes a description of the regulatory setting, environmental setting, significance criteria, project impacts, mitigation measures, and level of significance after mitigation.

Chapter 4.0 – Cumulative Effects. This chapter evaluates the cumulative impacts related to each of the resource areas and determines if any cumulatively considerable significant impacts would occur as a result of Project implementation.

Chapter 5.0 – Alternatives. This chapter qualitatively analyzes impacts associated with alternatives to the Project relative to impact resulting from the Project. A summary matrix of impacts for each issue area is included to facilitate comparison of each alternative relative to the Project (greater, same, worse).

Chapter 6.0 – Other CEQA Considerations. This chapter provides a discussion of socio-economic impacts, significant and unavoidable environmental effects, growth-inducing impacts, significant irreversible environmental changes, and mandatory findings of significance.

Chapter 7.0 – Effects Found Not to Be Significant. This chapter contains a statement briefly indicating the reasons that various potential significant effects of a project were determined not to be significant.

Chapter 8.0 – EIR Preparers. This chapter lists all the individuals involved in the preparation of the EIR.

Chapter 9.0 – References. This chapter lists the data references used in preparing the EIR as well as the individuals and agencies consulted and cited in the text.

1.9.2 Documents Incorporated by Reference

As permitted by CEQA Guidelines Section 15150, this Draft EIR references several technical studies, analyses, and previously certified environmental documents. Information from the documents, which has been incorporated by reference, is briefly summarized in the appropriate section(s). The documents and other sources utilized in the preparation of this Draft EIR include but are not limited to the following.

- Imperial County General Plan
- Imperial County Municipal Code
- CED Westside Canal Battery Storage Project Initial Study, Stantec Consulting, Inc., April 9, 2020 and Notice of Preparation of a Draft Environmental Impact Report Final Checklist, Imperial County Planning & Development Services Department, Stantec Consulting Services Inc., April 13, 2020 (Appendix A.1)
- Initial Study/NOP Comment Letters (Appendix A.2)
- Visual Resource Impact Assessment, Westside Canal Battery Storage Project, Imperial County, California, Development Design Services & Graphic Access, Inc., July 2020 (Appendix B.1)
- Solar Glare Hazard Analysis: Westside Canal Battery Storage Project, Good Company: Justin Overdevest and Joshua Proudfoot, May 2020 (Appendix B.2)
- Land Evaluation and Site Assessment Analysis for the Westside Canal Battery Storage Project, Imperial County, California, RECON Environmental, Inc., January 18, 2021 (Appendix C.1)
- Economic Impact Analysis (EIA), Employment (Jobs) Impact Analysis (JIA), Fiscal Impact Analyis (FIA), Statement of Potential for Urban Decay, Development Management Group, Inc., December 4, 2020 (Appendix C.2)

- Air Quality Analysis for the Westside Canal Battery Storage Project, Imperial County, California, RECON Environmental, Inc., March 23, 2021 (Appendix D)
- Biological Resources Report for the Westside Canal Battery Storage Project, Imperial County, California, RECON Environmental, Inc., January 18, 2021 (Appendix E.1)
- Results of 2018 Burrowing Owl Habitat Assessment and Breeding Season Surveys for the Westside Canal Energy Center Project, RECON Environmental, Inc., August 3, 2018 (Appendix E.2)
- Results of 2018-2019 Burrowing Owl Non-Breeding Season Surveys for the Westside Canal Energy Center Project, RECON Environmental, Inc., April 8, 2019 (Appendix E.3)
- Jurisdictional Waters/Wetland Delineation Report for the Westside Canal Battery Storage Project, Imperial County, California, RECON Environmental, Inc., January 18, 2021 (Appendix E.4)
- Preliminary Geotechnical Investigation, NV5, October 28, 2019 (Appendix F)
- Greenhouse Gas Analysis for the Westside Canal Battery Storage Project, Imperial County, California, RECON Environmental, Inc., March 23, 2021 (Appendix G)
- Hazard Consequences Analysis Report, Stantec Consulting Services, Inc., April 6, 2020 (Appendix H.1)
- Phase I Environmental Site Assessment Westside Main Canal Energy Center, Liebert Road South of WSM Canal, Imperial County, California, GS Lyon Consultants, Inc., March 14, 2019 (Appendix H.2)
- Preliminary Drainage Study, Westside Canal Battery Storage Complex, Burns McDonnell, April 3, 2020 (Appendix I)
- SB 18 and AB 52 Tribal Consultation Correspondence (Appendix J.1)
- Results of Cultural Resources Survey of the Westside Canal Battery Storage Project, Imperial County, California, RECON Environmental, Inc., January 18, 2021 (Appendix J.2)
- Water Supply Assessment – Westside Main Canal Battery Storage, Dubose Design Group, January 2021 (Appendix K)
- Transportation Impact Analysis, Westside Canal Battery Storage Complex Project, Imperial County, California, Linscott Law & Greenspan, July 22, 2019 (Appendix L)
- Noise Analysis for the Westside Canal Battery Storage Project, Imperial County, California, RECON Environmental, Inc., January 18, 2021 (Appendix M)

1.10 ISSUES TO BE ADDRESSED

The issues evaluated in this EIR include the physical, biological, geology and soils, and other resources that have the potential to be affected by activities related to the Project. The issues were identified through the preparation of an Initial Study:

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Tribal Cultural Resources
- Utilities and Service Systems

1.11 ISSUES SCOPED OUT FROM FURTHER ENVIRONMENTAL REVIEW

- Cultural Resources
- Energy Resources
- Mineral resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation
- Wildfires

2.0 PROJECT DESCRIPTION

Consolidated Edison Development (CED) Westside Canal Battery Storage, LLC (Applicant), is proposing to develop, design, construct, own, operate, and maintain, and eventually decommission the CED Westside Canal Battery Storage Project (Project), a utility-scale energy storage complex with the capacity of up to 2,000 Megawatts (MW) at full build-out. The Project would store energy generated from the electrical grid, and optimally discharge that energy back into the grid as a firm, dispatchable resource. The Project Site is located on approximately 163 acres of land, 148 of which are owned by the Applicant, and the remaining land is owned by the Bureau of Land Management (BLM), IID, and a private landowner. The Project would be constructed multiple phases over a 10-year period with each phase ranging from approximately 25 MW to 400 MW. For the purposes of this analysis, Project construction is assumed to occur over three to five phases. Given the approximately 10-year development of the Project, the expected end date of the Project life cycle would be 30 years from the construction of the final phase, or no more than 40 years after the effective date of the Conditional Use Permit.

The Project would be comprised of lithium-ion and/or flow battery energy storage system (BESS) facilities, a behind-the-meter solar energy facility, a new on-site 230 kilovolt (kV) loop-in switching station, a 34.5 kV to 230 kV Project substation, underground electrical cables, and permanent vehicular access to and from the Project Site over a proposed clear-span bridge spanning IID's Westside Main Canal. The proposed loop-in switching station would connect the Project to the existing IID Campo Verde-Imperial Valley 230 kV radial gen-tie line, which connects to the Imperial Valley (IV) Substation and the California Independent System Operator (CAISO), approximately one-third mile south of the Project Site. CED has submitted the necessary Interconnection Request Applications to the CAISO and IID.

The Project complements both the existing operational renewable energy facilities, and those planned for future development in the County, and supports the broader Southern California's bulk electric transmission system by serving as a firm, dispatchable resource.

2.1 PROJECT OBJECTIVES

The Project would meet the following objectives:

- To construct and operate utility-scale energy storage technologies that are safe, efficient, and environmentally responsible
- To provide load-serving entities and system operators the ability to effectively manage intermittent renewable generation on the grid, thereby creating reliable, dispatchable generation as a firm, dispatchable resource
- To facilitate deployment of additional renewable energy resources in furtherance of the State of California Renewable Portfolio Standard
- To develop an up to 2,000 MW energy storage facility on previously disturbed land that is no longer used for agricultural production
- To promote local economic development by maximizing the utilization of the local workforce for a variety of trades and businesses

2.2 PROJECT LOCATION AND SITE DESCRIPTION

The Project Site is in the unincorporated Mount Signal area of the County, approximately eight miles southwest of the City of El Centro and approximately 5 miles north of the U.S.-Mexico border.

2.2.1 Existing Site Conditions

The Project Site is generally flat with elevation ranging from sea level in the far southwestern corner to 24 feet above mean sea level in the northeastern corner. The Project Site currently consists of vacant fallow agricultural land. There are two irrigation water pumping stations at the Project Site, one at the central northern area of the Project Site (this area is overgrown with brush) and one at the central southern area. These pumping stations were used to pump irrigation water from the Westside Main Canal into a concrete lined ditch that runs north-south across the center of the southern portion of the Project Site. The pumping stations and concrete lined ditch appear to be abandoned. Man-made berms exist along the boundaries of the inactive agricultural areas, and small dunes and sandy hummocks occur west and south of the Project Site. There are no active agricultural uses on the Project Site. The two CED-owned parcels have remained inactive since 2006 and the parcels on the north have remained inactive since 2013 (RECON Environmental 2021). There is a fenced area at the northwest corner of Liebert Road and the Westside Main Canal that previously had a rural residence occupying the Project Site. The residence has been removed and the Project Site is overgrown with non-native brush.

Infrastructure within the Project Site includes the Westside Main Canal; a 230 kV single-circuit IID transmission line, a IID distribution line, and the Campo Verde 230 kV radial gen-tie line along with their associated easements and maintenance roads; and Liebert Road, which is a County road. Within the Project Site, all infrastructure associated with the previous agriculture operations south of the Westside Main Canal has been removed or is deteriorated and non-functional.

Current activities on the Project Site are minimal and largely limited to the land north of the Westside Main Canal. These activities comprise IID, Customs and Border Protection (CBP), agricultural operations, and occasional fishing activity along the Canal. Vehicle travel in the Project area is limited along the Canal roads (including Mandrapa Road) and Liebert Road. Infrequent vehicle activity associated with the active agriculture occurs on Liebert Road and Mandrapa Road, north of the Canal. Some vehicular activity may also occur from CBP monitoring.

2.2.2 Surrounding Land Uses

The Project Site is approximately one-third mile north of the Imperial Valley Substation (IV Substation) and directly south of the intersection of Liebert Road and the Westside Main Canal. The Project Site and surrounding areas are generally characterized by unimproved, flat, and barren terrain. The Project Site is divided by the Canal with a portion located to the north and a portion located to the south. On the southern portion of the Project Site, BLM lands are located to the south and west, and vacant private land lies to the east. The Campo Verde solar generation facility is located north of the Project Site, across the Canal. Parcels farther north of the Project Site also include a mix of agricultural uses and solar generation facilities. The parcel immediately east of the Project Site is undeveloped. The BLM land south and west of the Project Site is also undeveloped. Figure 2.2-1 shows the surrounding land uses.

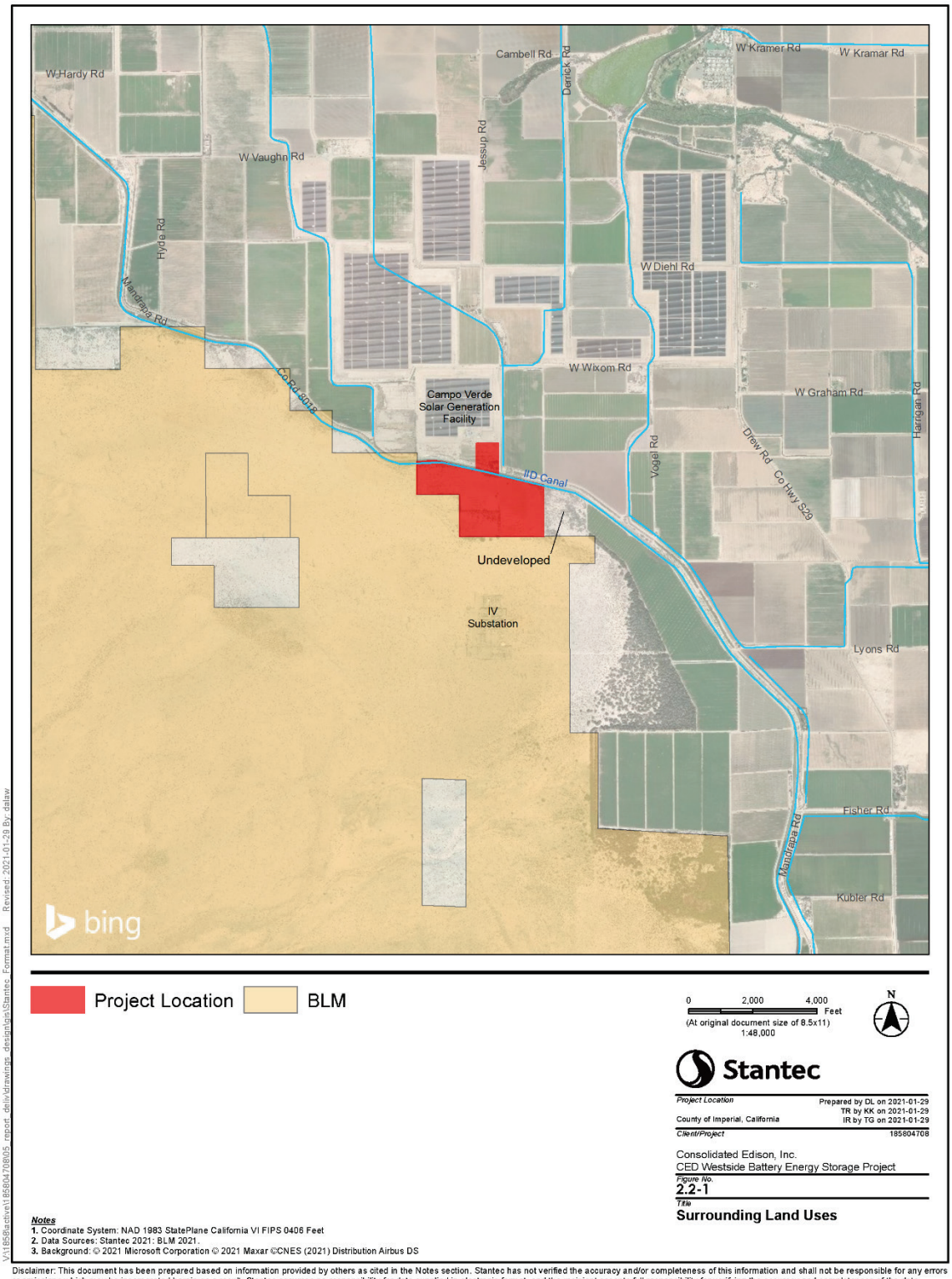

Figure 2.2-1 Surrounding Land Uses

2.2.3 General Plan and Zoning

The General Plan land use designation for the Project Site and parcels immediately to the north and east is Agriculture. The parcels to the west and south are designated as Recreation / Open Space. The County's General Plan land use designation and zoning does not apply to BLM lands farther to the west. The zoning designation for the Project Site and all the parcels immediately adjacent is A-3.

The application for the Project proposes a General Plan Amendment and Zone Change to change the land use designation of the Project Site from Agriculture to Industry, and zoning from A-3 to Medium Industrial (M-2) zoning. A Conditional Use Permit (CUP) would be required and specifically limited to energy production/use.

2.3 PROJECT COMPONENTS

The Proposed Project would construct a utility-scale battery storage facility in multiple phases over a 10-year period, with each phase ranging from approximately 25 MW to 400 MW per phase. The total nameplate (or rated capacity) capacity of the Project at full build-out (all phases completed) would be approximately 2,000 MW. The actual Project configuration would depend on the size of the individual phases and the type of battery technology deployed. The Project components are discussed in detail below.

2.3.1 Common Components

Phase 1 of the Project would include construction of the Operations and Maintenance (O&M) facilities, water connections and water mains, telecommunications, stormwater retention, switching station and Project substation, legal permanent vehicle access including clear-span bridge over the Westside Main Canal, as well as the first energy storage facility. The northwest area of the Project Site would serve as the location for the common facilities, which include the switching station, Project substation, and the O&M facilities. Figure 2.3-1 shows the conceptual site plan. With the Project being built in phases, the necessary infrastructure, such as water-mains, retention ponds and access roads, would be built out to serve the Project phases from west to east and expand over time to serve each phase.

A summary of the common facilities is presented below:

- 230 kV loop-in switching station
  - Connection to Campo Verde-Imperial Valley 230 kV radial transmission line
  - Located on Applicant property
- Project substation
- O&M facilities
- Project parking
- Stormwater retention basins
- Fencing and gates
- Interior access roads
- Clear-span bridge

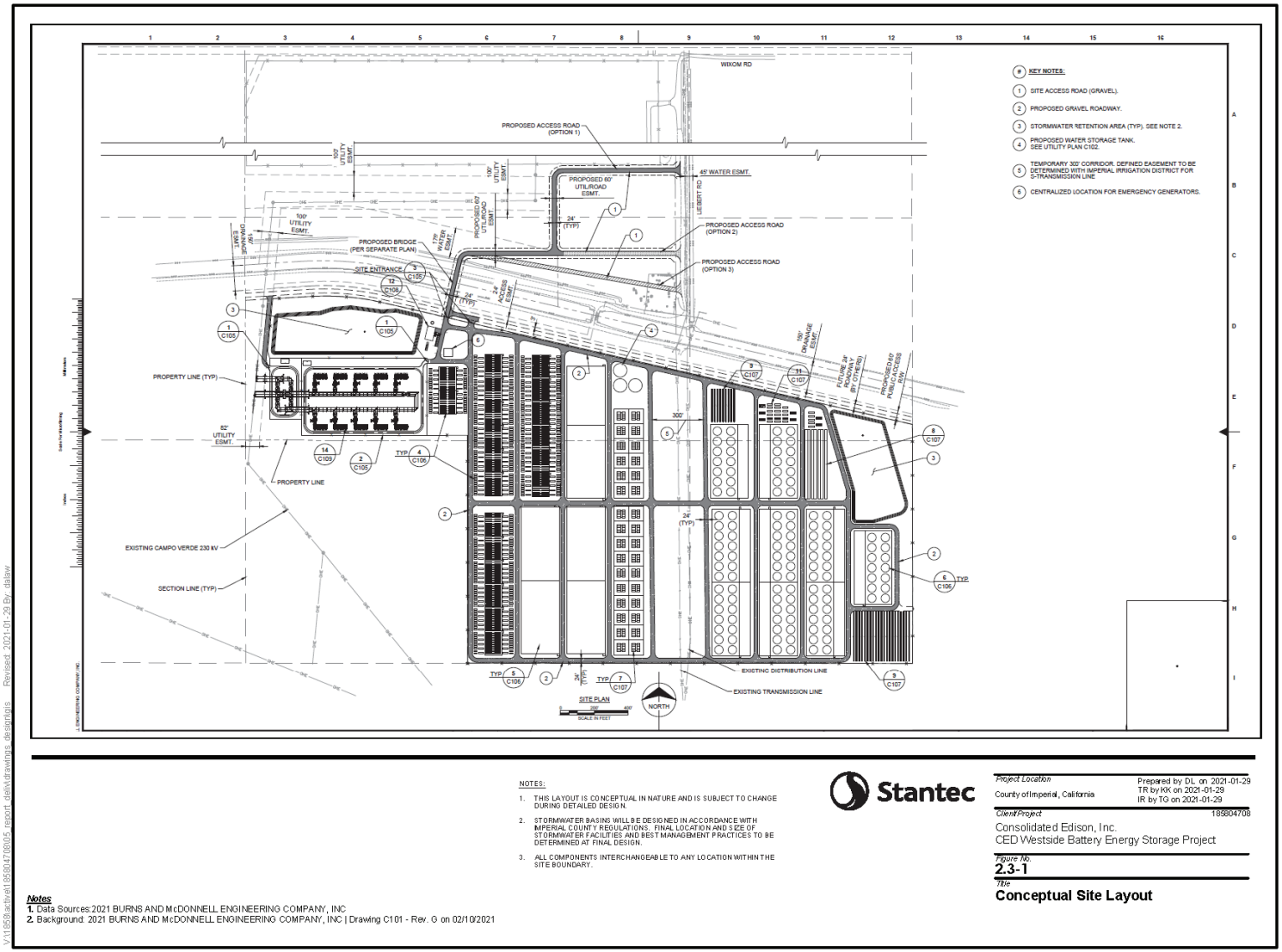

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Figure 2.3-1 Conceptual Site Layout

Industrial buildings, warehouses, engineered containers, and/or electrolyte storage tanks would be the primary structures needed to house the various Project components. Other components to be located on the Project Site and adjacent to the proposed buildings, warehouses, containers, and tanks include the following:

- Inverters, transformers, power distribution panels
- Underground water-main loop for Project operation and fire suppression
- Underground cable to connect to Project substation
- Project Site access roads (unpaved/crushed rock)
- Fire suppression water storage tanks
- Above-ground potable water storage tanks
- Heating, Ventilation, and Air Conditioning (HVAC) units
- Ground-mounted or roof-mounted Photovoltaic arrays
- Emergency backup generator(s)

2.3.1.1 Operations and Maintenance Facilities

The O&M facilities are expected to be the only manned facilities on the Site. It would include up to approximately 20 full time employees depending upon the number of phases and type of energy storage facility constructed. O&M employees would work typical weekday hours but may work extended hours, including weekends and some 24 hours a day (three, eight-hour shifts), depending upon the Project needs. For sanitary waste, the Project would include a septic leach field to be located near the O&M facilities. The O&M facilities would also require an HVAC unit.

2.3.1.2 Water Connections

During construction, the Project would utilize at least two temporary water connections to the Westside Main Canal for dust suppression and other construction uses. The location and size (including the required gallons per minute [gpm]) and routing of these connections will be determined in coordination with IID. The required facility upgrades needed to tap into the Canal would be designed and constructed by IID. It is anticipated that approximately 210 acre-feet (AF) of water would be required for the full construction of the Project, over the projected 10-year construction time frame (Appendix K).

During operations, potable water would be delivered to the site via haul truck and stored in above ground storage tanks. Water usage for the O&M facilities and personnel would be less than 10,000 gallons per day (gpd). For fire suppression at full build-out, approximately 1,000,000 gallons of raw water from the Westside Main Canal would be stored on-site in a total of 5 tanks with a capacity of 200,000 gallons each.

2.3.1.3 Stormwater Retention

As part of the Project, stormwater retention basins would be constructed at designated locations throughout the Site, based upon the hydrology analysis, to channel and manage stormwater flows. The retention basins would be sized in accordance with the County's Design Guidelines. Based upon these design guidelines, the basins would be able to retain at least three inches of rainfall across the entire Site. The preliminary retention basin design is estimated to have a maximum depth of 5 feet with 4:1 side slopes and provides a retention volume of approximately 40.8 AF. The basins would be constructed using native soil, would be unlined, and able to percolate the anticipated runoff within 72 hours of a rain event. Retention basins may be added with each phase, such that the site might have different drainage areas contributing to each basin.

2.3.1.4 Access Roads

Permanent Vehicular Access

There are no improved roadways in the immediate vicinity of the Project Site that are able to provide legal access to the Project Site. The nearest freeways are Interstate 8 (I-8), located approximately five miles north of the Project Site, and State Route (SR) 98, located approximately five miles south of the Project Site. Drew Road, a 2-lane collector, is located approximately one mile east of the Project Site. All roadways that would be used to access the Project Site from I-8 are currently paved, except for the portion of Liebert Road south of Wixom Road. However, this segment would be paved or graveled during construction in Phase 1.

Private Access Roads

The Project Site is surrounded by private landowners to the east, BLM land to the south and west, and IID maintenance roads and the Westside Main Canal to the north. Due to the property having no current legal direct vehicular access routes, the Applicant is proposing to construct access roads on both the north and south side of the Canal on private land. In addition, the Project would dedicate up to 60 feet of frontage along the north project fence line and south of the IID maintenance road to be used as a buffer from the Westside Main Canal.

As shown in Figure 2.3-1, two options are currently contemplated as part of the private internal access road system. The design configuration would allow all areas of the Project Site to be readily accessed. The proposed new access roads would be designed and constructed in accordance with the County/IID standards for roadway design.

Clear-Span Bridge

A permanent new clear-span County/IID-specified bridge would be constructed over the Westside Main Canal (Figure 2.3-2 and Figure 2.3-3). The bridge would span the Canal to connect to the proposed access roads on the north side of the Canal. The proposed north access road would ultimately connect the Project to Liebert Road. Construction of the permanent clear-span bridge spanning the Canal requires CED to have access to both the north and south sides of the Westside Main Canal to perform the necessary construction activities.

Temporary Access Roads

In addition to being necessary to facilitate construction of the new permanent clear-span bridge, access from both the north side and south side of the Westside Main Canal is being considered that would allow CED to commence construction on the initial phase (Phase 1) of the Project simultaneously, thereby shortening the duration of construction. CED is evaluating various options for temporary construction access, including accessing the Project Site from the south side of the Canal off SR 98, as well as options involving access from the north side of the Canal from I-8. The preferred temporary access option would be used until construction of the permanent clear-span bridge is completed. For the purposes of this EIR analysis, it is assumed that construction workers would travel along Interstate 8 (I-8) and head approximately 5 miles south to the Project Site and would utilize the IID Fern Check Bridge as a temporary pedestrian bridge until the permanent bridge is constructed.

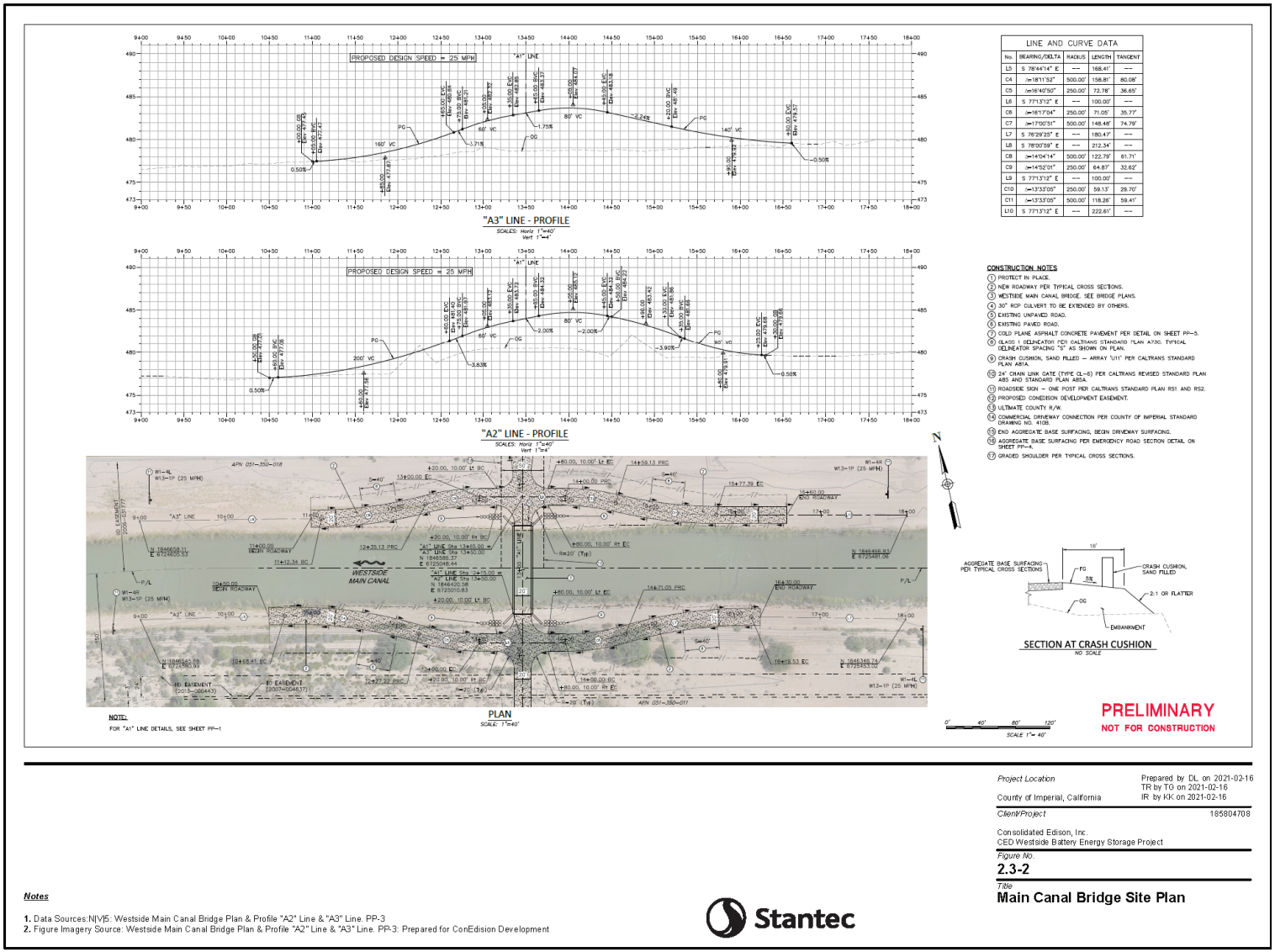

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Figure 2.3-2 Westside Main Canal Bridge Site Plan

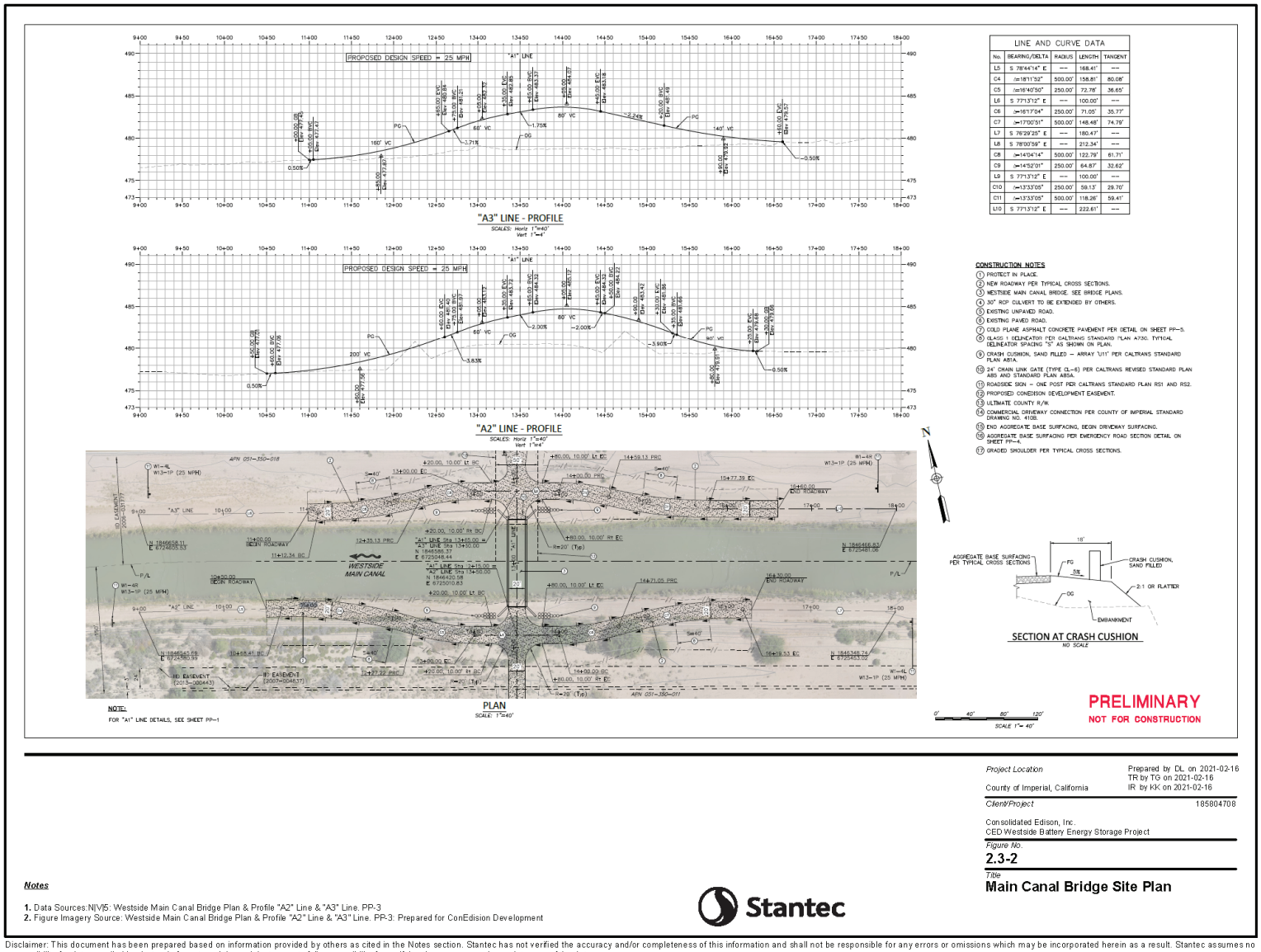

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Figure 2.3-3 Westside Main Canal Bridge Elevation

2.3.1.5 Switching Station and Substation Components

The proposed 230 kV loop-in switching station would allow the Project to connect to the existing IID Campo Verde-Imperial Valley radial gen-tie line. The switching station would consist of, but is not limited to the following components:

- 230 kV bus and associated switching devices
- Tubular steel support structures
- Circuit breakers
- Grounding grid
- Prefabricated modular control building to house Supervisory Control and Data Acquisition (SCADA) (unoccupied except during inspection and maintenance)

The Project would also include the construction of a substation located at the western portion of the Site and would include equipment such as switches, circuit breakers, and transformers. The Project substation would be a central hub for the 34.5 kV collector circuits from the energy storage system and would step-up the electricity voltage from 34.5 kV to 230 kV. The substation Site would consist of, but is not limited to the following major components:

- 34.5 kV bus and associated switching devices
- 230 kV bus and associated switching devices
- 34.5/230 kV transformers
- 34.5 kV capacitors, as needed
- Tubular steel support structures
- Circuit Breakers
- Grounding grid
- Prefabricated modular control building to house SCADA (unoccupied except during inspection and maintenance)

The switching station and substation would be constructed as part of Phase 1 of the Project and would be situated on approximately 10 acres. The entire 10-acre site would be graded as part of Phase 1. Construction sequencing would occur as follows:

- Grade site and install drainage features as required
- Install concrete foundations
- Install grounding grid
- Install steel support structures
- Install bus, switching devices, capacitors
- Install control building
- Install fencing
- Install transformer

The applicable 34.5 kV infrastructure, 230 kV circuit breaker, 34.5/230 kV transformer bus structures and capacitor banks would be constructed in conjunction with each new Project phase. The transformers would contain mineral oil or natural esters oil and would not contain sulfur hexafluoride. The substation would be an open-air substation (not gas insulated).

2.3.1.6 Fire Protection/Fire Suppression

Fire protection systems for battery systems would be designed in accordance with California Fire Code and would take into consideration the recommendations of the National Fire Protection Association (NFPA) 855.

Depending on the battery storage technology used in each phase, fire suppression agents such as Novec 1230 or FM 2000, or water may be used as a suppressant. In addition, fire prevention methods would be implemented to reduce potential fire risk, including voltage, current, and temperature alarms. Energy storage equipment would comply with Underwriters Laboratory (UL)- 9540[1] and test methods associated with UL-9540A. The Project would include either Li-ion and/or flow batteries. Flow batteries are generally not flammable and would not require fire suppression systems. For Li-ion batteries storage, a system would be used that would contain the fire event and encourage suppression through cooling, isolation, and containment. Suppressing a Li-ion (secondary) battery is best accomplished by cooling the burning material. A gaseous fire suppressant agent (e.g., 3M™ Novec™ 1230 Fire Protection Fluid or similar) and an automatic fire extinguishing system with sound and light alarms would be used for Li-ion batteries.

In locations where energy storage equipment is located within buildings, automated fire sprinkler systems would be designed in accordance with the California Fire Code. A fire loop system and fire hydrants would be located throughout the Site for general fire suppression. The fire loop would be built out and extended to serve each phase as the Site is developed. Fire water would be obtained by tapping into the Westside Main Canal and would be stored in on-site tanks adjacent to the Canal. Multiple tanks would be required to provide the needed fire flow volume, and the tanks would be installed in phases as the site is developed and eventually built out. Buildings and containers for both Li-ion and flow batteries would be unoccupied enclosures. These buildings would have an automatic sprinkler system designed in accordance with California Fire Code Section 903 to address local building code requirements.

To mitigate potential hazards, redundant separate methods of failure detection would be implemented. These would include alarms from the Battery Management System (BMS), including voltage, current, and temperature alarms. Detection methods for off gas detection would be implemented, as applicable. These are in addition to other potential protective measures such as ventilation, overcurrent protection, battery controls maintaining batteries within designated parameters, temperature and humidity controls, smoke detection, and maintenance in accordance with manufacturer guidelines. Flow battery tanks would be designed to have secondary containment in the event of a failure. Remote alarms would be installed for operations personnel as well as emergency response teams in addition to exterior hazard lighting. In addition, an Incidence Response Plan would be implemented depending upon the technology installed for each phase.

Additionally, the Project Applicant would contribute its proportionate share to purchase, a Type 1 Fire Engine which shall meet all NFPA standards for structural firefighting for the County Fire Department. The Type 1 Fire Engine would be housed off-site within Fire Station #2, located approximately 12 miles from the Project Site.

2.3.1.7 Supervisory Control and Data Acquisition

SCADA controls would be incorporated to allow for local and remote monitoring of the battery storage system. The Applicant anticipates installing fiber on the Site for telecommunications and may also install wireless communications such as microwave, cellular (e.g., rooftop or tower), or satellite. The fiber optic telecommunications cables would connect the proposed substation to the IV Substation, utilizing existing transmission lines. The length of this proposed fiber optic telecommunications cable route is approximately one-third of a mile.

[1] An energy storage system (ESS) certified to UL-9540 is comprises a UL-1973 certified stationary battery pack used in conjunction with a UL-1741 certified inverter.

2.3.2 Battery Storage Components

The Project would store electrical energy from the electrical grid in the form of chemical energy in Li-ion and/or flow batteries, as further discussed below. Energy storage is the capture of energy produced at one time for use at a later time. A device that stores energy is generally called an accumulator or battery. Energy storage involves converting energy from forms that are difficult to store to more conveniently or economically storable forms. Due to requirements for energy storage, Project components, such as the switching station, substation, transformers, and inverters, will be energized at all times with the potential to charge or discharge. The battery storage system would be housed in buildings or containers, which may include roof or ground mounted photovoltaic (PV) arrays and other support equipment and structures. The proposed battery enclosure buildings would total up to 500,000 square feet. The design of the battery enclosures is preliminary. Various sizes and numbers of electrical enclosures would be used depending on the final battery vendor selected.

2.3.2.1 Battery Modules Technology

Lithium-Ion Battery

A Li-ion battery is a type of rechargeable battery that moves from the negative electrode through an electrolyte to the positive electrode during discharge, and back when charging. Li-ion batteries use an intercalated lithium compound as the material at the positive electrode and typically graphite at the negative electrode. The batteries have a high energy density, no memory effect and low self-discharge. Li-ion batteries would be mounted in racks. These racks would be either integrated into either containers or buildings. Li-ion battery racks sit side-by-side and typically have 48 inches of spacing in front of the rack and 18 inches of spacing in the rear of the rack. Spacing may be increased for serviceability. The Project design would meet minimum spacing required by code.

Flow Battery

A flow battery is a rechargeable fuel cell in which an electrolyte containing one or more dissolved electroactive elements flows through an electrochemical cell that reversibly converts chemical energy directly to electricity. A flow battery consists of cell stacks, tanks, pumps, and piping. The cell stack allows for the flow of two electrolyte solutions separated by a membrane. The cell stack also consists of two electrodes used as the current collector. When electricity is applied to the system, an ion exchange occurs between the two electrolyte solutions, which creates a positive and negative charged electrolyte. The tanks store the positive and negative charged electrolyte solutions separately, potentially consisting of separate tanks. Pumps are used to discharge the battery by reversing the flow of the electrolyte through the cell stack which reverses the chemical reaction and produces electricity. Piping is used to connect the cell stacks, tanks, and pumps. The cell stack modules, pumps, and controls would be installed inside industrial buildings or pre-engineered outdoor enclosures. Flow battery cell stack spacing would be dictated by the final manufacturer design. Electrolyte storage tanks and associated piping would be located indoors or outdoors, depending on the technology.

Containers for both technologies are typically separated by 15 feet, with some exceptions, as some manufacturers (Li-ion and flow) situate a select number of containers side-by-side based on their design. Buildings for the Project would be separated by approximately 150 feet, when divided by an internal Project road, and would be side-by-side and adjacent to each other when not divided by a road. This is pending final building size and design.

2.3.3 Backup Generators

The Project would include emergency backup generator(s) to supply auxiliary power to the facility during rare events in which the entire facility or portions of the facility are disconnected from the electrical grid. The project would use a hybrid approach to emergency backup power supply. Rather than relying exclusively on backup generators, the hybrid approach involves dedicating a portion of the battery storage system capacity as a source of emergency backup power. The reserved battery storage capacity would be approximately three to four percent of the size of the constructed battery storage system. This hybrid approach would also rely on the use of on-site, behind-the-meter (BTM) solar power generation to supplement the facility's backup power supply needs. In addition, propane-fueled generators would augment the backup battery storage capacity and the BTM solar power generation.

The generators would be sized to accommodate control systems and HVAC system loads for equipment protection. Approximately 1.25 MW of backup power generation would be needed for every 100 MW of installed battery storage capacity. Each propane-fueled generator would have a capacity of 150 kW or larger. The purpose of the generators would be to provide system safety for events in which the transmission interconnection and the on-site solar generation system are not available, by supplying the battery HVAC system to maintain battery safety and warranty temperature parameters.

The propane-fueled generators would be installed in a central location near common facilities or distributed among individual buildings or containers. The generators would be periodically tested (monthly) to maintain backup capability in the event of a grid outage. All generators would be subject to ICAPCD review and permitting requirements.

2.3.4 Solar Facility Components

On-site, behind-the-meter, PV solar generation would serve a portion the Project's auxiliary power needs and be deployed throughout the Project Site during each phase. Each PV module would be constructed out of either a cadmium telluride (CdTe) semiconductor material or poly-crystalline silicon semiconductor material.

The PV modules would be organized into electrical groups referred to as an array. Arrays would be ground or rooftop mounted. The size of each array would depend upon the capacity of the associated inverters, which in turn would depend on the type and size of the inverters available for purchase and other related electrical design considerations. Conductors would extend from the PV panels to the inverter(s) via a cable management system either underground or above-ground. The output of the inverter(s) will be connected to a transformer (if needed), to match the voltage at the point of interconnection (480 volt [V], 34.5 kV, etc.). The interconnection point would be behind the on-site service meter. The transformers would connect to the system auxiliary load with an above ground or underground cable management system, such as overhead power lines, conduit, direct burial cables, etc.

2.4 SITE SECURITY

A six-foot-tall fence (e.g., chain-link) topped with one-foot barbed wire would be installed around the entire Project Site for safety and to control access. The switching station and substation would also have fences installed around their perimeter. A camera-equipped call button would be installed at the front entry gate to the Site which would be monitored from the Project's O&M facilities. Throughout the Site at various points, security cameras may be installed to monitor other areas of the Project Site during operations. During the construction of each Project phase, on-site security personnel would be present between dusk and dawn and during hours of non-active construction.

2.5 INTERCONNECTION OPTIONS

The proposed point of interconnection for the Project is the IV Substation 230 kV bus. As reflected in the Figure 2.3-1, the Project would include a new loop-in switching station on the Project Site to connect to the existing IID Campo Verde-Imperial Valley 230 kV Radial gen-tie line. This existing gen-tie line connects to the IV Substation approximately one-third mile south of the Project. This location is the point of interconnection to the CAISO grid. The Applicant has submitted the necessary Interconnection Request Applications to the CAISO and IID.

2.6 PROJECT OPERATION

Operation of the Project would require routine maintenance and security. It is anticipated that the Project would employ a plant manager and an O&M manager, as well as the addition of a facility manager once the complex deploys approximately 500 MW of capacity. The complex would also employ staff technicians, with at least one additional technician for approximately every 250 MW of capacity.

Operation of the Project at full build-out would require up to approximately 20 full time employees depending upon the number of phases and type of energy storage facility constructed. O&M employees would work typical weekday hours but may work extended hours, including weekends and some 24 hours a day, depending upon the Project needs. Assuming two one-way trips per employee, the Project would be anticipated to generate up to 40 trips per day from all maintenance and security personnel.

The components that make up the energy storage systems and common facilities require various preventative maintenance and at times corrective maintenance. The O&M staff would maintain the Project in accordance with manufacturer and industry best practice maintenance schedules and requirements. Depending on the technology selected for the energy storage component, the substation and transmission lines as well as behind the meter solar inverters and transformers would be energized at all times.

2.7 DECOMMISSIONING

The Project CUP would expire 40 years after the Effective Date, at which point the Project would undergo decommissioning. in accordance with a Decommissioning Plan. As part of the decommissioning activities, all site improvements that are no longer in use and cannot be repurposed will be removed from the Project Site. Battery modules would be removed from the racks and packaged for return to the manufacturer or their approved Recycling Partner(s) for dismantling, material processing, and recovery. The recycling process would take place entirely off-site. Metals, including copper and aluminum, and metal alloys would be recovered from the process. All solar PV panels would be disconnected and removed from the site and recycled as appropriate. The connecting underground cables, racking systems and support structures would be completely removed. The electrical substation, switching station, inverters, and transformers would also be disassembled and removed from the Site. Any spent or surplus hazardous chemicals collected from the decommissioning process would be transported off-site for disposal according to applicable State and County restrictions and laws governing the disposal of hazardous waste similar to operations. All demolition debris would be transported to an off-site disposal location identified at the time of decommissioning. All infrastructure improvements included as part of the Project that can continue to be used or repurposed (e.g., Westside Main Canal bridge, access roads, O&M building, and buildings housing BESSs) would remain onsite after decommissioning of the Project based on County approval. Any decommissioning implemented at the end of the Project's life would adhere to Imperial County's requirements.

The Project CUP agreement would expire after 40 years from the Effective Date. Following the expiration of the CUP, the future of the Project Site and decommissioning is not reasonably foreseeable due to the inability to predict advancements in rapidly changing energy storage technology, future market conditions or future development of adjacent areas. It is possible for the Applicant, or successor-in-interest, to seek extension or reissuance of the CUP. Alternatively, it may be determined at that time of CUP expiration, due to market conditions, that Project tear down, repurposing or redevelopment is appropriate. Moreover, any action following the expiration of the CUP will be subject to discretionary review and compliance with CEQA. Therefore, in compliance with established CEQA principles, this EIR will not engage in speculation and will only analyze the known project phases – construction, operation, and decommissioning.

2.8 CONSTRUCTION

2.8.1 Phasing

Construction of the first phase would include access roads, permanent clear-span bridge across the Westside Main Canal, switching station, substation, O&M building, and the first battery storage facility. The Project perimeter fence, ground grid, and grading would also be completed during Phase 1 construction. SCADA and Alternating Current (AC) collection circuits would be constructed per their corresponding phase. If approved, the Project is anticipated to begin construction in 2021. The Project would be constructed in three to five phases over a 10-year period with each phase ranging from approximately 25 MW to 400 MW. Assuming a 10-year development period and a 30-year operating life for each phase, the expected end date of the Project would be 30 years from the construction of the final phase or 40 years after the CUP Effective Date. It is anticipated that each phase would be constructed within one to two years of each other. For the purposes of this CEQA analysis, the construction activities are estimated to last for approximately 32 months to complete the full Project build-out. The actual timing and size of each construction phase would be dependent on market conditions and the Applicant's ability to secure commercial contracts with prospective customers.

2.8.2 Construction Access

To access the Project Site, construction workers would travel along I-8 and head approximately five miles south to the Project Site and utilize the IID Fern Check Bridge as a pedestrian bridge until the permanent clear-span bridge is constructed. Parking would be located on the north side of the Canal.

2.8.3 Equipment and Workforce

Construction would include the use of standard construction equipment such as scrapers, excavators, loaders, and water trucks, and other similar machinery. Construction equipment would be used for Site preparation activities such as clearing, grading, perimeter fencing, development of staging areas and Site access roads; and would involve facility installation activities, including support masts, trenching utility connections, construction of electrical distribution facilities, O&M facilities, access roads and clear-span bridge. Delivery trucks also would bring materials to the Site. Depending on the specific phasing of the Project and construction schedule, on-site equipment may be used simultaneously or in phases.

During peak construction activities, approximately 200 workers and 30 daily deliveries would be required. Construction staff and equipment would be determined based on the size and design specifications of each phase. Table 2.8-1 below shows estimates of the construction schedule and equipment that would be needed for each phase. It is anticipated that the common facilities would be constructed simultaneously with the first phase of the Project in order to bring both online at the same time. Construction activities

would only occur Monday through Friday, between the hours of 7:00 AM and 7:00 PM, or Saturday, between the hours of 9:00 AM and 5:00 PM, excluding holidays, per County Ordinance.

Table 2.8-1 Estimated Construction Schedule and Equipment

Construction Equipment	Phase 1 (12 months) Bridge	Phase 1 (12 months) Substation	Phase 1 (12 months) Battery Storage	Phases 2–5 (20 months) Battery Storage
Wheeled Loader	—	—	1	1
Scraper	—	—	1	1
Grader	—	—	1	1
Dozer	—	—	1	1
Excavator	—	—	1	1
Backhoe	1	1	1	1
Rollers	1	1	1	1
Forklift	1	1	1	1
Crane	—	3	3	3
Skid Steer	—	1	2	2
Water Truck[1]	—	—	1	1
Drill Rig	1	—	—	—

NOTE:
Each construction activity would also require a number of pick-up trucks. Emissions associated with pick-up trucks are included in the worker commute calculations.
[1]Water truck modeled as off-highway truck.
Source: Appendix D

2.9 SCHEDULE

Depending on the size of the battery system for a given phase, construction, and commissioning (approval to operate) for each phase is anticipated to take approximately 6 to 12 months. The first phase of construction, as well as construction of the first battery storage phase, is anticipated to last for 12 months. Total construction of the subsequent battery storage phases is anticipated to last for 20 months. The 100-200 MW first phase would require build out of Project common facilities and components, roads, and the proposed permanent clear-span bridge. Subsequent phases would require improvements such as additional substation equipment, water mains and Site road extensions, but would not require construction of additional common facilities.

2.10 DISCRETIONARY ACTIONS

The following permits and approvals may be required to implement the Project. Additional permits and approvals may also be required. This environmental document is intended to address the environmental impacts associated with all of the following decision actions and approvals:

2.10.1 County of Imperial

The County of Imperial has the following discretionary powers related to the Project:

- **General Plan Amendment:** The Project proposes a GPA to change the land use designation for the Project Site from Agriculture to Industry
- **Zone Change:** The Project proposes a Zone Change from Heavy Agriculture (A-3) to Medium Industrial (M-2)
- **Conditional Use Permit:** The use would be limited to Energy Production/Use and would require a CUP to allow a utility-scale energy storage complex in an industrial zone
- **Development Agreement:** The applicant may pursue a Development Agreement with the County for the Project
- **Adoption and Certification of the Final EIR:** The Imperial County Board of Supervisors has authority to determine if the environmental document is adequate under CEQA
- **Approval of Project**: The Imperial County Board of Supervisors would consider approval of the Project

Other local approvals that may be required:

- Encroachment permits
- Parcel map
- Grading permits
- Building permits
- Decommissioning pan
- Other County approvals as necessary to develop the project

2.10.2 Other Agency Required Approvals

- **California Department of Fish and Wildlife (Trustee Agency):** State Endangered Species Act compliance, California Native Plant Protection Act, Streambed Alteration Permit
- **California Regional Water Quality Control Board, Colorado River Basin, Region 7:** Section 401 Water Quality Certification, General Construction Activity Storm Water Permit
- **California Air Resources Board:** Review of EIR
- **California Energy Commission:** Review of EIR
- **California Public Utilities Commission:** Review of EIR
- **California Department of Toxic Substances Control:** Review of EIR
- **Imperial County Air Pollution Control District:** Rule 801 compliance
- **Imperial County Fire Department:** Review of the Site Plan and approval of the proposed fire system
- **United States Army Corps of Engineers:** The Project may impact jurisdictional waters and therefore, a Section 404 Permit may be required from the Corps

3.0 ENVIRONMENTAL IMPACT ANALYSIS

Introduction to Environmental Analysis

In accordance with CEQA Guidelines Section 15126.2, this EIR identifies and focuses on the significant direct and indirect environmental impacts of the Westside Canal Battery Storage Project, giving due consideration to its short- and long-term impacts. Short-term impacts are generally those associated with construction and decommissioning of the Project, while long-term impacts are generally those associated with the operation of the Project components.

As described in Chapter 1.0, this analysis focuses on a limited number of environmental resource topics. Other topics have already been addressed in the analysis that accompanied the Notice of Preparation (Appendix A.1). Sections 3.1 through 3.11 of this EIR contain discussions of the potential impacts related to the construction, operation, and decommissioning of the Project.

Environmental Resource Areas

The potential environmental impacts associated with the implementation of the Project are evaluated for the following environmental resource areas:

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Tribal Cultural Resources
- Utilities and Service Systems

Organization of Environmental Resource Areas

Chapter 3 provides an analysis of impacts for the environmental topics that the County determined could result in “significant impacts”, based on preparation of an Initial Study (Appendix A.1) and review by the County’s Environmental Evaluation Committee and responses received during the scoping process, including the NOP review period and public scoping meeting (Appendix A.2)

Sections 3.1 through 3.11 discuss the environmental impacts that may result from implementation of the Project. Where impacts are identified, recommendations for mitigation measures are proposed that, when implemented, would reduce significant impacts to less than significant. Each environmental issue area in Chapter 3 contains a description of the following:

- **Regulatory Framework** presents the laws, regulations, plans, and policies that are relevant to each issue area. Regulations originating from the federal, state, and local levels are each discussed as appropriate.

- **Environmental Setting** presents the existing environmental conditions on the Project Site and within the surrounding area as appropriate, in accordance with CEQA Guidelines Section 15125. The extent of the environmental setting area evaluated (the Project study area) differs among resources depending on the locations where impacts would be expected. For example, air quality impacts are assessed for the air basin (macroscale), as well as the Project vicinity (microscale); whereas, aesthetic impacts are assessed for the Project vicinity only.

- **Thresholds of Significance** identifies the thresholds of significance used to determine the level of significance of the environmental impacts for each resource topic, in accordance with CEQA Guidelines Sections 15126, 15126.2, and 15143. The thresholds of significance used in this EIR are based on the checklist presented in Appendix G of the CEQA Guidelines; best available data; and regulatory standards of federal, state, and local agencies.

- **Methodology** summarizes the resources, methods, procedures, and techniques used to evaluate proposed Project impacts.

- **Project Impacts** identify the level of each environmental impact by comparing the effects of the Project to the environmental setting. Key methods and assumptions used to frame and conduct the impact analysis, as well as issues or potential impacts not discussed further (i.e., such issues for which the project would have no impact), are described. Project impact thresholds are noted in bold text. An environmental impact statement precedes the discussion of each impact while its level of significance after mitigation succeeds the discussion of each impact. The discussion that follows the impact summary includes the substantial evidence supporting the impact significance conclusion.

- **Mitigation Measures** describe any feasible measures that could avoid, minimize, rectify, reduce, or compensate for significant adverse impacts, with measures having to be fully enforceable through incorporation into the Project (PRC Section 21081.6[b]). Mitigation measures are not required for environmental impacts that are found to be less than significant. Where feasible mitigation for a significant environmental impact is available, it is described following the impact. Where sufficient feasible mitigation is not available to reduce environmental impacts to a less-than-significant level, or where the lead agency lacks the authority to implement the mitigation when needed, the impacts are identified as significant and unavoidable.

- **Level of Significance After Mitigation** describes the level of impact significance remaining after mitigation measures are implemented.

- **Cumulative Impacts** describes two or more individual impacts that, when considered together, are significant or that compound or increase other significant environmental impacts. Cumulative impacts can result from individually minor, but collectively significant projects taking place over time (State CEQA Guidelines Section 15355). The incremental impact of a project, although less than significant on its own, may be considerable when viewed in the cumulative context of other closely related past, present, and reasonably foreseeable probable future projects. A considerable contribution is significant for the cumulative impact analysis. The evaluation of cumulative impacts is discussed in Chapter 4.0.

Format of the Impact Analysis

The analysis presents the potential impacts that could occur under the Project along with any supporting mitigation requirements. Each section identifies the resulting level of significance of the impact using the terminology described below following the application of the proposed mitigation. The section includes an explanation of how the mitigation measure(s) would reduce the impact in relation to the applied threshold of significance. If the impact remains significant (i.e., at or above the threshold of significance), additional discussion is provided to disclose the implications of the residual impact and indicate why no mitigation is available or why the applied mitigation does not reduce the impact to a less-than-significant level.

Changes that would result from the Project were evaluated relative to existing environmental conditions within the Project Site as defined in Chapter 2. Existing environmental conditions are based on the publication date of the NOP: April 9, 2020. In evaluating the significance of these changes, this EIR applies thresholds of significance that have been developed using: (1) criteria discussed in the CEQA Guidelines;

(2) criteria based on factual or scientific information; and (3) criteria based on regulatory standards of federal, state, and/or local agencies. Mechanisms that could cause impacts are discussed for each issue area.

This EIR uses the following terminology to denote the significance of environmental impacts of the Project:

- ***No impact*** indicates the construction, operation, and/or decommissioning of the Project would not have any direct or indirect impacts on the environment. It means no change from existing conditions. This impact level does not need mitigation.

- A ***less-than-significant impact*** is one that would not result in a substantial or potentially substantial adverse change in the physical environment. This impact level does not require mitigation, even if feasible, under CEQA.

- A ***less-than-significant impact with mitigation incorporated*** is defined by CEQA Section 21068 as one that would cause "a substantial or potentially substantial, adverse change in any of the physical conditions within the area affect by the project." Levels of significance can vary by project, based on the change in the existing physical condition. Under CEQA, mitigation measures or alternatives to a project must be provided where feasible to reduce the magnitude of significant impacts.

- A ***potentially significant impact*** is one that would result in a substantial or potentially substantial adverse effect on the environment, and that could not be reduced to a less-than-significant level even with any feasible mitigation. Under CEQA, a project with significant and unmitigable impacts could proceed; but the lead agency would be required to prepare a "statement of overriding considerations" in accordance with CEQA Guidelines CCR 14 Section 15093, explaining why the lead agency would proceed with a project despite the potential for significant impacts.

3.1 AESTHETICS

This section evaluates the Project's impacts on visual character, light, and glare, as defined below. The information provided in this section is based on the information provided in the Visual Resource Impact Assessment prepared by Development Design Services and Graphic access, Inc. (July 2020), and the Solar Glare Hazard Analysis, prepared by Good Company (May 2020), included as Appendix B.1 and Appendix B.2, respectively, of this EIR.

Aesthetic/Visual Character

Aesthetic character refers to the overall visual environment associated with the Project Site, neighborhood, or area, which may include natural features and/or built (man-made) features, and the relationships between them. The visual environment is based on the visual character of objects and the relationships between them. Pattern elements and pattern character are the attributes of visual character. Visual patterns include the form, line, color, and texture of an object. Pattern character is the visual relationship between pattern elements. The differences in visual character are correlated with the following aspects of pattern character: dominance, scale, diversity, and continuity. The four aspects of pattern character are defined as follows:

- **Dominance:** Specific components in a landscape may be visually dominant because of position, extent, or contrast of basic pattern elements.
- **Scale:** The apparent size relationship between a landscape component and its surroundings.
- **Visual Diversity:** A function of the number, variety, and intermixing of visual pattern elements.
- **Continuity:** The uninterrupted flow of pattern elements in a landscape and the maintenance of visual relationships between immediately connected or related components.

Landscape features of visual interest, referred to as scenic resources, can contribute positively to the aesthetic character of a given area. Natural features with aesthetic value may be large scale, such as topographic features, water features, and vegetation, or small scale, such as trees, landscaping, or rock outcroppings. Built features may include individual examples or collective features of the built landscape, such as iconic buildings or city skylines, historic or thematic buildings or districts, or streetscape elements setbacks, sidewalks, parkways, or signage that provide historic context or consistency of appearance.

The Project is assessed according to the attributes of visual pattern and character. Through photo simulations and extrapolation, the analysis of impacts on aesthetic character considers 1) the Project-related potential for the loss of these or other landscape features that have established or recognized aesthetic value and that contribute positively to the image of an area, and 2) the potential introduction of prominent Project elements that could contrast with or diminish the established aesthetic character.

Light and Glare

The evaluation of lighting and associated impacts considers the potential for increased ambient nighttime light on the Project Site and in the surrounding area and increases that have the potential to spill onto off-site land uses and interfere with off-site activities such as sleep, privacy, safe driving, and the enjoyment of activities that require dark, nighttime conditions.

Artificial light is associated with evening and nighttime hours. Sources may include streetlights, illuminated signage, vehicle headlights, and other light-point sources. Residences and hotels are examples of light-sensitive uses since they are typically occupied by persons who have an expectation of darkness and

privacy during evening hours and are subject to disturbance by bright light sources. This analysis of lighting focuses on whether the Project would cause or substantially increase nighttime lighting effects on light sensitive uses in the Project area.

Glare is primarily a daytime occurrence caused by the reflection of sunlight or artificial light from highly polished surfaces such as window glass or reflective materials and, to a lesser degree, from broad expanses of light-colored surfaces. Glare can also be produced during evening and nighttime hours by artificial light directed toward a light sensitive land use, such as parks and residence. Activities, such as driving, and land uses are considered glare sensitive because the presence of glare could interfere with vision and/or result in an irritant to these activities or uses.

Other Definitions

The following terms and concepts are used in the discussion below to describe and assess the visual environment and anticipated impacts from the Project.

- **Key Observation Point (KOP)**: A point along a travel route or at a use area where the Project would be most visible is a KOP.
- **Sensitive Viewpoints**: Views from public parks, recreational trails, and/or culturally important sites are considered to have a high visual sensitivity and are examples of sensitive viewpoints.
- **Sensitive Receptors**: Areas subject to high visibility by many people are sensitive receptors. Residential viewers typically have extended viewing periods and are considered to have high visual sensitivity.
- **Viewshed**: The landscape that can be viewed free of obstruction under favorable atmospheric conditions from a viewpoint or along a transportation corridor is an example of a viewshed.
- **Visual Compatibility**: The degree to which development with specific visual characteristics is similar in character to its setting determines visual compatibility.
- **Visual Character**: Visual character is formed by the order of the patterns composing it; i.e., form, line, color, and texture of the landscape's components. Their interrelationships can be described in terms of dominance, scale, diversity, and continuity.
- **Visual Impact**: The degree of change in visual resources and viewer response to those resources caused by a development project determines visual impact.
- **Visual Quality**: Visual quality is dependent upon the visual environment's brilliance, distinction, and/or excellence. The two most common criteria to define visual quality are vividness and intactness/unity. A visual resource with a high degree of vividness and intactness/unity will typically have a high level of visual quality.
- **Viewer's Response**: An individual's perception of a view and their enjoyment of a view causes a viewer's positive or negative response.

3.1.1 Regulatory Framework

3.1.1.1 Federal

There are no applicable federal regulations, plans, or policies pertaining to aesthetics that are applicable to the Project.

3.1.1.2 State

California Code of Regulations, Title 24

Title 24 of the California Code of Regulations (CCR), also known as the California Building Standards Code (CBC), consists of regulations to control building standards throughout California, including the following components of Title 24 related to lighting:

- California Building Code ([CBC], Title 24, Part 1) and California Electrical Code (Title 24, Part 3): The CBC and the California Electrical Code stipulate minimum light intensities for safety and security at pedestrian pathways, circulation ways, and paths of egress.
- California Energy Code (Title 24, Part 6): The California Energy Code defines allowances for lighting power and establishes control requirements for different lighting systems, with the goal of increasing efficiency and reducing energy consumption equipment.
- California Green Building Standards Code ([CALGreen] Title 24, Part 11): CALGreen requires that non-residential outdoor lighting complies with the minimum light level requirements for outdoor lights; light ratings consistent with CALGreen; or light and glare requirements set forth in a local ordinance, whichever is most stringent.

3.1.1.3 Local

Imperial County General Plan

The Imperial County General Plan is a broad-based planning document that contains text, maps, and diagrams explaining the County's long-range growth and development goals and policies. The adopted General Plan contains the Conservation and Open Space Element, which contain policies related to visual resources and regional aesthetics. Goal 5 of the Conservation and Open Space Element states that the aesthetic character of the region shall be protected and enhanced to provide a pleasing environment for residential, commercial, recreational, and tourist activity (Imperial County 2016).

3.1.2 Environmental Setting

3.1.2.1 Regional

The County extends over 4,597 square miles between Riverside County to the north, Mexico to the south, San Diego County to the west, and Arizona to the east. The County's visual character varies greatly, and there are several types of natural scenic visual resources, such as deserts, sand dunes, mountains, and the Salton Sea. The County also includes large-scale agricultural areas, which dominate visual scenes in the Imperial Valley, as well as other built environments such as urban areas and solar, wind, and geothermal energy development (Imperial County, 2016).

Light and glare may be created day or night from various residential, commercial, and industrial uses throughout the County. The Ocotillo Wind Energy Facility is located along I-8 near the western border between Imperial and San Diego counties. This project has red and white flashing lights on the towers that dominate nighttime views for Ocotillo residents and travelers along I-8 (Imperial County 2016).

3.1.2.2 Surrounding Area

In the area surrounding the Project Site, predominant uses consist of undeveloped land, agricultural, Bureau of Land Management (BLM) land, solar PV installations, and the IV Substation. To the north is the

Campo Verde solar generation facility and a construction staging area. To the west, BLM land is barren, undeveloped, and relatively flat with distant views of hills and the Jacumba Wilderness Area. To the east are undeveloped and agricultural areas, and to the south is undeveloped land, with the IV Substation further south. Very little light and glare is generated in this area of the County. The primary source of light and glare in the area surrounding the Project Site is from motor vehicles traveling on surrounding roadways (Development Design Services 2020).

3.1.2.3 Project Site

The Project Site is characterized by open vistas and largely unobstructed views. Figure 3.1-1 and Figure 3.1-2, at the end of this section, depict existing conditions of the Project Site, which is currently vacant and not in use, as well as identifying the location of Project Site and other features which may not be visible from these vantage points. The Project Site is generally flat, having been graded to support previous agricultural use, and is approximately six feet below above mean sea level (MSL) at its highest and 22 feet below MSL at its lowest. The Campo Verde solar generation facility is located approximately 0.7 mile north of the Project Site. Several residences, Westside Elementary School, Rio Bend RV and Golf Resort. and a residential community are located much farther to the north. Drew Road, several residential structures, agricultural fields, and open space are approximately 1.6 miles to the east; and BLM land managed mainly as open desert is directly to the south and west of the Project. The IV Substation, with its numerous tall transmission towers and other equipment, is located on BLM land south of the Project. Views of the Project Site from surrounding roadways are obstructed by intervening agricultural fields, vegetation, earthen berms, and structures (Development Design Services 2020).

In the Project area, the primary source of light and glare in the area is from motor vehicles traveling on roadways. Glare is generated during daytime hours from the sun's reflection off cars and paved roadway surfaces. Likewise, at night, vehicle headlights on roadways generate light and glare. Warning lighting is also located on the existing IID transmission lines to alert aircraft of potential flight path hazards. Lighting associated with the IV Substation and Campo Verde solar generation facility is also present (Development Design Services 2020).

3.1.2.4 Viewshed

Due to the relatively flat topography of the Project Site and surrounding area, views of the Project Site are available from I-8 to the north and northwest, Drew Road (County Highway 29) to the east, and local roadways to the north and east. Figure 3.1-3 presents the Project viewshed area. The map does not account for intervening structures and vegetation that obstruct views toward the Project, but it does provide us with a generalized presentation of areas from which views of the Project are available (Development Design Services 2020).

3.1.3 Environmental Impacts

3.1.3.1 Thresholds of Significance

The impact analysis provided below is based on Appendix G of the CEQA guidelines. The Project would result in a significant impact to aesthetics if it would result in any of the following:

a) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings. (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

b) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

3.1.3.2 Issues Scoped Out as Part of the Initial Study

The following thresholds of significance were eliminated from further consideration in the Initial Study (see Appendix A.1 of this EIR) since they were determined to be less than significant or no impact. They are briefly described in Chapter 7:

- Would the project have a substantial adverse effect on a scenic vista
- Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway

3.1.3.3 Methodology

The evaluation of visual character and visual quality is accomplished by comparing the existing visual environment to the construction and post-construction visual environment and, subsequently, determining whether the Project would result in physical change that is deemed to be incompatible with visual character or degrade visual quality of the Project Site and surrounding area. The information provided in this section is based on the information provided in the Visual Resource Impact Assessment prepared by Development Design Services and Graphic Access, Inc. (July 2020), and the Solar Glare Hazard Analysis, prepared by Good Company (May 2020) included as Appendix B.1 and Appendix B.2, respectively, of this EIR. In accordance with CEQA Guidelines, compliance with the thresholds of significance, and analysis methodologies determined for the Project, this analysis includes the following elements and considerations:

- A map of the viewshed and a discussion of communities and roads from which it may be viewed as a prominent feature
- A discussion of the compatibility of the scale and mass of the Project with the surrounding area
- A discussion of the architectural style of the structures and their use related to how surrounding properties have developed
- Photo simulations and analysis comparing the Project to the existing setting

To evaluate visual impacts, 12 KOPs were selected as shown in Figure 3.1-4. The evaluation of these KOPs as related to the Project's potential impacts to visual character is discussed below.

The glare analysis would assess the potential impact of glare from Project components, including PV modules, as a potential hazard or distraction for motorists, nearby residences, commercial and agricultural facilities, airports and approaching planes. The methodology for the glare analysis consists of 1) identifying the KOPs; and 2) conducting the calculations necessary to determine if the observational points of concern intersect with the angles of light reflection, resulting in glare. For the Project's potential glare analysis, 18 KOPs were identified, including adjacent road intersections, residential and agricultural structures, and regional air strips. Airport analyses include air traffic control towers and approaching flight paths and pilot visibility (Appendix B.2). The glare KOPs relevant for the discussion of potential Project-generated glare impacts are provided in Figure 3.1-5.

3.1.3.4 Project Impacts and Mitigation Measures

a) In nonurbanized areas, would the Project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in

an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

As described in Chapter 2.0, the Project is in a nonurbanized area. The Project would convert existing fallow agricultural lands, which have not been used for agricultural purposes in over 15 years, to a battery energy storage facility. The Project Site would be developed with man-made elements which may include up to 500,000-square feet of battery enclosure buildings, PV arrays, and other support equipment and structures. The design of the battery enclosure building is preliminary; however, they could be approximately 435 feet long, approximately 225 feet wide, and a maximum of 60 feet in height. A new clear-span bridge across the Westside Main Canal, as well as temporary and permanent access roads, would connect the northern and southern portions of the Project Site.

Construction

During construction of the Project, visual impacts would be temporary and intermittent over the phased 10-year construction period. Short-term impacts associated with Project construction would occur as construction equipment, materials movement, and new vehicular access and traffic sources are added to the Project Site and surrounding area. This would be visible to residential uses and other drivers using adjacent area roadways, including I-8 and Drew Road; however, there are no nearby sensitive viewpoints or receptors to the Project Site, as the nearest sensitive receptor is located approximately one mile away from the Project Site. There would also be some potential for lighting and glare impacts from these construction-related activities and vehicles. As individual construction phases are completed, the amount of equipment would be reduced and moved to other areas of the Project Site during later phases. As such, the visual characteristics of construction would be spread out to different locations within a large area. Due to the temporary, varied, phased, and intermittent nature of construction activities, impacts to visual character and publicly available views would be short term, phased, and spread over different areas of the Project Site, thereby reducing the visual impacts of construction activities (Appendix B.1). Therefore, this impact is less than significant, and no mitigation measures are warranted.

Operation

The Project would introduce a new battery energy storage facility, clear-span bridge over the Westside Main Canal, up to 500,000 square feet of battery enclosure buildings, a loop-in switching station, a Project substation, O&M buildings, connection to the IID Campo Verde-Imperial Valley gen-tie line, parking areas, ground- and/or roof-mounted solar arrays, water storage tanks, security lighting, and other equipment and support facilities. In addition, the entire Project Site would be surrounded by a 6-foot chain link security fence topped with barbed wire. The fence would provide minimal screening, and most of the Project Site would remain visible from surrounding areas and roadways.

The evaluation of visual character includes an assessment of the 12 KOPs depicted in Figure 3.1-4, and the KOPs include existing views of the Project Site from publicly available viewing locations, such as I-8, Drew Road and other local roadways, Westside Elementary School, Rio Bend RV and Golf Resort, and nearby residences.

KOP 1 is the view from I-8 and Dunaway Road, approximately 5.1 miles northwest of the Project Site, and is depicted in Figure 3.1-6. From this location, existing views are expansive and include landforms, desert habitat, overhead utility and tower structures, agricultural areas, and industrial solar facilities. Existing views are assigned a low to medium visual quality rating due to the lack of intactness and unity of the setting. The Project would be viewed in the context of the existing setting and would not be out of character or contrast significantly with the surrounding setting. Although the Project Site would be visible in the distance along the I-8 corridor, the visibility of the Project would be minimized in relation to existing development within the same view corridor.

KOP 2, depicted in Figure 3.1-6, is the existing view from Westview Elementary School looking southeast, encompassing a foreground of agricultural fields, dirt roads, irrigation canals, and the Campo Verde solar facility, overhead utilities, and the IV Substation in the middle ground. In this context, the Project would be visible behind the existing industrial-scale components of the Campo Verde solar facility, including PV arrays, the substation, operations buildings, and overhead utilities. This area is given a low visual quality rating based on its lack of vividness, intactness, and unity. A photosimulation of the Project Site, as viewed from this location, is depicted in Figure 3.1-7. As seen in Figure 3.1-7, the Project would introduce a structure not currently present in this viewshed; however, it would appear less dominant from this location than other existing elements in view. As such, Project components would be consistent to the existing visual character, and contrast would be reduced between the Project elements and the existing visual environment. Furthermore, Project buildings would be non-reflective and painted in light, earth-tone colors to coincide with the existing visual setting, thereby further reducing visual contrast.

KOP 3, depicted in Figure 3.1-8, is the view looking south from the southern end of the Rio Bend RV and Golf Resort and includes landscaping associated with Rio Bend, agricultural uses, outbuildings, natural vegetation, and solar facilities. This view has been assigned a low to medium visual quality rating based on its vividness, intactness, and unity and is representative of what residents and guests see looking south toward the Project. A photosimulation of the Project as viewed from this location is depicted in Figure 3.1-9. As seen in Figure 3.1-9, the Project would be partially visible behind the foreground of vegetation and existing structures and would be viewed in the context of the structures and equipment associated with the Campo Verde solar facility and the IV Substation. Therefore, Project components would relate to similar elements in the existing environment. While the scale of the Project would be greater than existing visual elements, the Project would be lower in elevation within the existing viewshed than the existing man-made elements.

KOPs 4, 6, and 8 are evaluated together since they are in the same vicinity and have viewpoints looking out in the same general direction towards the Project Site. KOP 4, depicted in Figure 3.1-8, shows the view south from the southern edge of an existing residence located north of West Wixom and Liebert Roads. KOP 6, depicted in Figure 3.1-10, is the view looking southwest from Vogel Road, south of an existing residence at the intersection of Vogel and West Wixom Roads. A photosimulation of the Project as viewed from the general location of these KOPs is depicted in Figure 3.1-11. KOP 8, depicted in Figure 3.1-12, is the view looking southwest from an existing residence located at 1995 West Wixom Road. These views are assigned a low visual quality rating based on lack of vividness, intactness, and unity and are representative of what residences and travelers along local roadways experience when viewing the Project. The views from KOPs 4, 6, and 8 include intensive agriculture, the Campo Verde solar facility, overhead utility lines, and the mountains in the distance. Therefore, Project components in this area would be similar to the existing visual elements, both man-made and natural. While Project structures would introduce a scale of development not currently present in this viewshed, the Project elements would appear lower than other surrounding elements in this viewshed. Natural mountain landforms would remain dominant, and existing vegetation and canal berms would obscure lower portions of the Project from view.

KOPs 5, 11, and 12 are evaluated together since they are in the same vicinity and have viewpoints looking out in the same general direction towards the Project Site. KOP 5, depicted in Figure 3.1-10, shows the view looking south toward the Project Site from Liebert Road, near the southern edge of the Camp Verde solar facility. KOP 11, depicted in Figure 3.1-13, shows the view from Mandrapa Road looking southeast towards the Project Site. KOP 12, also depicted in Figure 3.1-13, shows the view south of the Westside Main Canal looking towards the Project entry. These views are assigned a low visual quality rating based on lack of vividness, intactness, and unity. Views from KOPs 5, 11, and 12 include a variety of elements, such as dirt roadways, fallow fields, agricultural areas, desert vegetation, dominant overhead utility lines, the Westside Main Canal and associated earthen berms, the Campo Verde solar facility, and mountains in the background. These views are close in proximity and represent the areas that would be the most affected by the Project. These areas currently have minimal traffic as they are primarily used for canal maintenance, access to the Campo Verde solar facility, and access to the Project Site. As viewed from these areas, the

Project would appear from behind the earthen canal berms with a foreground of vegetation and structures. Similar to other KOPs, Project components would largely relate to existing man-made elements in view. The Project would appear as an extension to the existing blend of industrial characteristics and natural elements of the Project area. Natural mountain landforms would remain dominant, and existing vegetation and canal berms would obscure lower portions of the Project from view.

KOPs 7, 9, and 10 are evaluated together since they are in the same vicinity and have viewpoints looking out in the same general direction towards the Project Site. KOP 7, depicted in Figure 3.1-12, shows the view looking southwest from Drew Road, south of the existing residence and the intersection of Drew and West Graham Roads. KOP 9, depicted in Figure 3.1-14, is the view looking west towards the Project Site from Drew Road. KOP 10, also depicted in Figure 3.1-14, is the view looking northwest from Drew and Lyons Roads. A photosimulation of the Project as viewed from this location is depicted in Figure 3.1-15. These views are from the Drew Road Corridor and include views of the Project Site to northbound and southbound drivers. This area is assigned a low visual quality rating based on its lack of vividness, intactness, and unity. Views from KOPs 7, 9, and 10 include a foreground of agricultural fields, dirt roads, irrigation canals, the Campo Verde solar facility, overhead utility lines, the IV Substation, mature vegetation in the middle ground, and mountains in the background. Speeds along the Drew Road Corridor are approximately 55 miles per hour, so views of the Project Site would be short in duration. Mature vegetation and existing structures would obscure Project elements from view, and these elements would appear similar to those in the surrounding area; therefore, contrast between the Project and the existing visual environment would be minimized.

Operation of the Project would alter the visual character of the Site and its surroundings. However, the Project would be consistent with the County's General Plan goals and policies related to minimizing adverse aesthetic impacts (Imperial County 2016), as the Project appear consistent with the existing visual environment. Project-related impacts to the visual environment would be reduced: there would be limited visual contrasts, and views towards major mountain landforms would be preserved. As discussed below, new sources of light and glare would not adversely affect daytime or nighttime views in the Project area. Therefore, impacts to visual character and quality in the area would be minimal, and the Project would be consistent with General Plan goals and policies related to conservation and open space.

In conclusion, based on the above evaluation of 12 KOPs (including four photosimulations) and consistency with the County's General Plan goals and policies, development of the Project would not substantially degrade the existing visual character or quality of public views of the Project Site and its surroundings. Therefore, impacts to visual character would be less than significant, and no mitigation measures are warranted.

Decommissioning

Decommissioning of the Project would involve dismantling and removing Project components after the maximum CUP lifespan of 40 years. Decommissioning activities would reintroduce construction equipment to the Project Site for a temporary period. Since the Project Site would have already been maintained as a battery energy storage facility for many years, with maintenance equipment and other activities taking place therein, decommissioning would not degrade the visual character of the Project Site or surrounding area at that time. Public views of the Project Site after decommissioning activities would be similar to the views during Project operation, as the same Project components, such as the Westside Main Canal clear-span bridge, access roads, O&M building, and buildings housing the battery energy storage facility would remain on the Project Site and continue to offer the same visual character. Therefore, impacts to visual character due to decommissioning would be less than significant.

Mitigation Measures

None required.

Level of Significance After Mitigation

Not applicable.

b) Would the Project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

The Project proposes to use non-reflective rooftop and ground-mounted PV panels, which are not anticipated to create substantial glare to surrounding areas as further discussed below. In addition, the Project's lighting system would be designed to provide minimum illumination for security and safety.

Construction

During construction, short-term sources of lighting and glare would occur as part of the Project Site's staging, storage, security areas, and from vehicles traveling in the immediate area to access the site. Construction-related lighting would be directed towards the Project Site. Short-term sources of glare from vehicle windshields or metallic surfaces of PV panels and support structures may occur intermittently over the Project phases. No daytime or nighttime views in the area would be significantly affected, and there are no sensitive viewpoints or receptors in close proximity to the Project Site. Therefore, Project-related light and glare impacts would be less than significant, and no mitigation measures are warranted.

Operation

Project-related lighting would be the minimum required to provide security and necessary illumination to the Project Site for O&M activities. In accordance with applicable regulations, including CCR Title 24, Project lighting would be designed for safety along pathways and would be shielded and directed downwards to minimize light spill onto neighboring properties and intrusion into dark skies.

With respect to the analysis of potential glare impacts, building materials would be non-reflective. It is important to note that the PV panels are designed to absorb sunlight to convert it into electricity and not reflect it. Manufacturers of PV panels design them to minimize the reflected sunlight. This is typically accomplished by applying anti-reflective coatings and surface texturing of solar cells. The addition of protective layers over the PV panels further reduce the amount of visible light reflected from the panels (Appendix B.2).

To provide an evaluation of the Project's glare potential, the five most relevant glare KOPs, as depicted in Figure 3.1-5, were analyzed, as these were the only glare KOPs from which Project-related glare could be experienced. In addition, an evaluation was completed of the following: the reflectivity of flat-plate solar panels in the surrounding environment, the visibility of a direct reflection of sunlight for south-facing fixed-mount panels, and a comparison of fixed-mount and single-axis tracking mount panels. The following points describe the main variables adjusted for the glare analysis (Appendix B.2):

- **Short windows of glare:** Glare could occur from March through October for short periods of time (approximately 5 to 20 minutes) during morning and evening hours with most Project glare KOPs experiencing low or no glare. The intensity of the glare is low to moderate, never extensive or dangerous.

- **Assessed multiple observation points:** Strategically placed KOPs were analyzed surrounding the Project Site, with only five of the 18 points showing potential for glare (KOPs 2, 3, 6, 17 and 18).
- **No dwellings or commercial structures are affected:** Only auxiliary gravel roads, agricultural areas, and electrical lines indicated potential for glare.
- **Taller building design could be a challenge:** The potential for glare is highest with the 60-foot building height, 25-degree panel tilt roof-mount array option, with generally higher glare anticipated from the 25-degree tilt as compared to a 10-degree tilt.
- **No impact on adjacent sensitive sites:** There is no airport/runway glare predicted at Imperial County Airport nor the nearby Naval Air Facility El Centro. There is no glare at either air traffic control tower. There is no glare predicted at the nearby IV Substation.

Glare KOP 2 is located north and adjacent to the Project Site on an existing bridge and facility on the Westside Main Canal. This facility does not appear to be frequently visited. At this location, there would be low glare impacts, with less than 15 minutes of glare in the evenings during spring and fall months.

Glare KOP 3 is located east of the Project Site, at the intersection of Mandrapa Road and Fig Drain, near agricultural land. There are no other structures nearby. At this location, there would be moderate glare impacts, with less than 20 minutes of glare in the evenings during spring, summer, and fall months.

Glare KOP 6 is located southeast of the Project Site, at the intersection of Mandrapa and Lyons Roads, near agricultural land. There are no other structures nearby. At this location, there would be low glare impacts, with less than 10 minutes of glare in the evenings during summer months.

Glare KOP 17 is located southwest of the Project Site. It is located on undeveloped land with large electrical utility lines. There are no other structures nearby, as the area is mainly visited by utility workers conducting line maintenance. At this location, there would be moderate glare impacts with approximately 20 minutes or less of glare in the mornings during spring, summer, and fall months.

Glare KOP 18 is located north and adjacent to the Project Site, on Mandrapa Road, east of Liebert Road, and near agricultural land. There is one structure, but evidence suggests that the structure may be abandoned or used only for storage. At this location, there would be low glare impacts, with less than five minutes of glare in the evenings during the months of March, September, and October.

Based on the above, including the minimal new Project lighting, characteristics of the PV panels, their reduced potential for reflectivity, and the low to moderate intensity of glare during short periods of time (approximately 5 to 20 minutes), Project-related operational light and glare impacts would not adversely affect daytime or nighttime views in the area. Therefore, this impact would be less than significant, and no mitigation measures are warranted.

Decommissioning

Decommissioning of the Project would involve dismantling and removing Project components, after the maximum CUP lifespan of 40 years. Importantly, solar PV panels would be removed from the Project Site, thereby eliminating glare potential from that particular source. It is likely that some illumination would remain on the Project Site for security purposes; however, any impacts from these light sources after decommissioning would be less than or similar to conditions during Project operation. Therefore, light and glare impacts associated with decommissioning would be less than significant.

Mitigation Measures

None required.

Level of Significance After Mitigation

Not applicable.

View looking southwest toward the IID Campo Verde solar generation facility

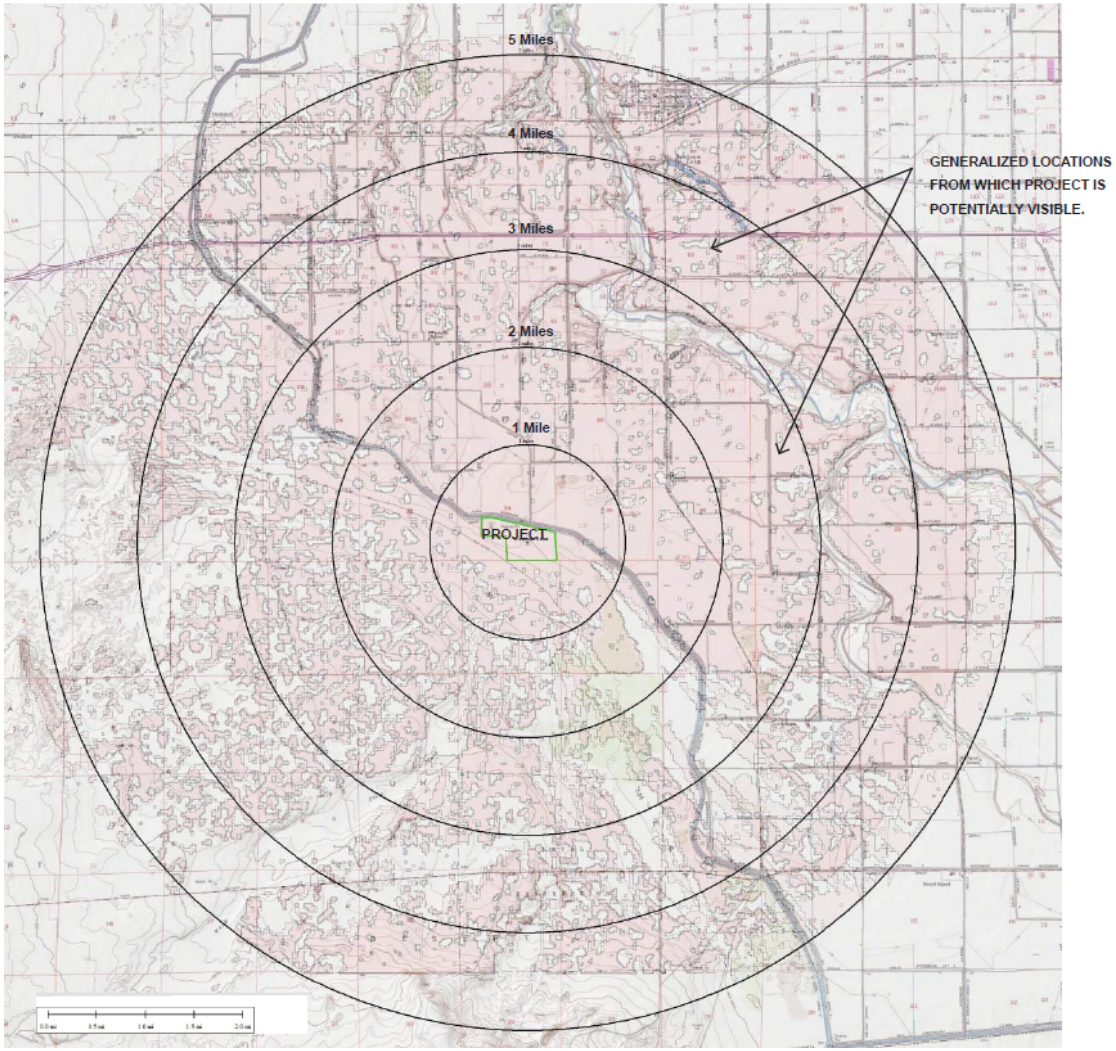
View looking northeast toward project site, the Imperial Valley Substation, Centinela Peak, and the Yahu Desert

Image & Description Source: DEVELOPMENT DESIGN SERVICES & GRAPHICACCESS, INC. July 2020

View southeast toward residential structures

View northeast toward Project, with the Westside Main Canal in the foreground and Centinela Peak in the background

Image & Description Source: DEVELOPMENT DESIGN SERVICES & GRAPHICACCESS, INC. July 2020



NOTES:

1. Analysis excludes view blocking foreground vegetation, & structures, and is based on digital base data accurate to within 10 meters.
2. This exhibit evaluates visibilty of a 60-foot structure to a visual receptor located 5' above existing ground elevation.

Source: Global Mapper, USGS

Notes

1. Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
2. Data Sources: DEVELOPMENT DESIGN SERVICES & GRAPHICACCESS, INC. July 2020
3. Background: USGS Topo

Stantec

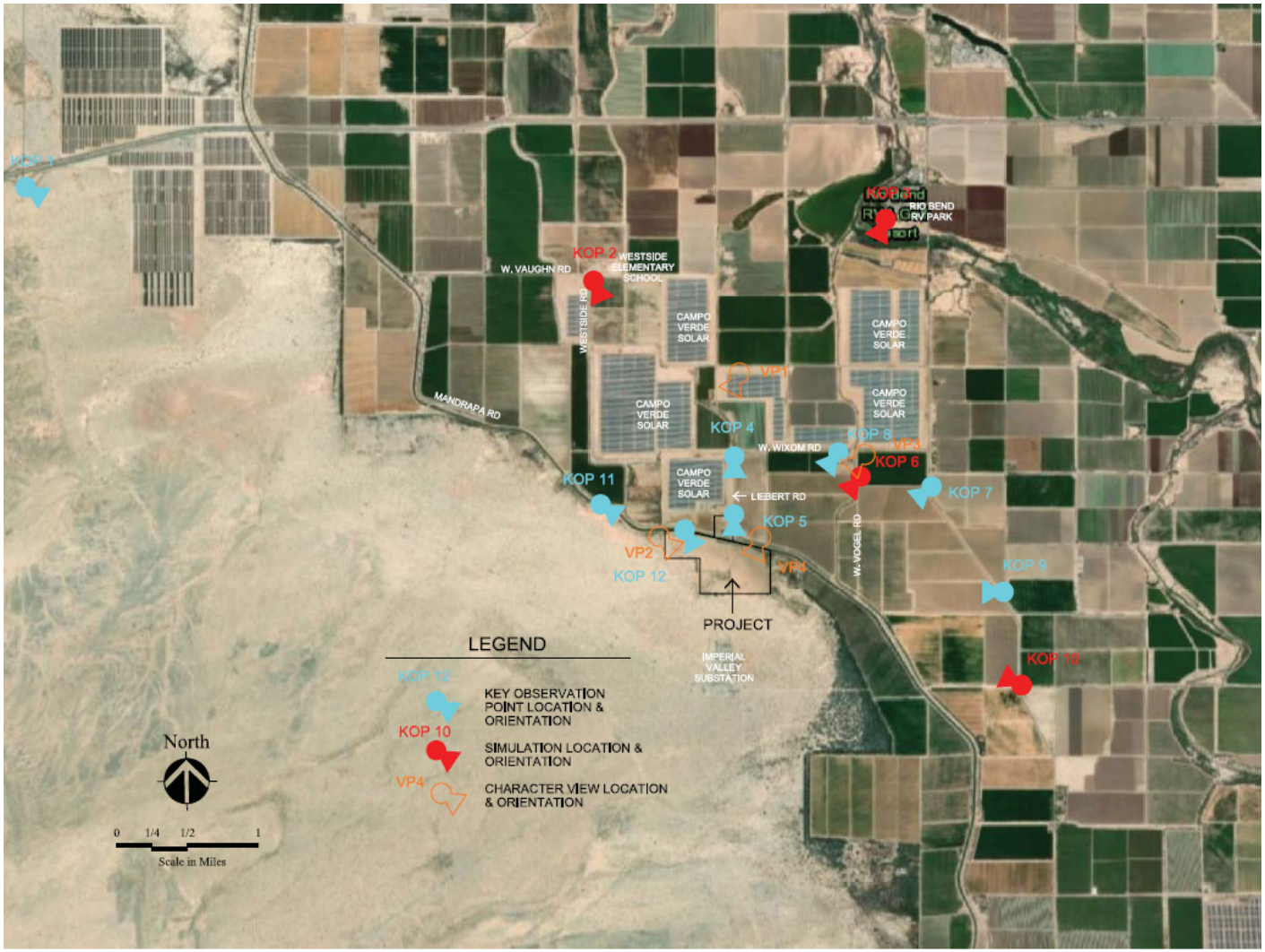
Project Location
Imperial County

Prepared by DL on 2020-07-20
TR by ST on 2020-07-20
IR by CA on 2020-07-20

Client/Project 185804708
Consolidated Edison Development
Westside Canal Battery Storage Project
Westside Canal Battery Storage Project Draft Environmental Impact Report

Figure No.
3.1-3

Title
Generalized Viewshed



Notes

1. Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
2. Data Sources: DEVELOPMENT DESIGN SERVICES & GRAPHICACCESS, INC. July 2020
3. Background: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, April 8, 2020

Stantec

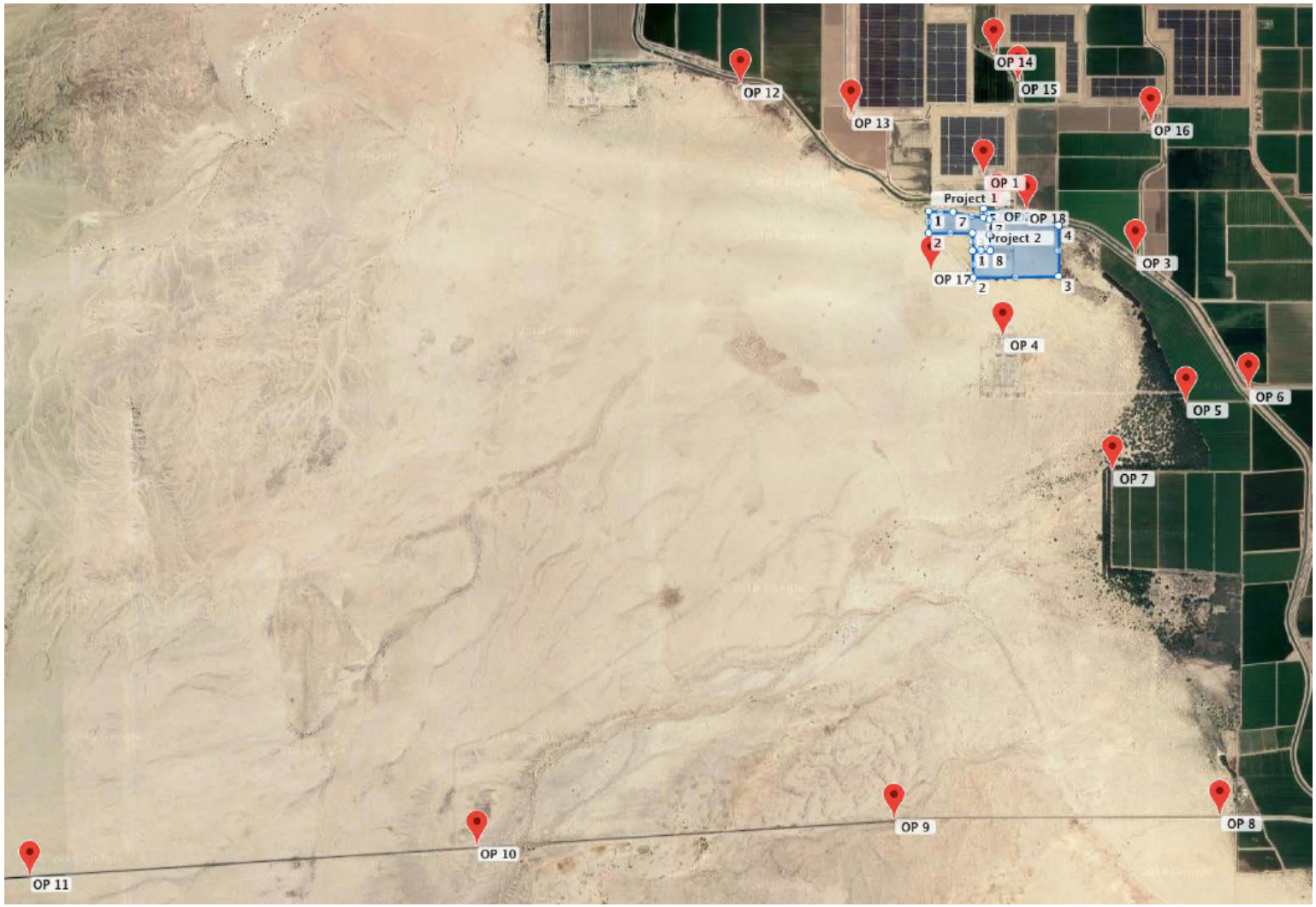
Project Location
Imperial County

Prepared by DL on 2020-07-20
TR by ST on 2020-07-20
IR by CA on 2020-07-20

Client/Project 185804708
Consolidated Edison Development
Westside Canal Battery Storage Project
Westside Canal Battery Storage Project Draft Environmental Impact Report

Figure No.
3.1-4

Title
Vicinity Map & Key Observation Points



Notes
1. Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
2. Data Sources: Good Company. Solar Glare Hazard Analysis. May 2020
3. Background: Google Earth

Stantec

Project Location
Imperial County

Prepared by DL on 2020-07-20
TR by ST on 2020-07-20
IR by CA on 2020-07-20

Client/Project
185804708
Consolidated Edison Development
Westside Canal Battery Storage Project
Westside Canal Battery Storage Project Draft Environmental Impact Report

Figure No.
3.1-5

Title
Key Observation Points With Potential For Glare

KEY OBSERVATION POINTS 1 & 2
Figure 3.1-6
Photographs of the Property and Vicinity
Site Name: Westside Canal Solar Facility
Imperial County
Date: July 2020

KOP #1 - View from Interstate-8 and Dunaway Road looking southeast, approximately 5 miles from Project

KOP #2 - View near the Westview Elementary School looking southeast, approximately 1.8 miles from Project

Image & Description Source: DEVELOPMENT DESIGN SERVICES & GRAPHICACCESS, INC. July 2020

PHOTO SIMULATION 1
Figure 3.1-7
Photographs of the Property and Vicinity
Site Name: Westside Canal Solar Facility
Imperial County
Date: July 2020

KOP #2 - View near the Westview Elementary School looking southeast

Image & Description Source: DEVELOPMENT DESIGN SERVICES & GRAPHICACCESS, INC. July 2020

KEY OBSERVATION POINTS 3 & 4
Figure 3.1-8
Photographs of the Property and Vicinity
Site Name: Westside Canal Solar Facility
Imperial County
Date: July 2020

KOP #3 - View south from southern end of Rio Bend RV Resort and Golf Course, approximately 2.5 miles from Project

KOP #4 - View south from southern edge of residence located north of West Wixom/Liebert Roads, approximately 0.6 mile from Project

Image & Description Source: DEVELOPMENT DESIGN SERVICES & GRAPHICACCESS, INC. July 2020

PHOTO SIMULATION 2
Figure 3.1-9
Photographs of the Property and Vicinity
Site Name: Westside Canal Solar Facility
Imperial County
Date: July 2020

KOP #3 - View looking south from the southern end of the Rio Bend RV Resort and Golf Course Community

Image & Description Source: DEVELOPMENT DESIGN SERVICES & GRAPHICACCESS, INC. July 2020

KOP #5 - View looking south toward Project from Liebert Road near southern edge of the Campo Verde Solar Project, approximately 0.2 mile from Project

KOP #6 - View southwest from Vogel Road, south of existing residence at intersection of Vogel Road and West Wixom Road, 0.8 mile from Project

Image & Description Source: DEVELOPMENT DESIGN SERVICES & GRAPHICACCESS, INC. July 2020

PHOTO SIMULATION 3
Figure 3.1-11
Photographs of the Property and Vicinity
Site Name: Westside Canal Solar Facility
Imperial County
Date: July 2020

KOP #6 - View looking southwest from a location on Vogel Road, south of an existing residence located at the intersection of Vogel Road and West Wixom Road

Image & Description Source: DEVELOPMENT DESIGN SERVICES & GRAPHICACCESS, INC. July 2020

KOP #7 - Looking south west from Drew Road, south of existing residence at the intersection of Drew Road and West Graham Road, approximately 1.2 miles from Project

KOP #8 - View looking southwest from residence located at 1995 West Wixom Road, approximately 0.84 mile from Project

Image & Description Source: DEVELOPMENT DESIGN SERVICES & GRAPHICACCESS, INC. July 2020

KOP #9 - View looking west toward Project from Drew Road, approximately 1.7 miles from Project

KOP #10 - View looking northwest from Drew Road and Lyons Road, approximately 1.9 miles from Project

Image & Description Source: DEVELOPMENT DESIGN SERVICES & GRAPHICACCESS, INC. July 2020

KEY OBSERVATION POINTS 11 & 12
Figure 3.1-14
Photographs of the Property and Vicinity
Site Name: Westside Canal Solar Facility
Imperial County
Date: July 2020

KOP #11 - View from Mandrapa Road, looking southeast approximately 0.49 mile from Project

KOP #12 - View south of canal approximately 236 feet from Project entry

Image & Description Source: DEVELOPMENT DESIGN SERVICES & GRAPHICACCESS, INC. July 2020

PHOTO SIMULATION 4
Figure 3.1-15
Photographs of the Property and Vicinity
Site Name: Westside Canal Solar Facility
Imperial County
Date: July 2020

KOP #10 - View looking northwest from Drew Road and Lyons Road

Image & Description Source: DEVELOPMENT DESIGN SERVICES & GRAPHICACCESS, INC. July 2020

3.2 AGRICULTURE AND FORESTRY RESOURCES

This section describes the environmental and regulatory setting for environmental impacts related to agriculture and forestry resources. It also describes the existing conditions and potential impacts on agricultural resources that could result from implementation of the Project and mitigation for potentially significant impacts, where feasible. This evaluation relies upon the data and findings of the Land Evaluation and Site Assessment Analysis for the Westside Canal Battery Storage Complex Project, Imperial County, California, prepared by RECON Environmental, Inc., January 18, 2021 (C.1). In addition, an Economic Impact Analysis (EIA), Employment/Jobs Impact Analysis (JIA), and Fiscal Impact Analysis (FIA), and Statement of Potential for Urban Decay was prepared for the Project, by Development Management Group, Inc., December 4, 2020 (Appendix C.2).

3.2.1 Regulatory Framework

3.2.1.1 Federal

No federal regulations pertaining to agricultural resources apply to the Project.

3.2.1.2 State

Williamson Act

The California Land Conservation Act of 1965 (Government Code [GC] Section 51200, et seq.), also known as the Williamson Act, protects farmland from conversion to other uses by offering owners of agricultural land a property tax incentive to maintain their land in agricultural use. Under the Williamson Act, the landowner voluntarily enters a contract with the county or city in which their property is located to maintain the land in agricultural or a qualified open space use for a minimum of ten years. In return, the property tax on the land is based on its productive value rather than its assessed valuation. A Williamson Act Contract is automatically renewed unless a notice of nonrenewal is filed in advance of the contract renewal date.

The preferred method for withdrawing from a Williamson Act Contract is filing a notice of nonrenewal, which can be initiated by either the land use agency or the landowner. Under this process, the contract is ended after a nine-year nonrenewal period, during which taxes gradually increase every year. A Williamson Act Contract cancellation is an option under limited circumstances and conditions set forth in GC Section 51280 et seq. In such cases, landowners may petition the board or council of their county or city for cancellation of the Williamson Act Contract. The board or council may grant tentative cancellation only if it makes required statutory findings (GC Section 51282(a)). The board or council must consider comments from the director of the California Department of Conservation (DOC) before acting on a proposed cancellation if comments are provided. A cancellation becomes final and a Certificate of Cancellation is issued by the board or council upon the completion of all Conditions of Approval.

Farmland Mapping and Monitoring Program

The Farmland Mapping and Monitoring Program (FMMP) is a non-regulatory program of the DOC that inventories the state's important farmlands and tracks the conversion of farmland to other land uses. The FMMP publishes reports of mapped farmland and conversions every two years, categorizing farmland on the basis of soil quality, the availability of irrigation water, current use, and slope among other criteria. The following are the categories of farmland identified in the FMMP:

- **Prime Farmland**. Farmland with the best combination of physical and chemical features to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.

- **Farmland of Statewide Importance.** Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

- **Unique Farmland.** Farmland of lesser quality soils than Prime Farmland or Farmland of Statewide Importance, used for the production of the state's leading agricultural crops. This land is usually irrigated but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.

- **Farmland of Local Importance.** Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.

- **Grazing Land.** Land on which the existing vegetation is suited to the grazing of livestock.

The FMMP considers all of the above, except Grazing Land, to be important Farmland.

Farmland and Soil Classification

The DOC's FMMP identifies important farmland throughout California based on both current use and soil quality. In order to be classified as Prime Farmland by FMMP, land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

Within California, land must meet at least one of five specified criteria in order to qualify as Prime Agricultural Land (California GC 51201). The five specified criteria are as follows:

1. All land that qualifies for rating as Class I or Class II in the Natural Resource Conservation Service land use capability classifications.

2. Land which qualifies for rating 80 through 100 in the Storie Index Rating.

3. Land which supports livestock used for the production of food and fiber and which has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture.

4. Land planted with fruit- or nut-bearing trees, vines, bushes, or crops that have a nonbearing period of less than five years and that will normally return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than two hundred dollars per acre.

5. Land which has returned from the production of unprocessed agricultural plant products an annual gross value of not less than two hundred dollars per acre for three of the previous five years. The soils on the project site meet the characteristics described in the federal regulations.

The Storie Index is a semi-quantitative method of rating soils for irrigated agricultural use based on crop productivity data. It assesses soil productivity based on four characteristics: the degree of soil profile

development; surface texture; slope; and other soil and landscape conditions, including drainage, alkalinity, fertility, acidity, erosion, and microrelief. A score between zero and 100 percent is determined for each factor, and then the scores are multiplied together to generate an index rating.

3.2.1.3 Local

Imperial County General Plan Agricultural Element

In recognition of the singular importance of agricultural production to the County, the Agricultural Element of the County's General Plan was developed to demonstrate the long-term commitment of the County to fully promote, manage, use, develop and protect agriculture. The Agricultural Element provides guidance to the County, as well as prospective developers of agricultural and non-agricultural land. The Agricultural Element and its implementing County Ordinances provide guidelines for development in agricultural areas, thereby providing policies and objectives that are intended to guide activities and operations in these areas.

Several important trends/issues related to future agricultural production in the County are addressed in the Agricultural Element and summarized as follows:

- **The Loss of Important Farmland to Urban and Other Uses:** As urbanization and population increase in the County, it is inevitable that there would be losses of some existing important farmland. Urbanization is already causing losses to agricultural lands around El Centro. The County's overall economy is expected to be dependent upon the agriculture industry for the foreseeable future, and as such, special consideration is given to all agricultural land in the County. Permanent conversion of significant amounts of important farmland to non-agricultural uses will negatively impact the local economy and the County's ability to provide important agricultural products to the nation and beyond (Imperial County 2015a).

- **Leapfrogging Patterns of Non-Agricultural Developments in Agricultural Areas:** Leapfrogging or "checkerboard" patterns of development occur when new subdivisions and other land uses are constructed in the midst of agricultural land near a city or rural community. Agricultural fields typically become bounded by new residential or urban land uses, and often become isolated as they are cut off from existing farmland. Leapfrogging has increased in the past few years and is a major concern of farmers, as the isolation or stranding of fields leads to problems with agricultural operations, including irrigation, the application of pesticides, tractor access, and other agricultural activities. According to the County and the agricultural community, leapfrogging disrupts agricultural operations and reduces agricultural productivity significantly more than would be the case by expanding out from existing nonagricultural uses (Imperial County 2015a).

Other issues of concern noted in the Agricultural Element include:

- Difficulty of cultivating crops and raising livestock near urban development
- Water conservation and water transfer programs
- Agricultural production and salinity/selenium runoff
- Agricultural chemicals and environmental issues
- Regulations on agricultural operations
- Agricultural operations and the general public
- Agricultural packaging and processing
- White fly infestation
- Decline of cattle and dairy industries
- Special needs and difficulties of the aquaculture industry

The Agricultural Element also includes goals and objectives that provide direction for private development, as well as government actions and programs, related to agricultural land use and decision-making. Applicable goals and objectives are provided below.

Preservation of Important Farmland

Goal 1: All Important Farmland, including the categories of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance, as defined by Federal and State agencies, should be reserved for agricultural uses.

Objective 1.1: Maintain existing agricultural land uses outside of urbanizing areas and allow only those land uses in agricultural areas that are compatible with agricultural activities.

Objective 1.2: Encourage the continuation of irrigation agriculture on Important Farmland.

Objective 1.3: Conserve Important Farmland for continued farm related (nonurban) use and development while ensuring its proper management and use.

Objective 1.4: Discourage the location of development adjacent to productive agricultural lands.

Objective 1.5: Direct development to less valuable farmland (i.e., Unique Farmland and Farmland of Local Importance rather than Prime Farmland or Farmland of Statewide Importance) when conversion of agricultural land is justified.

Objective 1.8: Allow conversion of agricultural land to non-agricultural uses including renewable energy only where a clear and immediate need can be demonstrated, based on economic benefits, population projections and lack of other available land (including land within incorporated cities) for such nonagricultural uses. Such conversion shall also be allowed only where such uses have been identified for non-agricultural use in a city general plan or the County General Plan and are supported by a study to show a lack of alternative sites.

Objective 1.9: Preserve major areas of Class II and III soils which are currently nonirrigated but which offer significant potential when water is made available.

Development Patterns and Locations on Agricultural Land

Goal 2: Adopt policies that prohibit "leapfrogging" or "checkerboard" patterns of nonagricultural development in agricultural areas and confine future urbanization to adopted Sphere of Influence areas.

Objective 2.1: Do not allow the placement of new non-agricultural land uses such that agricultural fields or parcels become isolated or more difficult to economically and conveniently farm.

Objective 2.3: Maintain agricultural lands in parcel size configurations that help assure that viable farming units are retained.

Objective 2.4: Discourage the parcelization of large holdings.

Objective 2.6: Discourage the development of new residential or other nonagricultural areas outside of city "spheres of influence" unless designated for non-agricultural use on the County General Plan, or for necessary public facilities.

Agricultural and Non-Agricultural Land Use Relations

Goal 3: Limit the introduction of conflicting uses into farming areas, including residential development of existing parcels which may create the potential for conflict with continued agricultural use of adjacent property.

> **Objective 3.5:** As a general rule, utilize transitional land uses around urban areas as buffers from agricultural uses. Such buffers may include rural residential uses, industrial uses, recreation areas, roads, canals, and open space areas.
>
> **Objective 3.8:** Renewable energy projects will be allowed within the RE Overlay Zone and mitigation for agricultural impacts have been identified and addressed.

A detailed consistency analysis of the Agricultural Element is included Section 4.11, Land Use, providing an evaluation of the Project's consistency with the applicable goals and objectives related to agricultural uses in the County.

3.2.2 Environmental Setting

3.2.2.1 Regional

Agriculture has been the single most important economic activity of the County throughout the 1900s and is expected to play a major economic role in the foreseeable future (Imperial County 2015a). In addition, agriculture is the County's largest source of income and employment, and the County's agriculture industry is a major producer and supplier of high-quality plant and animal foods and non-food products. According to the Imperial County Agricultural Commissioner (ICAC), in 2018, 537,192 acres were harvested, with a gross value of approximately $2.23 billion. Cattle is the largest production category by dollar value, followed by field crops, vegetable and melon crops, fruit and nut crops, seed and nursery crops, and apiary products (ICAC, 2018).

Surrounding Area

Much of the land base in the vicinity of the Project area is considered productive farmland where irrigation water is available. Farming operations in this area generally consist of medium to large-scale crop production with related operational facilities. Crops generally cultivated in the area may include alfalfa, barley, and/or Bermuda grass in any given year. Row and vegetable crops, such as corn, melons, and wheat, are also prominent in the area. In addition to productive farmland, there are a number of PV solar and other industrial-scale renewable energy facilities, as well as open space areas near the Project Site.

Project Site

Most of the Project Site comprises fallow agricultural lands, which have not been actively farmed nor irrigated for over 15 years. The Project Site does not currently have direct access from a public street but would be developed adjacent to other agricultural uses. It would also be adjacent to other renewable energy projects, such as the Campo Verde solar facility located immediately north of the Project Site, as well as other approved, but not yet constructed PV solar facilities in the Project vicinity and southern Imperial County. According to the Important Farmland maps (California DOC 2016a), the Project Site contains land which is mapped as Farmland of Local Importance. However, it does not contain other Farmland, such as Prime Farmland, Farmland of Statewide Importance or Unique Farmland. Although the Project Site contains 101.9 acres of Class I-II soils, as defined by the FMMP, it has not been in agricultural use or irrigated in

over 15 years and the Storie Index total rating is 44.7 (RECON Environmental 2021). As such, this would not meet the minimum qualifications to be considered Prime Farmland.

3.2.3 Environmental Impacts

3.2.3.1 Thresholds of Significance

The impact analysis provided below is based on Appendix G of the CEQA guidelines. The Project would result in a significant impact to agriculture and forestry resources if it would result in any of the following:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

c) Involve other changes in the existing environment which, due to their location or nature, would result in conversion of Farmland, to non-agriculture use or conservation of forest land to non-forest use?

3.2.3.2 Issues Scoped Out as Part of the Initial Study

The following thresholds of significance were eliminated from further consideration in the Initial Study (Appendix A), since they were determined to result in less than significant or no impact, as briefly discussed in Chapter 7:

- Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))
- Would the project result in the loss of forest land or conversion of forest land to non-forest use

3.2.3.3 Methodology

The Project's impacts on Prime Farmland, Unique Farmland, and Farmland of Statewide Importance were evaluated through the use of the Land Evaluation and Site Assessment (LESA) model. The LESA model provides an analytical approach for rating the relative quality of land resources based on specific measurable features. Factors considered by the LESA model include soils, site acreage, water availability, and surrounding land uses. The LESA model worksheets are provided in Appendix C.1 The EIA, JIA, and FIA, as provided in C.2, is also considered in the consistency determination with Objective 1.8 of the General Plan. In addition, other resources, such as the County General Plan, were also reviewed to provide context of existing and historical agricultural production.

3.2.3.4 Project Impacts and Mitigation Measures

a) Would the Project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

Construction

Construction of the Project would result in conversion of approximately 148 acres of agricultural land, identified as Farmland of Local Importance, to a non-agricultural use. The Project Site was historically used for agricultural production but has been fallow and unused for over 15 years, due to lack of vehicular access and lack of irrigation. Specifically, the Project proposes to obtain a General Plan Land Use Amendment from Agriculture to Industry, and Zone Change from A-3 to M-2, in order to accommodate the Project. Construction impacts to the Project Site would include grading activities and the installation of structures, infrastructure, and other components that would alter the current land use and type. Project-related construction impacts to Farmland are considered long-term, as the Project Site would retain its M-2 zoning at the end of the Project lifespan and expiration of the Project's CUP. However, with implementation of MM AG-1, which would require the Project Applicant to minimize the impacts associated with the permanent loss of valuable Farmland through either provision of an agricultural conservation easement, payment into the County agricultural fee program, or entering into a public benefit agreement, impacts would be reduced to less than significant levels.

Operation

California Land Evaluation and Site Assessment Model

The California LESA model is intended to provide an optional methodology to ensure significant effects of the environment of agricultural land conversions are quantitatively and consistently considered. The model provides an approach for rating the relative quality of land resources using a point-base evaluation composed of six different factors, each separately rated on a 100-point scale. Land Evaluation factors are based upon soil resource quality including Land Capability Classification and Storie Index, while Site Assessment factors are evaluated based on a project's size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. Each factor has relative weights that are combined into one numeric score. That score is evaluated against the scoring thresholds provided in the LESA Model Instruction Manual and Table 3.2-1. The Project's LESA model score is used to make a determination regarding the potential significance of conversion of agricultural lands to non-agricultural uses (RECON Environmental 2021).

Table 3.2-1 California Land Evaluation and Site Assessment (LESA) Model Scoring Thresholds

Total LESA Score	Scoring Decision
0 to 39 Points	Not considered significant
40 to 59 Points	Considered significant only if LE and SA sub-scores are each greater than or equal to 20 points
60 to 79 Points	Considered significant unless either the LE or SA sub-score is less than 20 points
80 to 100 Points	Considered significant

Source: DOC 2004.

The Project Site was evaluated using the LESA Model to rate the quality and availability of agricultural resources and to identify whether the Project would meet the threshold criteria as having a significant impact to agricultural resources under the CEQA Guidelines. For the Project, the Land Evaluation subscore is 27.2 and the Site Assessment score is 30.3, as demonstrated in Table 3.2-2, which shows the breakdown of individual factor scores.

Table 3.2-2 California Land Evaluation and Site Assessment Model Scoring Results for the Project Site

Category	Factor	Factor Score	Factor Weight	Weighted Factor Score
Land Evaluation	Land Capability Class	64.2	0.25	16.1
	Storie Index	44.7	0.25	11.2
Subtotal				**27.2**
Site Assessment	Project Size	100	0.15	15
	Water Resource Availability	100	0.15	15
	Surrounding Agricultural Land	0	0.15	0
	Protected Resource Land	0	0.05	2.0
Subtotal				**32.0**
Total Land Evaluation and Site Assessment Score				**59.2**

Based on this evaluation, the final LESA score for the Project Site is 59.2. A final LESA score between 40 to 59 points is considered significant if both the Land Evaluation and Site Assessment subscores are greater than or equal to 20 points. In the case of the Project, both the Land Evaluation and Site Assessment scores are greater than 20 points. As such, the Project is considered to have a significant impact on agricultural resources. However, incorporation of MM AG-1, which would require the Project Applicant to minimize the impacts associated with the permanent loss of valuable Farmland through either provision of an agricultural conservation easement, payment into the County agricultural fee program, or entering into a public benefit agreement, and would reduce impacts to a less than significant level.

Decommissioning

At the end of the 40-year Project CUP agreement, decommissioning activities would be undertaken. Following expiration of the CUP, reissuance of the CUP would be possible by the Applicant or successor-in-interest. Decommissioning activities of the Project would apply to those portions of the Project that involve operational components including, but not limited to, electrical switching station, substation, battery modules, inverters, transformers, and photovoltaic (PV) modules. All operational components that are no longer in use and cannot be repurposed would be disassembled and removed from the site. Once all decommissioning activities are completed, the Project Site would retain its M-2 zoning. Decommissioning impacts associated with the conversion of Farmland of Local Importance to a non-agricultural use would be considered less than significant with incorporation of MM AG-1.

Mitigation Measures

MM AG-1: Payment of Agricultural and Other Benefit Fees

One of the following options included below is to be implemented prior to the issuance of a grading permit or building permit for the Project:

Mitigation for Non-Prime Farmland

- **Option 1:** Provide Agricultural Conservation Easement(s). The Permittee shall procure Agricultural Conservation Easements on a “1 on 1” basis on land of equal size, of equal quality farmland, outside the path of development. The conservation easement shall meet Department of

Conservation regulations and shall be recorded prior to issuance of any grading or building permits; or

- **Option 2:** Pay Agricultural In-Lieu Mitigation Fee. The Permittee shall pay an "Agricultural In-Lieu Mitigation Fee" in the amount of 20 percent of the fair market value per acre for the total acres of the proposed site based on five comparable sales of land used for agricultural purposes as of the effective date of the permit, including program costs on a cost recovery/time and material basis. The Agricultural In-Lieu Mitigation Fee, will be placed in a trust account administered by the Imperial County Agricultural Commissioner's office and will be used for such purposes as the acquisition, stewardship, preservation, and enhancement of agricultural lands within Imperial County; or,

- **Option 3:** Public Benefit Agreement. The Permittee and County shall voluntarily enter into an enforceable Public Benefit Agreement or Development Agreement that includes an Agricultural Benefit Fee payment that is 1) consistent with Board Resolution 2012-005; 2) the Agricultural Benefit Fee must be held by the County in a restricted account to be used by the County only for such purposes as the stewardship, preservation and enhancement of agricultural lands within Imperial County and to implement the goals and objectives of the Agricultural Benefit program, as specified in the Development Agreement, including addressing the mitigation of agricultural job loss on the local economy.

Level of Significance After Mitigation

With the implementation of MM AG-1, the Project Applicant would be required to minimize the impact associated with the permanent loss of valuable Farmland through either provision of an agricultural conservation easement, payment into the County agricultural fee program, or entering into a public benefit agreement. Implementation of Mitigation Measure MM AG-1 would reduce potential impacts on Farmland conversion to less-than-significant levels.

b) Would the Project conflict with existing zoning for agricultural use, or a Williamson Act contract?

According to the 2016-2017 Williamson Act Report produced by the California Department of Conservation's Division of Land Resource Protection, the Project Site within Imperial County is not located on Williamson Act contracted Land (DOC 2018). Therefore, construction, operation, and decommissioning of the Project would not conflict with a Williamson Act and no impact would occur.

Construction

Construction of the Project would conflict with existing zoning for agricultural use. The Project Site currently has a general plan land use designation of Agriculture with a corresponding zoning of A-3. The Project includes the rezoning of the Project Site from A-3 to M-2 to accommodate the proposed battery storage use of the Site. The Project Site has remained unused for over 15 years, due to the lack of vehicular access and irrigation. Construction of the Project would yield other economical and energy benefits that would outweigh the harm caused by the loss of this agricultural use.

Objective 1.8 of the County's Agricultural Element would allow conversion of agricultural land to non-agricultural uses, including renewable energy, only where a clear and immediate need can be demonstrated, based on economic benefits, population projections and lack of other available land (including land within incorporated cities) for such nonagricultural uses. As such, evaluations were conducted to demonstrate the economic benefits of the Project and are discussed below.

Employment or Jobs Impact Analysis

A JIA was prepared for the Project, in order to evaluate consistency with Objective 1.8 of the County General Plan Agricultural Element. The JIA calculated the total amount of construction jobs that would be specifically attributed to the construction of the Project. The JIA determined that the Project, at full build-out, would generate the equivalent of 1,549 full-time one-year equivalent jobs of the construction period. These are considered as new jobs with a significant economic benefit, as the Project Site has been unused for agriculture or any other uses for over 15 years (Development Management Group 2020). Other economic benefits are discussed below, in the evaluation of operational impacts.

As such, based on the JIA, the benefits of the Project due to construction-related activities outweigh the loss due to the conversion of agricultural uses, and this impact would be less than significant. Furthermore, the Project would implement MM AG-1, which would further reduce potential impacts caused by the rezoning of agricultural land to non-agricultural uses. Therefore, construction impacts related to a conflict with existing agricultural zoning would be less than significant with implementation of mitigation.

Operation

Operation of the Project would conflict with the existing zoning for agricultural use, due to the change in land use designation and zoning, as described previously. Although operation of the Project would conflict with current zoning, it provides other economic and energy benefits, which justify the loss of this agricultural use, as discussed below.

Employment or Jobs Impact Analysis

Based on the JIA, it is estimated that over the lifespan of the Project, at full build out, 20 entirely new full-time equivalent permanent jobs would be generated as a result of Project operation (Development Management Group 2020). As such, based on the JIA, the Project is consistent with Objective 1.8 of the County General Plan Agricultural Element.

Economic Impact Analysis

An EIA was prepared for the Project, in order to evaluate consistency with Objective 1.8 of the County General Plan Agricultural Element. The EIA calculates the predicted impact to a community or region as a result of a project or activity. It gives an understanding of the quantity of dollars that will flow through an economy as a result of a project. In the case of an energy battery storage project this includes such items as labor, construction materials, local purchases, and operations. This includes all known direct (and indirect) expenditures as a result of both construction and operation for the projected life of a project. The economic benefits to the County and region, due to Project operation, would be approximately $165 million over the lifespan of the Project, at full build-out, not including governmental revenues from taxes and fees (Development Management Group 2020). As such, based on the EIA, the Project is consistent with Objective 1.8 of the County General Plan Agricultural Element.

Fiscal Impact Analysis

An FIA was prepared for the Project, in order to complete the assessment of economic benefits attributed to the Project and evaluate consistency with Objective 1.8 of the County General Plan Agricultural Element. The FIA calculates the amount of revenue that a governmental agency is expected to receive and calculates the projected costs they will incur to provide appropriate services to both the Project and the additional population/employment generated as a result of the Project. A comparison is undertaken to determine if the Project would generate either economic benefit or cost to the government agency.

Operation of the Project would generate approximately $81.53 million in net County tax revenue during the lifespan of the Project, at full build-out. This is based on an estimate of approximately $34.77 million in sales tax revenue and $46.77 in net property tax revenue. The cost to the County to provide services to the Project, at full build-out, and its employees over the lifespan of the Project would be approximately $22.46 million, resulting in approximately $59.08 million in surplus revenue to the County over the lifespan of the Project (Development Management Group 2020). As such, based on the FIA, the Project is consistent with Objective 1.8 of the County General Plan Agricultural Element.

Based on all of the above and the totality of the data presented in the JIA, EIA and FIA, the Project has demonstrated its economic benefits, in conformance with Objective 1.8 of the County General Plan Agricultural Element. Furthermore, the Project would implement MM AG-1, which would further reduce potential impacts caused by the rezoning of agricultural land to non-agricultural uses. Therefore, operational impacts related to a conflict with existing agricultural zoning would be less than significant with implementation of mitigation.

Decommissioning

At the end of the 40-year Project CUP agreement, decommissioning activities would be undertaken, as discussed above. Following expiration of the CUP, reissuance of the CUP would be possible by the Applicant or successor-in-interest. Decommissioning activities of the Project would apply to those portions of the Project that involve operational components including, but not limited to, electrical switching station, substation, battery modules, inverters, transformers, and photovoltaic (PV) modules. All operational components that are no longer in use and cannot be repurposed would be disassembled and removed from the site. Once all decommissioning activities are completed, the Project Site would retain its M-2 zoning. Impacts associated with a conflict with existing zoning for agricultural uses would be considered less than significant following completion of decommissioning, with implementation of mitigation.

Mitigation Measures

MM AG-1 would be applicable.

Level of Significance After Mitigation

Implementation of Mitigation Measure AG-1 would reduce potential impacts on zoning to less-than-significant levels.

c) Would the Project involve other changes in the existing environment which, due to their location or nature, would result in conversion of Farmland, to non-agriculture use or conservation of forest land to non-forest use?

Construction

As discussed in Thresholds a) and b) above, the Project would convert land currently designated as Agricultural to Industry. Construction of the Project would result in the conversion of Farmland to a non-agricultural use. Other than the Project Site, no other agricultural land would be converted to a non-agricultural use. Due to the location of the Project Site, no “leapfrogging” or “spot zoning” of agricultural land would occur, as the Project Site is not located in the middle of other agricultural areas which would be cut off or otherwise negatively impacted by development of the Project.

As described above, per Objective 1.8 of the County General Plan Agricultural Element, agricultural land may be converted to non-agricultural uses including renewable energy only where a clear and immediate

need can be demonstrated based on economic benefits, population projections and lack of other available land (including land within incorporated cities) for such non-agricultural uses. As demonstrated by the EIA, JIA, and FIA, rezoning the land to be utilized for the Project would show a significant overall fiscal benefit (Development Management Group 2020).

As there is currently no legal accessibility to the Project Site, the Project would include the construction of access roads on the north and south side of the Westside Main Canal on private land and a permanent clear-span County/IID specified bridge over the canal. Construction would temporarily impact traffic and movement on adjoining roads within the area. However, Project construction would not significantly affect other agricultural operations in the area, as the Project Site is adjacent to a solar PV facility and is not surrounded by other agricultural uses which could be affected by it. Based on the above, construction impacts related to the conversion of Farmland to a non-agriculture use would be less than significant. Furthermore, implementation of MM AG-1 would further reduce potential impacts to a less than significant level.

Operation

Existing nuisances such as dust, noise, and odors from existing agricultural use would not impact the operations of the Project due to lack of sensitive receptors (e.g., schools or residences) on or near the Project Site. The provisions of the Imperial County Right-to-Farm Ordinance (No. 1031) and the State Nuisance Law (California Code Sub-Section 3482) would continue to be in force during Project construction and operation. Based on these provisions, the Project is not anticipated to adversely impact the operation of an adjacent agriculture use.

In addition, based on the evaluations presented in Thresholds a) and b) above, the economic benefits of the Project would outweigh the loss caused by the conversion of Farmland, in accordance with Objective 1.8 of the County General Plan Agricultural Element. Based on the above, operational impacts related to the conversion of Farmland to a non-agriculture use would be less than significant. Furthermore, implementation of MM AG-1 would further reduce potential impacts to a less than significant level.

Decommissioning

At the end of the Project's lifespan, the Project components would be disassembled and removed from the Project Site. All battery module components, hazardous materials, and solar PV panels would be disassembled and transported off-site for proper disposal. Although the Project components would be removed from the Project Site, the Project Site itself would not revert back to is Agriculture land use designation and pre-Project condition. As mentioned above, the Project would develop new access roads which may have the potential to attract or encourage new development of adjacent farmlands. All structural and infrastructure improvements included as part of the Project (e.g., Westside Main Canal bridge, access roads, O&M building, and buildings housing battery energy storage systems) would remain on-site after decommissioning of the Project. The Project Site would retain its Industry land use designation and M-2 zoning.

In addition, based on the evaluations presented in Thresholds a) and b) above, the economic benefits of the Project would outweigh the harm caused by the conversion of Farmland, in accordance with Objective 1.8 of the County General Plan Agricultural Element. Based on the above, decommissioning impacts related to the conversion of Farmland to a non-agriculture use would be less than significant. Furthermore, implementation of MM AG-1 would further reduce potential decommissioning impacts to a less than significant level.

Mitigation Measures

MM AG-1 would be applicable.

Level of Significance After Mitigation

Implementation of Mitigation Measure AG-1 would reduce potential impacts on converting land use to less-than-significant levels.

3.3 AIR QUALITY

This section provides an analysis of air quality impacts that would result from the Project. Included in this section is the overall regulatory framework for air quality management in California and the region, a description of the existing air quality conditions in the project vicinity, and an analysis of the impacts related to air quality. Where applicable, mitigation measures are included to reduce otherwise potentially significant impacts. The information provided in this section is based on the information provided in the Air Quality Analysis, prepared by RECON Environmental, Inc. (March 2021) and is included in Appendix D of this EIR.

3.3.1 Regulatory Framework

Federal, state, and local agencies have set ambient air quality standards for certain air pollutants through statutory requirements and have established regulations and various plans and policies to maintain and improve air quality, as described below.

3.3.1.1 Federal

The federal Clean Air Act (CAA), which was passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The CAA delegates primary responsibility for clean air to the EPA. The EPA develops rules and regulations to preserve and improve air quality and delegates specific responsibilities to state and local agencies. Under the act, the EPA has established the NAAQS for six criteria air pollutants that are pervasive in urban environments and for which state and national health-based ambient air quality standards have been established. Ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), and particulate matter (PM_{10} – respirable particles less than 10 microns in diameter, and $PM_{2.5}$ – fine particles less than 2.5 microns in diameter) are the six criteria air pollutants. Ozone is a secondary pollutant, nitrogen oxides (NO_X) and volatile organic compounds (VOCs) are of particular interest as they are precursors to ozone formation. Descriptions of criteria pollutants and associated health effects are provided below.

The CAA requires EPA to designate areas as attainment, nonattainment, or maintenance (previously nonattainment and currently attainment) for each criteria pollutant based on whether the NAAQS have been achieved. The CAA also mandates that the state submit and implement a State Implementation Plan (SIP) for areas not meeting the NAAQS. These plans must include pollution control measures that demonstrate how the standards will be met. The NAAQS are divided into primary and secondary standards; the primary standards are set to protect human health within an adequate margin of safety, and the secondary standards are set to protect environmental values, such as plant and animal life. The standards for all criteria pollutants are presented in Table 3.3-1.

Ozone

Ozone is not usually emitted directly into the air but is created at ground level by a chemical reaction between NO_X and VOC, or ROG, in the presence of sunlight. For the most part, VOC and ROG are synonymous. Both are those portions of organic gases (i.e., hydrocarbons) that are reactive enough to be a concern with the formation of ozone. Ground-level ozone is the primary constituent of smog. Sunlight and hot weather cause ground-level ozone to form with the greatest concentrations usually occurring downwind from urban areas. Ozone is subsequently considered a regional pollutant.

Table 3.3-1 State and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b] Primary[c]	National Standards[b] Secondary[d]
Ozone (O3)	1 hour 8 hours	0.09 ppm 0.070 ppm	— 0.070 ppm	— 0.070 ppm
Carbon monoxide (CO)	1 hour 8 hours	20 ppm 9.0 ppm	35 ppm 9 ppm	— —
Nitrogen dioxide (NO2)	1 hour Annual Arithmetic Mean	0.18 ppm 0.030 ppm	0.100 ppm [e] 0.053 ppm	— 0.053 ppm
Sulfur dioxide (SO2)	1 hour 3 hours 24 hours Annual Arithmetic Mean	0.25 ppm — 0.040 ppm —	0.075 ppm [f] — 0.014 ppm 0.030 ppm	— 0.5 ppm — —
Particulate matter less than 10 microns (PM10)	24 hours Annual Arithmetic Mean	50 µg/m^3 20 µg/m^3	150 µg/m^3 —	150 µg/m^3 —
Particulate matter less than 2.5 microns (PM2.5)	24 hours Annual Arithmetic Mean	— 12 µg/m^3	35 µg/m^3 12 µg/m^3	35 µg/m^3 15 µg/m^3
Lead (Pb) [g]	30-day Average Calendar Quarter Rolling 3-month Average	1.5 µg/m^3 — —	— 1.5 µg/m^3 0.15 µg/m^3	— 1.5 µg/m^3 0.15 µg/m^3
Visibility reducing particles (VRP) [g]	8 hours	[h]	—	—
Sulfates	24 hours	25 µg/m^3	—	—
Hydrogen sulfide (H2S)	1 hour	0.03 ppm	—	—
Vinyl chloride	24 hours	0.01 ppm	—	—

Notes:
ppm = parts per million; µg/m^3 = micrograms per cubic meter
— = No standard has been adopted for this averaging time
a. California Ambient Air Quality Standards for ozone, CO (except 8-hour Lake Tahoe), sulfur dioxide (SO_2; 1- and 24-hour), NO_2, and particulate matter (PM_{10}, $PM_{2.5}$, and VRP), are values that are not to be exceeded. All others are not to be equaled or exceeded.
b. National Ambient Air Quality Standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
c. Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
d. Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
e. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 0.100 ppm.
f. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 0.075 ppm.
g. CARB has identified lead and vinyl chloride as toxic air contaminants with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
h. Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.
Source: CARB 2016

Breathing ozone can trigger a variety of health problems, including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level ozone also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. Ground-level ozone can also cause substantial damage to vegetation and other physical materials. Because NO_X and ROG are ozone precursors, the health effects associated with ozone are also indirect health effects associated with significant levels of NO_X and ROG emissions.

Nitrogen Oxides

NO_X is the generic term for a group of highly reactive gases that contain nitrogen and oxygen. While most NO_X is colorless and odorless, concentrations of NO_2 can often be seen as a reddish-brown layer over many urban areas. NO_X forms when carbon-based fuel is burned at high temperatures as in a combustion process.

NO_X reacts with other pollutants to form ground-level ozone, nitrate particles, acid aerosols, and NO_2, which can cause respiratory problems. NO_X and the pollutants formed from NO_X can be transported over long distances by prevailing winds. Therefore, controlling NO_X is often most effective if done from a regional perspective, rather than focusing on the nearest sources.

Current scientific evidence links short-term NO_2 exposures ranging from 30 minutes to 24 hours with adverse respiratory effects, including airway inflammation in healthy people and increased respiratory symptoms in people with asthma. Also, studies show a connection between breathing elevated short-term NO_2 concentrations and increased visits to emergency departments and hospital admissions for respiratory issues, especially asthma.

In the County, on-road mobile sources are the largest NO_X contributor representing approximately 84 percent of all NO_X emissions. Diesel-fueled heavy-duty trucks and light duty passenger vehicles contribute approximately 49 percent, and 19 percent of on-road mobile source NO_X emissions, respectively (CARB 2018).

Carbon Monoxide

CO is a colorless, odorless gas produced by incomplete combustion of carbon-containing fuels (e.g., gasoline, diesel fuel, and biomass). CO levels tend to be highest during winter and periods of low wind speed when meteorological conditions favor the accumulation of pollutants. This occurs when relatively low inversion levels trap pollutants near the ground and concentrate CO.

CO is essentially inert to plants and materials but can have significant effects on human health. CO gas enters the body through the lungs, dissolves in the blood, and creates a solid bond to hemoglobin, not allowing it to form a loose bond with CO_2, which is essential to the CO_2/oxygen exchange to occur. Therefore, this firm binding reduces available oxygen in the blood and oxygen delivery to the body's organs and tissues.

The largest sources of CO emissions in the County are from mobile sources representing approximately 75 percent of total CO emissions. Of mobile sources, light duty passenger cars and aircraft contribute approximately 25 percent and 27 percent of CO emissions, respectively (CARB 2018).

Reactive Organic Gases

ROGs or VOCs are defined as any compound of carbon, excluding CO, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, that participates in atmospheric photochemical reactions. There are no state or national ambient air quality standards for ROG because they are not classified as criteria pollutants. However, they are regulated because a reduction in ROG emissions

reduces certain chemical reactions that contribute to the formation of ozone. ROGs are also transformed into organic aerosols in the atmosphere, which contribute to PM_{10} and lower visibility. In addition, some compounds that make up ROG are also toxic, like the carcinogen benzene, and are often evaluated as part of a toxic risk assessment. ROG emissions primarily result from incomplete fuel combustion and the evaporation of chemical solvents and fuels.

In the County, areawide and mobile sources contribute 49 percent and 44 percent of ROG emissions, respectively. Of areawide source ROG emissions, solvent evaporation and farming operations contribute 52 percent and 35 percent, respectively. Aircraft contribute 38 percent of mobile source ROG emissions (CARB 2018).

Particulate Matter

PM is a mixture of microscopic solids and liquid droplets suspended in air. This pollution is made up of many components, including acids (such as nitrates and sulfates), organic chemicals, metals, soil or dust particles, and allergens (such as fragments of pollen or mold spores).

The size of particles is directly linked to their potential for causing health problems. Small particles less than 10 micrometers in diameter, or PM_{10}, may cause negative health effects, because they can get deep into lungs and the bloodstream. Being even smaller, $PM_{2.5}$ will travel further into the lungs. Exposure to such particles can affect both lungs and heart. Numerous scientific studies have linked particle pollution exposure to a variety of problems, including the following:

- premature death in people with heart or lung disease,
- nonfatal heart attacks,
- irregular heartbeat,
- aggravated asthma,
- decreased lung function, and
- increased respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing.

Areawide sources are the largest contributor of PM_{10} and $PM_{2.5}$ emissions in the County. Areawide sources represent 98 percent of the County's PM_{10} emissions, with fugitive windblown dust and unpaved road dust contributing 76 percent and 19 percent of areawide emissions, respectively. This trend continues for $PM_{2.5}$ emissions, with areawide sources contributing 94 percent of County emissions, and fugitive windblown dust and unpaved road dust contributing 78 percent and 14 percent, respectively (CARB 2018).

Sulfur Dioxide

SO_2 is one of a group of highly reactive gasses known as sulfur oxides. SO_2 is a colorless, irritating gas with a rotten egg smell formed primarily by the combustion of sulfur-containing fossil fuels. Nationwide, the largest sources of SO_2 emissions are from fossil fuel combustion at power plants and other industrial facilities.

Current scientific evidence links short-term exposures to SO_2 ranging from 5 minutes to 24 hours with an array of adverse respiratory effects, including bronchoconstriction and increased asthma symptoms. These effects are particularly serious for asthmatics at elevated ventilation rates (e.g., while exercising or playing). Sulfur oxides (SO_X) can also react with other compounds in the atmosphere to form small particles. These particles penetrate deeply into sensitive parts of the lungs and can cause or worsen respiratory disease, such as emphysema and bronchitis, and can aggravate existing heart disease, leading to increased hospital admissions and premature death.

The largest contributors of SO_X emissions in the County are areawide and mobile sources which contribute approximately 22 percent and 76 percent of emissions, respectively. Managed burning and disposal

contribute 96 percent of SO_X emissions for areawide sources and aircraft contribute 76 percent of mobile emissions (CARB 2018).

Lead

Pb is a metal that is a natural constituent of air, water, and the biosphere. The health effects of Pb poisoning include loss of appetite, weakness, apathy, and miscarriage. It can also cause lesions of the neuromuscular system, circulatory system, brain, and gastrointestinal tract. Gasoline-powered automobile engines were a major source of airborne Pb by the use of leaded fuels. The use of leaded fuel has been mostly phased out with the result that ambient concentrations of lead have dropped dramatically.

3.3.1.2 State

A SIP is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain national standards. The SIP for California is administered by California Air Resources Board (CARB), which has overall responsibility for statewide air quality maintenance and air pollution prevention. CARB also administers California Ambient Air Quality Standards (CAAQS) for the 10 air pollutants designated in the California Clean Air Act (CCAA). The 10-state air pollutants include the six national standards as well as the following: visibility-reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride. The national and state ambient air quality standards are summarized in Table 3.3-1.

CARB and local air districts are responsible for achieving CAAQS, which are to be achieved through district-level air quality management plans (AQMPs) that would be incorporated into the SIP. In California, the EPA has delegated authority to prepare SIPs to CARB, which in turn, has delegated that authority to individual air districts.

The CCAA substantially adds to the authority and responsibilities of air districts. The CCAA designates air districts as lead air quality planning agencies, requiring air districts to prepare air quality plans and grants air districts authority to implement TCMs. The CCAA also emphasizes the control of indirect and area-wide sources of air pollutant emissions and gives local air pollution control districts explicit authority to regulate indirect sources of air pollution.

Attainment Status

Depending on whether or not the applicable ambient air quality standards (AAQS) are met or exceeded, the air basin is classified as being in “attainment” or “nonattainment”. The EPA and CARB determine the air quality attainment status of designated areas by comparing ambient air quality measurements from state or local ambient air monitoring stations with the NAAQS and CAAQS. These designations are determined on a pollutant-by-pollutant basis. Consistent with federal requirements, an unclassifiable/ unclassified designation is treated as an attainment designation. Table 3.3-2 presents the federal and state attainment status for the Project area. As shown in Table 3.3-2, the County is currently designated as nonattainment for ozone and PM_{10} under state standards. Under federal standards, the County is nonattainment for ozone, PM_{10}, and $PM_{2.5}$. The area is currently in attainment or unclassified status for all other AAQS.

California In-Use Off-Road Diesel Fueled Fleet Regulations

The California In-Use Off-Road Diesel-Fueled Fleets Regulations were approved by CARB in July 2007, and subsequent major amendments were incorporated in December 2011. The regulations are intended to reduce diesel-exhaust and NO_X emissions from in-use off-road heavy-duty diesel vehicles in California. The regulation requires that any operator of diesel-powered off-road vehicles with 25-horsepower or greater engines meet specific fleet average targets. CARB maintains schedules for small, medium, and large equipment fleets that require equipment retrofits or replacements over time to gradually bring the existing

equipment up to standard. As of January 2018, all newly purchased equipment for medium and large equipment fleets are required to meet Tier 3 or higher engine standards.

Table 3.3-2 State and Federal Designations

Pollutant	Federal Designation	State Designation
Ozone (O_3)	Marginal Nonattainment[a]	Nonattainment
Particulate Matter 10 microns or less (PM_{10})	Serious Nonattainment	Nonattainment
Particulate Matter 2.5 microns or less ($PM_{2.5}$)	Moderate Nonattainment – Partial[b]	Attainment
Carbon Monoxide (CO)	Unclassified/ Attainment	Attainment
Nitrogen Dioxide (NO_2)	Unclassified/ Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Lead (Pb)	Unclassified/ Attainment	Attainment
Hydrogen Sulfide (H_2S)	No Federal Standards	Unclassified
Sulfates		Attainment
Visibility Reducing Particles		Unclassified

Notes:
a) The County is marginal nonattainment for the 2015 ozone standard and moderate attainment for the 2008 standard.
b) The County is moderate nonattainment for both the 2012 and 2008 $PM_{2.5}$ NAAQS standard. Only the Imperial Valley portion of the County is nonattainment for $PM_{2.5}$ NAAQS.
Source: EPA 2020, CARB 2019a

Toxic Air Contaminants

California regulates toxic air containments (TACs) primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588 – Connelly). In the early 1980s, the CARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Toxic Air Contaminant Identification and Control Act of 1983 (AB 1807) created California's program to reduce exposure to air toxics. The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

In August 1998, CARB identified diesel particulate matter (DPM) emissions from diesel-fueled engines as a TAC. In September 2000, CARB approved a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel fueled engines and vehicles (CARB 2000). The goal of the plan is to reduce diesel PM_{10} (inhalable particulate matter) emissions and the associated health risk by 75 percent in 2010 and by 85 percent by 2020. The plan identified 14 measures that target new and existing on-road vehicles (e.g., heavy- duty trucks and buses, etc.), off-road equipment (e.g., graders, tractors, forklifts, sweepers, and boats), portable equipment (e.g., pumps, etc.), and stationary engines (e.g., stand-by power generators, etc.). During the control measure phase, specific statewide regulations designed to further reduce diesel PM emissions from diesel-fueled engines and vehicles will be evaluated and developed. The goal of each regulation is to make diesel engines as clean as possible by establishing state-of-the-art technology requirements or emission standards to reduce diesel PM emissions. The proposed Project would be required to comply with applicable diesel control measures.

In 2004, CARB initially approved an airborne toxic control measure (ATCM) to implement idling restrictions of diesel-fueled commercial motor vehicles operating in California (13 CCR, Section 2485) (CARB 2005). The ATCM applies to diesel-fueled commercial vehicles with a gross vehicle rating greater than 10,000

pounds. The ATCM would limit idling times of these vehicle's primary engine to no more than five minutes at any location. This measure would help reduce exposure to diesel particulate matter and other diesel exhaust pollutants.

Assembly Bill 617

In July 2017 Governor Brown signed AB 617 which requires reduction in air pollution and associated health impacts in highly impacted communities. AB 617 provides a community-focused action framework to improve air quality and reduce exposure to criteria air pollutants and TACs in the communities most impacted by air pollution. Currently, 13 communities have been selected to participate. AB 617 includes a variety of strategies to address air quality issues in impacted communities, including community-level monitoring, uniform emission reporting across the State, stronger regulation of pollution sources, and incentives for both mobile and stationary sources.

3.3.1.3 Local

The Imperial County Air Pollution Control District (ICAPCD) is the local air district responsible for monitoring air quality, as well as planning, implementing, and enforcing programs designed to attain and maintain state and federal ambient air quality standards in the district. The air district was formed by the Air Pollution Control Act of 1947.

The ICAPCD adopted its CEQA Air Quality Handbook: Guidelines for the Implementation of the California Environmental Quality Act of 1970 in 2007 and amended the handbook in December 2017 (ICAPCD 2017a). The ICAPCD CEQA Air Quality Handbook provides guidance on how to determine the significance of impacts, including air pollutant emissions, related to the development of residential, commercial, and industrial projects. Where impacts are determined to be significant, the ICAPCD CEQA Air Quality Handbook provides guidance to mitigate adverse impacts to air quality from development projects. The ICAPCD is the agency principally responsible for comprehensive air pollution control in the region.

Air Quality Plans

The ICAPCD has developed plans and strategies to achieve attainment for AAQS. The latest plans include the following:

- Imperial County Plan for PM_{10} (2009)
- Annual $PM_{2.5}$ SIP (2012)
- Plan for 2006 24-hour $PM_{2.5}$ for moderate nonattainment area (2013)
- Plan for 2008 8-hour Ozone standard (2017)
- Redesignation Request and Maintenance Plan for PM_{10} (2018)

The following ICAPCD rules are applicable to the Project:

- **Rule 106: Abatement.** If the ICAPCD determines that any person is in violation of the Rules and Regulations for limiting the discharge of air contaminants into the atmosphere, the ICAPCD may issue an order for abatement.

- **Rule 107: Land Use.** The Air Pollution Control Officer has the responsibility to protect public health and property from the damaging effects of air pollution and will review and advise the appropriate land use authorities on all new construction or changes in land use which could become a source of air pollution problems.

- **Rule 310: Operational Development Fee.** Provides the ICAPCD with a sound method for mitigating emissions produced from operations of new commercial and residential development

projects by requiring project proponents to pay fees based on the project's emissions, type, and size. The operational fees would assist in attaining the State and federal ambient air quality standards for PM_{10} and Ozone.

- **Rule 401: Opacity of Emissions.** Sets limits for release or discharge of emissions into the atmosphere, other than uncombined water vapor, that are dark or darker in shade as designated as No.1 on the Ringelmann Chart or obscure an observer's view to a degree equal to or greater than smoke does as compared to No.1 on the Ringelmann Chart, for a period or aggregated period of more than three minutes in any hour.

- **Rule 403: General Limitations on the Discharge of Air Contaminants.** Rule 403 sets forth limitations on emissions of pollutants, including particulate matter, from individual sources.

- **Rule 407: Nuisance.** Rule 407 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

Stationary Sources

- **Rule 201: Permits Required.** The construction, installation, modification, replacement, and operation of any equipment which may emit or control Air Contaminants require ICAPCD permits.

- **Rule 207: New and Modified Stationary Source Review.** Establishes preconstruction review requirements for new and modified stationary sources to ensure the operations of equipment does not interfere with attainment or maintenance of ambient air quality standards.

- **Rule 208: Permit to Operate.** The ICAPCD would inspect and evaluate the facility to ensure the facility has been constructed or installed and will operate to comply with the provisions of the Authority to Construct permit and comply with all applicable laws, rules, standards, and guidelines.

- **Regulation VIII: Fugitive Dust Rules.** Regulation VIII sets forth rules regarding the control of fugitive dust, including fugitive dust from construction activities. The regulation requires implementation of fugitive dust control measures to reduce emissions from earthmoving, unpaved roads, handling of bulk materials, and control of track-out/carry-out dust from active construction sites.

General Plan

The County General Plan was adopted in March 2016. The Conservation and Open Space Element contains air quality objectives for obtaining a goal of improving air quality in the region, and it also included the policies and programs to be implemented to support the County's goal. Policies in the element included reducing fugitive dust emissions from unpaved roads, agricultural fields, and exposed Salton Sea lakebed; promoting alternative transportation programs; and working with the Imperial County Transportation Commission to reduce vehicle miles traveled Countywide.

3.3.2 Environmental Setting

3.3.2.1 Salton Sea Air Basin

The Project is located within the Salton Sea Air Basin (SSAB). The SSAB consists of all the County and a portion of Riverside County. Both the ICAPCD and SCAQMD have jurisdiction within the SSAB. The

ICAPCD has full jurisdiction within all the County and SCAQMD has jurisdiction within Riverside County. Ambient air quality is affected by the climate, topography, and the type and amount of pollutants emitted.

3.3.2.2 Climate and Topography

Climate conditions at the Project Site, like the rest of the County, are governed by the large-scale sinking and warming of air in the semi-permanent tropical high-pressure center of the Pacific Ocean. The high-pressure ridge blocks out most storms except in winter when it is weakest and farthest south. The coastal mountains prevent the intrusion of any cool, damp air found in California coastal environs. Because of the barrier and weakened storms, the County experiences clear skies, extremely hot summers, mild winters, and little rainfall (ICAPCD 2017b). Winters are mild and dry with daily average temperatures ranging between 65- and 75-degrees Fahrenheit (°F). Summers are extremely hot with daily average temperatures ranging between 104°F and 115°F. The flat terrain and the strong temperature differentials created by intense solar heating result in moderate winds and deep thermal convection.

The combination of subsiding air, protective mountains, and distance from the ocean all combine to severely limit precipitation (ICAPCD 2017b). The large daily oscillation of temperature produces a corresponding large variation in the relative humidity. Nocturnal humidity rises to 50 to 60 percent but drops to about 10 percent during the day. Prevailing winds are from the west-northwest through southwest; a secondary flow maximum from the southeast is also evident. The prevailing winds from the west and northwest occur seasonally from fall through spring and are known to be from the Los Angeles area. Based on meteorological data from the Imperial County Airport, the dominant wind direction throughout the year blows from west to east. Occasionally, the County experiences periods of extremely high wind speeds. Wind speeds can exceed 31 miles per hour (mph), and this occurs most frequently during the months of April and May. However, speeds of less than 6.8 mph account for more than one-half of the observed wind measurements (ICAPCD 2017b).

3.3.2.3 Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Heightened sensitivity may be caused by health problems, proximity to the emissions source, or duration of exposure to air pollutants. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Accordingly, land uses that are typically considered to be sensitive receptors include residences, schools, childcare centers, playgrounds, retirement homes, convalescent homes, hospitals, and medical clinics. The nearest receptor is a single-family residence approximately 4,000 feet northeast from the Project Site boundary.

3.3.2.4 Existing Air Quality

Air quality at a particular location is a function of the kinds, amounts, and dispersal rates of pollutants being emitted into the air locally and regionally. The major factors affecting pollutant dispersion are wind speed and direction, the vertical dispersion of pollutants (which is affected by temperature inversions), and topography. The County experiences surface inversions almost every day of the year. Due to strong surface heating, these inversions are usually broken and allow pollutants to be more easily dispersed. In some circumstances, the presence of the Pacific high-pressure cell can cause the air to warm to a temperature higher than the air below. This highly stable atmospheric condition, termed a subsidence inversion, can act as a nearly impenetrable lid to the vertical mixing of pollutants. The strength of these inversions makes them difficult to disrupt. Consequently, they can persist for one or more days, causing air stagnation and the build-up of pollutants. Highest and worst-case ozone levels are often associated with the presence of subsidence inversions (ICAPCD 2017b).

Air quality is commonly expressed as the number of days in which air pollution levels exceed state standards set by CARB or federal standards set by the EPA. The ICAPCD maintains five air quality

monitoring stations located throughout the region. Air pollutant concentrations and meteorological information are continuously recorded at these stations. Measurements are then used by scientists to help forecast daily air pollution levels, and to gauge compliance with state and federal air quality standards. The nearest active monitoring station is the El Centro Monitoring Station located 9.6 miles northeast of the Project Site. The El Centro Monitoring Station measures ozone, NO_2, PM_{10}, and $PM_{2.5}$. Table 3.3-3 provides a summary of measurements collected at the El Centro Monitoring Station for the years 2016 through 2018.

Table 3.3-3 Ambient Air Quality Summary

Pollutant	Averaging Time	Standard	2016	2017	2018
Ozone (O_3)	1 Hour	Days>State Standard (0.09ppm)	4	4	2
		Maximum Concentration (ppm)	0.108	0.110	0.102
	8 Hour	Days> State Standard (0.070 ppm)	11	17	15
		Days>Federal Standard (0.070)	11	17	14
		Maximum Concentration (ppm)	0.082	0.092	0.090
Nitrogen dioxide (NO_2)	1 Hour	Days>State Standard (0.180 ppm)	0	0	0
		Days>Federal Standard (0.100 ppm)	0	0	0
		Maximum Concentration (ppm)	0.051	0.049	0.034
	Annual	Maximum Concentration (ppm)	0.005	—	—
Particulate matter 10 microns or less (PM_{10})	24 hours	Measured Days>State Standard (50 µg/m^3)	—	—	—
		Calculated Days>State Standard (50 µg/m^3)	—	—	—
		Measured Days>Federal Standard (150 µg/m^3)	10	4	5
		Calculated Days>Federal Standard (150 µg/m^3)	10.0	4.0	5.1
		Maximum Concentration (µg/m^3)	284.9	268.5	253.0
	Annual	State Average (µg/m^3)	—	—	—
		Federal Average (µg/m^3)	45.0	41.3	46.9
Particulate matter 2.5 microns or less ($PM_{2.})_5$	24 hours	Days>Federal Standard (35.0 µg/m^3)	0	0	
		Maximum Concentration (µg/m^3)	31.3	23.2	22.4
	Annual	State Average (µg/m^3)	9.5	8.4	8.7
		Federal Average (µg/m^3)	9.4	8.4	8.6

Notes:
(—): indicates there was insufficient data available to determine the value.
Source: CARB 2020.

3.3.3 Environmental Impacts

3.3.3.1 Thresholds of Significance

The Impact analysis provided below is based on Appendix G of the CEQA guidelines. The Project would result in a significant impact to air quality if it would result in any of the following:

a) Would the project conflict with or obstruct implementation of the applicable air quality plan

b) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard.

c) Would the project expose sensitive receptors to substantial pollutant concentrations.

d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The ICAPCD has also established significance thresholds based on the State CEQA significance criteria. adopted guidelines for implementation of CEQA in its CEQA Air Quality Handbook (ICAPCD 2007, as updated December 12, 2017). The ICAPCD recommended thresholds of significance are discussed below. The thresholds are adopted for operation and construction emissions of criteria pollutants for residential, commercial, and industrial projects.

3.3.3.2 Issues Scoped Out as Part of the Initial Study

None of the thresholds of significance, as listed above, were eliminated for further analysis in the Initial Study (Appendix A).

Construction

The ICAPCD has established significance thresholds for construction-related emissions. These thresholds are presented in Table 3.3-4. The ICAPCD CEQA Handbook states that the approach to evaluating construction particulate matter emissions should be qualitative rather than quantitative. In any case, regardless of the size of the Project, the standard mitigation measures for construction equipment and fugitive PM_{10} must be implemented at all construction sites. The implementation of discretionary mitigation measures, including those listed in Section 7.1 of the ICAPCD's Handbook, apply to those construction sites which are five acres or more for non-residential developments or 10 acres or more in size for residential developments that generate emissions above the levels listed in Table 3.3-4. The list of mitigation measures that would be implemented for the Project (derived from Section 7.1 of the ICAPCD CEQA Guidelines) are provided below.

Table 3.3-4 Imperial County Air Pollution Control District Daily Construction Emissions Thresholds

Pollutant	Daily Threshold (lb/day)
Reactive organic gases (ROG)	75
Nitrogen oxides (No_x)	100
Carbon monoxide (CO)	550
Particulate matter 10 microns or less (PM_{10})	150

Source: ICAPCD 2017b

Operations

ICAPCD has determined in its CEQA Air Quality Handbook that because the operational phase of a proposed project has the potential of creating lasting or long-term impacts on air quality, it is important that a proposed development evaluate the potential impacts carefully. Therefore, air quality analyses should

compare all operational emissions of a project, including motor vehicle, area source, and stationary or point sources to the thresholds listed in Table 3.3-5. This table also provides general guidelines for determining the significance of impacts and the recommended type of environmental analysis required based on the total emissions that are expected from the operational phase of a project.

As shown in the Table 3.3-5, projects with emissions of criteria pollutants below Tier I may potentially have an adverse impact on local air quality but will be required to develop an initial study to determine the level of significance of potential impact. Tier II projects with a potential to emit criteria pollutants above the thresholds of Tier I are considered to have a significant impact on regional and local air quality. Tier II projects are required to implement all standard mitigation measures, as well as identify and implement all feasible discretionary mitigation measures.

Table 3.3-5 Imperial County Air Pollution Control District Daily Operational Emissions Thresholds

Pollutant	Tier I	Tier II
Nitrogen oxides and reactive organic gases (NOx and ROG)	Less than 137 lbs/day	137 lbs/day and greater
Particulate matter 10 microns or less and sulfur oxides (PM_{10} and Sox)	Less than 150 lbs/day	150 lbs/day and greater
Carbon monoxide and particulate matter 2.5 microns or less (CO and $PM_{2.5}$)	Less than 550 lbs/day	550 lbs/day and greater
Level of significance	Less than significant	Significant Impact
Level of analysis	Initial Study	Comprehensive Air Quality Analysis
Environmental document	Negative Declaration	Mitigated Negative Declaration or Environmental Impact Report

Source: ICAPCD 2017a

3.3.3.3 Methodology

Construction and operation of the Project would result in criteria pollutant emissions. Emissions were calculated using the CalEEMod Version 2016.3.2. The CalEEMod program is a tool used to estimate emissions resulting from land development projects in the state of California. CalEEMod was developed with the participation of several state air districts including the SCAQMD.

CalEEMod estimates parameters such as the type and amount of construction equipment required, trip generation, and utility consumption based on the size and type of each specific land use, using data collected from construction site surveys performed by the SCAQMD. Where available, parameters were modified to reflect Project-specific data.

Construction

The Project would be constructed in three to five phases over a 10-year period. Construction activities are anticipated to take approximately 32 months to complete the full Project build-out. Phase 1 of the Project would include construction of the common components such as roads, permanent clear-span bridge, O&M facilities, water connections and water mains, stormwater retention, switching station and Project substation, legal permanent vehicle access, as well as the first energy storage facility. The additional phases after Phase 1 would only construct energy storage facilities and construction activities

would be less intensive overall compared to Phase 1 and would require fewer construction equipment. Therefore, the emissions from Phase 1 would represent the worst-case daily emissions over the entire construction duration and this analysis evaluated Phase 1 emissions to determine the Project's impacts.

Construction emissions would be generated from the operation of off-road equipment worker and haul truck trips, fugitive dust from grading and soil handling activities, and fugitive dust from mobilization. The Project would implement the standard measures for fugitive PM_{10} control as described in the ICAPCD handbook. Details of the construction analysis and fugitive dust control measures are provided in Appendix D.

Off-road Equipment

CalEEMod calculates air quality emissions from construction equipment using emission factors from CARB's off-road diesel equipment emission factors database, OFFROAD 2011. All equipment was assumed to meet CARB Tier 3 In-Use Off-Road Diesel Engine Standards.

Mobile Sources

CalEEMod calculates mobile source emissions using emission factors derived from CARB's EMission FACtor model 2014 (EMFAC2014). Construction mobile emissions would be based on construction worker trips, vendor trips, and hauling trips. During construction activities, approximately 200 workers and 30 daily deliveries would be required. An average trip length was used to calculate total mobile emissions.

Fugitive Dust

Fugitive dust emissions would be emitted on-site from soil disturbing activities and vehicles traveling on on-site and off-site roads. Dust emissions were calculated using CalEEMod and standard dust control measures from the ICAPCD handbook would be implemented to minimize dust emissions. Details of measures to be implemented are included in Appendix D.

Operations

Operation of the Project would generate criteria pollutant emissions from mobile sources and landscaping equipment. The Project would also include emergency generators to supply auxiliary power to the facility during power outages. Generators would be periodically tested each year to maintain backup capabilities in the event of a grid emergency. All generators would be subject to ICAPCD review and permitting requirements.

Mobile Sources

CalEEMod calculates mobile source emissions using emission factors derived from EMFAC2014. Operation of the Project at full build-out would require up to approximately 20 full-time employees depending upon the number of phases and type of energy storage facility constructed. The Project may require fewer full-time equivalent employees, but 20 was assumed to provide a conservative estimate. Assuming two one-way trips per employee, the Project would be anticipated to generate up to 40 trips per day from all maintenance and security personnel. A 20-mile trip length was modeled.

Energy Sources

CalEEMod calculated emissions associated with building electricity and natural gas usage. Energy sources are mostly associated with greenhouse gas emissions; however, there are also minimal criteria pollutant emissions from energy sources. Emissions were calculated using 2016 Title 24 Energy Code standards. This is conservative since the O&M building would be required to comply with more recent 2019 Title 24 Energy Code, which is more energy efficient than the previous version.

Area Sources

An area source is any non-permitted stationary source of emission. Common area sources include fireplaces, natural gas used in space and water heating, consumer products, architectural coatings, dust from farming operations, landscaping equipment, and small combustion equipment such as boilers or backup generators. The Project does not include measurable amounts of fireplace use, natural gas use, consumer products, architectural coatings, or other area sources. Landscaping equipment would be used during routine weed abatement and landscaping activities would occur on as needed basis. The Project Site is bounded by unpaved roads, agricultural uses, and solar generation facilities. As the Project is not adjacent to natural lands, landscaping maintenance for maintaining a fire-clearing zone would be minimal and would result in minimal emissions.

Emergency Generators

The Project would include emergency backup generators to supply auxiliary power to the facility during events in which the entire facility or portions of the facility are disconnected from the electrical grid. The Project would use a hybrid approach to emergency backup power supply. Rather than relying exclusively on backup generators, the hybrid approach involves dedicating a portion of the battery storage system capacity as a source of emergency backup power. The reserved battery storage capacity would be approximately three to four percent of the size of the constructed battery storage system. This hybrid approach would also rely on the use of on-site, BTM solar power generation to supplement the facility's backup power supply needs. Additionally, propane-fueled generators would augment the backup battery storage capacity and the BTM solar power generation. Approximately 1.25 MW of backup power generation would be needed for every 100 MW of installed battery storage capacity.

Each propane-fueled generator would have a capacity of 150 kilowatts or larger. The generators would be periodically tested (monthly) to maintain backup capability in the event of a grid emergency. The Project would include up to 20 propane-fueled generators. The exact testing schedule is not known at this time. For the purposes of the emission calculations, it was assumed that each of the 20 generators would be tested once per month for a total operation time of two hours each per month. If all generators were to be tested on the same day, this would be a total of 40 hours of cumulative operation time per day. All generators would be subject to ICAPCD review and permitting requirements.

3.3.3.4 Project Impacts and Mitigation Measures

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

The primary concern for assessing consistency with air quality plans is whether the Project would induce growth that would result in a net increase in criteria pollutant emissions that exceeds the assumptions used to develop the plan. The basis for the air quality plans is SCAG population growth and regional vehicle miles traveled projections, which are based in part on the land uses established by local general plans. As such, projects that propose development that is consistent with the local land use plans would be consistent with growth projections and air quality plans emissions estimates.

If a project would result in development that is less dense than anticipated by the growth projections, the Project would be considered consistent with the air quality plans. In the event a project would result in development that results in greater than anticipated growth projections, the Project would result in air pollutant emissions that may not have been accounted for in the air quality plans and thus may obstruct or conflict with the air quality plans. As described below, the ICAPCD has implemented plans for meeting state and national standards of nonattainment pollutants.

The land use designation for the Project Site is Agriculture which assigns two vehicle trips per acre per day. The 148-acre site then would generate approximately 296 daily trips. The Project proposes a General Plan Amendment to change the land use designation from Agriculture to Industry, and a zone change from A-3 to M-2. As described below, Project operations would generate up to 20 trips per day. As compared to the existing land use designation assumed in the SIP, the Project would generate slightly more trips; however, the total number of trips would still be minimal. The Project would not result in growth that would exceed the anticipated growth projections. Additionally, as summarized in Table 3.3-6 below, operation of the Project would result in emissions that are well below all applicable Project-level significance thresholds. Therefore, Project emissions would be consistent with SCAG's growth projections and the ICAPCD's air quality plans, and impacts would be less than significant.

Table 3.3-6 Maximum Daily Operational Emissions (lb/day)

Source	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Area	<12	<1	<1	0	<1	<1
Energy	<1	<1	<1	<1	<1	<1
Mobile	1	47	13	<1	48	5
Emergency Generator Testing	1	12	7	<1	1	1
Maximum Daily Emissions	**14**	**19**	**20**	**<1**	**48**	**6**
ICAPCD Thresholds	137	137	550	150	150	150
Exceeds Threshold	**No**	**No**	**No**	**No**	**No**	**No**

Source: Appendix D
ROG=reactive organic gases; NOx=nitrogen oxides; CO=carbon monoxide; SOX=sulfur oxides; PM10=particulate matter 10 microns or less; PM2.5=particulate matter 2.5 microns or less; ICAPCD= Imperial County Air Pollution Control District

Mitigation Measures

None required.

Level of Significance After Mitigation

Not applicable.

b) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Construction

Construction of the Project would result in temporary increases in emissions of criteria pollutants and fugitive dust associated with the use of off-road diesel equipment and vehicle trips. The Project would result in emissions of criteria pollutants for which the region is nonattainment. The SSAB is nonattainment for ozone, PM_{10}, and $PM_{2.5}$.

Phase 1 construction would include multiple construction activities as compared to later phases and would represent the worst-case daily emissions scenario for the Project. The maximum daily emissions are predicted values for the worst-case day and do not represent the emissions that would occur for every day of construction. Table 3.3-7 shows the maximum daily construction emissions for Phase 1 of the Project. As shown in Table 3.3-7, the maximum daily construction emissions would be below all ICAPCD

significance thresholds. Therefore, the Project would not result in a cumulatively considerable increase of criteria pollutants for which the Project region is nonattainment and construction impacts would be less than significant. To ensure maximum daily emissions are not exceeded, mitigation measures will be required.

Table 3.3-7 Maximum Daily Construction Emissions (lb/day)

Construction Activity	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Mobilization/Access Road	<1	7	7	<1	144	21
Bridge, Substation, Common Facilities, and Battery Storage Phase 1 Construction	22	84	119	<1	100	14
Battery Storage Phases 2-5	7	52	79	<1	58	9
Maximum Daily Emissions	**22**	**84**	**119**	**<1**	**144**	**21**
ICAPCD Thresholds	75	100	550	NA	150	NA
Exceeds Threshold	**No**	**No**	**No**	**-**	**No**	**-**

Source: Appendix D
ROG=reactive organic gases; NOx=nitrogen oxides; CO=carbon monoxide; SOX=sulfur oxides; PM10=particulate matter 10 microns or less; PM2.5=particulate matter 2.5 microns or less; ICAPCD= Imperial County Air Pollution Control District

Prior to construction, the construction contractor will perform recordkeeping of a construction equipment list. The equipment list will include the make, model, horsepower, and actual hours of usage for off-road equipment. The equipment list(s) will be submitted periodically to the ICAPCD to perform a NO_X analysis. The ICAPCD's NO_X analysis will then be used to assure the Project impacts would remain less than significant. If the ICAPCD's NO_x analysis indicates exceedances of thresholds, the Project-related construction impacts would be mitigated per Policy 5, as provided in MM AIR-1 and MM AIR-2.

Operations

Operational emissions would occur over the lifetime of the Project generating emissions from vehicle trips and area sources such as landscaping equipment. Table 3.3-6 above shows the maximum daily operational emissions. As shown in Table 3.3-6, the maximum daily operational emissions would be below all ICAPCD significance thresholds, therefore, the Project would not result in a cumulatively considerable increase of criteria pollutants for which the Project region is nonattainment and operations impacts would be less than significant. With implementation of MM AIR-3, operational impacts would be less than significant.

Decommissioning

The Project is anticipated to operate for a total of approximately 30 years from the construction of the final phase. At the end of the Project's useful operational life, the Applicant may determine that the Project Site should be decommissioned and deconstructed, or it may seek an extension of its CUP. The emissions associated with decommissioning of the Project are not quantitatively estimated, as the extent of activities and emissions factors for equipment and vehicles at the time of decommissioning are unknown. The overall activity would be anticipated to be somewhat less than Project construction, and the emissions from off-road and on-road equipment are expected to be much lower than those for the Project construction. However, without changes in fugitive dust control methods it is likely that fugitive dust emissions would be closer to those estimated for construction. Overall, similar to construction, emissions associated with decommissioning would be less than significant.

As presented above, the Project would not violate any air quality standards or contribute substantially to an existing or projected air quality violation. The impact is less than significant, and no mitigation is required; however, per requirements of ICAPCD, the standard mitigation measures would be implemented during construction, operation and decommissioning of the Project, including an Operational Dust Control Plan (ODCP) outlining strategies for controlling dust emissions during Project operations. As such, MM AIR-1 includes the required ICAPCD mitigation measures (for all projects). With implementation of MM AIR-1, this impact would be less than significant.

Mitigation Measures

MM AIR-1: Regulation VIII (Fugitive Dust Control Measures)

All construction sites, regardless of size, must comply with the requirements contained within Regulation VIII.

Standard Mitigation Measures for Fugitive Dust (PM10) Control

a) All disturbed areas, including Bulk Material storage which is not being actively utilized, shall be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps, or other suitable material such as vegetative ground cover.

b) All on-site and off-site unpaved roads would be effectively stabilized, and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering.

c) All unpaved traffic areas 1 acre or more with 75 or more average vehicle trips per day would be effectively stabilized and visible emission shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering.

d) The transport of Bulk Materials shall be completely covered unless 6 inches of freeboard space from the top of the container is maintained with no spillage and loss of Bulk Material. In addition, the cargo compartment of all Haul Trucks is to be cleaned and/or washed at delivery site after removal of Bulk Material.

e) All Track-Out or Carry-Out would be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an urban area.

f) Movement of Bulk Material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient amounts of water, chemical stabilizers or by sheltering or enclosing the operation and transfer line.

g) The construction of any new unpaved road is prohibited within any area with a population of 500 or more unless the road meets the definition of a temporary unpaved road. Any temporary unpaved road shall be effectively stabilized, and visible emissions shall be limited to no greater than 20 opacity for dust emission by paving, chemical stabilizers, dust suppressants and/or watering.

MM AIR-2 Construction Equipment Control Measures

Standard Mitigation Measures for Equipment Exhaust Emissions Control

a) Use of equipment with alternative fueled or catalyst-equipped diesel engine, including for all off-road and portable diesel-powered equipment.

b) Minimize idling time either by shutting equipment off when not in use or limit the idling time to a maximum of 5 minutes.

c) Limit, to the extent feasible, the hours of operation of heavy-duty equipment and/or the number of equipment in use.

d) Replace fossil fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set).

Required Mitigation Measures for Construction Equipment Mobilization

a) The 1.2-mile portion of the access road from the IV Substation to the Project Site shall be covered with construction mats.

b) No more than eight pieces of construction equipment shall be delivered to the Project Site in one day.

c) A speed limit of 15 mph on the access road shall be enforced.

Required Mitigation Measures for Construction Activities

a) The 1.2-mile portion of the southern access road from the IV Substation to the Project Site shall be covered with construction mats.

b) A material delivery speed limit of 15 mph on the access road shall be enforced.

c) For material deliveries from the south, one of the following dust suppressant measures would be required for the 4.4-mile service road:

d) A water truck shall apply water every 3 hours, or as deliveries occur; or

e) A chemical dust suppressant shall be applied.

f) For the 0.3-mile portion of the northern access route that is unpaved (south of Wixom Road to the worker parking area) one of the following dust suppressant measures would be required:

- A water truck shall apply water every 3 hours, or as worker access occurs; or
- A chemical dust suppressant shall be applied.
- A water truck shall apply water to all active on-site grading areas every 3 hours.

Enhanced Mitigation Measures for Construction Equipment

To help provide a greater degree of reduction of PM emissions from construction combustion equipment, ICAPCD recommends the following enhanced measures:

a) Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing of construction activity during the peak hour of vehicular traffic on adjacent roadways.

b) Implement activity management (e.g., rescheduling activities to reduce short-term impacts).

MM AIR-3: Operational Dust Control Plan

To help reduce fugitive dust emissions from on-site unpaved roads and accumulation of small dunes during operations, an Operational Dust Control Plan (ODCP) would be prepared. The ODCP would include

strategies for how dust emissions would be controlled and maintained during Project operations. The ODCP would be submitted to the ICAPCD for approval prior to the issuance of a Certificate of Occupancy.

Level of Significance After Mitigation

Implementation of the MM AIR-3 would reduce potential impacts of criteria pollutants to less-than-significant levels.

c) Would the Project expose sensitive receptors to substantial pollutant concentrations?

The Project Site is in a rural environment; there are no nearby schools, day care centers, hospitals, retirement homes, or convalescence facilities. The Project Site is bounded by the Westside Main Canal to the north, BLM lands to the south and west, vacant land to the east, and the Campo Verde solar generation facility to the northwest. The IV Substation is located approximately one-third mile south of the southern property line of the Site. There are no sensitive receptors in the immediate vicinity of the Project Site. The closest sensitive receptor is a single-family residence located approximately 4,000 feet northeast of the Project Site boundary at the intersection of Wixom Road and Vogel Road.

Toxic Air Contaminants

Construction of the Project may result in temporary increases in emissions of TACs, mainly DPM from off-road diesel equipment and vehicle trips. PM exhaust from diesel-fueled engines were identified as a toxic air contaminant by CARB in 1998. Due to the limited intensity of construction and the distance to the nearest sensitive receptor (4,000 feet), DPM generated by Project construction activities is not expected to create conditions where the incremental cancer risk exceeds the ICAPCD's ten in one million significance threshold or non-cancer hazard index thresholds. Project operations would not be a significant source of TACs. Therefore, Project construction and operations would not expose sensitive receptors to substantial pollutant concentrations and impacts would be less than significant.

Fugitive Dust

During construction and operations activities, the Project would implement MM AIR-1, MM AIR-2 and MM AIR-3, which include dust control and other measures to reduce impacts to sensitive receptors in the Project vicinity. Therefore, the Project's short-term construction activities and long-term operational dust emissions would result in a less than significant impact with incorporation of mitigation.

CO Hotspots

Localized CO concentration is a direct function of motor vehicle activity at signalized intersections (e.g., idling time and traffic flow conditions), particularly during peak commute hours and meteorological conditions. Under specific meteorological conditions (e.g., stable conditions that result in poor dispersion), CO concentrations may reach unhealthy levels with respect to local sensitive land uses. CO hotspots due to traffic almost exclusively occur at signalized intersections that operate at a LOS E or below. Projects may result in or contribute to a CO hotspot if they worsen traffic flow at signalized intersections operating at LOS E or F. The Project Site is in a rural environment with no signalized traffic intersections within several miles of the Project Site. As discussed below, Project operations would generate up to 20 trips per day at full build-out. The Project is not in proximity to a signalized intersection and would not generate substantial traffic. Therefore, the Project would not cause or contribute to a CO hotspot, and impacts would be less than significant.

Mitigation Measures

MM AIR-1: Regulation VIII (Fugitive Dust Control Measures)

MM AIR-2: Construction Equipment Control Measures

MM AIR-3: Operational Dust Control Plan

Level of Significance After Mitigation

Implementation of the mitigation measures above would reduce potential impacts on sensitive receptors to less-than-significant levels.

d) Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The potential for an odor impact is dependent on a number of variables including the nature of the odor source, distance between the receptor and odor source, and local meteorological conditions. Project construction would result in the emission of diesel exhaust fumes and other odors typically associated with construction activities. Odors are highest near the source and would quickly dissipate off the Site. The nearest sensitive receptor is a single-family residence approximately 4,000 feet northeast from the Project Site boundary. Any odors associated with construction activities would be transient and would cease upon completion. Therefore, Project construction would not generate odors adversely affecting a substantial number of people, and impacts would be less than significant. Energy storage facilities are not known to emit odors during operation. Project operation would include inspection, maintenance, and sporadic operation of emergency generators. These processes would not be significant sources of odors. Similarly, decommissioning of the Project would not generate odors. Therefore, operational impacts related to odors would also be less than significant.

Mitigation Measures

None required.

Level of Significance After Mitigation

Not applicable.

3.4 BIOLOGICAL RESOURCES

This section describes the effects to biological resources that may result from the implementation of the Project. The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts, and recommends measures to reduce or avoid impacts anticipated from Project construction and operation. Additional detail and background on biological resources are included in the following appendices to this EIR:

- Biological Resources Technical Report – Appendix E.1
- Burrowing Owl (BUOW) Survey (Breeding and Non-Breeding)– Appendix E.2 and E.3
- Jurisdiction Delineation Report – Appendix E.4

3.4.1 Regulatory Framework

3.4.1.1 Federal

Federal Endangered Species Act

The Federal Endangered Species Act (FESA) provisions protect federally listed threatened and endangered species and their habitats from unlawful "take" and help ensure that federal actions do not jeopardize the continued existence of a listed species or result in the destruction or adverse modification of Designated Critical Habitat (DCH). Under the FESA, "take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct." The USFWS regulations define harm to mean "an act which actually kills or injures wildlife." Such an act "may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering" (50 CFR § 17.3).

DCH is defined in Section 3(5)(A) of the FESA as "(i) the specific areas within the geographical area occupied by the species on which are found those physical or biological features: (I) essential to the conservation of the species; (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species upon a determination by the Secretary of Commerce or the Secretary of the Interior (Secretary) that such areas are essential for the conservation of the species." The effects analyses for DCH must consider the role of the critical habitat in both the continued survival and the eventual recovery (i.e., the conservation) of the species in question, consistent with the recent Ninth Circuit judicial opinion, *Gifford Pinchot Task Force v. USFWS*.

Activities that may result in "take" of individuals are regulated by the USFWS. The USFWS produced an updated list of candidate species December 6, 2007 (72 CFR 69034). Candidate species are not afforded any legal protection under FESA; however, candidate species typically receive special attention from federal and State agencies during the environmental review process.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711) makes it unlawful to possess, buy, sell, purchase, barter or "take" any migratory bird listed in 50 CFR Part 10. "Take" is defined as possession or destruction of migratory birds, their nests, and/or eggs. Disturbances that cause nest abandonment and/or loss of reproductive effort or the loss of habitats upon which these birds depend may be a violation of the MBTA. The MBTA prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary. The MBTA encompasses whole birds, parts of birds, bird nests, and eggs.

Bald and Golden Eagle Protection Act of 1940

The Bald and Golden Eagle Protection Act (BGEPA) of 1940 (16 U.S.C. 668, enacted by 54 Stat. 250) protects bald and golden eagles by prohibiting the taking, possession, and commerce of such birds and establishes civil penalties for violation of the BGEPA. “Take” of bald and golden eagles is defined as follows: “disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior’’ (72 FR 31132; 50 CFR 22.3).

The USFWS is the primary federal authority charged with the management of golden eagles in the U.S. A permit for take of golden eagles, including take from disturbance such as loss of foraging habitat, may be required for this Project. USFWS guidance on the applicability of current BGEPA statutes and mitigation is currently under review. On November 10, 2009, the USFWS implemented new rules (74 FR 46835) governing the “take” of golden and bald eagles. The new rules were released under the existing BGEPA, which has been the primary regulation protecting unlisted eagle populations since 1940.

All activities that may disturb or incidentally “take” an eagle or its nest as a result of an otherwise legal activity must be permitted by the USFWS under this act. The definition of disturb (72 FR 31132) includes interfering with normal breeding, feeding, or sheltering behavior to the degree that it causes or is likely to cause decreased productivity or nest abandonment. If a permit is required, due to the current uncertainty on the status of golden eagle populations in western U.S., it is expected permits would only be issued for safety emergencies or if conservation measures implemented in accordance with a permit would result in a reduction of ongoing “take” or a net “take” of zero.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act, as amended in 1964, requires that all Federal agencies consult with the National Marine Fisheries Service (NMFS), USFWS, and state wildlife agencies (i.e., California Department of Fish and Wildlife [CDFW]) when proposed actions might result in modification of a natural stream or body of water. Federal agencies must consider effects that these projects would have on fish and wildlife development and provide for improvement of these resources. The Fish and Wildlife Coordination Act allows NMFS, USFWS and CDFW to provide comments to the USACE during review of projects under Section 404 of the Clean Water Act (CWA) (concerning the discharge of dredged materials into navigable waters of the United States [WOTUS]) and Section 10 of the Rivers and Harbors Act (RHA) obstructions in navigable waterways. NMFS comments provided under the Fish and Wildlife Coordination Act are intended to reduce environmental impacts to migratory, estuarine, and marine fisheries and their habitats.

Rivers and Harbors Act of 1899

Section 10 of the RHA (33 U.S.C. § 403) requires authorization from the USACE for work or structures in or affecting navigable WOTUS.

The term “navigable waters of the U. S.” generally includes those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events which impede or destroy navigable capacity (33 CFR §329.4).

The term “structure” includes, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, rip rap, jetty, artificial island, artificial reef, permanent mooring structure,

power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other obstacle or obstruction (33 CFR §322.2).

The term “work” includes, without limitation, any dredging or disposal of dredged material, excavation, filling, or other modification of a navigable WOTUS (33 CFR §322.2).

The geographic and jurisdictional limits of the USACE’s Section 10 jurisdiction in rivers and lakes:

(a) Jurisdiction over entire bed. Federal regulatory jurisdiction, and powers of improvement for navigation, extend laterally to the entire water surface and bed of a navigable waterbody, which includes all the land and waters below the ordinary high-water mark (OHWM). Jurisdiction thus extends to the edge (as determined above) of all such waterbodies, even though portions of the waterbody may be extremely shallow, or obstructed by shoals, vegetation, or other barriers. Marshlands and similar areas are thus considered navigable in law, but only so far as the area is subject to inundation by the ordinary high waters.

    (1) The OHWM of non-tidal rivers is the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter and debris; or other appropriate means that consider the characteristics of the surrounding areas.

    (2) Ownership of a river or lakebed or of the lands between high and low water marks will vary according to state law; however, private ownership of the underlying lands has no bearing on the existence or extent of the dominant Federal jurisdiction over a navigable waterbody.

(b) Upper limit of navigability. The character of a river will, at some point along its length, change from navigable to non-navigable. Very often that point will be at a major fall or rapids, or other place where there is a marked decrease in the navigable capacity of the river. The upper limit will therefore often be the same point traditionally recognized as the head of navigation, but may, under some of the tests described above, be at some point yet farther upstream.

The geographic and jurisdictional limits of USACE jurisdiction in oceanic and tidal WOTUS:

(a) Ocean and coastal waters. The navigable WOTUS over which USACE regulatory jurisdiction extends include all ocean and coastal waters within a zone three geographic (nautical) miles seaward from the baseline (the Territorial Seas). Wider zones are recognized for special regulatory powers exercised over the outer continental shelf. 33 CFR § 322.3(b).

    (1) Baseline defined. Generally, where the shore directly contacts the open sea, the line on the shore reached by the ordinary low tides comprises the baseline from which the distance of three geographic miles is measured. The baseline has significance for both domestic and international law and is subject to precise definitions. Special problems arise when offshore rocks, islands, or other bodies exist, and the baseline may have to be drawn seaward of such bodies.

    (2) Shoreward limit of jurisdiction. USACE regulatory jurisdiction in coastal areas extends to the line on the shore reached by the plane of the mean (average) high water. Where precise determination of the actual location of the line becomes necessary, it must be established by survey with reference to the available tidal datum, preferably averaged over a period of 18.6 years. Less precise methods, such as observation of the “apparent shoreline” which is determined by reference to physical markings, lines of vegetation, or changes in type of vegetation, may be used only where an estimate is needed of the line reached by the mean high water.

(b) Bays and estuaries. USACE regulatory jurisdiction extends to the entire surface and bed of all waterbodies subject to tidal action. Jurisdiction thus extends to the edge (as determined by paragraph (a)(2) above) of all such waterbodies, even though portions of the waterbody may be extremely shallow, or obstructed by shoals, vegetation, or other barriers. Marshlands and similar areas are thus considered "navigable in law," but only so far as the area is subject to inundation by the mean high waters. The relevant test is therefore the presence of the mean high tidal waters, and not the general test described above, which generally applies to inland rivers and lakes.

Structures or work outside the limits defined above for navigable WOTUS require a Department of the Army (DOA) permit pursuant to Section 10 of the RHA if the structure or work affects the course, location, or condition of the water body in such a manner as to impact on its navigable capacity (33 CFR § 322.3).

Section 14 of the Rivers and Harbors Act

Section 14 of the RHA of 1899 (33 U.S.C. § 408), commonly referred to as "Section 408," authorizes the USACE to grant permission to alter, occupy, or use a USACE civil works project if the Secretary determines that the activity will not be injurious to the public interest and will not impair the usefulness of the project. If a project would modify, alter, and/or occupy an existing USACE-constructed public works project (e.g., a levee); the project would require authorization under Section 14 of the RHA of 1899 and codified in 33 U.S.C. 408 (Section 408). In order for the USACE Lead District to approve any proposed alterations requests, it must meet USACE standards, and must not be injurious to the public interest or affect the USACE project's ability to meet its authorized purpose.

The concrete banks and berms of this flood damage reduction channel are under USACE jurisdiction and changes to them would require a Section 408 permit from the USACE prior to modification.

Federally Regulated Habitats

Areas that meet the regulatory definition WOTUS are subject to the jurisdiction of the USACE under provisions of Section 404 of the CWA (1972) and Section 10 of the RHA (1899). WOTUS may include all waters used, or potentially used, for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (e.g., intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as WOTUS, tributaries of waters otherwise defined as WOTUS, territorial seas, and wetlands (i.e., "Special Aquatic Sites") adjacent to WOTUS (33 CFR, Part 328, Section 328.3).

Construction activities within WOTUS are regulated by the USACE. The placement of fill into such waters must comply with permit requirements of the USACE. No USACE permit would be effective in the absence of State Water Quality Certification pursuant to Section 401 of the CWA. As a part of the permit process the USACE works directly with the USFWS to assess potential project impacts on biological resources.

National Environmental Policy Act

The National Environmental Policy Act (NEPA) of 1969 requires all federal agencies to examine the environmental impacts of their actions, incorporate environmental information, and utilize public participation in the planning and implementation of all actions. Federal agencies must integrate NEPA with other planning requirements and prepare appropriate NEPA documents to facilitate better environmental decision making. NEPA requires federal agencies to review and comment on federal agency environmental plans/documents when the agency has jurisdiction by law or special expertise with respect to any environmental impacts involved (42 U.S.C. 4321- 4327; 40 CFR 1500-1508).

3.4.1.2 State

California Endangered Species Act

Provisions of California Endangered Species Act (CESA) protect State-listed threatened and endangered species. The CDFW regulates activities that may result in "take" of individuals (i.e., "take" means "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill"). Habitat degradation or modification is not expressly included in the definition of "take" under the California Fish and Game Commission (FGC). Additionally, the California FGC contains lists of vertebrate species designated as "fully protected" (California FGC §§ 3511 [birds], 4700 [mammals], 5050 [reptiles and amphibians], 5515 [fish]). Such species may not be taken or possessed.

In addition to federal and State-listed species, the CDFW also has produced a list of Species of Special Concern (SSC) to serve as a "watch list." Species on this list are of limited distribution or the extent of their habitats has been reduced substantially, such that threat to their populations may be imminent. SSC may receive special attention during environmental review, but they do not have statutory protection.

Birds of prey are protected in California under the FGC. California FGC Section 3503.5 states it is "unlawful to 'take', possess, or destroy any birds of prey (in the order Falconiformes or Strigiformes) or to 'take', possess, or destroy the nest or eggs of any such bird except as otherwise provided by this Code or any regulation adopted pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by the CDFW. Under Sections 3503 and 3503.5 of the California FGC, activities that would result in the taking, possessing, or destroying of any birds-of-prey, taking or possessing of any migratory nongame bird as designated in the MBTA, or the taking, possessing, or needlessly destroying of the nest or eggs of any raptors or non-game birds protected by the MBTA, or the taking of any non-game bird pursuant to California FGC Section 3800 are prohibited.

Lake and Streambed Alteration Agreements

Sections 1600-1603 of the California FGC requires any person, State or local governmental agency, or public utility which proposes a project that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake, or use materials from a streambed, or result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake, to first notify the CDFW of a proposed project. Notification is generally required for any project that will take place in or in the vicinity of a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish or other aquatic life and watercourses having a surface or subsurface flow that support or have supported riparian vegetation. Based on the notification materials submitted, the CDFW will determine if a proposed project may impact fish or wildlife resources.

If the CDFW determines that a proposed project may substantially adversely affect existing fish or wildlife resources, a Lake and Streambed Alteration Agreement (LSAA) will be required. A completed CEQA document must be submitted to CDFW before a LSAA will be issued.

California Native Plant Protection Act

Under California FGC Section 1900 to 1913, the NPPA requires all State agencies to utilize their authority to carry out programs to conserve endangered and rare native plants. Provisions of Native Plant Protection Act (NPPA) prohibit the taking of listed plants from the wild and require notification of the CDFW at least 10 days in advance of any change in land use. This allows CDFW to salvage listed plant species that would

otherwise be destroyed. A project applicant is required to conduct botanical inventories and consult with CDFW during project planning to comply with the provisions of the NPPA and sections of CEQA that apply to rare or endangered plants.

Porter-Cologne Water Quality Control Act

The California Regional Water Quality Control Board (RWQCB) regulates the "discharge of waste" to "waters of the State" (WOTS). All projects proposing to discharge waste that could affect WOTS must file a Waste Discharge Report with the appropriate RWQCB. The board responds to the report by issuing Waste Discharge Requirements or by waiving them for that project discharge. Both terms "discharge of waste" and WOTS are broadly defined such that discharges of waste include fill, any material resulting from human activity, or any other "discharge." Isolated wetlands within California, which are no longer considered WOTUS, as defined by Section 404 of the CWA, are addressed under the Porter Cologne Water Quality Control Act.

State-Regulated Habitats

The State Water Quality Control Board (SWQCB) is the State agency (together with the RWQCBs) charged with implementing water quality certification in California.

The CDFW extends the definition of stream to include "intermittent and ephemeral streams, rivers, creeks, dry washes, sloughs, blue-line streams (USGS-defined), and watercourses with subsurface flows. Canals, aqueducts, irrigation ditches, and other means of water conveyance can also be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife" (CDFW 1994).

Activities that result in the diversion or obstruction of the natural flow of a stream; or which substantially change its bed, channel, or bank; or which utilize any materials (including vegetation) from the streambed, may require that the project applicant enter into a LSAA with the CDFW.

3.4.1.3 Local

Imperial County General Plan – Conservation and Open Space Element

The Conservation and Open Space Element of the General Plan contains policies and programs that are designed to protect and conserve environmental resources in the County while encouraging economic development and growth. Resources covered under the Conservation and Open Space Element consist of the following: biological resources, cultural resources, geology and soils, mineral resources, regional aesthetics, air quality and climate change, and open space and recreation.

The goals and objectives relative to natural resources that apply to the Project are as follows:

Conservation of Environmental Resources for Future Generations

Goal 1 Environmental resources shall be conserved for future generations by minimizing environmental impacts in all land use decisions and educating the public on their value.

> **Objective 1.1** Encourage uses and activities that are compatible with the fragile desert environment and foster conservation.
>
> **Objective 1.2** Coordinate the acquisition, designation, and management of important natural and cultural resource areas in Imperial County with other governmental agencies as appropriate.

Objective 1.4 Ensure the conservation and management of the County's natural and cultural resources.

Objective 1.6 Promote the conservation of ecological sites and preservation of cultural resource sites through scientific investigation and public education.

Conservation of Biological Resources

Goal 2 The County will integrate programmatic strategies for the conservation of critical habitats to manage their integrity, function, productivity, and long-term viability.

Objective 2.1 Designate critical habitats for Federally and State-listed species.

Objective 2.2 Develop management programs, including preservation of habitat for flat-tailed horned lizard, desert pupfish, and burrowing owl.

Objective 2.4 Use the CEQA and NEPA process to identify, conserve, and restore sensitive vegetation and wildlife resources.

Objective 2.6 Attempt to identify, reduce, and eliminate all forms of pollution: including air, noise, soil, and water.

County policies and programs relative to natural resources that apply to the Project are as follows:

Biological Resource Conservation

Policy: Provide a framework for the conservation and enhancement of natural and created open space which provides wildlife habitat values.

Programs

- Identify Resource Areas to conserve and enhance native vegetation and wildlife. These areas include agency designated sensitive habitats with the USFWS, BLM Areas of Critical Environmental Concern, and CDFW. These designated lands are designed for the protection and perpetuation of rare, endangered, and threatened species and areas important for scientific study.

- Projects within or in the vicinity of a Resource Area should be designed to minimize adverse impacts on the biological resources it was created to protect.

- Develop an environmental mitigation program that protects and restores Salton Sea wildlife habitats as offsets to biological disturbances identified through the CEQA review process for development projects. The program would allow the County and/or Salton Sea Joint Powers Authority to restore habitat through financing mechanisms including land banks and/or direct financial contributions from the developers to mitigate their impacts.

- Protect riparian habitat and other types of wetlands from loss or modification by dedicating open space easements with adequate buffer zones, and by other means to avoid impacts from adjacent land uses. Road crossings or other disturbances of riparian habitat should be minimized and only allowed when alternatives have been considered and determined infeasible.

- Preserve existing California fan palms in natural settings and other individual specimen trees which contribute to the community character and provide wildlife habitat.

- Preserve and encourage the open space designation of wildlife corridors which are essential to the long-term viability of wildlife populations.

- Integrate open space dedications in private developments with surrounding uses to maximize a functional open space/recreation and wildlife management system.

Policy: Landscaping should be required in all developments to prevent erosion on graded sites and, if the area is contiguous with undisturbed wildlife habitat, the plan should include revegetation with native plant species.

Programs

- Revegetation plans shall be submitted and approved by the ICPDS department and relevant resource agencies for the mitigation of sensitive habitat lost, and for disturbed areas created by roads or installation of facilities adjacent to native habitat. Such plans shall mitigate for the loss of sensitive habitat and habitat value based on a ratio consistent with accepted policy, as recommended by the State and Federal resource agencies.

3.4.1.4 Other Applicable Regulations, Plans, and Standards

California Native Plant Society Rare Plant Program

The mission of the California Native Plant Society (CNPS) Rare Plant Program (CRPR) is to develop current, accurate information on the distribution, ecology, and conservation status of California's rare and endangered plants, and to use this information to promote science-based plant conservation in California. Once a species has been identified as being of potential conservation concern, it is put through an extensive review process. Once a species has gone through the review process, information on all aspects of the species (e.g., listing status, habitat, distribution, threats, etc.) are entered into the online CNPS Rare Plant Inventory and given a CRPR. The Program currently recognizes more than 1,600 plant taxa (species, subspecies, and varieties) as rare or endangered in California.

Vascular plants listed as rare or endangered by the CNPS, but which might not have a designated status under State endangered species legislation, are defined by the following CRPR:

- CRPR 1A: Plants considered by the CNPS to be extinct in California
- CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere
- CRPR 2: Plants rare, threatened, or endangered in California, but more numerous elsewhere
- CRPR 3: Plants about which we need more information—a review list
- CRPR 4: Plants of limited distribution—a watch list

In addition to the CRPR designations above, the CNPS adds a Threat Rank as an extension added onto the CRPR and designates the level of endangerment by a 1 to 3 ranking, with 1 being the most endangered and 3 being the least endangered and are described as follows:

- Seriously threatened in California (high degree/immediacy of threat)
- Fairly threatened in California (moderate degree/immediacy of threat)
- Not very threatened in California (low degree/immediacy of threats or no current threats known

3.4.2 Environmental Setting

This section presents information on biological resources in the Project region and describes baseline conditions within the Project area. In addition, this section includes vegetation types to characterize the botanical resources and potential for wildlife to occur on the Project Site. Biotic habitats suitable for the occurrence of plant and wildlife species of special status (State and federally listed threatened and endangered species, federal candidate species, CNPS List species, and California SSC) are also described.

3.4.2.1 Baseline Data Collection Methodology

Information used in preparing this section was derived from a number of sources, including biological technical reports provided by the Applicant and included in Appendix E, review of existing literature, consultation with technical experts, and reconnaissance surveys of the Project Site. Biological resource data included, but were not limited to the following:

Applicant's Reports and Survey Results

Information used in preparing this section and in the evaluation of potential impacts to biological resources was derived from a number of sources, including vegetation and wildlife surveys conducted by RECON between 2018 and 2019. A detailed list of these surveys can be found in Appendix E.

Literature Search and Review of Existing Data

The Applicant conducted an analysis of existing sensitive species data recorded within two miles of the Project Site. This analysis included searches of the California Natural Diversity Database (CNDDB), CDFW (CDFW 2019a), the All Species Occurrences Database (USFWS 2019), and a search of the CNPS online rare plants database within eight United States Geological Survey (USGS) quadrangles surrounding the Site (CNPS 2020). Additional maps, imagery, and databases reviewed included USGS topographic maps (1976), soils survey maps (USDA 1981, 2017), online aerial satellite imagery (Google Earth 2018), the Consortium of California Herbaria (2019), and the Amphibian and Reptile Atlas of Peninsular California (SDNHM 2019). A review of existing literature relevant to the biological resources known from the vicinity of the Project Site was also conducted, as noted in Appendix E.

Additional species not found during the records search were assessed if the range for that species extended into the Project Site and habitat conditions within the Project Site were potentially suitable for that species. Determination of the potential occurrence for sensitive species was based upon known ranges and habitat preferences for the species (Jennings and Hayes 1994; Unitt 2004; CDFW 2019a; Baldwin et al 2012; Jepson Flora Project (eds.) 2019, CNPS 2019; Reiser 2001; Tremor et al. 2017; Western Bat Working Group 2017; Harvey et al. 2011).

Collection of Field Data

The Applicant conducted general biological surveys, focused burrowing owl surveys, and rare plant surveys between 2018 and 2019 to collect filed data. A breakdown of the survey times and conditions is presented below in Table 3.4-1. A detailed description of field survey methodologies can be found within the technical reports appended to the EIR (Appendix E).

Table 3.4-1 Biological Survey Summary

Date	Survey Type and Number	Beginning Conditions	Ending Conditions
4/5/2018	BUOW Habitat Assessment	09:25; 82ºF; 2–4 mph wind; sunny	14:00; 94ºF; 2–5 mph wind; 50% high, thin cloud cover
4/13/2018	BUOW Breeding Season Survey 1	17:20; 81ºF; 2–9 mph wind; clear sky	19:36; 70 ºF; calm wind; clear sky
4/14/2018		06:00; 55ºF; 0–2 mph wind; clear sky	09:55; 78ºF; 1–3 mph wind; clear sky
5/7/2018	BUOW Breeding Season Survey 2	17:45; 95ºF; 1–4 mph wind; 0% cloud cover, slight haze	19:55; 92 ºF; 2–9 mph wind; 0% cloud cover, slight haze
5/8/2018		05:25; 67ºF; 2–4 mph wind; 0% cloud cover, slight haze	09:20; 88ºF; 2–6 mph wind; 75% high, thin cloud cover
5/29/2018	BUOW Breeding Season Survey 3	17:45; 99ºF; 1–3 mph wind; 30% cloud cover	20:11; 94ºF; 4–11 mph wind; 20% cloud cover
5/30/2018		05:20; 68ºF; 2–4 mph wind; 2% cloud cover	09:45; 93ºF; 2–6 mph wind; 1% cloud cover with haze
7/5/2018	BUOW Breeding Season Survey 4	17:55; 108ºF; 1–5 mph wind; 15% high, thin cloud cover	20:22; 100ºF; calm wind; 5% high, thin cloud cover
7/6/2018		05:15; 83ºF; 2–4 mph wind; 25% cloud cover	09:35; 103ºF; 1–3 mph wind; 40% cloud cover
10/4/2018	BUOW Non-breeding Season Survey 1	16:22; 89ºF; 5–10 mph wind; 5% cloud cover	19:36; 84 ºF; 5–10 mph wind; 5% cloud cover
10/5/2018		06:14; 69ºF; 3–6 mph wind; clear sky	09:55; 82ºF; 5–12 mph wind; <1% cloud cover
11/8/2018	BUOW Non-breeding Season Survey 2	14:45; 82ºF; 6–12 mph wind; 0% cloud cover	19:11; 74 ºF; 2–7 mph wind; 0% cloud cover
11/9/2018		05:41; 51ºF; 0–2 mph wind;0% cloud cover	10:00; 78ºF; 0–7 mph wind; 0% cloud cover
12/6/2018	BUOW Non-breeding Season Survey 3	14:38; 70ºF; 0–1 mph wind; 0% cloud cover	17:05; 59ºF; 0–1 mph wind; 0% cloud cover
12/7/2018		06:11; 45ºF; 0 mph wind; 15% cloud cover	10:00; 59ºF; 0–2 mph wind; 90% cloud cover
1/24/2019	BUOW Non-breeding Season Survey 4	15:07; 71ºF; 3–6 mph wind; 85% cloud cover	17:33; 61ºF; 0–2 mph wind10% cloud cover
1/25/2019		06:15; 46ºF; 0–2 mph wind; 5% cloud cover	10:00; 69ºF; 0–2 mph wind; <1% cloud cover
2/5/2019	General Biological Survey	—	—
	Wetland/Waters Delineation	—	—
4/23/2019	Rare Plants Survey	—	—

BUOW = burrowing owl; ºF = degrees Fahrenheit; mph = miles per hour

3.4.3 Project Setting

3.4.3.1 Vegetation Communities and Land Cover Types

The following vegetation communities and land cover types were mapped within the Project Site and the surrounding 100-foot radius: upland mustards (*Brassica* spp. and Other Mustards Semi-Natural Herbaceous Stands), fourwing saltbush scrub (*Atriplex canescens* Shrubland Alliance), creosote bush scrub (*Larrea tridentata* Shrubland Alliance), quailbush scrub (*Atriplex lentiformis* Shrubland Alliance), arrow weed thickets (*Pluchea sericea* Shrubland Alliance), tamarisk thickets (*Tamarix* spp. Semi-Natural Shrubland Stands), common reed marshes (*Phragmites australis* Herbaceous Alliance and Semi-Natural Stands), eucalyptus groves (*Eucalyptus* spp. Semi-Natural Woodland Stands), cattail marshes (*Typha* sp. Herbaceous Alliance), disturbed habitat, fallow agriculture, open water, and developed land. A brief description of each community or land cover type is also provided below in order of prevalence within the Project Site and surrounding 100-foot radius (RECON 2021). Table 3.4-2 lists the acreage of each mapped vegetation community or land cover type within the Project Site and within 100-feet.

Table 3.4-2 Vegetation Communities/Land Cover Types within the Project Site and Surrounding 100-foot Radius

Vegetation Community/Land Cover Type	Project Area (acres)	100-foot Buffer (acres)
Upland mustards	74.70	0.97
Fourwing saltbush scrub	47.74	2.52
Fallow agriculture	13.56	1.40
Arrow weed thickets	6.87	2.01
Creosote bush scrub	6.43	10.47
Disturbed habitat	5.77	7.36
Tamarisk thickets	5.26	1.34
Quailbush scrub	2.15	1.33
Eucalyptus groves	0.58	—
Cattail marshes	0.14	—
Open water	0.10	5.75
Common reed marshes	0.04	2.42
Developed land	0.00	1.63
Totals	163.32*	37.20

*Total acreage varies from sum of cells due to rounding.

Vegetation Communities

Upland Mustards

Upland mustards is the predominant vegetation community within the Project Site and is primarily found south of the Westside Main Canal. The vegetation is open and low-growing and comprises a mix of non-native and native annual plant species. Total vegetative cover ranges between 10 and 40 percent, with London rocket (*Sisymbrium irio*) as the dominant species. Other common plants include the native narrow leaf cryptantha (*Cryptantha angustifolia*) and non-native Mediterranean schismus (*Schismus barbatus*).

Native annuals such as yellow cups (*Chylismia brevipes*) and brown-eye primrose (*Chylismia claviformis*) are scattered in low numbers.

Fourwing Saltbush Scrub

Fourwing saltbush scrub is the predominant vegetation community within the western and southwestern portions of the Project Site, south of the Westside Main Canal. An additional linear stand of this community parallels the south side of the Westside Main Canal access road in the eastern half of the Project Site. Total shrub cover ranges between 10 and 40 percent, and shrub height averages three to four feet. The dominant shrub species is fourwing saltbush with scattered creosote occurring within the southernmost stand in the Project Site.

Herbaceous cover is approximately 15 percent and comprises low-growing native and non-native annuals, including narrow-leaf cryptantha, London rocket, and Mediterranean schismus with the addition of desert indianwheat (*Plantago ovata*) in the southwestern stand.

Creosote Bush Scrub

Creosote bush scrub largely occurs in the areas along the west, south, and southeast boundaries of the Project Site, south of the Westside Main Canal. This community occurs in the desert areas that have been subjected to minimal historical disturbance and has begun to re-establish along the edges of the Project Site since abandonment of the agricultural fields. Outside of the Project Site, total shrub cover averages between 20 and 30 percent, and shrub height averages five to six feet. Within the Project Site, shrub density is lower, and height is shorter at approximately 10 percent and three feet, respectively. Creosote is the dominant shrub species throughout this community. Alkali goldenbush (*Isocoma acradenia* var. *eremophila*) occurs as a subdominant shrub species in the southeastern stand, where lateral seepage from the Westside Main Canal has resulted in a higher water table.

Fourwing saltbush is scattered throughout the majority of this community in the drier western and southern stands. Herbaceous cover is low, reaching 20 percent cover in some areas, and includes low-growing native annuals and bulbs such as yellow cups, brown-eye primrose, narrow-leaf cryptantha, and desert lily (*Hesperocallis undulata*).

Arrow Weed Thickets

Arrow weed thickets occur in five different patches, the majority of which occur as linear stands paralleling the Westside Main Canal and an active concrete-lined irrigation channel in the northern portion of the Project Site. The largest stand occurs at the eastern edge of the Project Site, continues off-site to the east and south, and may have developed as a result of lateral seepage of water from the Westside Main Canal. Arrow weed dominates this vegetation community at approximately 50 percent cover. Occasional saltcedar (*Tamarix ramosissima*) shrubs or trees occur within this vegetation community, and the understory consists of a sparse cover of non-native mustards and narrow leaf cryptantha in openings between shrubs.

Tamarisk Thickets

Tamarisk thickets occur as several distinct stands, including linear patches along a network of berms and irrigation ditches that likely were manufactured for agriculture use but have since been abandoned, as well as clusters of trees along the southern boundary of the Project Site. These patches of tamarisk thickets are dominated by either saltcedar, with an approximate cover of 30 percent, or athel (*Tamarix aphylla*), with an approximate cover of 80 percent. The patches of athel were likely planted as a wind screen when the Site was used for agriculture.

One patch of tamarisk thicket occurs within an abandoned agriculture field in the southeast portion of the survey area and contains sparse, shrub-sized saltcedar at approximately 10 percent cover. These individuals likely established naturally but currently appear to be stressed with substantially diminished canopies.

One additional stand parallels the access road along the south side of the Westside Main Canal; this patch is dominated by saltcedar at approximately 50 percent cover. The saltcedar individuals in this northern patch appear mature and robust.

Quailbush Scrub

Quailbush scrub occurs in two stands north of the Westside Main Canal and west of Liebert Road. At approximately 50 percent cover, quailbush dominates this vegetation community. The understory is mostly bare, with sparse cover of upland herbaceous species, such as Bermuda grass and London rocket. The eastern patch of quailbush scrub is small and surrounded by arrow weed thickets and disturbed habitat and occurs with a small patch of eucalyptus groves. The western patch of this vegetation community is larger, extending north and west beyond the 100-foot radius of the Project Site. Both patches occur within areas that appear to have been used historically for agriculture but have since remained fallow. Manufactured berms and ditches occur along much of the perimeters of the patches.

Common Reed Marshes

Common reed marshes occur as linear stands averaging between five and ten feet in width along the banks of the Westside Main Canal. This vegetation community is dominated by common reed, which comprises approximately 35 percent cover. Arrow weed occurs in most portions of this vegetation community as a subdominant species at approximately five percent cover. The banks of the Westside Main Canal are steep and contain a substantial proportion of large rock and pieces of concrete. Although common reed growth occurs both along the slope and on top of the banks, no growth occurs from portions of the bank at or below the water level.

Eucalyptus Groves

The on-site eucalyptus grove comprises one small cluster of eucalyptus trees in the northern portion of the Project Site, adjacent to the intersection of Liebert Road and Mandrapa Road, north of the Westside Main Canal. The trees are mature, 30 to 50 feet tall, and include coolibah (*Eucalyptus microtheca*).

Cattail Marshes

Cattail marshes occur only within the small, concrete-lined irrigation channel extending east-west north of the Westside Main Canal. This vegetation community is dominated by southern cattail (*Typha domingensis*). However, it appears this vegetation was dug out of the irrigation channel prior to the February 2019 survey, as the removed cattails were observed piled nearby.

Land Cover Types

Fallow Agriculture

Fallow agriculture is the predominant land type cover in the portion of the Project Site north of the Westside Main Canal, where the land was previously used for agriculture but has remained inactive since at least 2013. These areas support 10 to 80 percent cover of herbaceous vegetation, heavily dominated by non-native Bermuda grass (*Cynodon dactylon*) and averaging one foot in height. Scattered non-native annuals Mediterranean schismus and prickly lettuce (*Lactuca serriola*) occur throughout, and native alkali goldenbush shrubs occur in low numbers in the western portion of this cover type.

Disturbed Habitat

Disturbed habitat consists of bare ground and dirt roads (i.e., Westside Main Canal roads, Liebert Road) that are subjected to continued disturbance, preventing establishment of substantial vegetation cover. The few plants that occur within or along the edges of these areas include alkali heliotrope (*Heliotropium curassavicum*) along the Westside Main Canal roads, London rocket, and nettle-leaf goosefoot (*Chenopodium murale*).

Open Water

Areas of open water occur within the Westside Main Canal and one concrete-lined irrigation channel. Although most portions of the open water do not contain any plants, the east-west concrete-lined channel north of the Westside Main Canal contains portions with a moderate accumulation of coontail (*Ceratophyllum demersum*) and long filamentous algae. Cover of aquatic plants within this channel is less than five percent; therefore, the channel is considered unvegetated.

Developed Land

Developed land is mapped within the 100-foot radius immediately north of the Project Site and comprises solar PV development.

3.4.3.2 Jurisdictional and Other Waters

A routine jurisdictional waters/wetland delineation of the Project Site (including a 100-ft buffer) was conducted on February 5, 2019. Methods for delineating wetlands adhered to the following guidelines set forth by the USACE: the 1987 *Corps of Engineers Wetlands Delineation Manual* (USACE 1987), the 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008), and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Lichvar and McColley 2008).

The results of the delineation are summarized below in Table 3.4-3; for additional details on the delineation please refer to the technical report in Appendix E.

Table 3.4-3 Existing Jurisdictional Waters within the Project Site and Surrounding 100-foot Radius

Jurisdictional Waters	Project Area (acres)	100-foot Buffer
U.S. Army Corps of Engineers total jurisdictional waters (section 404 permit)	0.21	5.76
Non-wetland waters of the U.S.	0.21	5.76
California Department of Fish and wildlife (section 1602 permit) and Regional Water Quality Control Board (section 401 certification) Total Jurisdictional Waters[1]	9.43	11.52
Wetland waters of the state	9.22	5.76
Streambed	0.21	5.76

1) California Department of Fish and wildlife and Regional Water Quality Control Board area of jurisdiction includes all U.S. Army Corps of Engineers jurisdictional waters.

3.4.3.3 Common Wildlife

A total of 127 animal species were detected within the Project Site and surrounding areas (within 150-meter [500-foot] radius) during the 2018 and 2019 biological surveys. These comprise 25 invertebrates, one amphibian, seven reptiles, 84 birds, and 10 mammals typical of Colorado Desert communities and agricultural areas and are summarized below. A complete list of animal species detected during the 2018 and 2019 surveys is included in Appendix E. Sensitive animal species observed are discussed in below.

Invertebrates

Invertebrates detected during the 2018 and 2019 surveys include common insects, such as mosquito (*Culex* sp.), darkling beetle (not identified to species), tarantula hawk (*Pepsis* sp.), honey bee (*Apis* sp.), and cicada (not identified to species); scorpion (not identified to species; detected by tracks); three ant species including California harvester ant (*Veromessor stoddardi*) and black harvester ant (*Veromessor pergandei*); eight butterfly or skipper species including painted lady (*Vanessa cardui*), western pygmy-blue (*Brephidium exile*), orange sulphur (*Colias eurytheme*), and fiery skipper (*Hylephila phyleus muertovalle*); and two dragonflies, roseate skimmer (*Orthemis ferruginea*) and Mexican amberwing (*Perithemis intense*) (RECON 2021).

Amphibians and Reptiles

One invasive amphibian species, American bullfrog (*Lithobates catesbeiana*), was detected during the 2018 and 2019 biological surveys.

The following five reptile species were observed: western banded gecko (*Coleonyx variegatus variegatus*), western zebra-tailed lizard (*Callisaurus draconoides rhodostictus*), long-tailed brush lizard (*Urosaurus graciosus*), Great Basin tiger whiptail (*Aspidoscelis tigris tigris*), and Colorado Desert sidewinder (*Crotalus cerastes laterorepens*). In addition, turtle tracks were observed near the Westside Main Canal and likely belong to spiny softshell turtle (*Apalone spinifera*), which is an introduced species known to occur in the area (Daniel and Morningstar 2019, RECON 2021). Flat-tailed horned lizard (*Phrynosoma mcallii*) is also assumed present within the Project Site based the observation of horned lizard tracks and the known occurrence of the species in the immediate vicinity of the Project Site (RECON 2021). Flat-tailed horned lizard is discussed further below under Special-Status Wildlife.

Birds

Common avian species routinely observed within or adjacent to the Project Site include Abert's towhee (*Melozone aberti*), Gambel's quail (*Callipepla gambelii gambelii*), rock dove (*Columba livia*), blue-gray gnatcatcher (*Polioptila caerulea*), black-tailed gnatcatcher (*P. melanura*), Anna's hummingbird (*Calypte anna*), house finch (*Haemorhous mexicanus frontalis*), Say's phoebe (*Sayornis saya*), verdin (*Auriparus flaviceps acaciarum*), western meadowlark (*Sturnella neglecta*), and lesser goldfinch (*Spinus psaltria hesperophilus*) (RECON 2021).

Mammals

The following 10 mammal species were detected during the 2018 and 2019 biological surveys: desert black-tailed jackrabbit (*Lepus californicus deserticola*), desert cottontail (*Sylvilagus audubonii*), round-tailed ground squirrel (*Spermophilus tereticaudus*), Botta's pocket gopher (*Thomomys bottae*), kangaroo rat (*Dipodomys* sp.), coyote (*Canis latrans*), kit fox (*Vulpes macrotis*), northern raccoon (*Procyon lotor*), American badger (*Taxidea taxus*), and bobcat (*Lynx rufus*) (RECON 2021). American badger is discussed further below under Special-Status Wildlife.

3.4.3.4 Special-Status Natural Communities

Special-status natural communities are defined by CDFW (2009) as, "...communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects." All vegetation within the state is ranked with an "S" rank, however only those that are of special concern (S1-S3 rank) are generally evaluated under CEQA. Arrow weed thickets, which have a rank of S3, were mapped within the Project Site.

Special-Status Plants

No sensitive plant species were observed during the focused rare plant surveys or other biological surveys conducted in 2018 and 2019 for the Project, and no sensitive plant species were determined to have a moderate or high potential to occur within or adjacent to the Project Site. Refer to Appendix E for a summary of the potential for occurrence of sensitive plant species that were assessed based on species locations records, habitat suitability, and soil preferences.

3.4.3.5 Special-Status Wildlife

Flat-tailed Horned Lizard (*Phrynosoma mcallii*)

Flat-tailed horned lizard is a CDFW species of special concern and BLM sensitive species. Flat-tailed horned lizard is found in the low deserts of southwestern Arizona, southeastern California, and adjacent portions of northwestern Sonora and northern Baja California, Mexico. In California, flat-tailed horned lizard is restricted to desert washes and desert flats in central Riverside, eastern San Diego, and Imperial counties. The majority of habitat for the species is in Imperial County (CDFW 2018c; Turner et al. 1980 as cited in Flat-tailed Horned Lizard ICC 2003). This species is known to inhabit sand dunes, sheets, and hummocks, as well as gravelly washes. It is thought to be most abundant in creosote bush scrub. However, this species may be found in a variety of desert scrub communities, desert wash, succulent shrub, alkali scrub, sparsely vegetated sandy flats, desert pavement, and rocky slopes. It is typically found in dry, hot areas of low elevation (less than 800 feet; ICC 2003). Flat-tailed horned lizards escape extreme temperatures by digging shallow burrows in the loose sand. Adults are primarily active from mid-February to mid-November. Breeding activity takes place in the spring with young hatching in late July and September. The diet of horned lizards typically consists of greater than 95 percent native ant species, mostly large harvester ants (including *Pogonomyrmex* spp. and *Veromessor* spp.). Human activities have resulted in the loss of approximately 49 percent of the historic habitat of flat-tailed horned lizard (ICC 2003). The decline in this species' population is primarily due to impacts from utility lines, roads, geothermal development, sand and gravel mining, off-highway vehicle recreation, waste disposal sites, military activities, pesticide use, and U.S. Border Patrol activities (ICC 2003).

Many occurrences of flat-tailed horned lizard have been reported in the undeveloped desert areas immediately west and south of the Project Site (CDFW 2019a), and horned lizard tracks were observed during 2018 surveys in the western portion of the Project Site, south of the Westside Main Canal. Given the cryptic nature and resulting difficulty of detection without focused surveys, these historical records are sufficient to assume this species is present in the creosote bush scrub and fourwing saltbush scrub within and adjacent to the Project Site. Within the Project Site, these communities provide high-quality habitat for this species, with sandy hummocks having re-established in the old agricultural fields, a good diversity of native plant species, and harvester ants present. The remainder of the Project Site south of the Westside Main Canal provides marginally suitable habitat, and flat-tailed horned lizard has a high potential to occur due only to the adjacency of high-quality habitat. North of the Westside Main Canal, this species has a low potential to occur due to the prevalence of active agriculture and solar development.

Ferruginous Hawk (*Buteo regalis*)

Ferruginous hawk (wintering) is a CDFW watch list species (CDFW 2018c). This species is a fairly common winter visitor to southern California from mid-September to late April (Small 1994). The ferruginous hawk's winter range includes open terrain such as grassland, open shrub lands, desert edges, and agricultural lands (Bechard and Schmutz 1995; Small 1994). Its diet is predominantly rabbits and ground squirrels, which are captured by hunting from perches and by aerial hunting (Bechard and Schmutz 1995). Population declines are believed to be due to a general loss of grassland habitat as a result of urban development and overgrazing (Unitt 2004).

Ferruginous hawk was observed flying overhead during the December 2018 and January 2019 surveys. This species is likely to forage within the open vegetation of the Project Site and adjacent agricultural fields during winter due to the presence of common prey items such as cottontail rabbits, jackrabbits, and ground squirrels. The eucalyptus trees within the northern Project Site and utility towers within and adjacent to the Project Site may provide suitable nest sites. However, the Project Site is outside this species' known breeding range, and this species was not observed on-site during its typical breeding season. Therefore, ferruginous hawk is only expected to occur as a winter visitor and is not expected to nest within or adjacent to the Project Site.

Prairie Falcon (*Falco mexicanus*)

Prairie falcon (nesting) is a CDFW watch list species (CDFW 2018c). The prairie falcon is a permanent resident within the arid open lands of interior California, including the Colorado Desert (Small 1994). This species' primary foraging habitat includes open perennial and annual grasslands, savannahs, rangeland, agricultural fields, and desert scrub areas (Unitt 2004). Ground squirrels (*Spermophilus* spp.) make up the bulk of the prairie falcon's diet, but they will also prey on small birds such as horned lark (*Eremophila alpestris*) and western meadowlark, especially during the winter (Steenhof 2013). This species nests directly on cliff ledges or bluffs, without building a nest, and occasionally in rock crevices that are near suitable foraging habitat. However, they are also known to reuse old raven or eagle nests. The prairie falcon will forage as far away as 20 to 25 miles from their nesting site where the density of prey is low (Unitt 2004). Current threats to prairie falcon populations include human disturbance near nest sites and the loss of foraging habitat (Unitt 2004). Urbanization of foraging habitats within the desert badlands has resulted from agricultural encroachment, livestock-grazing, energy development activities, off-road vehicle use, and military training (Steenhof 2013).

Prairie falcon was observed flying overhead and foraging in the active agricultural fields adjacent to the northern portion of the Project Site in the early July, early October, and mid- December 2018. The Project Site and surrounding areas provide suitable open desert habitat and agricultural fields for foraging. The Project Site and surrounding areas lack suitable cliff faces or bluffs preferred for nesting. However, the utility towers that occur within and adjacent to the west side of the Project Site may provide nesting opportunities, as this species is known to reuse old raven nests. Therefore, this species is expected to occur as a winter visitor and has a low potential to nest on or adjacent to the Project Site due to the presence of lattice utility towers.

Burrowing Owl (*Athene cunicularia*)

Burrowing owl (burrow sites and some wintering sites) is a CDFW species of special concern and BLM sensitive species (CDFW 2018c). This species occurs as a year-round resident and winter visitor in the County. Habitat for the burrowing owl includes dry, open, short-grass areas with level to gentle topography and well-drained soils, as well as agricultural areas (CDFW 2012; Small 1994). These areas are also often associated with burrowing mammals (Haug et al. 1993). The burrowing owl is diurnal and perches during daylight at the entrance to its burrow or on low posts. Nesting occurs from March through August. Burrowing

owls form pair-bonds for more than one year and exhibit high site fidelity, reusing the same burrow year after year (Haug et al. 1993). The female remains inside the burrow and is fed by the male during most of the egg laying and incubation period. Burrowing owls are opportunistic feeders, consuming a diet that includes arthropods, small mammals, and birds, and occasionally amphibians and reptiles (Haug et al. 1993). Urbanization has greatly reduced the amount of suitable habitat for this species (Lincer and Bloom 2007). Other contributions to the decline of this species include the poisoning of squirrels and prairie dogs, road and ditch maintenance, and collisions with automobiles (CDFW 2012).

As described in the burrowing owl survey reports (RECON 2018, 2019a), no burrowing owls were observed on the Project Site during the 2018 breeding season surveys, but four burrowing owl observations were recorded within the Project Site during the 2018-2019 non-breeding season surveys. These observations indicate that at least two, but likely three, individuals, appear to use the Project Site and surrounding areas as a wintering site or for migration and dispersal, but is not currently using the Site as breeding habitat. The creosote bush scrub, fourwing saltbush scrub, upland mustards, fallow agriculture, and disturbed habitat within and adjacent to the Project Site provide suitable habitat for this species for breeding and wintering due to the open structure of the vegetation, presence of prey items, and abundance of potentially suitable burrows. As the denser stands of arrow weed thickets and tamarisk thickets occur as small or linear patches within larger expanses of open vegetation, these typically unsuitable communities may also contribute suitable perch sites.

Loggerhead Shrike (*Lanius ludovicianus*)

Loggerhead shrike (nesting) is a CDFW species of special concern (CDFW 2018c). This species inhabits most of the continental U.S. and Mexico and is an uncommon year-round resident of southern California. It prefers washes with scattered trees or shrubs, or valley floors with scattered thickets of mesquite (*Prosopis* spp.) or saltbush (*Atriplex* spp.). Outside the desert this species inhabits grasslands, agricultural fields, open sage scrub, and chaparral (Unitt 2004). The loggerhead shrike requires open habitat with tall shrubs or trees to use as perches for hunting and fairly dense shrubs for nesting. It may also use fences or power lines for hunting perches (Shuford and Gardali 2008; Yosef 1996). Loggerhead shrikes are highly territorial and usually live in pairs in permanent territories (Yosef 1996). This species feeds on small reptiles, mammals, smaller birds, amphibians, and insects that they often impale on sticks or thorns before eating (CDFW 2014a). This bird may also be associated with freshly plowed or mowed fields, as these activities create foraging opportunities for this species (Yosef 1996). Loggerhead shrike populations are declining, likely due to urbanization and loss of habitat and, to a lesser degree, pesticide use (Yosef 1996). This species has also shown a decline in undeveloped areas, which suggests that it is susceptible to habitat fragmentation (Unitt 2004). Non-native grasses and forbs introduced by livestock grazing pose the greatest threat to shrikes in sagebrush– steppe habitats (Shuford and Gardali 2008).

Loggerhead shrike was observed in tamarisk thickets on the Project Site and in common reed marsh and creosote bush scrub immediately adjacent to the Project Site on multiple survey visits: May 30, July 6, October 4, November 8, and December 16 and 17, 2018, and January 24, 2019. With the combination of dense patches of shrubs or trees and adjacent open areas, the Project Site and surrounding areas provide suitable breeding and foraging habitat for this species. Therefore, this species is likely a resident and has a high potential to nest within the Project Site.

Black-tailed Gnatcatcher (*Polioptila melanura*)

Black-tailed gnatcatcher is a CDFW watch list species (CDFW 2018c). This species is a fairly common resident in the lower Colorado River Valley (Small 1994). It is found in desert scrub, with a preference for well-vegetated desert washes, desert oases, and willow thickets along watercourses, but able to live far away from water sources (Unitt 2004; Small 1994). This species primarily eats insects, ranging from insect eggs and caterpillars to grasshoppers, and occasionally takes in fruit or seeds (Farquhar et al. 2002). Black-tailed gnatcatchers often pair bond for life and defend permanent territories. Breeding generally occurs from

March to June, although timing is heavily dependent on weather conditions and abundance of food (Unitt 2004). A pair will build their nest in dense shrubs to provide protection from direct sun and show a preference for spiny shrubs or trees (Unitt 2004; Small 1994). This species has a low tolerance for disturbance, typically avoiding urban areas and areas with non-native vegetation; is susceptible to brown-headed cowbird (*Molothrus ater*) nest parasitism; and is threatened by habitat loss due to over-pumping of groundwater (Unitt 2004; Small 1994).

Black-tailed gnatcatcher was detected during nearly every survey visit conducted in 2018 and 2019 and was typically observed in the creosote bush scrub and arrow weed thickets along the boundaries of the Project Site south of the Westside Main Canal, but occasionally in the western portion of the survey buffer north of the Westside Main Canal. The arrow weed thickets, fourwing saltbush scrub, tamarisk thickets, and creosote bush scrub within and adjacent to the Project Site provide suitable breeding and foraging habitat for this species. Based on the frequency of detection (detected during most surveys) this species was not mapped as they occurred at various locations within the Project site. Based on this frequency and presence of suitable habitat, this species has a high potential to nest within or adjacent to the Project Site.

LeConte's Thrasher (*Toxostoma lecontei*)

LeConte's thrasher is a CDFW species of special concern (CDFW 2018c). It is a permanent, but uncommon, resident in the San Joaquin Valley, Mojave and Colorado Deserts of California, the Sonoran Desert in Arizona, as well as Utah, Nevada, and Baja California, Mexico (Sheppard 1996). This sensitive bird requires undisturbed substrate for foraging under desert shrubs (Sheppard 1996). Ideal habitat throughout this species' range consists of sparsely vegetated desert flats, dunes, sandy alluvial fans below desert mountains, alkaline dry lakes, or gently rolling hills (Sheppard 1970). Dominant shrub species are saltbush (*Atriplex* spp.) not exceeding eight feet high and cholla (*Opuntia* spp.) ranging three to six feet high (Sheppard 1996). Creosote (*Larrea* sp.) may also be present, but the thrasher does not typically utilize this shrub species for shelter or nesting (Sheppard 1970, 1996). This bird also uses vegetated margins of large, rolling sand dunes, i.e., Algodones Dunes in Imperial County, California, and Scammon Lagoon, Baja California (Sheppard 1996). LeConte's thrasher feeds almost completely on arthropods and digs into the ground two to three inches with its bill. This insectivorous diet provides the only source of water for the thrasher. Generally, this species can be found mostly on the ground, running from shrub to shrub with its tail held high (Sheppard 1970). Destruction of substrate and shrubs, and extensive and repeated off-road use in the deserts are the primary threats to this species. Habitat conversion to agriculture is another major factor in reducing the amount of habitat available to this species and in isolating currently occupied area (Laudenslayer et al. 1992 as cited in Shuford and Gardali 2008). This species also suffers from shootings and livestock grazing, which denudes and decimates the vegetation (Sheppard 1996).

LeConte's thrasher was observed during the November and December 2018 survey visits in arrow weed thickets and fourwing saltbush scrub on the Project Site. Although this species is likely resident in the native desert scrub communities within and adjacent to the Project Site, it is unlikely to nest on the Project Site due to the lack of cactus and low number of thorny shrubs.

Abert's Towhee (*Melozone aberti*)

Abert's towhee lacks a state or federal listing or sensitivity status but is tracked by CDFW (i.e., is included in the Special Animal List), as it meets one or more of CDFW's conditions to be considered a species at risk (CDFW 2018c). This is a characteristic, resident, and territorial species of the Sonoran and Colorado deserts (Small 1994). Abert's towhee utilizes a variety of desert scrub communities but is often associated with streamside cottonwood-willow riparian forest and mesquite woodlands. However, this species has also shown an ability to acclimate to mixed native and non-native vegetation, as long as a sufficiently dense understory is present for nest placement (Tweit and Finch 1994). Abert's towhee primarily feeds on insects on the ground and occasionally consumes seeds. Habitat conversion to agriculture and urbanization has reduced the amount of habitat available to this species (Small 1994).

Abert's towhee was observed as a common species during the 2018 and 2019 surveys in the arrow weed thickets, fourwing saltbush scrub, and creosote bush scrub within and adjacent to the Project Site. Based on the frequency of detection, this species was not mapped. This species has a high potential to nest in the dense patches or stands of the communities listed above.

American Badger (*Taxidea taxus*)

American badger is a CDFW species of special concern (CDFW 2018c). American badgers are widespread, ranging from the Great Lakes to the Pacific Coast, and from the Canadian Prairie provinces to the Mexican Plateau. This species can be found in a variety of habitats, which include shrub steppes, agricultural fields, open woodland forests, and large grass and sagebrush meadows and valleys (Streubel 2000). Its breeding season occurs from mid- to late summer, after which egg implantation is delayed until December to February. A litter of two to five young are born between March and early April (Streubel 2000). American badger's diet consists of a variety of rodents, scorpions, insects, snakes, lizards, birds, and carrion. Declines in American badger populations and distribution have resulted from habitat fragmentation from urbanization and development of roads (Tremor et al. 2017).

One American badger was observed immediately south of the Project Site on July 6, 2019. American badger tracks were observed in the southwestern corner and western edge of the Project Site, south of the Westside Main Canal, during the same visit. At least one burrow, just outside the southwestern corner of the Project Site was of appropriate size to support this species. Although this species may avoid the more open upland mustard areas in the old agricultural fields, the Project Site and surrounding areas south of the Westside Main Canal provide suitable habitat for this species. South of the Westside Main Canal, the Project Site provides suitable open scrub vegetation, potential prey (e.g., ground squirrels, pocket gophers, lizards), and numerous existing burrows and soils capable of supporting new burrows. As individuals of this species maintain large home ranges, this species would require more land than is present on-site and potentially only forages on-site. However, the presence of existing burrows does indicate the potential for the Site to support breeding individuals.

3.4.3.6 Species with a Moderate to High Potential to Occur

Colorado Desert Fringe-toed Lizard (*Uma notata*)

Colorado Desert fringe-toed lizard is a CDFW species of special concern and a BLM sensitive species (CDFW 2018c). This species occurs from below sea level to 590 feet above sea level from the Salton Sea east into southwestern Arizona, and south into Baja California and Sonora, Mexico (Jennings and Hayes 1994; CDFW 2014b). It is primarily insectivorous, eating mostly ants, beetles, antlion larvae, hemipterans, grasshoppers, and caterpillars, but will also eat flowers, leaves, and seeds (CDFW 2014b). Fringe-toed lizards usually seek refuge from enemies by burrowing in the sand 5 to 6 centimeters (2 to 2.4 inches) deep. They also use rodent burrows and the bases of shrubs for cover and thermoregulation. Lizards usually hibernate in sand 30 centimeters (12 inches) deep, but juveniles and subadults may be found closer to the surface (CDFW 2014b).

This species has been reported within two miles of the Project Site (CDFW 2019a) and has a moderate potential to occur within the Project Site south of the Westside Main Canal. The creosote bush scrub and fourwing saltbush scrub adjacent to and in the western and southwestern portions of the Project Site, south of the Westside Main Canal, provide suitable habitat for this species due to the presence of small dunes and sandy hummocks.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

The southwestern willow flycatcher is federally, and state listed as endangered. This migratory bird breeds in southern California, southern Nevada, southern Utah, Arizona, New Mexico, western Texas, southwestern Colorado, and extreme northwestern Mexico (USFWS 2011).

The southwestern willow flycatcher's breeding season is from late mid-May to mid-July. For breeding and nesting activities this species requires mature, multi-tiered riparian woodland habitat with a high percentage of canopy cover where surface water is present, or soil moisture is high enough to support suitable tree species (Sogge et al. 2010). Nests are typically placed in trees where plant growth is most dense, where trees and shrubs have vegetation near ground level, and where there is a low-density native canopy. Although there are exceptions, generally flycatchers are found nesting in areas with willows, tamarisk, or both (USFWS 2011).

Southwestern willow flycatchers are extremely sensitive to human activity in riparian areas. Threats to this species include loss of riparian habitat due to urbanization, flood control, water diversion, grazing, and invasion of non-native species (Unitt 2004). Parasitism by brown-headed cowbirds (*Molothrus ater*) has been a significant factor in the decline of this species in California and Arizona and elsewhere (Sedgwick 2000). It should be noted that low cowbird parasitism rates, multi-tiered riparian woodland, and surface water are all important factors for the recovery of this species to be successful (Unitt 2004).

The arrow weed and tamarisk thickets within and adjacent to the Project Site are suitable as foraging habitat, so the Site has moderate potential to support foraging flycatchers during migration. However, the Project Site and surrounding areas lack suitable mature riparian habitat for breeding; thus, this species is not expected to breed on-site.

Pallid Bat (*Antrozous pallidus*)

Pallid bat is a CDFW species of concern and BLM sensitive species (CDFW 2018c). It is a locally common yearlong resident throughout most of California, except for high elevations in the Sierra Nevada. This bat occupies a variety of habitats including grasslands, shrublands, woodlands, and mixed conifer forests, and roosts in caves, crevices, or mines, which must be sufficiently large to provide refuge from high daytime temperatures (CDFW 2014c). Pallid bats may also roost in tree hollows and bark, and sometimes rodent burrows or dried mud (Tremor et al. 2017). This species feeds on large prey items such as beetles, grasshoppers, cicadas, spiders, scorpions, and Jerusalem crickets, as well as occasional small rodents and lizards, which it captures on the ground or on vegetation (Bat Conservation International 2011, Tremor et al. 2017). Pallid bats are very sensitive to disturbance of the roosting sites, as these roosts are crucial for metabolic economy and juvenile development. Population declines are generally attributable to loss of roost sites resulting from human intrusion and physical alteration (CDFW 2014c).

Pallid bat has a moderate potential to forage within the Project Site, as the creosote bush scrub, fourwing saltbush scrub, and active agricultural fields within and adjacent to the Project Site provide suitable foraging habitat. The tall eucalyptus, tamarisk, and palm trees within and adjacent to the Project Site are only marginally suitable as roost sites. However, the patchy nature of the mature trees that occur on and adjacent to the Project Site likely makes these trees less suitable as roost sites. Therefore, pallid bat has a low potential to roost on-site.

Yuma Hispid Cotton Rat (*Sigmodon hispidus eremicus*)

Yuma hispid cotton rat is a CDFW species of special concern (CDFW 2018c). Yuma hispid cotton rat occurs along the Colorado River and its range extends into agricultural areas of Imperial Valley as a result of irrigation infrastructure. This species occupies moist grassland, croplands, grass- or forb-dominated communities or understories, and brushy areas along the borders of fields. It has also been reported from

areas dominated by marsh plants, such as cattails, arrowed, and common reed. Its diet consists primarily of grasses, taking occasional insects and crops. Yuma hispid cotton rats are solitary, nocturnal, and diurnal, active year-round, and build nests of woven grass in burrows or on the ground (CDFW 2014d).

This species has been reported along the Westside Main Canal within two miles of the Project Site (CDFW 2019a) and has a moderate potential to occur within and adjacent to the Project Site. The combination of wetland communities along the Westside Main Canal, dense herbaceous cover within the fallow agriculture areas, and active agriculture within and adjacent to the Project Site may provide suitable habitat conditions for this species. This species would likely avoid the open areas of upland mustards and the drier scrub habitats in a majority of the Project Site, south of the Westside Main Canal, as they tend to prefer tall, dense grasses located closer to water sources.

3.4.3.7 Wildlife Movement

Linkages and corridors facilitate regional animal movement and are generally centered in or around waterways, riparian corridors, flood control channels, contiguous habitat, and upland habitat. Drainages generally serve as movement corridors because wildlife can move easily through these areas, and fresh water is available. Corridors also offer wildlife unobstructed terrain for foraging and for dispersal of young individuals.

As the movements of wildlife species are more intensively studied using radio-tracking devices, there is mounting evidence that some wildlife species do not necessarily restrict their movements to some obvious landscape element, such as a riparian corridor. For example, recent radio-tracking and tagging studies of Coast Range newts, California red-legged frogs, southwestern pond turtles, and two-striped garter snakes found that long-distance dispersal involved radial or perpendicular movements away from a water source with little regard to the orientation of the assumed riparian “movement corridor” (Hunt 1993; Rathbun et al. 1992; Bulger et al. 2002; Trentham 2002; Ramirez 2002, 2003a, 2003b). Likewise, carnivores do not necessarily use riparian corridors as movement corridors, frequently moving overland in a straight line between two points when traversing large distances (Newmark 1995; Beier 1993, 1995; Noss et al. 1996; Noss et al. no date). In general, the following corridor functions can be utilized when evaluating impacts to wildlife movement corridors:

- Movement corridors are physical connections that allow wildlife to move between patches of suitable habitat. Simberloff et al. (1992) and Beier and Loe (1992) correctly state that, for most species, we do not know what corridor traits (length, width, adjacent land use, etc.) are required for a corridor to be useful. But, as Beier and Loe (1992) also note, the critical features of a movement corridor may not be its physical traits but rather how well a particular piece of land fulfills several functions, including allowing dispersal, plant propagation, genetic interchange, and recolonization following local extirpation.

- Dispersal corridors are relatively narrow, linear landscape features embedded in a dissimilar matrix that links two or more areas of suitable habitat that would otherwise be fragmented and isolated from one another by rugged terrain, changes in vegetation, or human-altered environments. Corridors of habitat are essential to the local and regional population dynamics of a species because they provide physical links for genetic exchange and allow animals to access alternative territories as dictated by fluctuating population densities.

- Habitat linkages are broader connections between two or more habitat areas. This term is commonly used as a synonym for a wildlife corridor (Meffe and Carroll 1997). Habitat linkages may themselves serve as source areas for food, water, and cover, particularly for small- and medium-size animals.

- Travel routes are usually landscape features, such as ridgelines, drainages, canyons, or riparian corridors within larger natural habitat areas that are used frequently by animals to facilitate movement and provide access to water, food, cover, den sites, or other necessary resources. A travel route is generally preferred by a species because it provides the least amount of topographic resistance in moving from one area to another yet still provides adequate food, water, or cover (Meffe and Carroll 1997).

- Wildlife crossings are small, narrow areas of limited extent that allow wildlife to bypass an obstacle or barrier. Crossings typically are manmade and include culverts, underpasses, drainage pipes, bridges, and tunnels to provide access past roads, highways, pipelines, or other physical obstacles. Wildlife crossings often represent “choke points” along a movement corridor because useable habitat is physically constricted at the crossing by human-induced changes to the surrounding areas (Meffe and Carroll 1997).

3.4.3.8 Wildlife Movement in the Project Area

The Project Site lies adjacent to a large expanse of undeveloped desert in the Imperial Valley, which provides unconstrained habitat connectivity between the Salton Sea and the Gulf of California. The Imperial Valley is an important component of the Pacific Flyway, which is a major north-south passageway for migratory birds traveling from Alaska to Patagonia. The Salton Sea is known as a stopover for birds migrating along this flyway, hosting as many as 400 different species. The Project Site is situated approximately 25 miles south of the Salton Sea. While the Site functions as part of general habitat that provides for local movement of terrestrial wildlife, it does not act as a known corridor for any specific wildlife species.

3.4.4 Environmental Impacts

3.4.4.1 Thresholds of Significance

The Impact analysis provided below is based on Appendix G of the CEQA guidelines. The Project would result in a significant impact to biological resources if it would result in any of the following:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or regulated by the CDFW or USFWS?

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS?

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

3.4.4.2 Issues Scoped Out as Part of the Initial Study

None of the thresholds of significance, as listed above, were eliminated for further analysis in the Initial Study (Appendix A).

3.4.4.3 Methodology

Consistent with the requirements of CEQA the significance of potential impacts is evaluated through the application of the significance criteria described above. The objective of the biological resources analysis is to identify potential adverse effects and/or significant impacts on biological resources. While avoidance is the preferred approach for the management of biological resources it is not always possible to completely avoid impacts to biological resources. If impacts can be avoided through Project design, establishment of exclusion zones, or other means, then specific mitigation measures may be unnecessary. However, appropriate mitigation measures to avoid or minimize impacts are identified, as appropriate, including procedures to be followed if significant biological resources are discovered during construction.

Direct and Indirect Impacts

The CEQA Guidelines define direct impacts as those impacts that result from the Project and occur at the same time and place. These include but are not limited to the removal of vegetation, disturbance to wildlife from construction activities, or the crushing of burrows. Indirect impacts are caused by the Project but can occur later in time or are farther removed in distance while still reasonably foreseeable and related to the Project. Indirect impacts can include the disruption of the native seed bank, the spread of invasive plant species, alterations in light regimes (i.e., shade from buildings, solar modules), or changes to soil or hydrology that adversely effects native species over time, and the disruption of prey base or increased predation through alterations of the physical landscape from Project features (i.e., fencing, power poles, battery storage structures) that provide perch sites or shelter for predators. Indirect impacts may also include increased traffic and human disturbance.

Permanent and Temporary Impacts

Project impacts are generally considered permanent if they involve the conversion of land to a new use, such as with the construction of new roads or buildings and the foundations of batter storage structures. Temporary impacts are usually considered to be those activities that are of short duration (i.e., 6 to 12 months) and that do not result in a permanent land use conversion. Temporary Project impacts are those effects that include ground disturbance activities restricted solely to the construction phase, such as crushing or driving over vegetation, grading of temporary roads, and clearing vegetation within staging areas. These effects would be considered temporary provided the areas are subject to restoration at the conclusion of construction. Noise, human disturbance, vehicle traffic, and construction activities are also considered temporary impacts.

As described by the Applicant, construction of the Project would occur in multiple phases over a 10-year period. This would exceed the typical definition of temporary impacts as it relates to certain species of plants or wildlife. For example, construction activity that results in repeated disturbance to an area for a period of three years may result in permanent effects to plants or wildlife that are fragile, short lived, or have unique dispersal/nesting requirements. The Applicant has indicated that construction of Phase 1 of the Project will include the build out of all common Project facilities, roads, and a bridge. Subsequent phases would only require improvements such as additional substation equipment, water mains, and road extensions.

Operational Impacts

Operational impacts include both direct and indirect impacts to biological resources. Ongoing operations and maintenance impacts would occur during routine inspection and maintenance of the Project facilities and would include such activities as periodic maintenance and emergency repairs and routine inspection of Project facilities. Operational impacts would also include weed abatement activities including but not limited to mechanical removal, managed livestock grazing, or herbicide treatment. These impacts would remain an ongoing source of disturbance for many plants and wildlife species that occur within the fenced facility perimeter and in adjacent habitat.

Impacts of Proposed Mitigation

Mitigation measures proposed for the protection of biological resources may result in potential secondary impacts to other CEQA issues such as agricultural resources. For example, to mitigate habitat loss for special status species, restoration to natural conditions or limitations on use may be placed on agricultural lands resulting in reduced agricultural potential.

3.4.4.4 Project Impacts and Mitigation Measures

To determine potential impacts to biological resources, the impact significance criteria identified above were applied to construction, operation, and maintenance of the Project. Each impact is numbered as are applicable mitigation measures. Significance conclusions are presented for each identified impact, and applicable mitigation measures are identified for each of the impact statements.

a) Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or regulated by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

The Project would cause the loss of foraging habitat for common and/or special-status wildlife.

This region supports a broad diversity of both common and sensitive wildlife, many of which utilize the existing habitat in the Project area for foraging and other life history requirements including breeding, movement, and refugia. Some of these species are permanent residents such as the kit fox, American badger, burrowing owl, and Cooper's hawk. Other species including northern harrier and ferruginous hawk are winter residents that forage in the Project area. Direct impacts to foraging habitat would occur from construction and operation of the Project and the permanent conversion of open space from the placement of the battery facility structures, and roads. The Project's effect on individual species depends on many factors including how a species tolerates disturbance and the ability of a species to adapt to features such as the battery facility structures, access roads, noise from electrical transformers and periodic human presence. For some common species including rabbits, ground squirrels, and some birds, the Project would not lead to a substantial loss of foraging habitat and may in fact provide additional perches, refugia, and increased access to some prey. For example, Cooper's hawks, kestrels, and ravens may use the solar array structures and buildings for perches, while coyotes and kit foxes may use the solar arrays (if ground mounted) for cover. For other species, such as ferruginous hawks, construction of the Project would likely eliminate foraging opportunities. Impacts to foraging habitats for rodents or species with limited mobility would be high since their home ranges are small.

Indirect impacts to foraging habitat could include alterations to existing topographical and hydrological conditions, increased erosion and sediment transport, and the establishment of noxious weeds. Operational impacts include increased human presence and the spread of noxious weeds due to use of new or improved access roads. The Project Site is currently undeveloped and does not contain any sources of light or glare. Implementation of the Project would introduce new sources of illumination. Lighting from operation may

affect essential behavioral activities, physiology, population ecology, competition, and predation of both diurnal and nocturnal wildlife (Longcore and Rich 2004). Lighting may also increase the risk of predation of both nocturnal and diurnal species because they may be more detectable to nocturnal predators (USACE and CDFG 2010). Many insects are drawn to lights, and species that prey on insects, such as bats, may be attracted to lighted construction areas which would increase the potential for disturbance and mortality. However, studies have indicated that many small species, such as rodents, rabbits, snakes, and bats, actually forage less at high illumination levels (Longcore and Rich 2004). Overall, Project lighting would likely favor light-tolerant species over those that are dark-adapted (Longcore and Rich 2004).

Although the Project occurs within an area supporting large areas of open space not all these areas support the same types of habitat as the Project area and support different land use practices (i.e., agriculture, etc.). The Project would permanently impact approximately 144.51 acres and temporarily impact approximately 18.81 acres of native and non-native vegetation communities and land cover types. Therefore, while the overall loss of foraging habitat compared to available habitat in the region is low, Project-related impacts to foraging habitat for wildlife are considered significant without mitigation.

The primary mechanism for reducing impacts from habitat loss is the acquisition and preservation of mitigation lands and the reduction of indirect impacts such as the spread of weeds or degradation of habitat by fugitive dust or erosion. The measures presented in MM BR-1 include acquisition and preservation of mitigation lands and provisions that educate workers regarding the sensitivity of wildlife and how to minimize impacts to these species through Best Management Practices (BMPs), reduced vehicle speeds, and restoration of temporarily disturbed areas. Impacts would be less than significant with mitigation.

Mitigation Measures

MM BR-1: Compensation for Permanent and Temporary Impacts to Vegetative Communities

To compensate for permanent and temporary impacts to on-site vegetative communities, within the Project Site, habitat (which may include preservation areas within portions of the Project Site not impacted by construction or mitigation lands outside of the main Project Site) that contains the same quality of vegetative communities impacted by the Project and that is not already public land shall be preserved and managed in perpetuity at the following ratios – temporary impacts to native vegetation communities shall be mitigated at a 1:1 mitigation ratio (one acre preserved/restored for each acre impacted) and permanent impacts shall be mitigated at a ratio of 2:1. Impacts to CDFW listed sensitive or riparian communities shall be mitigated at a ratio of 3:1. Land acquired/dedicated for impacts to native vegetation communities must be with lands occupied by habitat of a similar type and quality.

Prior to the disturbance of vegetation, the Applicant shall obtain County approval of preserved and/or mitigation lands as well as documentation of a recorded conservation easement. The compensation for the loss of habitats may be achieved either by a) on-site habitat creation or enhancement habitats with similar species composition to those present prior to construction, b) off-site creation or enhancement of, or c) participation in an established mitigation bank program.

Prior to the removal of native vegetation, if on- or off-site mitigation is required, a Habitat Restoration Plan (HRP) shall be prepared that will guide all restoration and monitoring activities (refer to MM BR-2 for details on the plan requirements).

MM BR-2: Develop a Habitat Restoration Plan

The Applicant shall restore temporarily disturbed areas to pre-construction conditions or better prior to the issuance of a grading permit and removal of any vegetation and/or wetland habitat. To this end, the Applicant shall retain a County qualified biologist, knowledgeable in the area(s) of annual grassland and

wetland habitat restoration, to prepare a Habitat Restoration Plan (HRP). The Applicant shall submit the HRP to the County for approval (in consultation with CDFW and USFWS). The biologist will also be responsible for monitoring the implementation of the plan as well as the progress on achieving the established success criteria.

The HRP shall expressly identify the process by which all disturbed areas shall be restored to pre-construction conditions or better. The plan will address restoration and revegetation related to disturbance from construction. It will also address restoration and revegetation required after decommissioning of the Project should this be required. The decommissioning plan shall include, at a minimum, the following items:

a) Figures depicting areas proposed for temporary disturbance/mitigation lands – The HRP shall include detailed figures indicating the locations and vegetation types of areas proposed for temporary disturbance. These figures shall be updated, as necessary, to reflect current Site conditions should they change.

b) Proposed species for restoration/revegetation – The species palate proposed for restoration/revegetation shall include a combination of native annual and perennial species known to currently occur on the Project Site and in adjacent habitats.

c) Seed source and collection guidelines – Seeds shall first be collected from the stock of native plants occurring on the Project Site, during the appropriate collection period (late spring through the summer, depending on the species) and prior to disturbance from construction activities. Additional seed may be collected from stock within a 25-mile radius will be collected to maintain local genetic integrity. If seed collection from these areas is not possible then a seed source must be obtained from a local seed supplier familiar with native species. Seed will be limited to the species and quantity specified in the seed mix palette prepared for the Project. All seed will originate from the Project region, within +/- 1000 feet elevation of the Project Site. The seed supplier chosen will provide a list of three references with the bid proposal. The references will include year, contact names, and telephone numbers. Seeds will be tested for percent purity, percent germination, number of pure live seeds per pound, and weed seed content. Seed testing will be the responsibility of the seed supplier.

d) Planting methodology – A description of the preferred methods proposed for container plant installation or seeding shall be provided (e.g., hydroseeding, drill seeding, broadcast seeding, etc.). Additionally, a discussion on timing of seeding, type of irrigation system proposed, potential need of irrigation, type and duration of irrigation, and erosion controls proposed for revegetation activities shall be included.

e) Invasive, non-native vegetation Control – A comprehensive discussion on weed control for the Project Site will be developed and included in the HRP. This will serve to prevent the type conversion of natural habitats to those dominated by invasive species known to occur in the area.

f) Monitoring program – Areas subject to restoration/revegetation shall be monitored to assess conditions and to make recommendations for successful habitat establishment. Monitoring will be performed by a County qualified biologist(s), knowledge- able in the area of annual grassland habitat restoration. Monitoring should include, at a minimum, the following:

    1. **Qualitative Monitoring** – Qualitative monitoring surveys will be performed monthly in all restored/revegetated areas for the first year following planting in any phase of the Project. Qualitative monitoring will be on a quarterly schedule thereafter, until final completion approval of each restoration/revegetation area. Qualitative surveys will assess native plant species performance, including growth and survival, germination success, reproduction, plant fitness and health as well as pest or invasive plant problems. A County qualified wildlife biologist will assist in monitoring surveys and will actively search for mammal and other wildlife use.

Monitoring at this stage will indicate need for remediation or maintenance work well in advance of final success/failure determination. The monitoring reports will describe Site progress and conditions and list all observations pertinent to eventual success, and make recommendations as appropriate reg. remedial work, maintenance, etc.

2. **Quantitative Monitoring** – Quantitative monitoring will occur annually for years one to five or until the success criteria are met. Within each revegetation area, as shown figures referenced above, the biologist will collect data in a series of 1 m2 quadrats to estimate cover and density of each plant species within the revegetated areas. Data will be used to measure native species growth performance, to estimate native and non-native species coverage, seed mix germination, native species recruitment and reproduction, and species diversity. Additionally, within wetland habitat restoration areas, the biologist shall conduct sampling events to document the presence of hydric soil characteristics/indicators (if present). Based on these results, the biologist will make recommendations for maintenance or remedial work on the Site and for adjustments to the approved seed mix.

g) **Success criteria** – Criteria for successful restoration/revegetation of disturbed areas shall be provided.

h) **Reporting** – Reporting will include progress reports summarizing Site status and recommended remedial measures that will be submitted by the biologist to the County quarterly, with the exception of the Site visits immediately preceding the development of each annual status report (see below). Each progress report will list estimated species coverage and diversity, species health and overall vigor, the establishment of volunteer native species, topographical/soils conditions, problem weed species, the use of the Site by wildlife species, significant drought stress, and any recommended remedial measures deemed necessary to help ensure compliance with specified performance criteria.

One annual Site status report that summarizes Site conditions will be forwarded by the biologist to the County, the USFWS and the CDFW at the end of each year following implementation of this plan until the established success criteria have been met. Each annual report will list species coverage and diversity measured during yearly quantitative surveys, compliance/non-compliance with required performance standards, species health and overall vigor, the establishment of volunteer native species, hydrological and topographical conditions, the use of the Site by wildlife species, and the presence of invasive weed species. In the event of substantial non-compliance with the required performance criteria, the reports will include remedial measures deemed necessary to help ensure future compliance with specified performance criteria. Each annual report will include, at the minimum:

1. The name, title, and company of all persons involved in restoration monitoring and report preparation

2. Maps or aerials showing restoration areas, transect locations, and photo documentation locations

3. An explanation of the methods used to perform the work, including the number of acres treated for removal of non-native plants

4. An assessment of the treatment success.

Significance After Mitigation

Implementation of Mitigation Measures BR-1 and BR-2 would reduce potential impacts on foraging habitat to less-than-significant levels.

Project related construction activities would result in disturbance to wildlife and may result in wildlife mortality.

The Project Site supports a suite of common and sensitive wildlife species. Direct impacts to wildlife associated with construction of the Project could include mortality from trampling or crushing; increased noise levels due to heavy equipment use; light impacts from construction during low-light periods; increased vehicular and human presence along existing access roads; displacement due to habitat modifications, including vegetation removal, alterations of existing soil conditions; fugitive dust; and increased erosion and sediment transport.

Wildlife Mortality

Direct mortality of small mammals, reptiles, and other less mobile species would likely occur during construction of the Project. Construction could also result in the loss of eggs and nestlings of bird species with small, well-hidden nest. This would occur primarily during habitat clearing, earth removal, grading, digging, and equipment movement. More mobile species, such as birds and larger mammals, would likely disperse into nearby habitat areas during construction. Increased lighting during low-light periods, particularly near dawn and dusk (during both construction and operation of the Project), could cause some species to leave the area and could disrupt foraging, breeding, or other activities. Many insects are drawn to lights, and species that prey on insects, such as bats, may be attracted to lighted construction areas that would increase the potential for disturbance and mortality.

Noise and Vibration

Noise and vibration from clearing, grading and construction activities could affect wildlife in adjacent habitats by interfering with breeding or foraging activities and movement patterns, causing animals to temporarily avoid areas adjacent to the construction zone. Nocturnal wildlife would be affected less by construction than diurnal species since construction would occur primarily during daylight hours. However, construction may also occur during dusk and dawn when many species are highly active. More mobile species such as birds and larger mammals would likely disperse into adjacent habitat during the land clearing and grading phases and road construction. However, smaller animals would be less able to disperse. Construction activities would also likely affect how animals use the area as a movement corridor. Post construction, operation of the Project would limit wildlife movement to some degree; due to the presence of anthropogenic features (e.g., buildings, equipment, vehicles) that may result in increased noise and vibration during both construction and operation of the Project.

Noise from construction activities could also result in temporary impacts to thresholds in hearing sensitivity. These impacts could last for an extended period of time, and loss of hearing could result in increased mortality for species that rely on their sense of hearing to detect predators or warning calls. Noise and vibrations could also cause animals to leave their burrows, where they would be better protected from predation or Project-related injury or mortality.

Roads and Vehicles

Construction of access roads could crush existing burrows, disrupt soil surfaces, compact soils, and displace native species. With even modest soil moisture, vehicle traffic would quickly establish ruts or depressions that can alter soil conditions and hydrology. Where roads are planned the construction would alter the physical characteristics of the soil underneath the road. For example, road construction increases compaction up to 200 times relative to undisturbed sites (Riley 1984). Organisms that are not killed directly by the construction of the road could be displaced by the altered soil conditions (Haskell 2000). Construction traffic along access roads, particularly in areas used by nesting birds could adversely affect wildlife by disrupting breeding, foraging, and movement. These disturbances could result in nest, roost, or territory

abandonment and subsequent reproductive failure if these disturbances were to occur during the breeding season.

Roads and vehicle use can affect animal behavior by altering home range use, affect movement patterns, reduce reproductive success, alter escape response, and increase physiological stress (Trombulak and Frissell 2000). Roads and vehicle use can affect animal behavior by altering home range use, affect movement patterns, reduce reproductive success, alter escape response, and increase physiological stress (Trombulak and Frissell 2000). Edge effects from roads can last well past the time of construction. Given the lack of existing access roads currently within the Project area, the introduction of vehicles within the Project Site could result in an increase in accidental wildlife mortality from roadkill. Diurnal reptiles and small mammals such as flat tailed horned lizard, kit fox, and round-tailed ground squirrels are the most likely to be present on access roads and would therefore be more vulnerable to vehicle accidents. The likelihood of wildlife mortality due to vehicle collisions would be especially high during construction when the access roads would be heavily used. Vehicle accidents can significantly reduce population size (Trombulak and Frissell 2000). Furthermore, animals killed along access roads as a result of this Project could attract opportunistic predators, which could result in additional accidental mortality.

Indirect effects on wildlife as a result of the Project include the introduction of non-native, invasive plant species, alterations to existing hydrological conditions, and noise.

Operational impacts to wildlife would include mortality from vehicle strikes, disturbance from vegetation management activities, potential disruption of nest sites, noise from transformer or facility operations and lighting, human disturbance, and the spread of noxious weeds from maintenance personnel. For avian species, lighting plays a significant role in collision risk with poles and/or towers because lights can attract nocturnal migrant songbirds. Large numbers of bird deaths have been reported at lighted communication towers (Manville 2001), with most of these from towers higher than 300 to 500 feet (Kerlinger 2004). Increased lighting during low-light periods can cause some species to leave the area and can disrupt foraging, breeding, or other activities. Lighting may disturb the nighttime rest and sleep periods of diurnal species, including most passerine birds, causing them to abandon nests that are otherwise perfectly suitable (USACE and CDFG 2010). Nest site selection by some birds may also be affected by light, with nests being established farther from light sources (Longcore and Rich 2004).

Common Wildlife

Construction-related impacts on common wildlife are typically not considered significant under CEQA; impacts to some common wildlife (e.g., nesting birds) are considered significant may have regulatory implications under the Federal and State Endangered Species Acts. However, the large scale of the construction, multi-year schedule, and size of the land use conversion would result in potentially significant impacts on common species in the Project area.

Project related activities that would result in disturbance to wildlife or result in wildlife mortality would be considered significant absent mitigation.

Mitigation Measures

MM BR-3: Implement a Worker Environmental Education Program

Prior to any Project activities on the Site (i.e., surveying, mobilization, fencing, grading, or construction), a Worker Environmental Education Program (WEEP) shall be prepared and implemented by a qualified biologist(s). The WEEP shall be submitted to the County for review and approval prior to issuance of construction permits and implemented throughout the duration of the construction activities. The WEEP shall be put into action prior to the beginning of any Site related activities, including but not limited to those

activities listed above, and implemented throughout the duration of Project construction. The WEEP, shall include, at a minimum, the following items:

a) Training materials and briefings shall include, but not be limited to: a discussion of the Federal and State Endangered Species Acts, BGEPA, and the MBTA; the consequences of non-compliance with these acts; identification and values of plant and wildlife species and significant natural plant community habitats; hazardous substance spill prevention and containment measures; a contact person and phone number in the event of the discovery of dead or injured wildlife; and a review of mitigation requirements.

b) A discussion of measures to be implemented for avoidance of the sensitive resources discussed above and the identification of an on-site contact in the event of the discovery of sensitive species on the Site.

c) Protocols to be followed when roadkill is encountered in the work area or along access roads to minimize potential for additional mortality of scavengers, including listed species such as the California condor and the identification of an on-site representative to whom the roadkill will be reported. Roadkill shall be reported to the appropriate local animal control agency within 24 hours.

d) Maps showing the known locations of special-status wildlife, populations of rare plants and sensitive vegetative communities, seasonal depressions and known waterbodies, wetland habitat, exclusion areas, and other construction limitations (e.g., limited operating periods, etc.). These features shall be included on the Project's plans and specifications drawings.

e) Literature and photographs or illustrations of potentially occurring special-status plant and/or wildlife species will be provided to all Project contractors and heavy equipment operators.

f) The Applicant shall provide to the County evidence that all on-site construction and security personnel have completed the WEEP prior to the start of Site mobilization. A special hardhat sticker or wallet size card shall be issued to all personnel completing the training, which shall be carried with the trained personnel at all times while on the Project Site. All new personnel shall receive this training and may work in the field for no more than five days without participating in the WEEP. A log of all personnel who have completed the WEEP training shall be kept on Site.

g) A weather protected bulletin board or binder shall be centrally placed or kept on-site (e.g., in the break room, construction foreman's vehicle, construction trailer, etc.) for the duration of the construction. This board or binder will provide key provisions of regulations or Project conditions as they relate to biological resources or as they apply to grading activities. This information shall be easily accessible for personnel in all active work areas.

h) Develop a standalone version of the WEEP, that covers all previously discussed items above, and that can be used as a reference for maintenance personnel during Project operations.

MM BR-4: Implementation of Best Management Practices

BMPs will be implemented as standard operating procedures during all ground disturbance, construction, and operation related activities to avoid or minimize Project impacts on biological resources. These BMPs will include but are not limited to the following:

a) Compliance with BMPs will be documented and provided to the County in a written report on an annual basis. The report shall include a summary of the construction activities completed, a review of the sensitive plants and wildlife encountered, a list of compliance actions and any remedial actions taken to correct the actions, and the status of ongoing mitigation efforts.

b) Prior to ground disturbance of any kind the Project work areas shall be clearly delineated by stakes, flags, or other clearly identifiable system.

c) Vehicles and equipment shall be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.

d) Speed limit signs, imposing a speed limit of 15 miles per hour, will be installed throughout the Project Site prior to initiation of Site disturbance and/or construction. To minimize disturbance of areas outside of the construction zone, all Project-related vehicle traffic shall be restricted to established roads, construction areas, and other designated areas. These areas will be included in preconstruction surveys and to the extent possible, should be established in locations disturbed by previous activities to prevent further impacts. Off-road traffic outside of designated Project areas will be prohibited.

e) No vehicles or equipment shall be refueled within 100 feet of an ephemeral drainage or wetland unless a bermed and lined refueling area is constructed. Spill kits shall be maintained on-site in sufficient quantity to accommodate at least three complete vehicle tank failures of 50 gallons each. Any vehicles driven and/or operated within or adjacent to drainages or wetlands shall be checked and maintained daily to prevent leaks of materials.

f) All general trash, food-related trash items (e.g., wrappers, cans, bottles, food scraps, cigarettes, etc.) and other human-generated debris will be stored in animal proof containers and/or removed from the Site each day. No deliberate feeding of wildlife will be allowed.

g) All pipes and culverts with a diameter of greater than 4 inches shall be capped or taped closed. Prior to capping or taping the pipe/culvert shall be inspected for the presence of wildlife. If encountered the wildlife shall be allowed to escape unimpeded.

h) No firearms will be allowed on the Project Site, unless otherwise approved for security personnel.

i) To prevent harassment or mortality of listed, special-status species and common wildlife, or destruction of their habitats no domesticated animals of any kind shall be permitted in any Project area.

j) Use of chemicals, fuels, lubricants, or biocides will be in compliance with all local, state, and federal regulations. All uses of such compounds shall observe label and other restrictions mandated by the U.S. EPA, California Department of Food and Agriculture, and other state and federal legislation, as well as additional Project-related restrictions deemed necessary by the USFWS and CDFW. Use of rodenticides is restricted.

k) Any contractor or employee that inadvertently kills or injures a special-status animal, or finds one either dead, injured, or entrapped, will immediately report the incident to the on-site representative identified in the WEEP. The representative will contact the USFWS, CDFW, and County by telephone by the end of the day, or at the beginning of the next working day if the agency office is closed. In addition, formal notification shall be provided in writing within three working days of the incident or finding. Notification will include the date, time, location, and circumstances of the incident. Any threatened or endangered species found dead or injured will be turned over immediately to CDFW for care, analysis, or disposition.

l) During the Site disturbance and/or construction phase, grading and construction activities before dawn and after dusk, is prohibited.

m) Avoidance and minimization of vegetation removal within active construction areas, including the flagging of sensitive vegetative communities or plants.

n) Avoidance and minimization of construction activities resulting in impacts to wetlands, streambeds, and banks of any ephemeral drainage unless permitted to do so.

o) All excavation, steep-walled holes, or trenches in excess of 6 inches in depth will be covered at the close of each working day by plywood or similar materials or provided with one or more escape ramps constructed of earth dirt fill or wooden planks. Trenches will also be inspected for entrapped wildlife each morning prior to onset of construction activities and immediately prior to covering with plywood at the end of each working day. Before such holes or trenches are filled, they will be thoroughly inspected for entrapped wildlife. Any wildlife discovered will be allowed to escape before construction activities are allowed to resume or removed from the trench or hole by a qualified biologist holding the appropriate permits (if required).

p) New light sources will be minimized, and lighting will be designed (e.g., using down- cast lights) to limit the lighted area to the minimum necessary.

MM BR-5: Wildlife Pre-Construction Surveys and Biological Monitoring

Prior to ground disturbance or vegetation clearing within the Project Site, a qualified biologist shall conduct surveys for wildlife (no more than 72 hours prior to Site disturbing activities) where suitable habitat is present and directly impacted by construction activities. Wildlife found within the Project Site or in areas potentially affected by the Project will be relocated to the nearest suitable habitat that will not be affected by the Project prior to the start of construction. Special-status species found within a Project impact area shall be relocated by an authorized biologist to suitable habitat outside the impact area.

MM BR-6: Implement Biological Construction Monitoring

Prior to the commencement of ground disturbance or Site mobilization activities the Applicant shall retain a qualified biologist(s), for the duration of Project construction, with demonstrated expertise with listed and/or special-status plants, terrestrial mammals, and reptiles to monitor(s), on a daily basis, all construction activities. The qualified biologist(s) shall be present at all times during ground-disturbing activities immediately adjacent to, or within, habitat that supports populations of the listed or special-status species identified within the Project boundaries. Any listed or special-status plants shall be flagged for avoidance. Any special-status terrestrial species found within a Project impact area shall be relocated by the authorized biologist and relocated to suitable habitat outside the impact area. If the installation of exclusion fencing is deemed necessary by the authorized biologist, the authorized biologist shall direct the installation of the fence. Clearance surveys for special-status species shall be conducted by the authorized biologist prior to the initiation of construction each day.

If the biological monitor observes a dead or injured listed or special-status wildlife species on the construction Site during construction, a written report shall be sent to the County, CDFW and/or USFWS within five calendar days. The report will include the date, time of the finding or incident (if known), and location of the carcass and circumstances of its death (if known). The biological monitor shall, immediately upon finding the remains, coordinate with the on-site construction foreman to discuss the events that caused the mortality (in known), and implement measures to prevent future incidents. Details of these measures shall be included with the report. Species remains shall be collected and frozen as soon as possible, and CDFW and/or USFWS shall be contacted regarding ultimate disposal of the remains.

MM BR-7: Conduct Pre-construction Surveys for Nesting and Breeding Birds and Implementation of Avoidance Measures

Prior to any Site disturbance (i.e., mobilization, staging, grading or construction), the Applicant shall retain a qualified biologist(s) to conduct pre-construction surveys for nesting birds within the recognized breeding season (generally February 15 – September 15 but may start earlier for some raptor species) in all areas within 500 feet of Project components (staging areas, substation sites, battery facility structures including,

solar arrays, and access road locations). The required survey dates may be modified based on local conditions, as determined by the qualified biologist(s), with the approval of the County, in consultation with the USFWS and/or CDFW. Measures intended to exclude nesting birds shall not be implemented without prior approval by the County in consultation with USFWS and/or CDFW and shall not exceed County noise standards.

If breeding birds with active nests are found prior to or during construction, a biological monitor shall establish a 300-foot buffer around the nest for ground-based construction activities and no activities will be allowed within the buffer(s) until the young have fledged from the nest or the nest fails.

The prescribed buffers may be adjusted to reflect existing conditions including ambient noise, topography, and disturbance with the approval of the County, CDFW and USFWS as appropriate. The biological monitor(s) shall conduct regular monitoring of the nest to determine success/failure and to help ensure that Project activities are not conducted within the buffer(s) until the nesting cycle is complete or the nest fails. The biological monitor(s) shall be responsible for documenting the results of the surveys and ongoing monitoring and will provide a copy of the monitoring reports for impact areas to the respective agencies.

If for any reason a bird nest must be removed during the nesting season, the Applicant shall provide written documentation providing concurrence from the USFWS and CDFW authorizing the nest relocation. Additionally, the Applicant shall provide a written report documenting the relocation efforts. The report shall include what actions were taken to avoid moving the nest, the location of the nest, what species is being relocated, the number and condition of the eggs taken from the nest, the location of where the eggs are incubated, the survival rate, the location of the nests where the chicks are relocated, and whether the birds were accepted by the adopted parent.

Surveys shall be conducted to include all structural components, related structures, as well as all construction equipment. If birds are found to be nesting in battery facility structures, buffers as described above shall be implemented. If birds are found to be nesting in construction equipment, that equipment shall not be used until the young have fledged the nest or, if no young are present, until after the breeding season has passed.

If trees are to be removed as part of Project-related construction activities, they will be done so outside of the nesting season to avoid additional impacts to nesting raptors. If removal during the nesting season cannot be avoided, the biological monitor must confirm that the nest is vacant prior to its removal. If nests are found within these structures and contain eggs or young, the biological monitor shall allow no activities within a 300-foot buffer for nesting birds and/or a 500-foot buffer for raptors until the young have fledged the nest.

Significance After Mitigation

Implementation of MMs BR-1 through BR-7 would provide for the protection of common wildlife by educating workers on the avoidance mechanisms in place to avoid impacts to common and sensitive species or their habitat, restoring temporarily disturbed areas post construction, and acquiring off-site habitat. The measures would also include directives that educate workers regarding reduced vehicle speeds and general work practices that reduce conflicts with native species. Implementation of the mitigation measures above would reduce potential impacts on wildlife mortality to less-than-significant levels.

Corona noise and EMF could result in disturbance to wildlife.

High voltage electrical lines generate an audible noise called corona. Corona noise is generally characterized as a crackling, hissing, or humming sound and would be most noticeable during wet conductor conditions such as rain or fog. The existing audible noise from the Campo Verde-Imperial Valley

230 kV gen-tie line may be masked by the background noise such as, wind, vehicle use, and agricultural noise, which can often be much louder than corona noise, even in a relatively undisturbed area such as the Project Site. The Project will also include 35.4 kV collector lines; no notable noise would be expected from these lines. However, audible noise in the form of a hum could occur from the inverters.

While extensive information related to the effects of anthropogenic noise on wildlife is available in the literature, studies focused on corona noise are extremely limited. The lack of directed research or clear evidence becomes even more evident at the species level. Among the reasons for this lack of information appear to be a deficiency of reliable knowledge on long-term patterns of behaviors and auditory functions in many species as related to transmission lines. Although the specific effects of corona noise on wildlife are not clearly understood, it has been shown that population-level effects are more substantial when animals are exposed to sounds that repeatedly occur over extended periods of time as compared to noises resulting in one-time acute responses (OSB 2003). This is likely a result of sustained background noise reducing (masking) the detection and discrimination of communication signals. These signals may be important for mate attraction, social cohesion, predator avoidance, prey detection, navigation, and other basic behaviors. Masking may be one of the most significant effects of a general increase in background noise on most vertebrates (OSB 2003). For example, reproduction in many frog species is initiated when sexually mature males use vocalizations to advertise their sex, receptiveness, location, and species identity (Odendaal et al. 1986). Noisy environments can interfere with this communication process, and create problems with respect to detection, discrimination, and localization of appropriate signals (Wollerman 1998).

In some cases, species may adapt to alterations of the environmental soundscape, either through habituation or modifications in behavior. Habituation may occur if a stimulus occurs repeatedly without negative consequence and if the benefits, such as access to food, outweigh the costs of not reacting (OSB 2003 as in AMEC 2005). Brumm (2004) identified a modification in bird behavior as territorial males demonstrated singing with higher amplitudes to mitigate for masking noise in the natural environment. However, birds forced to sing with higher amplitudes must bear the increased costs of singing.

The Project transformers, substation, and switching stations would add noise and electromagnetic fields (EMF) to specific areas of the Project Site that may affect wildlife. These Project components would produce an audible hum detectable to wildlife. The effects of corona noise on wildlife are poorly understood, and, therefore, it is difficult to predict the degree to which the increase in corona noise will impact local wildlife. Because the facilities, including battery systems, solar arrays and the collector lines are not expected to produce an audible source of corona noise, these impacts are considered to be less than significant.

Construction and operational activities could result in the loss of nesting birds or raptors.

The Project Site provides foraging, cover, and/or breeding habitat for a variety of resident and migratory birds. This habitat is provided by a variety of topographical features and vegetation (including trees). During surveys of the Project Site, approximately 84 species of birds were documented within the Project Site and a 100-foot buffer (RECON 2021). Avian species commonly observed within or adjacent to the Project Site include Abert's towhee, Gambel's quail, rock dove, blue-gray gnatcatcher, black-tailed gnatcatcher, Anna's hummingbird, house finch, Say's phoebe, verdin, western meadowlark, and lesser goldfinch. Ferruginous hawk, a CDFW watch list species, is known to forage in the Project area, but is not expected to nest on the Project Site. Direct impacts to nesting birds include ground-disturbing activities associated with construction of the Project, including battery facility structures, solar array footing preparation, construction and grading of new access roads, increased noise levels from heavy equipment, increased human presence, and exposure to fugitive dust. Bird species potentially affected include ground nesting species such as horned larks, songbirds, and several large birds such as red-tailed hawk. Construction during the breeding season could result in the displacement of breeding birds and the abandonment of active nests.

Indirect impacts to nesting birds include facility maintenance, human disturbance, the spread of noxious weeds and disruption of breeding or foraging activity due to facility maintenance. Weed abatement and maintenance of the retention basins could also affect nesting.

Operational impacts to nesting birds pose a substantial concern for the Project. In the Project region and other ecosystems where nest substrate is often a limiting factor, birds will nest in a variety of manmade substrates including vehicles, debris piles, and other fixed structures. Some species of birds would likely nest in the Project Site during construction and operation of the facility. Depending on the species, birds may actively nest on the ground close to equipment, within the open metal framework of the solar array mounting structures, building frames, or even on idle construction equipment. In other arid ecosystems in southern California, birds have been documented nesting on vehicles, foundations, construction trailers, and other equipment left overnight or during a long weekend. In areas where construction may be phased (i.e., construction of various components such as piers and modules) birds may quickly utilize these features as nest site*s.* Many of the birds that would be likely to use these types of nesting substrates are common species such as ravens, house finches, and doves. However, with the exception of a few non-native birds such as European starling, the loss of active bird nests or young is regulated by the Federal MBTA and FGC Section 3503. Based on the observation of the nesting birds on and near the Project Site, there would be a moderate to high likelihood of encountering nesting birds during construction and operation of the Project. The loss of nesting birds or raptors as a result of the Project would be considered significant absent mitigation.

Mitigation Measures

MM BR-3: Implement a Worker Environmental Education Program

MM BR-4: Implementation of Best Management Practices

MM BR-5: Wildlife Pre-Construction Surveys and Biological Monitoring

MM BR-6: Implement Biological Construction Monitoring

MM BR-8: Implement Avian Power Line Interaction Committee guidelines

The Applicant will be required to construct all transmission facilities, towers, poles, and lines in accordance with and comply with all policies set forth in the *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006* and *Reducing Avian Collisions with Power Lines: The State of the Art in 2012* (APLIC), to minimize avian electrocutions as a result of the construction of the Project. Details of design components shall be indicated on all construction plans and measures to comply with Avian Power Line Interaction Committee (APLIC) policies and guidelines shall be detailed in a separate attachment, all of which will be submitted with the construction permit application. The Applicant shall be required to monitor for new versions of the APLIC guidelines and update designs or implement new measures as needed during Project construction, provided these actions do not require the purchase of previously ordered transmission line structures. A review of compliance with submitted materials will be conducted prior to the final County inspection.

Significance After Mitigation

Implementation of the mitigation measures above would provide for the protection of nesting birds through worker education, pre-construction surveys for nesting birds, avoidance of active nest sites, construction monitoring, and the control of fugitive dust. These measures would also provide for the restoration of areas subject to temporary disturbance and manage the Site for noxious weeds. These measures would be effective, are typical of those required for other construction projects, and would provide for compliance

with the MBTA. Implementation of the mitigation measures above would reduce potential impacts on wildlife disturbance to less-than-significant levels.

The Project could disturb Endangered, Threatened, Proposed, Petitioned or Candidate plant species or their habitat.

No sensitive plant species were observed during the focused rare plant surveys or other biological surveys conducted in 2018 and 2019 in support of the Project; however, complete floristic surveys were not completed. No listed plant species were determined to have a moderate or high potential to occur within or adjacent to the Project Site (refer to Appendix E for additional information). The focused rare plant and other biological surveys conducted in 2018 and 2019 did however identify a broad diversity of flowering plants.

Although listed plant species were not detected on the Project Site, irregular plant life histories, and historic farming activities can limit the ability to detect listed plants. Botanical field surveys can only detect individual plants whose above-ground growth is large or conspicuous enough to be noted by field personnel. Even under ideal conditions, some living plants may not have emerged above-ground or may be too small for detection. These limitations are especially important for small or inconspicuous species. For example, although suitable habitat is found on the Site, slender cottonheads (*nemacaulis denudata* var*. gracilis*) was not observed during botanical surveys, which were conducted within its blooming period. However, it is an annual species, and it may only be observed in certain years when annual precipitation levels are appropriate.

If present, direct impacts to listed plant species could occur from construction activities that remove vegetation, grade soils, or cause sedimentation, including facility construction, solar array footing preparation (if ground mounted), and the construction/grading of new and existing access roads. Indirect impacts could include the disruption of native seed banks through soil alterations, the accumulation of fugitive dust, increased erosion and sediment transport, and the colonization of non-native, invasive plant species. Operational impacts could include trampling or crushing due to use of new or improved access roads, increased erosion, and the colonization and spread of noxious weeds. As described above for native vegetation, altered hydrologic and light regimes can also adversely affect listed plants should they occur.

It should be noted that the take of State listed species would be authorized only through an Incidental Take Authorization from CDFW. Take of Federally listed plants on private land would require coordination with the USFWS. If endangered, threatened, proposed, petitioned or candidate plant species plants are present, impacts to these species would be considered significant without mitigation.

Mitigation Measures

MM BR-3: Implement a Worker Environmental Education Program

MM BR-4: Implementation of Best Management Practices

MM BR-5: Wildlife Pre-Construction Surveys and Biological Monitoring

MM BR-6: Implement Biological Construction Monitoring

MM BR-9: Conduct Pre-construction Surveys for State and Federally Threatened, Endangered, Proposed, Petitioned, and Candidate Plants and Implementation of Avoidance Measures

Prior to initial ground disturbance and for undisturbed areas in subsequent construction years, the Applicant shall conduct pre-construction surveys for State and federally listed Threatened and Endangered, Proposed, Petitioned, and Candidate plants in all areas subject to ground-disturbing activity, including, but

not limited to, battery facility structures including, access roads, poles/towers, solar array footing preparation, construction areas, and assembly yards. The surveys shall be conducted during the appropriate blooming period(s) by a qualified plant ecologist/biologist according to protocols established by the USFWS, CDFW, and CNPS. All listed plant species found shall be marked and avoided. Any populations of special-status plants found during surveys will be fully described, mapped, and a CNPS Field Survey Form or written equivalent shall be prepared.

These surveys must be accomplished during a year in which rainfall totals are at least 80 percent of average and in which the temporal distribution of rainfall is not highly abnormal (e.g., with most rainfall occurring very early or late in the season) to be reasonably certain of the presence/absence of rare plant species, unless surveys of reference populations document that precipitation conditions would not have adversely affected the ability to detect the species. This condition may be waived with the approval of the County after consultation with the CDFW and USFWS. If a listed plant species cannot be avoided, consultation with USFWS and CDFW will occur.

Prior to Site grading or vegetation removal, any populations of listed plant species identified during the surveys within the Project limits and beyond, shall be protected and a buffer zone placed around each population. The buffer zone shall be established around these areas and shall be of sufficient size to eliminate potential disturbance to the plants from human activity and any other potential sources of disturbance including human trampling, erosion, and dust. The size of the buffer depends upon the proposed use of the immediately adjacent lands and includes consideration of the plant's ecological requirements (e.g., sunlight, moisture, shade tolerance, physical and chemical characteristics of soils) that are identified by a qualified plant ecologist and/or botanist. The buffer for herbaceous and shrub species shall be, at minimum, 50 feet from the perimeter of the population or the individual. A smaller buffer may be established, provided there are adequate measures in place to avoid the take of the species, with the approval of the USFWS, CDFW, and County.

Where impacts to listed plants are determined to be unavoidable, the USFWS and/or CDFW shall be consulted for authorization. Additional mitigation measures to protect or restore listed plant species or their habitat, including but not limited to a salvage plan including seed collection and replanting, may be required by the USFWS or CDFW before impacts are authorized, whichever is appropriate.

MM BR-10: Compensate for Impacts to State and Federally Threatened, Endangered, Proposed, Petitioned, and Candidate Plants

To compensate for permanent impacts to State and Federally Threatened, Endangered, Proposed, Petitioned and Candidate plants, habitat (which may include preservation areas within the undisturbed areas of the Project footprint, mitigation lands outside of the main Project Site or a combination of both) that is not already public land shall be preserved and managed in perpetuity at a 1:1 mitigation ratio (one acre preserved for each acre impacted). Prior to the disturbance of habitat for or take of listed plant species the Applicant will be required to obtain County approval of preserved and/or mitigation lands as well as provide documentation of a recorded conservation easement(s). Compensation for temporary impacts shall include land acquisition and/or preservation at a 0.5:1 ratio. The preserved habitat for a significantly impacted plant species shall be of equal or greater habitat quality to the impacted areas in terms of soil features, extent of disturbance, vegetation structure, and will contain verified extant populations, of the same size or greater, of the State or Federally listed plants that are impacted.

Habitat shall be preserved through the use of permanent open space easements. Mitigation lands cannot be located on land that is currently held publicly. Mitigation lands may include (depending on the habitat requirements of particular species):

- Areas outside the Project boundary, but within the general Project region.

- Preservation areas within portions of the Project Site that are at least 100 feet from Project components and are either (1) not permanently impacted by construction and operation of the Project, or (2) temporarily disturbed and then restored according to the requirements in Mitigation Measure BR-2; and

- Degraded areas (e.g., areas that have been actively dry-farmed) that are restored to high quality habitat through the implementation of a County-approved restoration plan.

Criteria for appropriate mitigation land are species-specific; the following factors must be considered in assessing the quality of potential mitigation habitat: (1) Current land use; (2) Location (e.g., habitat corridor, part of a large block of existing habitat, adjacency to source populations, proximity to Project facilities or other potential sources of disturbance); (3) Vegetation composition and structure; (4) Slope; (5) Soil composition and drainage; and (6) Level of occupancy or use by relevant species.

The Applicant shall either provide open space easements or provide funds for the acquisition of such easements to a “qualified easement holder” (defined below). The CDFW is a qualified easement holder. To qualify as a “qualified easement holder” a private land trust must have the following:

- Substantial experience managing open space easements that are created to meet mitigation requirements for impacts to sensitive species

- Adopted the Land Trust Alliance’s *Standards and Practices*

- A stewardship endowment fund to pay for its perpetual stewardship obligations

The County shall determine whether a proposed easement holder meets these requirements.

The Applicant shall also be responsible for donating to the conservation easement holder fees sufficient to cover: (1) Administrative costs incurred in the creation of the conservation easement (appraisal, documenting baseline conditions, etc.) and (2) Funds in the form of a non-wasting endowment to cover the cost of monitoring and enforcing the terms of the conservation easement in perpetuity. The amount of these administrative and stewardship fees shall be determined by the conservation easement holder in consultation with the County.

Open space easement(s) shall also be subject to the following conditions:

- The locations of acceptable easement(s) shall be developed with approval of CDFW and USFWS.

- The primary purpose of the easement(s) shall be conservation of impacted species and habitats, but the conservation easement(s) shall also allow livestock grazing when and where it is deemed beneficial for the habitat needs of impacted species.

Open space easement(s) shall:

- Be held in perpetuity by a qualified easement holder (defined above).

- Be subject to a legally binding agreement that shall: (1) Be recorded with the County Recorder(s); and (2) Name CDFW or another organization to which the easement(s) will be conveyed if the original holder is dissolved.

- Be subject to the management requirements outlined in Mitigation Measure BR-2.

However, if lands acquired or protected for the compensation of permanent impacts to wildlife and/or vegetative communities (discussed above) contain similar sized populations of the impacted listed plant species, no further mitigation would be required.

Significance After Mitigation

The most effective mechanism for reducing impacts to sensitive plant species is to avoid or minimize on-site impacts. Currently, listed plant species have not been identified on the Project Site. However, because the expression of listed plants can be varied even in a good rain year it is possible that listed plants may be detected during the multi-year construction period. Therefore, the key mitigation strategy is to require the Applicant to conduct surveys and avoid populations of listed plants if detected. If the plants cannot be avoided the Applicant would be required to mitigate through the acquisition and protection of listed plant populations on private lands. This strategy would necessitate botanical surveys of proposed lands acquired as mitigation for various wildlife species if these lands are intended to serve mitigation sites for listed plants. The Applicant could also protect on-site populations provided they are protected through a conservation easement. The Applicant would be required to prepare and implement a habitat management plan to help ensure long-term conservation of these species. The goal of the surveys would be to identify at minimum the number of occurrences of each special-status species on off-site compensation lands as would be impacted by the Project. To the extent that off-site surveys document listed plant occurrences on lands to be set aside by the Applicant in perpetuity as habitat mitigation for sensitive wildlife species, then on-site mitigation requirements may be reduced. These measures coupled with general avoidance and worker education would provide an effective mitigation strategy to reduce impacts to listed plant species.

To reduce impacts of the Project on endangered, threatened, proposed, petitioned or candidate plant species or their habitat, mitigation measures have been identified and are listed above. Implementation of the mitigation measures above would reduce potential impacts on plant species to less-than-significant levels.

The Project could result in electrocution of State and/or federally protected birds.

Coopers hawks, ferruginous hawk, northern harrier, prairie falcon, and other large aerial perching birds would be susceptible to electrocution from the Project's electric power lines (i.e., distribution/collector) because of their size, presence in the Project area, and tendency to perch on tall structures that offer views of potential prey. Electrocution occurs when a perching bird simultaneously contacts two energized phase conductors or an energized conductor and grounded hardware, which can occur when horizontal separation is less than the wrist-to-wrist (flesh-to-flesh) distance of a bird's wingspan or where vertical separation is less than a bird's length from head-to-foot. Electrocution can also occur when birds perched side-by-side span the distance between these elements (APLIC 2006). Bird size and wingspan are provided in Table 3.4-4 below.

Table 3.4-4 Bird Size and Wingspan (in feet)

Species	Wingspan	Wrist-to-wrist length	Height
California Condor	9	N/A	4.2
Bald Eagle	8	2.8	2.3
Golden Eagle	7.5	3.5	2.2
Swainson's Hawk	4.5	N/A	1.3
Turkey Vulture	5.8	2	1.8
Red-tailed Hawk	4.7	1.9	1.8
Sand Hill Cranes	6	N/A	N/A

Source: APLIC 2006

All of these birds have wrist-to-wrist lengths that are long enough to simultaneously contact two energized phase conductors of the Project's collector lines. Should these birds perch on the steel/wooden poles or contact the lines, they have a potential for electrocution. If they were to roost communally, there is some potential that multiple birds would bridge the gap between two energized conductors. However, the likelihood of this happening would be low.

Impacts to Federally or State listed avian species from electrocution would be considered significant without mitigation.

Mitigation Measures

MM BR-8: Implement Avian Power Line Interaction Committee Guidelines

Significance After Mitigation

To reduce potential effects of the Project, mitigation will require that all transmission facilities be designed to be raptor-safe in accordance with the *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* and *Reducing Avian Collisions with Power Lines: The State of the Art in 2012* (APLIC). This includes placing bird flight diverters on small structures to reduce the potential for birds to perch on the poles. Implementation of the MM BR-8 would reduce potential impacts on Federally or State listed avian species to less-than-significant levels.

The Project could result in collision with overhead wires by State and/or federally protected birds.

Construction of the Project would require the placement of structures that would support the support conductors or collector lines that transport electricity to the substation. These features would pose a potential collision risk for birds. Birds are known to collide with communications towers, transmission lines, and other elevated structures. Estimates of the number of bird fatalities specifically attributable to interactions with utility structures vary considerably. Nationwide, it is estimated that as many as 175 million birds are lost annually to fatal collisions with transmission and distribution lines (Erickson et al. 2001). In California such collisions likely result in the deaths of hundreds of thousands of birds each year (Hunting 2002).

Avian interactions with transmission lines and structures and the risks those interactions impose vary greatly by location within the Project. Bird collisions with power lines generally occur when a power line or other aerial structure transects a daily flight path used by a concentration of birds, or migrants are traveling at reduced altitudes and encounter tall structures in their path (Brown 1993). Collisions are more probable near wetlands, valleys that are bisected by power lines, and within narrow passes where power lines run perpendicular to flight paths. Passerines (e.g., songbirds) and waterfowl (e.g., ducks) are known to collide with wires (APLIC 2006), particularly during nocturnal migrations or poor weather conditions (Avery et al. 1978). Larger birds, such as raptors, have higher collision potential than smaller birds due to flight patterns and willingness to fly during inclement weather (Avery et al. 1978).

It is generally expected that, without mitigation, collision mortality would occur to some degree and increase from baseline conditions due to the addition of new manmade objects in the Project area. However, the magnitude of that effect varies with the behavior and ecology of a particular species. Passerines and waterfowl have a lower potential for collisions than larger birds, such as raptors. Some behavioral factors contribute to a lower collision mortality rate for these birds. Passerines and waterfowl tend to fly under power lines, while larger species generally fly over lines and risk colliding with higher static lines. Also, many smaller birds tend to reduce their flight activity during poor weather conditions (Avery et al. 1978).

Based on the known distribution of the species in the Project area and observations made during reconnaissance surveys, it is generally expected that collision mortality would occur to some degree. To

reduce potential adverse effects to State and/or federally protected birds from collision with overhead wires, the Applicant would be required to construct the facility consistent with protection measures identified in APLIC guidelines. Because it is possible that the collector lines associated with the Project result in an increased collision risk the Applicant would construct in compliance with APLIC guidelines additional mitigation is warranted to monitor, identify, and correct facility components causing significant avian mortality. Impacts to Federally or State listed avian species from collision with overhead wires would be considered significant without mitigation.

Mitigation Measures

MM BR-8: Implement Avian Power Line Interaction Committee Guidelines

Significance After Mitigation

Implementation of the MM BR-8 would reduce potential impacts on Federally or State listed avian species to less-than-significant levels.

Glare from the reflection of sunlight off the solar modules could contribute to the risk of avian collision on the Project Site.

Solar facilities present a new and relatively un-researched risk for bird collisions. Though not physically imposing structures, the proposed solar arrays may pose some collision risk to birds if they are mounted on the rooftop. Depending on the time of day, use of the Site by various species, glare, or polarized light it is possible that birds will collide with the arrays. Operation of the solar modules could also cause an increase in Polarized Light Pollution (PLP), which occurs from light reflecting off dark colored anthropogenic structures. Additional causes of avian injuries and fatalities at larger commercial-scale solar projects resulting from the operations of solar facilities are continuing to be evaluated by the USFWS and CDFW. Though solar PV monitoring efforts are in their infancy, some studies suggest that the Project's PV panels may attract birds to the Project Site where they might mistake the reflective panels for a water body, known as the "lake effect" hypothesis (Roth 2016), and these birds could be at risk of collision with Project infrastructure. A USFWS summary of avian solar facility mortalities by Dietsch (2016) cited 3,545 bird deaths at seven Southern California solar farms from 2012 to April 2016, including the mortality of several special-status birds.

It should be kept in mind, however, that background avian mortalities in desert environments tend to be high due to the harsh conditions, and recent studies have indicated that when background mortality is properly considered, solar PV projects do not present a significant collision risk. For example, recent avian monitoring programs at the California Valley Solar Ranch (CVSR) and the Topaz Solar Farm in San Luis Obispo County have studied avian mortality events at solar facilities and off-site baseline study areas. During a 12-month period in 2014, H.T. Harvey and Associates recorded 368 avian mortalities at CVSR.

Kosciuch et al. (2020) analyzed avian fatality data from 13 studies at 10 PV solar sites in the Southwestern U.S. and calculated an average fatality estimate of 2.49 birds per MW per year. Kosciuch et al. (2020) found the species with the highest adjusted composition of fatalities among projects were widely distributed ground dwelling birds with large populations in the area where the studies occurred. Fatalities of water-obligate birds (species that cannot take-off from land including loons and grebes) were higher at PV solar sites near the Salton Sea, a known stop-over area (Kosciuch et al. 2020). However, no study that Kosciuch et al. (2020) reviewed investigated the potential cause of water-obligate mortality at PV solar.

Solar panels are only proposed to serve a portion of the Project's auxiliary power needs and would be BTM, and either ground-mounted or installed rooftops. Therefore, impacts to Federally or State listed avian species from collisions with solar modules would be considered less than significant.

Mitigation Measures

MM BR-8: Implement Avian Power Line Interaction Committee Guidelines

Significance After Mitigation

Implementation of the mitigation measures above would reduce potential impacts on avian species to less-than-significant levels. Arrays of solar panel occupying large open areas are not proposed as part of the Project. Solar panels would either be ground-mounted or installed on the rooftops. Therefore, impacts to Federally or State listed avian species from collisions with solar modules would be considered less than significant.

The Project would result in the loss of Special-Status plant species.

No special-status plant species were observed during the focused rare plant surveys or other biological surveys conducted in 2018 and 2019 in support of the Project; complete floristic surveys were not completed. No special-status plant species were determined to have a moderate or high potential to occur within or adjacent to the Project Site (refer to Appendix E for additional information); all species known to occur in the area were not expected to occur or had a low potential of occurrence. The focused rare plant and other biological surveys conducted in 2018 and 2019 did however identify a broad diversity of flowering plants.

Botanical field surveys conducted for CEQA review cannot serve as formal censuses of Special-status plants. At best, a plant census in any given year can only provide the minimum number of living plants on the survey date. A census can only detect individual plants whose above-ground growth is large or conspicuous enough to be noted by field personnel. An ideally designed census would be scheduled at the height of the plant's growth season; use a technique to help ensure that field personnel walked transect lines close enough to every plant to assure its detection; and field personnel would be well-trained, well-rested, and would have consistently high mental and visual acuity throughout each field day and throughout the field survey period. Even under these ideal conditions, some living plants may not have emerged above-ground or may be too small for detection by field crews. However, based on the information obtained to date regarding the distribution of Special-status plants on the Project Site, a reasonable assessment of impacts can be evaluated.

Direct, indirect, and operational impacts to Special-status plant species, should they occur, would be the same as described for listed plant species (see Impact BR-5). These impacts include but are not limited to the direct removal of plants during the course of construction, the creation of conditions favorable to invasion of weedy exotic species, altered light and hydrologic regimes, and vegetation management.

Due to the lack of presence within the Project Site and the low potential for only a few species of CRPR of 3 and 4 special-status plants to occur, impacts of the Project (if they were to occur) are considered adverse but not significant and do not reach the threshold for significance under CEQA. Although impacts to these plants are not considered significant mitigation for other species including the acquisition of lands for impacts to wildlife species will reduce impacts to these species should they occur on the acquired parcels.

Impacts to special-status plant species with a CRPR of 1 or 2 would be considered significant without mitigation. Under Section 15380 of the CEQA guidelines, a species may be considered endangered, rare, or threatened, if it can be shown to meet the criteria for state or federal listing. "CEQA Section 15380 provides that a plant or animal species may be treated as 'rare or endangered' even if not on one of the official lists if, for example, it is likely to become endangered in the foreseeable future."

Project related impacts that would result in the loss of more than 10 percent of the on-site population of any Special-Status plant species would require compensatory mitigation as described below under MM BR-12.

Mitigation Measures

MM BR-3: Implement a Worker Environmental Education Program

MM BR-4: Implementation of Best Management Practices

MM BR-5: Wildlife Pre-Construction Surveys and Biological Monitoring

MM BR-6: Implement Biological Construction Monitoring

MM BR-11: Conduct Pre-construction Surveys for Special-Status Plants and Implement Avoidance Measures

Prior to initial ground disturbance and for undisturbed areas in subsequent construction years, the Applicant shall conduct pre-construction surveys for special-status plant species in all areas subject to ground-disturbing activity, including, but not limited to, battery facility structures including, access roads, poles/towers, solar array footing preparation, construction areas, and assembly yards. The surveys shall be conducted during the appropriate blooming period(s) by a qualified plant ecologist/biologist according to protocols established by the USFWS, CDFW, and CNPS. All listed plant species found shall be marked and avoided. Any populations of special-status plants found during surveys will be fully described, mapped, and a CNPS Field Survey Form or written equivalent shall be prepared.

These surveys must be accomplished during a year in which rainfall totals are at least 80 percent of average and in which the temporal distribution of rainfall is not highly abnormal (e.g., with most of the rainfall occurring very early or late in the season) to be reasonably certain of the presence/absence of rare plant species, unless surveys of reference populations document that precipitation conditions would not have adversely affected the detectability of the species.

Prior to Site grading, any populations of special-status plant species identified during the surveys shall be protected by a buffer zone. The buffer zone shall be established around these areas and shall be of sufficient size to eliminate potential disturbance to the plants from human activity and any other potential sources of disturbance including human trampling, erosion, and dust. The size of the buffer depends upon the proposed use of the immediately adjacent lands and includes consideration of the plant's ecological requirements (e.g., sunlight, moisture, shade tolerance, physical and chemical characteristics of soils) that are identified by a qualified plant ecologist and/or botanist. The buffer for herbaceous and shrub species shall be, at minimum, 50 feet from the perimeter of the population or the individual. A smaller buffer may be established, provided there are adequate measures in place to avoid the take of the species, with the approval of the USFWS, CDFW, and County. Highly visible flagging shall be placed along the buffer area and remain in good working order during the duration of any construction activities in the area. If Project related impacts result in the loss of more than 10 percent of the on-site population of any Special-Status plant species, compensatory mitigation will be required as described below.

MM BR-12: Compensate for Impacts to Special-Status Plant Species

If Project related impacts result in the loss of more than 10 percent of the on-site population of any Special-Status plant species, compensatory mitigation will be required. Prior to the disturbance of habitat for or take of Special-Status plants/populations, the Applicant must receive County approval of preserved and/or mitigation lands as well as present documentation of a recorded conservation easement(s). Compensation will be required for all impacts that exceed the 10 percent threshold (e.g., impacts to 15 percent of a population will only require compensation for 5 percent or the amount of impacts that exceed the 10 percent threshold). To compensate for permanent impacts to special-status plant species, habitat (which may include preservation of areas within the undisturbed areas of the Project footprint, mitigation lands outside of the main Project Site or a combination of both) that is not already public land shall be preserved and managed in perpetuity at a 1:1 mitigation ratio (one acre preserved for each acre impacted). Compensation

for temporary impacts shall include land acquisition and/or preservation at a 0.5:1 ratio. The preserved habitat for a significantly impacted plant species shall be of equal or greater habitat quality to the impacted areas in terms of soil features, extent of disturbance, vegetation structure, and will contain verified extant populations, of the same size or greater, of the special-status plants that are impacted. Impacts could include direct impacts resulting from loss of habitat or indirect impacts if a significant population or portion thereof is unable to be avoided.

Habitat shall be preserved by using permanent open space easements. Mitigation lands cannot be located on land that is currently publicly held. Mitigation lands may include (depending on the habitat requirements of particular species) the following:

- Areas outside the Project boundary, but within the County
- Preservation areas within portions of the Project Site that are at least 100 feet from Project facilities and are either (1) not permanently impacted by construction and operation of the Project, or (2) are temporarily disturbed and then restored according to the requirements in Mitigation Measure BR-2
- Criteria for appropriate mitigation land are species-specific; however, the following factors must be considered in assessing the quality of potential mitigation habitat: (1) Current land use; (2) Location (e.g., habitat corridor, part of a large block of existing habitat, adjacency to source populations, proximity to Project facilities or other potential sources of disturbance); (3) Vegetation composition and structure; (4) Slope; (5) Soil composition and drainage; and (6) Level of occupancy or use by relevant species

The Applicant shall either provide open space easements or provide funds for the acquisition of open space easements to a “qualified easement holder” (defined below). CDFW is a qualified easement holder. To qualify as a “qualified easement holder” a private land trust must have the following:

- Substantial experience managing open space easements that are created to meet mitigation requirements for impacts to special status species
- Adopted the Land Trust Alliance’s *Standards and Practices*
- A stewardship endowment fund to pay for its perpetual stewardship obligations

The County shall determine whether a proposed easement holder meets these requirements.

The Applicant shall also be responsible for donating to the easement holder fees sufficient to cover: (1) Administrative costs incurred in the creation of the easement (appraisal, documenting baseline conditions, etc.) and (2) Funds in the form of a non-wasting endowment to cover the cost of monitoring and enforcing the terms of the easement in perpetuity. The amount of these administrative and stewardship fees shall be determined by the easement holder in consultation with the County.

Open space easement(s) shall also be subject to the following conditions:

- The locations of acceptable easement(s) shall be developed with approval of CDFW and USFWS
- The primary purpose of the easement(s) shall be conservation of impacted species and habitats, but the easement(s) shall also allow livestock grazing when and where it is deemed beneficial for the habitat needs of impacted species

Open space easement(s) shall:

- Be held in perpetuity by a qualified easement holder (defined above)

- Be subject to a legally binding agreement that shall: (1) Be recorded with the County Recorder(s); and (2) Name CDFW or another organization to which the easement(s) will be conveyed if the original holder is dissolved

- Be subject to the management requirements outlined in Mitigation Measure BR-2

If lands acquired or protected for the compensation of permanent impacts to wildlife and/or vegetative communities contain similar sized populations of the impacted special-status plant species, of equal or greater habitat value, these mitigation lands may be used to achieve the required compensation ratios for special-status plant species.

Significance After Mitigation

The most effective mechanism for reducing impacts to special-status plant species is to avoid or minimize on-site impacts; no special-status species have been observed in the Project Site to date. If special-status plants were to occur, and avoidance was not possible, the key mitigation strategy that would be employed is to require the Applicant to mitigate through the acquisition and protection of special-status plant populations on acquired lands. The acquisition and protection of special-status plant occurrences at a minimum 1:1 ratio for permanent and a 0.5:1 ratio for temporary impacts would be a viable strategy to mitigate the Project's impacts to special-status plants.

Implementation of this strategy would necessitate botanical surveys of lands acquired as mitigation for wildlife species if these lands are intended to serve mitigation sites for special-status plants. The Applicant could also protect on-site populations provided they are protected through a conservation easement and provided with adequate buffers. The Applicant would also be required to prepare and implement a habitat management plan to help ensure long-term conservation of these species. The goal of the surveys would be to identify at minimum the number of occurrences of each special-status species on off-site compensation lands as would be impacted by the Project (as documented previously by the Applicant and by future pre-construction surveys). These measures coupled with general avoidance and worker education would provide an effective mitigation strategy to reduce impacts to sensitive plant species.

Implementation of the mitigation measures above would reduce potential impacts on special-status plant species to less-than-significant levels.

The Project could result in loss of American badger.

American badgers were observed adjacent to the Project Site and badger tracks were observed within the Project Site itself; the Project area supports suitable foraging and denning habitat for this species. Direct impacts to American badger include mechanical crushing of individuals or burrows by vehicles and construction equipment, noise, dust, and loss of habitat. Construction activities could also result in the disturbance of badger maternity dens during the pup-rearing season (15 February to 1 July). Because of the large size of the Project, numerous badgers may be affected. For example, depending on prey densities badgers home ranges can vary from 338 to 1,549 acres (Ziener et al. 1990). Their distribution in a landscape coincides with the availability of prey, burrowing sites, and mates, with males ranging wider than females during the breeding and summer months (Minta 1993).

Indirect impacts to badgers include alteration of soils, such as compaction that could preclude burrowing, alteration in prey base, and the spread of exotic weeds. Operational impacts include risk of roadkill on access roads by maintenance personnel, the spread of noxious weeds, and disturbance due to increased human presence. Impacts to American badger as a result of the Project would be considered significant absent mitigation.

Mitigation Measures

MM BR-3: Implement a Worker Environmental Education Program

MM BR-4: Implementation of Best Management Practices

MM BR-5: Wildlife Pre-Construction Surveys and Biological Monitoring

MM BR-6: Implement Biological Construction Monitoring

MM BR-13: Complete Focused Pre-Construction Surveys for American Badger Surveys and Implementation of Avoidance Measures.

No more than 30 days prior to the commencement of construction activities, the Applicant shall retain a qualified biologist to conduct pre-construction surveys for American badger within suitable habitat on the Project Site. If present, occupied badger dens shall be flagged and ground-disturbing activities avoided within 50 feet of the occupied den. Maternity dens shall be avoided during pup-rearing season (15 February through 1 July) and a minimum 200-foot buffer established. The extent of buffers shall be flagged in the field utilizing a method highly visible by construction crews. Buffers may be modified with the concurrence of the CDFW. Maternity dens shall be flagged for avoidance, identified on construction maps, and a biological monitor shall be present during construction to monitor for adequate protection of all identified dens and to help ensure that all flagging is kept in good working order.

If avoidance of a non-maternity den (impacts to maternity dens is not allowed) is not feasible, badgers shall be relocated by slowly excavating the burrow (either by hand or mechanized equipment under the direct supervision of the biologist, removing no more than 4 inches at a time) before or after the rearing season (15 February through 1 July). Any passive relocation of badgers shall occur only after consultation with the CDFW and the biological monitor.

Prior to the final County inspection or occupancy, whichever comes first, a written report documenting all badger related activities (e.g., den flagging, monitoring, badger removal, etc.) shall be provided to the County. A copy of the report will also be provided to the CDFW.

Significance After Mitigation

Implementation of the mitigation measures above would reduce impacts to badgers through worker education, pre-construction surveys and avoidance of maternity dens, construction monitoring, and the control of fugitive dust. When required for construction the Applicant will passively relocate badgers out of the work area to reduce the potential for mortality. This includes monitoring active dens and collapsing the dens once the animal leaves the Site. However, badgers often retreat to burrows when alarmed and without active monitoring of a den it is difficult to ascertain the status of individual burrows. The proposed mitigation would require multiple days of monitoring and the use of cameras or a tracking medium to reduce the potential for entombment. These measures would also provide for the restoration of areas subject to temporary disturbance and manage the Site for noxious weeds. In addition, although not required for this species the acquisition of mitigation lands for other species would provide for the long-term conservation of habitat used by American badgers.

Implementation of the mitigation measures above would reduce potential impacts on American badgers to less than significant levels.

The Project could result in the loss of Colorado desert fringe-toed lizard.

Colorado Desert fringe-toed lizard, a CDFW species of special concern, while not detected within the Project Site has been reported within two miles of the Project Site and has a moderate potential to occur within the Project Site south of the Westside Main Canal.

Direct impacts include being hit by vehicles on access roads; mechanical crushing during grading or from vehicle travel, entombment; fugitive dust; and general disturbance due to increased human activity. Project implementation may result in permanent loss of habitat due to the placement of battery facility structures including, solar arrays, and access roads. Indirect impacts to these species include compaction of soils and the introduction of exotic plant species. Operational impacts include risk of mortality by vehicles and disturbance from routine maintenance. Other operational impacts include vegetation management activities. As with other small species the introduction of perch sites increases potential predation risks from aerial predators. Available perch sites, human activities, and the availability of prey items can lead to a substantial increase in the population of raptors and especially crows. Temporary and permanent habitat loss and the loss of individual animals would be considered significant without mitigation.

Mitigation Measures

MM BR-2: Develop a Habitat Mitigation and Restoration Plan

MM BR-3: Implement a Worker Environmental Education Program

MM BR-4: Implementation of Best Management Practices

MM BR-5: Wildlife Pre-Construction Surveys and Biological Monitoring

MM BR-6: Implement Biological Construction Monitoring

Significance After Mitigation

These small, difficult to detect species are often overlooked unless weather conditions are favorable. The implementation of these mitigation measures would provide for the protection of these species by educating workers as to the natural history of these species, identifying areas where construction would be avoided, conducting pre-construction surveys, and relocating detected species to pre-selected off-site locations, monitoring during construction to salvage wildlife, and restoring temporarily disturbed areas post construction. Although not proposed nor required as mitigation for impacts to these species, the acquisition of off-site habitat will help conserve lands where these species would be expected to occur.

Implementation of the mitigation measures listed above would reduce impacts to Colorado desert fringe-toed lizard to less-than-significant levels.

The Project could result in the loss of flat-tailed horned lizard.

Many occurrences of flat-tailed horned lizard have been reported in the undeveloped desert areas immediately west and south of the Project Site (CDFW 2019a), and horned lizard tracks were observed during 2018 surveys in the western portion of the Project Site, south of the Westside Main Canal. Given the cryptic nature and resulting difficulty of detection without focused surveys, these historical records are sufficient to assume this species is present in the creosote bush scrub and fourwing saltbush scrub within and adjacent to the Project Site.

The Project has the potential to directly impact approximately 54 acres of suitable and assumed-occupied habitat for the flat-tailed horned lizard. Direct impacts to individual lizards, if present on-site, would be considered significant and require mitigation. Direct impacts include being hit by vehicles on access roads; mechanical crushing during grading or from vehicle travel, entombment; fugitive dust; and general disturbance due to increased human activity. Project implementation may result in permanent loss of habitat

due to the placement of battery facility structures including, solar arrays, and access roads. Indirect impacts to these species include compaction of soils and the introduction of exotic plant species. Operational impacts include risk of mortality by vehicles and disturbance from routine maintenance. Other operational impacts include vegetation management activities. As with other small species the introduction of perch sites increases potential predation risks from aerial predators. Available perch sites, human activities, and the availability of prey items can lead to a substantial increase in the population of raptors and especially crows. Temporary and permanent habitat loss and the loss of individual animals would be considered significant without mitigation.

Mitigation Measures

MM BR-2: Develop a Habitat Mitigation and Restoration Plan

MM BR-3: Implement a Worker Environmental Education Program

MM BR-4: Implementation of Best Management Practices

MM BR-5: Wildlife Pre-Construction Surveys and Biological Monitoring

MM BR-6: Implement Biological Construction Monitoring

MM BR-14: Pre-Construction Surveys and Avoidance/Relocation Measures for Flat-tailed Horned Lizard

Focused pre-construction surveys shall be conducted for flat-tailed horned lizard. During construction, areas of active surface disturbance shall be surveyed periodically, at least hourly, when surface temperatures exceed 29°C (85°F) for the presence of flat-tailed horned lizard. Flat-tailed horned lizards would be removed from harm's way during construction activities by the on-site biological monitor(s). To the extent feasible, methods to find flat-tailed horned lizards would be designed to achieve a maximal capture rate and would include, but not be limited to using strip transects, tracking, and raking around shrubs. During construction, the minimum survey effort would be 30 minutes per 0.40 hectare (one acre). Persons that handle flat-tailed horned lizards would first obtain all necessary permits and authorization from the CDFW. A Horned Lizard Observation Data Sheet and a Project Reporting Form, per Appendix 8 of the Rangewide Management Strategy, would also need to be completed. During construction, quarterly reports describing flat-tailed horned lizards removal activity would be submitted to the USFWS, CDFW, and the County.

The removal of flat-tailed horned lizard out of harm's way would include relocation to nearby suitable habitat in low-impact areas of the Yuba Management Area, which is located to the west and south of the Project Site. Relocated flat-tailed horned lizards would be placed in the shade of a large shrub in undisturbed habitat. If surface temperatures in the sun are less than 24°C (75°F) or exceed 38°C (100°F), a qualified biologist, if authorized, would hold the flat- tailed horned lizard for later release. Initially, captured flat-tailed horned lizards would be held in a cloth bag, cooler, or other appropriate clean, dry container from which the lizard cannot escape. Lizards would be held at temperatures between 75°F and 90°F and would not be exposed to direct sunlight. Release would occur as soon as possible after capture and during daylight hours. The qualified biologist would be allowed some judgment and discretion when relocating lizards to maximize survival of flat-tailed horned lizards found in the Project area.

- To the maximum extent practicable, grading in flat-tailed horned lizard habitat would be conducted during the active season, which is defined as March 1 through September 30, or when ground temperatures are between 24°C (75°F) and 38°C (100°F). If grading cannot be conducted during this time, any flat-tailed horned lizards found would be removed to low-impact areas (see above) where suitable burrowing habitat exists, (e.g., sandy substrates and shrub cover).

MM BR-15: Compensation for Impacts to Flat-Tailed Horned Lizard

Pursuant to Title 43 CFR and the Federal Land Policy and Management Act of 1976, federal land management agencies may permit actions that result in flat-tailed horned lizard habitat loss on their lands; however, for losses both within and outside the Management Areas, compensation is charged if residual effects would occur after all reasonable on-site mitigation has been applied. The goal of compensation is to prevent the net loss of flat-tailed horned lizard habitat and make the net effect of a project neutral or positive to flat-tailed horned lizards by maintaining a habitat base for flat-tailed horned lizards. To achieve this goal, compensation will be based on the acreage of flat-tailed horned lizard habitat lost after all reasonable on-site mitigation has been applied at a 1:1 ratio for habitat lost outside a flat-tailed horned lizard Management Area. For this Project, compensation will be required for a loss of approximately 54 acres of flat-tailed horned lizard habitat.

MM BR-16: Develop a Habitat Mitigation and Monitoring Plan

To help ensure the success of on-site preserved land and acquired mitigation lands, required for compensation of permanent impacts to vegetative communities and listed or special-status plants and wildlife, the Applicant shall retain a qualified biologist to prepare a Habitat Monitoring and Mitigation Plan (HMMP). The HMMP will be submitted to the County for approval, prior to the issuance of a construction permit. Prior to the final County inspection final impact acreages must be presented to the County and acquisition of off-site lands must be verified. The HMMP will include, at a minimum, the following information:

a) Summary of anticipated habitat impacts and the proposed mitigation.

b) Detailed description of the location and boundaries of undisturbed Project areas proposed for preservation, off-site mitigation lands and a description of existing site-wide conditions. The HMMP shall include detailed analysis showing that the mitigation lands meet the performance criteria outlined in MM BR-2 (Develop a Habitat Restoration Plan) and MM BR-15 (Compensate for Impacts to Flat-Tailed Horned Lizard).

c) Discussion of measures to be undertaken to enhance (e.g., through focused management) the on-site preserved habitat and off-site mitigation lands for listed and special-status species.

d) Description of management and maintenance measures (e.g., vegetation management, fencing maintenance, etc.).

e) Discussion of habitat and species monitoring measures for on-site preservation areas and off-site mitigation lands, including specific, objectives, performance criteria, monitoring methods, data analysis, reporting requirements, monitoring schedule, etc.

f) Development of a monitoring strategy for the monitoring of indirect impacts to vegetation and wildlife from alteration to the solar and hydric regimes as a result of Project facilities.

g) Development of a monitoring strategy, which shall serve to document the persistence of flat-tailed horned lizard populations within the Project Site and on mitigation lands. This monitoring will be conducted for a minimum of 5 years after the completion of construction activities. The strategy should include, at the minimum, the following:

    1. Documentation of pre-Project population levels for the species noted above, based on results of focused pre-construction surveys and previously supplied Applicant data.

    2. On-going monitoring of species populations upon completion of construction activities, while the Project is in operation, for a minimum of three years.

3. Monitoring of reference populations for this species in areas that contain undisturbed habitat, such as the Yuba Management Area.

4. An analysis of the comparison of percent changes in population levels at the Project and reference sites to be used in the determination of additional compensatory mitigation.

5. The applicant shall prepare a contingency plan for mitigation elements that do not meet performance or final success criteria within 5 years. This plan will include specific triggers for remediation if performance criteria are not being met and a description of the process by which remediation of problems with the mitigation site (e.g., presence of noxious weeds) will occur.

Significance After Mitigation

These small, sometimes difficult to detect species are often overlooked unless weather conditions are favorable. The implementation of these mitigation measures would provide for the protection of these species by educating workers as to the natural history of these species, identifying areas where construction would be avoided, conducting pre-construction surveys, and relocating detected species to pre-selected off-site locations, monitoring during construction to salvage wildlife, and restoring temporarily disturbed areas post construction. Although not proposed nor required as mitigation for impacts to these species, the acquisition of off-site habitat will help conserve lands where these species would be expected to occur.

Implementation of the mitigation measures listed above would reduce impacts to the flat-tailed horned lizard to less-than-significant levels.

The Project would result in the loss of burrowing owl.

No burrowing owls were observed on the Project Site during the 2018 breeding season surveys, but four burrowing owl observations were recorded within the Project Site during the 2018-2019 non- breeding season surveys. These observations indicate that at least two, but likely three, individuals, appear to use the Project Site and surrounding areas as a wintering site or for migration and dispersal, but do not currently use the Site as breeding habitat.

Construction of the Project would affect foraging, wintering and breeding habitat for this species. The potential effects of the Project on burrowing owls depend on many factors including the number of owls present in the Project footprint and how the species utilizes the area (i.e., migratory stopover, year-round, breeding, or wintering). Direct impacts to burrowing owls would include the crushing of burrows, removal or disturbance of vegetation, increased noise levels from heavy equipment, increased human presence, and exposure to fugitive dust. Indirect impacts could include the loss of habitat due to the colonization of noxious weeds, plant community shifts associated with increased soil moisture, long term human presence associated with the multi-year construction schedule, vegetation management activities and the degradation of foraging habitat. Operational impacts include increased human presence from maintenance personnel that would flush or otherwise disturb burrowing owls, weed control, and use of access roads.

If burrowing owls are present within or adjacent to a construction zone, disturbance could destroy occupied burrows or cause the owls to abandon burrows. Construction during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. The loss of occupied burrowing owl habitat (habitat known to have been occupied by owls during nesting season within the past three years) or reductions in the number of this rare species, directly or indirectly through nest abandonment or reproductive suppression, would constitute an adverse impact. Furthermore, raptors, including owls and their nests, are protected under both federal and State laws and regulations, including the MBTA and California FGC Section 3503.5.

Mitigation Measures

MM BR-2: Develop a Habitat Mitigation and Restoration Plan

MM BR-3: Implement a Worker Environmental Education Program

MM BR-4: Implementation of Best Management Practices

MM BR-5: Wildlife Pre-Construction Surveys and Biological Monitoring

MM BR-6: Implement Biological Construction Monitoring

MM BR-16: Develop a Habitat Mitigation and Monitoring Plan

MM BR-17: Burrowing Owl Protection Measures

The following measures shall be implemented during Project construction, operation, and decommissioning with respect to burrowing owls:

- A qualified biologist(s) shall be on-site during all construction activities in suitable burrowing owl habitat. A qualified biologist (i.e., a biologist with previous burrowing owl survey experience) shall conduct pre-construction clearance surveys of the permanent and temporary impact areas to locate active breeding or wintering burrowing owl burrows no more than 14 days prior to construction. The survey methodology shall be consistent with the methods outlined in the CDFG Staff Report (CDFG 2012). Copies of the survey results shall be submitted to CDFW and the County.

- If no burrowing owls are detected, no further mitigation is necessary. If burrowing owls are detected, no ground-disturbing activities, such as road construction or facility construction, shall be permitted except in accordance with the staff report or by written authorization of CDFW staff. Burrowing owls shall not be excluded from burrows unless or until a Burrowing Owl Exclusion Plan is developed by the lead biologist and approved by the applicable local CDFW office and submitted to the County. The plan shall adhere to the requirements set forth in the Burrowing Owl Mitigation Staff Report (CDFW 2012).

- In accordance with the Burrowing Owl Exclusion Plan, a qualified biologist shall excavate burrows using hand tools. Sections of flexible plastic pipe or burlap bag shall be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow. One-way doors shall be installed at the entrance to the active burrow and other potentially active burrows within 160 feet of the active burrow. Forty-eight hours after the installation of the one-way doors, the doors can be removed, and ground-disturbing activities can proceed. Alternatively, burrows can be filled to prevent reoccupation.

- During construction activities, monthly and final compliance reports shall be provided to CDFW, the County, and other applicable resource agencies documenting the effectiveness of mitigation measures and the level of burrowing owl take associated with the Project.

MM BR-18: Compensation for Impacts to Burrowing Owl

Should burrowing owls be found on-site, compensatory mitigation for lost breeding or wintering habitat shall be implemented on-site or off-site in accordance with Burrowing Owl Mitigation Staff Report guidance and in consultation with CDFW. At a minimum, the following recommendations shall be implemented:

- Temporarily disturbed habitat shall be restored, if feasible, to pre-Project conditions, including decompaction soil and revegetating.

- Permanent impacts to nesting, occupied and satellite burrows, and burrowing owl habitat shall be mitigated such that the habitat acreage, number of burrows, and burrowing owl impacted are replaced at a 1:1 ratio based on a site-specific analysis that shall include the following:

- Permanent conservation of similar vegetation communities to provide for burrowing owl nesting, foraging, wintering, and dispersal (i.e., during breeding and nonbreeding seasons) comparable to or better than that of the impact area, and with sufficiently large acreage, and presence of fossorial mammals.

- Permanently protect mitigation lands through a conservation easement deeded to a nonprofit conservation organization or public agency with a conservation mission. If the Project is located within the service area of a CDFW-approved burrowing owl conservation bank, the applicant may purchase available burrowing owl conservation bank.

If the acquired lands or mitigation credits for other wildlife species or vegetation communities can be managed to support burrowing owl, the proposed mitigation lands could be aggregated so that the purchase of mitigation lands for one species could cover all or a portion of the mitigation requirements for the remaining species. Mitigation lands shall not already be public land.

Significance After Mitigation

To avoid potential impacts to burrowing owls that might be nesting or residing within burrows in the Project impact area, the proposed measures include the completion of pre-construction surveys of the Site using established protocols. If present, the applicant would establish a buffer and avoid active nests during the breeding season. If owls are detected using a burrow outside the breeding season the owls may be passively displaced pending the establishment of artificial burrows and the acquisition of adequate mitigation lands. As described above the strategy for displacing owls depends greatly on how the owls are using the Site, their number, and the timing of construction activities. Because Project construction would occur over multiple years and result in the land use conversion of approximately 145 acres of habitat; passive relocation may result in the repeated harassment of resident owls. While construction of replacement burrows in off-site areas and the acquisition of mitigation lands would reduce impacts and be considered to mitigate Project impacts to the species, it is likely that owls would occupy areas close to known territories. Because of the extended construction schedule this could require multiple passive relocation events for the same owls. Each of these events stresses the bird and exposes the owls to predation, thermal stress, and potential territorial disputes.

There is much debate among state, federal, local, and private entities over the most practicable and successful relocation/translocation methods for burrowing owl. When passive relocation is used solely as an impact avoidance measure, it is generally only effective when burrowing owl nesting territories are directly adjacent to permanently protected lands (i.e., military reservation, airport, wildlife reserve, agricultural reserve with appropriate crop type such as alfalfa) (Bloom 2003). Conversely, active translocation of owls involves trapping owls, temporarily holding them in enclosures with supplemental feeding, and releasing at a suitable off-site location with existing or artificial burrows prior to breeding.

While active translocation might be a better solution than passive relocation for moving owls from large sites, California FGC 3503.3 prohibits the active relocation of burrowing owls. Therefore, only the passive relocation of owls shall occur, if required, utilizing the methods detailed in MM BR-16. Along with the potential passive relocation of owls, implementation of the proposed mitigation measures would provide mitigation lands and avoid nesting birds. These measures would provide a reasonably effective mechanism for reducing impacts of the Project.

Implementation of the mitigation measures listed above would reduce impacts to the burrowing owl to less-than-significant levels.

The Project could result in transmission line strikes by special-status bat species.

Several species of bats are known to occur in the Project area. Although many studies have quantified bird strikes with transmission lines, analogous information on bats is very limited (Manville 2005). Collisions with distribution and transmission lines will likely occur to some degree however collision risk is not thought to pose a significant risk to bats in the Project area. The most likely collision risk for bats is associated with vehicle or equipment as bats forage near roads or work areas.

Given that most bat species can use echolocation to discriminate objects as small as 0.4 to 0.004 inch in size (Vaughan and Vaughan 1986), and the size of guard lines and transmission lines are typically equal to or greater than 0.5 inch in diameter, the frequency of transmission line strikes is expected to be extremely low. The number of fatal strikes is expected to be insufficient to substantially reduce the population of this species.

Project impacts resulting in collision with the collection or transmission line by special-status bat species are expected to be adverse but less than significant.

b) Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Construction and operational activities would result in temporary and permanent losses of sensitive vegetation communities and riparian habitat.

Construction and implementation of the Project would result in direct and indirect impacts to native and non-native vegetation communities and other land cover types (refer to Table 3.4-5 for additional information. This includes approximately 6.87 acres of permanent and temporary impacts to arrow weed thickets, a CDFW sensitive riparian community. Riparian communities that would be impacted by the Project Site include tamarisk thickets (5.26 acres), quailbush scrub (2.15 acres), cattail marshes (0.14 acre), and common reed marshes (0.04 acre).

Table 3.4-5 Project Impacts to Vegetation Communities/Land Cover Types

Vegetation Community/ Land Cover Type	Permanent Impacts (acres)	Temporary Impacts (acres)	Total Impacts
Upland mustard	73.45	1.24	74.70
Fourwing saltbush scrub	47.72	0.01	47.74
Fallow agriculture	4.02	9.54	13.56
Arrow weed thickets	**6.02**	**0.85**	**6.87**
Creosote bush scrub	6.24	0.19	6.43
Disturbed habitat	1.81	3.96	5.77
Tamarisk thickets	**4.73**	**0.53**	**5.26**
Quailbush scrub	**0.34**	**1.81**	**2.15**
Eucalyptus groves	0.04	0.54	0.58
Cattail marshes	**0.00**	**0.14**	**0.14**
Open water	0.00	0.10	0.10
Common reed marshes	**0.04**	**0.00**	**0.04**
Developed land	0.00	0.00	0.00
Total	**144.51***	**18.81***	**163.32***

Vegetation Community/ Land Cover Type	Permanent Impacts (acres)	Temporary Impacts (acres)	Total Impacts

*Total acreage varies from sum of cells due to rounding.
Bold entries denote riparian communities/land cover types, **bold and *Italicized*** entries denote California Department of Fish and Wildlife listed sensitive riparian communities/land cover types

Riparian habitats are biologically productive and diverse and are the exclusive habitat of several threatened or endangered wildlife species and many other special-status species. Riparian and wetland habitats are highly productive ecosystems that also provide drinking water sources and foraging, nesting, and cover habitat for a diverse assemblage of wildlife species, both within the riparian habitats and adjacent upland habitats. Many wildlife species are wholly dependent on riparian habitats throughout their life cycles, and many others use riparian habitats only during certain seasons or life history phases. For example, certain mammals require drinking water or cool shaded cover during summer but otherwise may live in upland habitats. Numerous amphibians breed in aquatic habitats but spend most of their lives in uplands.

Direct impacts to native and non-native vegetation communities, including one CDFW listed sensitive riparian community and four other riparian communities, would occur as a result of grading during construction activities and construction of permanent Project facilities. Indirect impacts could include alterations in existing light, topography, and hydrology regimes, sedimentation and erosion, soil compaction, the accumulation of fugitive dust, disruptions to native seed banks from ground disturbance, and the colonization of non-native, invasive plant species. These actions may result in reduced habitat quality for native plants. In addition, the removal of vegetation and the disruption of soil crusts create possibilities for erosion, dust, and weed invasion that can affect habitat in adjacent areas.

Operational impacts would also occur during routine inspection and maintenance of Project facilities. These impacts would include, but are not limited to, trampling or crushing of native vegetation by vehicular or foot traffic, alterations in topography and hydrology, increased erosion and sedimentation, and the introduction of non-native, invasive plants due to increased human presence.

Because of the functional role that the on-site native plant communities play in the ecology of listed species, construction activities that result in the loss of these communities would be considered significant without mitigation.

Mitigation Measures

MM BR-2: Develop a Habitat Mitigation and Restoration Plan

MM BR-3: Implement a Worker Environmental Education Program

MM BR-4: Implementation of Best Management Practices

MM BR-5: Wildlife Pre-Construction Surveys and Biological Monitoring

MM BR-6: Implement Biological Construction Monitoring

MM BR-16: Develop a Habitat Mitigation and Monitoring Plan

Significance After Mitigation

Restoration of temporarily disturbed areas and acquisition of off-site habitat are the primary mechanisms for reducing impacts to vegetation communities, including sensitive communities. The preservation and management of off-site habitats would functionally replace lost habitat values from Project development. Implementation of the mitigation measures listed above would reduce impacts to riparian habitat to less-than-significant levels.

c) Would the Project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

The Project would result in the loss of jurisdictional wetland habitats.

A routine jurisdictional waters/wetland delineation, following the guidelines set forth by the USACE (1987 and 2008), was performed by the applicant to gather field data at locations with potential jurisdictional waters in the Project area and within a 100-foot buffer. The Project would impact all delineated jurisdictional waters mapped within the Site; refer to Table 3.4-6 for details on impacted features. A total of 6.75 acres would be permanently impacted and 2.68 acres would be temporarily impacted. This comprises 9.22 acres of CDFW/RWQCB wetland waters of the state and 0.21 acre of USACE jurisdictional non-wetland water and CDFW streambed/RWQCB WOTS. Approximately 0.10 acre of open water within the Westside Main Canal would be spanned with a bridge.

Table 3.4-6 Impacts to Jurisdictional Waters

Jurisdictional Waters Type	Permanent Impacts	Temporary Impacts	Total Impacts
U.S. Army Corps of Engineers total jurisdictional waters (section 404 permit)	0.04	0.16[a]	0.21[b]
Non-wetland waters of the U.S.	6.75	2.68[b]	9.43[b]
California Department of Fish and Wildlife (section 1602 permit) and Regional Water Quality Control Board (section 401 certification) total jurisdictional waters[c]	6.71	2.51	9.22
Wetland waters of the state	0.04	0.16[1]	0.21[b]
Streambed	0.04	0.16[1]	0.21[b]

Notes:
a) Approximately 0.10 acre of open water within the Westside Main Canal would be spanned with a bridge. This is illustrated as a permanent impact but given the fact that there would be no direct impact to the Westside Main Canal, this is included within the temporary impacts.
b) Total acreage varies from sum of cells due to rounding.
c) CDFW/RWQCB area of jurisdiction includes all USACE jurisdictional waters.

Direct impacts to jurisdictional habitats could include the removal of native vegetation, the discharge of fill, degradation of water quality, and increased erosion and sediment transport. Because the area is generally dry for most of the year (not including the canals) and potential water quality impacts would be attenuated. Most of these impacts would occur during the use of access roads by heavy equipment and vehicle passage where jurisdictional waters traverse access roads. Indirect impacts could include alterations to the existing topographical and hydrological conditions and the introduction of non-native, invasive plant species.

In arid regions ephemeral wash habitats provide micro habitats for a variety of species and play an important role in conveying surface flows during storm events. Although this landform is relatively common in the region, much of this habitat has been lost over the last several decades due to development and agricultural practices. Temporary and permanent impacts to State and federal jurisdictional waters would be considered significant without mitigation.

Mitigation Measures

MM BR-2: Develop a Habitat Mitigation and Restoration Plan

MM BR-3: Implement a Worker Environmental Education Program

MM BR-4: Implementation of Best Management Practices

MM BR-5: Wildlife Pre-Construction Surveys and Biological Monitoring

MM BR-6: Implement Biological Construction Monitoring

MM BR-16: Develop a Habitat Mitigation and Monitoring Plan

Significance After Mitigation

As required by law the Applicant would comply with the regulations regarding conducting Project activities in waterbodies under the jurisdiction of the State and federal government. As such, the applicant would obtain required permits pursuant to Section 401 and 404 of the CWA and the State Porter-Cologne Act and CDFG Code 1602. In accordance with the CWA, there would be no net loss of wetlands from the implementation of the Project. As such, mitigation would include restoration, enhancement, and/or compensation, as appropriate. These measures would help ensure that impacts from erosion and sedimentation that could occur during road construction upslope of a jurisdictional waterway would be minimized and would also help ensure that the applicant obtain all appropriate permits. Where avoidance of impacts is not feasible, the applicant shall mitigate through the restoration, enhancement, and/or preservation of existing wetlands. Implementation of the mitigation measures listed above would reduce impacts to the wetland habitats to less-than-significant levels.

d) Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

The Project would interfere with established bird and bat migratory corridors.

As previously described, the Project area is home to migratory bird species and migratory bat species, which are known to occur in the area. The presence of collector and transmission lines and other battery facility structures may result in impacts to migrating bird and bat species as a result of fatal collisions with transmission lines (see Impact BR-7). Many studies have quantified bird strikes with transmission lines, but similar information for bats is very limited (Manville 2005). In California, land bird migrants concentrate along the Pacific coast, large rivers, and desert oases. Water birds concentrate along the Pacific coast and in coastal estuaries and freshwater and saline wetlands. Diurnal raptors such as hawks concentrate along the Pacific coast and coastal and interior mountain ranges. Specific impacts and mitigation associated with potential bird and bat strikes are discussed in Impacts BR-6 and BR-7.

There are no known bird or bat migratory corridors that would be directly impeded by the Project. Although wintering birds use the Project Site, large concentrations of migrants are not known to utilize any specific portion of the Project Site. Furthermore, bats are expected to avoid transmission lines because they can detect objects as small as 0.4 to 0.004 inch in size through echolocation (Vaughan and Vaughan 1986), and the size of guard lines and transmission lines is typically greater than or equal to 0.5 inch in diameter. Therefore, the impact to bird and bat migratory corridors from the Project would be less than significant.

e) Would the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The Project would not conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

The General Plan Open Space Conservation Policy requires detailed investigations to be conducted to determine the significance, location, extent, and condition of natural resources in the County. If any rare, sensitive, or unique plant or wildlife habitat would be impacted by a project, the County must notify the agency responsible for protecting plant and wildlife before approving that project. Consistent with this policy, appropriate studies have been prepared for the Project. These studies were referenced in preparing the analysis in this section. Likewise, the General Plan Land Use Element Policy notes that a majority of privately-owned land in the County is designated "Agriculture," which is also the predominate area where BUOWs create habitats. Consistent with this policy, pre-construction surveys for BUOW will be conducted. No impact would occur relative to the policies of the General Plan (Imperial County 2016).

f) Would the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The Project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

The Project Site is not located in a Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Implementation of the Project would result in no impact associated with the potential to conflict with local conservation plans.

3.5 GEOLOGY AND SOILS

This section describes the affected environment and regulatory setting for the geologic and soil characteristics of the Project Site. This section also describes the potential geologic and soil impacts that would result from implementation of the Project and, where necessary to reduce potentially significant impacts, provides mitigation measures to reduce such impacts to less than significant levels. The environmental setting information and analysis in this section is summarized from the Preliminary Geotechnical Investigation prepared for the Project by NV5 West, Inc., October 2019. The technical report is hereby incorporated by reference and included in Appendix G of this EIR.

3.5.1 Regulatory Framework

3.5.1.1 Federal

National Earthquake Hazards Reduction Program

The National Earthquake Hazards Reduction Program (NEHRP) leads the federal government's efforts to reduce the fatalities, injuries and property losses caused by earthquakes. Congress established NEHRP in 1977, directing that four federal agencies coordinate their complementary activities to implement and maintain the program. These agencies are the Federal Emergency Management Agency (FEMA), the National Institute of Standards and Technology (NIST), the National Science foundation (NSF) and the United States Geological Survey (USGS). In addition to other federal agencies, program partners include state and local governments, universities, research centers, professional societies, trade associations and businesses, as well as associated councils, commissions, and consortia (FEMA 2020).

3.5.1.2 State

Alquist-Priolo Earthquake Fault Zoning Act

The purpose of the Alquist-Priolo Earthquake Fault Zoning Act is to regulate development near active faults in order to mitigate the hazard of surface fault rupture. The stated intent of the Act is to "…provide policies and criteria to assist cities, counties, and state agencies in the exercise of their responsibility to prohibit the location of developments and structures for human occupancy across the trace of active faults." The Alquist-Priolo Earthquake Fault Zoning Act also requires the State Geologist to compile maps delineating earthquake fault zones and to submit maps to all affected cities, counties and state agencies for review and comment (CGS 2018).

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 (PRC, Chapter 7.8, Section 2690-2699.6) directs the DOC's California Geological Survey (CGS) to identify and map areas prone to earthquake hazards of liquefaction, earthquake-induced landslides, and amplified ground shaking. The purpose of the SHMA is to reduce the threat to public safety and to minimize the loss of life and property by identifying and mitigating these seismic hazards. The SHMA was passed by the legislature following the 1989 Loma Prieta earthquake. The SHMA requires the State Geologist to establish regulatory zones (Zones of Required Investigation) and to issue appropriate maps (Seismic Hazard Zone maps). These maps are distributed to all affected cities, counties, and state agencies for their use in planning and controlling construction and development. Single family frame dwellings up to two stories not part of a development of four or more units are exempt from the state requirements. However, local agencies can be more restrictive than state law requires (CGS 2020).

California Building Code

The California Building Standards Commission is responsible for coordinating, managing, adopting, and approving building codes in California. CCR Title 24 is reserved for state regulations that govern the design and construction of buildings, associated facilities, and equipment, known as building standards. The California Building Code (CBC) is based on the Federal Uniform Building Code used widely throughout the country (generally adopted on a state-by-state or district-by-district basis). The California Health and Safety Code (HSC) Section and 18980 HSC Section 18902 give CCR Title 24 the name of California Building Standards Code. The 2019 California Building Standards Code was published on July 1, 2019, with an effective date of January 1, 2020.

3.5.1.3 Local

County of Imperial General Plan

The County General Plan contains goals, objectives, policies, and programs created to minimize the risk associated with geology and soils and are noted below, as applicable:

Seismic and Public Safety Element

Goal 1: Include public health and safety considerations in land use planning.

> **Objective 1.1:** Ensure that data on geological hazards is incorporated into the land use review process, and future development process.
>
> **Objective 1.4:** Require, where possessing the authority, that avoidable seismic risks be avoided; and that measures, commensurate with risks, be taken to reduce injury, loss of life, destruction of property, and disruption of service.
>
> **Objective 1.7:** Require developers to provide information related to geologic and seismic hazards when siting a proposed project.
>
> **Goal 2:** Minimize potential hazards to public health, safety, and welfare and prevent the loss of life and damage to health and property resulting from both natural and human-related phenomena.
>
> **Objective 2.2**: Reduce risk and damage due to seismic hazards by appropriate regulation.
>
> **Objective 2.5:** Minimize injury, loss of life, and damage to property by implementing all state codes where applicable.
>
> **Objective 2.8:** Prevent and reduce death, injuries, property damage, and economic and social dislocation resulting from natural hazards including flooding, land subsidence, earthquakes, other geologic phenomena, levee or dam failure, urban and wildland fires and building collapse by appropriate planning and emergency measures.

County of Imperial Land Use Ordinance

Title 9 Division 15 (Geological Hazards) of the County Land Use Ordinance has established procedures and standards for development within earthquake fault zones. Per County regulations, construction of buildings intended for human occupancy are prohibited across the trace of an active fault. An exception exists when such buildings located near the fault or within a designated Special Studies Zone are

demonstrated through a geotechnical analysis and report not to expose a person to undue hazard created by the construction.

County of Imperial Ordinance 1516

The ordinance is established pursuant to Section 101000, et seq. of the California Health and Safety Code, the Porter-Cologne Water Quality Control Act, Water Code Section 1 3000 et seq., State Water Resources Control Board Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems (OWTS), and the Colorado River Region Basin Plan. This Chapter shall apply to all territory embraced within the unincorporated limits of the County of Imperial. This ordinance implements local alternative minimum standards for new and replacement OWTS consistent with the Local Agency Management Program authorized by the Water Quality Control Policy adopted by the State Water Resources Control Board on June 19, 2012, and in compliance with the Colorado River Region Basin Plan.

3.5.2 Environmental Setting

3.5.2.1 Geology

The Project Site is located in Imperial County, in the southern portion of the Salton Trough, a structural depression within the Colorado Desert geomorphic province. This province is generally a low-lying barren desert basin (in part about 230 feet below mean sea level) dominated by the Salton Sea. The province is a depressed block between active branches of the San Andreas fault system. The fault branches are buried by recent alluvial deposits. The dominant structural features related to the San Andreas fault system consist of northwest-trending faults and fault zones. The major northwest trending fault zones include the San Jacinto Fault, Imperial Fault, the Superstition Hills Fault, the Elsinore Fault and the San Andreas Fault. The Salton Trough was inundated during the Quaternary by an ancient freshwater lake (Lake Cahuilla), resulting in a sequence of lacustrine (lake) deposits consisting of interbedded sand silt and clay. Remnants of the ancient shorelines of the extinct Lake Cahuilla remain prevalent in the Salton Trough.

Subsurface Conditions

Geologic materials encountered during the subsurface explorations of the Project Site consisted of natural deposits mapped as Quaternary-aged alluvial deposits and Cahuilla Beds (Qa-Qc) are undifferentiated The soils on the Site range from tan to brown, dry to wet, stiff to hard lean clay and silt, and medium dense to very dense silty sand and poorly graded sand with silt. Figure 3.5-1 depicts the soil types on the Project Site, and Table 3.5-1 discusses the characteristics of the soils that cover at least 10 percent of the Site.

Table 3.5-1 Project Site Soils Description

Soil Symbol	Soil Name	Description
115	Imperial-Glenbar Silty Clay Loams, Wet, 0-2% Slopes	These nearly level soils are on flood plains and lakebeds within the irrigated areas of the Imperial Valley. Elevation is 150 feet below sea level to 200 feet above. Glenbar soils are well drained. Typically, they have a pinkish gray clay loam or silty clay loam surface layer. Underlying this is stratified light brown clay loam and silty clay loam. In some areas the surface layer is highly variable and ranges from sand to silty clay loam. Imperial soils are moderately well drained. They have a pinkish gray silty clay or silty clay loam surface layer. Underlying this is pinkish gray and light brown silty clay.

Soil Symbol	Soil Name	Description
122	Meloland Very Fine Sandy Loam, Wet	This very deep, nearly level soil is on flood plains and alluvial basin floors. Elevation is 35 feet above sea level to 230 feet below. Permeability is slow, and available water capacity is high to very high. Surface runoff is slow, and the hazard of erosion is slight.
135	Rositas Fine Sand, Wet, 0-2% Slopes	This very deep, nearly level soil is on flood plains and alluvial basin floors. Elevation is 150 feet above sea level to 230 feet below. Typically, this Rositas soil is reddish yellow fine sand to a depth of 60 inches or more. Permeability is rapid, and available water capacity is low. Surface runoff is slow, and the hazard of erosion is slight.
142	Vint Loamy Very Fine Sand, Wet	This very deep, nearly level soil is on basin floors and flood plains. Elevation is 35 feet above sea level to 230 feet below. Permeability of this Vint soil is moderately rapid, and available water capacity is moderate. Surface runoff is slow, and the hazard of erosion is slight.
144	Vint And Indio Very Fine Sandy Loams, Wet	This undifferentiated unit consists of deep, nearly level soils on the bed of old Lake Cahuilla. Elevation is 35 feet above sea level to 230 feet below. This Vint soil has moderately rapid permeability to a depth of 40 inches, and slow permeability below this depth. Available water capacity is moderate. Surface runoff is slow, and the hazard of erosion is slight. The hazard of soil blowing is moderate.

Source: USDA 1981, Appendix C.1

Faults

The Project Site does not lie within an identified earthquake fault zone[1]. In addition, there are no known major or active faults mapped on the Project Site. Evidence for active faulting on the Site was not observed during the subsurface investigation. There are four traces of surface rupture along major active earthquake fault zones located within approximately five miles of the Site: Route 247 Fault Sone, Yuha Fault, North Centinela Fault, and Yuha Well Fault.

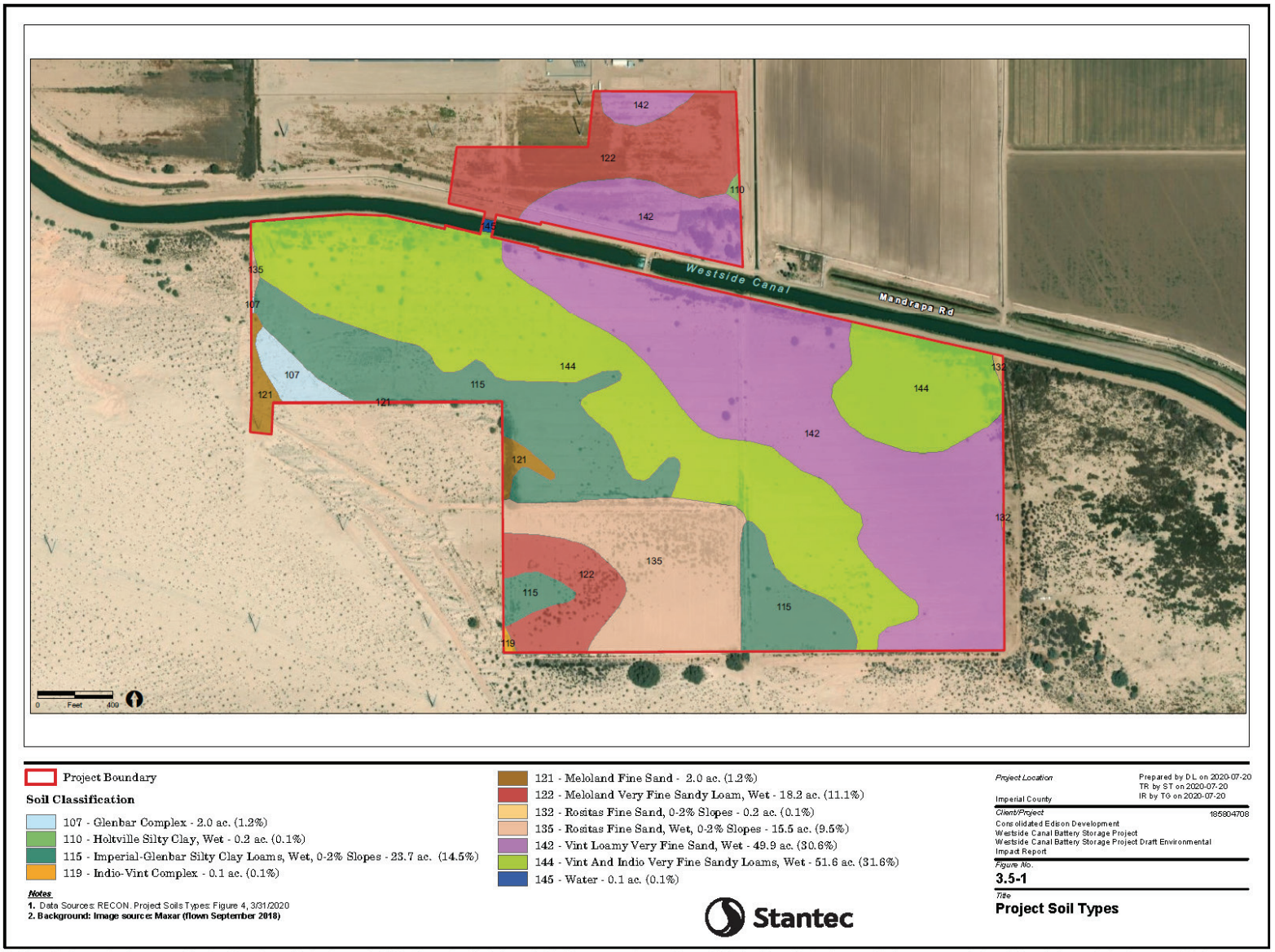
Landslides/Slope Instability

Landslides are the descent of rock or debris caused by natural factors, such as the pull of gravity, fractured or weak bedrock, heavy rainfall, erosion, and earthquakes. There are no high or steep natural slopes on or in close proximity to the Project Site.

Lateral Spreading

Seismically induced lateral spreading involves primarily lateral movement of earth materials due to ground shaking in conjunction with liquefaction. Lateral spreading can manifest as near-vertical cracks with predominantly horizontal movement of the soil mass involved towards an adjacent open slope face. Lateral spreading occurs when there is widespread liquefaction and a gentle slope, or a free face toward which lateral spreading may occur, such as a water body. The Project Site is adjacent to the Westside Main Canal.

[1] Review of the Earthquake Zones of Required Investigation, Mount Signal Quadrangle, CGS, Official Map, September 12, 2012.



Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.

Figure 3.5-1 Project Soil Types

Groundwater

Groundwater was encountered at a depth of approximately 9 and 19 feet below ground level (bgs) and are expected to vary seasonally. Factors such as a substantial increase in surface water infiltration from landscape irrigation, agricultural activity, storage facility leaks or unusually heavy precipitation can impact groundwater levels.

Subsidence

The Imperial Valley is a region generally known for historic ground subsidence. The subsidence has been attributed to regional geologic processes and to fluid withdrawal associated with geothermal production. Most of the subsidence is tectonic in nature and the broad Salton Trough basin has been subsiding for at least the past 35 million years. Historic soil subsidence due to groundwater withdrawal associated with geothermal production has also been documented. The subsidence occurs when groundwater (near the surface or in a deep aquifer) is lowered past its historical level. This occurrence results in an increase of effective stress within a soil layer which typically translates into additional soil consolidation. Due to the depth of the reservoir, subsidence is not localized.

Expansive Soils

The Project Site is underlain predominantly by poorly to moderately consolidated alluvial materials consisting of sandy silt to clay, silty sand and poorly graded sand with silts. Three tested samples of the near-surface silt and clay soils indicate medium to high expansion potential.

Paleontological Resources

Paleontological resources (fossils) are the remains of prehistoric plant and animal life. Fossil remains, such as bones teeth, shell, and wood, are found in geologic deposits (rock formations) within which they were originally buried. Many paleontological fossil sites are recorded in the County and have been discovered during construction activities. One area in which paleontological resources appear to be concentrated in this region is the shoreline of ancient Lake Cahuilla, which would have encompassed the present-day Salton Sea. As previously mentioned above, the Project Site is generally underlain by Quaternary Lake Deposits. Sediments from this formation have yielded fossilized remains of continental vertebrates, invertebrates, and plants at numerous previously recorded fossil sites in the Imperial Valley. Therefore, the paleontological sensitivity of these formations within the Project Site is considered to be high.

3.5.3 Environmental Impacts

3.5.3.1 Thresholds of Significance

The impact analysis provided below is based on Appendix G of the CEQA Guidelines. The Project would result in a significant impact to geology and soils if it would:

a) Result in substantial soil erosion or the loss of topsoil?

b) Be located on strata or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

c) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

d) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

e) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?

3.5.3.2 Issues Scoped Out as Part of the Initial Study

The following thresholds of significance were eliminated from further consideration in the Initial Study (Appendix A), since they were determined to result in less than significant or no impact, as briefly described in Chapter 7:

- Would the project directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving:

  i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42

  ii. Strong seismic ground shaking

  iii. Seismic-related ground failure, including liquefaction

  iv. Landslides

3.5.3.3 Methodology

Potential significant impacts associated with the Project were identified from the Preliminary Geotechnical Investigation prepared by NV5 West, Inc. (Appendix G). The report presented findings, conclusions, and recommendations concerning development of the Project Site that were based on an engineering analysis of the geotechnical properties of the subsurface conditions (described above). The discussion below identifies potential Project impacts and the measures that would be required to mitigate impacts that were determined to be potentially significant.

3.5.3.4 Project Impacts and Mitigation Measures

a) Would the Project result in substantial soil erosion or the loss of topsoil?

Construction

Soil erosion could result during construction of the Project in association with grading and earthmoving activities. The Project Site soils have a slight potential for erosion and would be located on a relatively flat topography and would not involve grading steep slopes; however, earthmoving and construction activities would loosen soil and could contribute to soil loss and erosion by wind and stormwater runoff. In compliance with federal Clean Water Act and regulations of the SWRCB, the Project would require implementation of a construction Stormwater Pollution Prevention Plan (SWPPP), including site-specific BMPs for erosion and sediment control as noted in mitigation measure HYD-1. The SWPPP would require BMPs be adopted for the specific conditions at the Project Site and would minimize any risk for substantial erosion during construction. Therefore, with implementation of MM HYD-1, impacts from construction-related erosion would be reduced to a less than significant level.

Operations

Operational activities on the Site would involve the routine maintenance, mowing vegetation, and cleaning. These activities would not be considered erosive activities, or result in the loss of topsoil. Furthermore, according to the Natural Resources Conservation Service (NRCS), the soils on the Project Site have a low to moderate erosion potential. As a result, potential impacts associated with erosion occurring during Project operation would be less than significant.

Decommissioning

Activities associated with the decommissioning of the Project would be similar to those occurring during Project construction. Decommissioning activities would include the removal of above-ground structures, excavation and removal of all below-ground cabling, removal of access roads, and removal of concrete pads and foundations. Project decommissioning would be required to comply with MM HYD-1 that requires preparation of a SWPPP and BMPs to control erosion from disturbed areas to reduce runoff from the Project Site. As such, erosion and sedimentation impacts associated during decommissioning of the Project would be less than significant with mitigation.

Mitigation Measures

Implement MM HYD-1, see Section 3.8 Hydrology and Water Quality for details.

Level of Significance After Mitigation

Implementation of Mitigation Measure HYD-1 would reduce potential impacts on topsoil to less-than-significant levels.

b) Would the Project be located on strata or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Construction

The Project would require earthwork, including both rough and final grading and trenching in order to prepare the Site for construction of roadways and parking, stormwater retention basins, buildings and substations, ground-mounted solar, and utilities and other required facilities.

Based on the Preliminary Geotechnical Investigation, the Project Site is not within a zone of earthquake-induced landslide potential, as shown by the State of California Seismic Hazard Zones Map, nor is it located on a slope. Therefore, potential for landslide due to unstable soil conditions is less than significant.

The potential for lateral spreading in the area adjacent to the Westside Main Canal free face was analyzed for the Site. The results indicated low potential for lateral spreading due to the absence of widespread liquefaction and the relatively shallow depth of the Westside Main Canal as compared to the depth of liquefiable soil layers. Therefore, impacts from lateral spreading would be less than significant.

The potential for subsidence occurs when groundwater (near the surface or in a deep aquifer) is lowered past its historical level. This occurrence results in an increase of effective stress within a soil layer which typically translates into additional soil consolidation. Considering the distance to the geothermal production areas from the Project Site, and that ground subsidence in the Imperial Valley is occurring on a regional (i.e., not local) level, ground subsidence at the Site is not expected to create significant differential

settlement conditions. Therefore, potential for damaging localized differential settlement from fluid withdrawal subsidence is considered low.

The subsurface exploration program encountered poorly to moderately consolidated alluvial silt, clay and silty sand, along with a relatively shallow ground water table. A liquefaction analysis performed using the liquefaction triggering analysis procedure indicated that minor liquefaction effects (related to saturated soils) are expected at the site due to presence of few isolated saturated medium dense sand layers present between depths of 15 and 50 feet below ground surface (bgs). However, the analysis further indicated that the Site is not susceptible to collapse due to liquefaction (related to non-saturated soils).

The analysis contained in the Preliminary Geotechnical Investigation did not identify collapse as an issue of concern.

Therefore, geologic and seismic hazards identified from construction activities are less than significant related to an on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse, and no mitigation measures are required.

Operation

The analysis noted above for construction-related impacts associated with geologic and seismic hazards concerning on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse determined impacts would be less than significant, and no mitigation measures are required. There are no factors associated with Project operation that would change this conclusion, as the geological impacts of Project operation and construction would be similar. Therefore, operational impacts would be less than significant, and no mitigation measures are required.

Decommissioning

Activities associated with the decommissioning of the Project would be similar to Project construction and would, therefore, result in a less than significant impact related to an on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse, and no mitigation measures are required.

Mitigation Measures

None required.

Significance After Mitigation

Not applicable.

c) Would the Project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Construction

The analysis contained in the Preliminary Geotechnical Investigation indicates the Project Site is underlain predominantly by poorly to moderately consolidated alluvial materials consisting of sandy silt to clay, silty sand and poorly graded sand with silts. Three tested samples of the near-surface silt and clay soils indicate medium to high expansion potential with an Expansion Index (EI) of 54 to 106. These materials are generally considered unsuitable for use as backfill for structure foundations, retaining walls or pipe bedding.

Moreover, since site grading will redistribute on-site soils, potential expansive soil properties should be verified at the completion of rough grading.

The near-surface soils in the upper three to five feet were found to be generally desiccated and considered moderately compressible. The near-surface soils have an expansion potential that ranges from medium to high. These soils are considered unsuitable for re-use as compacted fill and backfill. To provide a uniform support for the new structures and surface improvements, the analysis recommended that these materials be over-excavated and replaced with properly compacted, non-expansive granular fill. Suitable fill would be used during construction activities and impacts would be less than significant, and no mitigation measures are required.

Operation

The analysis noted above for construction-related impacts associated with expansive soils related to the creation of substantial direct or indirect risks to life or property is also applicable to operational impacts. The proposed buildings and infrastructure would comply with standard engineering practices, including the most recent CBC standards, as well as the geotechnical engineering recommendations in the design and construction of the Project. Adherence to those provisions and standards would reduce potential impacts related to creating substantial risks to life or property due to the presence of expansive soils, including those identified in Table 18-1-B of the Uniform Building Code (1994). Therefore, potential impacts would be less than significant, and no mitigation measures are required.

Decommissioning

Activities associated with the decommissioning of the Project would include removal of all Site improvements that are no longer in use and cannot be repurposed. All infrastructure improvements included as part of the Project that can continue to be used or repurposed (e.g., Westside Main Canal bridge, access roads, O&M building, and buildings housing battery energy storage systems) would remain onsite after decommissioning of the Project, based on County approval. These activities would not result in changes to the Site that would create substantial direct or indirect risks to life or property conditions. Therefore, impacts would be less than significant, and no mitigation is required.

Mitigation Measures

None required.

Significance After Mitigation

Less than significant.

d) Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

Construction

During construction, portable toilet systems would be installed to provide construction workers with sanitary services. These portable toilets would be cleaned regularly as stipulated in the contract with the service chosen. Impacts would be less than significant.

Operation

The Project includes the construction of a septic leach field system to provide sanitary sewer services during operation. The Project would be required to submit a Service Request Application for a special On-site Wastewater Treatment System (OWTS) permit through the County Public Health Department. The septic system design would adhere to the California Plumbing Code and County OWTS Ordinance 1516. The OWTS would be reviewed by the County Public Health Department (PHD) and comply with all applicable permit conditions. Pending design and installation approval by the PHD, once operational, the septic leach field system would not be expected to result in additional issues related to septic or alternative wastewater disposal systems, since it would be designed in accordance with required engineering and PHD requirements. Therefore, impacts would be less than significant, and no mitigation measures are required.

Decommissioning

At the end of the 40-year Project CUP lifespan, decommissioning activities would be undertaken and would apply to those portions of the Project that involve operational components including, but not limited to, the electrical switching station, substation, battery modules, inverters, transformers, and PV modules. All operational components would be disassembled and removed from the Project Site. O&M Building and battery storage enclosures, access roads, and the clear span bridge would remain on the Site and may be repurposed. If the proposed septic leach field is determined to be abandoned, it would be done in accordance with the County Ordinance 1516. Any future reuse of the septic leach field may be subject to additional permitting requirements that would be determined during the subsequent regulatory review for a future use. The impacts from decommissioning would therefore be less than significant.

Mitigation Measures

None required.

Significance After Mitigation

Not applicable.

e) Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?

Construction

There are no known unique geological features contained on-site. The geologic materials encountered during the subsurface explorations consisted of natural deposits mapped as Quaternary-aged alluvial deposits and Cahuilla Beds (Qa-Qc, undifferentiated) on published geologic maps. Deposits of Holocene age (such as Qa-Qc) contain the unfossilized remains of modern species and are generally considered too young to preserve fossil remains. As such, because surficial deposits of Holocene age sediments are too young to contain in-situ fossils, they are considered to have low potential for producing significant paleontological resources. However, if these sediments are underlain by Pleistocene alluvium, the potential for encountering fossils is increased.

The Project would require earthwork, including both rough and final grading and trenching. As part of these activities, the existing Site surface would need to be modified and would require earthwork activities. It is anticipated that the proposed excavation depths would not be deep enough to encounter Pleistocene alluvium, thereby reducing the potential for encountering on-site fossils. Nevertheless, the potential to encounter paleontological resources remains. As such, the Project could directly or indirectly destroy a

unique paleontological resource; however, Project construction would not be expected to affect a unique geological feature, since none are known to occur. With implementation of Mitigation Measure GEO-1, which provides measures to be taken in the case of inadvertent discovery of a paleontological resource, potential construction-related impacts to undiscovered paleontological resources would be less than significant.

Operation

Once constructed, there would be no operational impacts related to unique paleontological resources or unique geologic features, since all potential impacts would be associated with ground-disturbing activities during Project construction. No mitigation measures are required.

Decommissioning

Decommissioning activities would occur in the areas already disturbed and excavated during Project construction. Therefore, no new paleontological resources are anticipated to be found. Impacts would be less than significant, and no mitigation measures are required.

Mitigation Measure

MM GEO-1: Inadvertent Discovery

In the event that unanticipated paleontological resources or unique geologic resources are encountered during ground-disturbing activities, work must cease within 50 feet of the discovery and a paleontologist shall be hired to assess the scientific significance of the find. The consulting paleontologist shall have knowledge of local paleontology and the minimum levels of experience and expertise as defined by the Society of Vertebrate Paleontology's Standard Procedures (2010) for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. If any paleontological resources or unique geologic features are found within the Project Site, the consulting paleontologist shall prepare a paleontological Treatment and Monitoring Plan to include the methods that will be used to protect paleontological resources that may exist within the Site, as well as procedures for monitoring, fossil preparation and identification, curation of specimens into an accredited repository, and preparation of a report at the conclusion of the monitoring program..

Significance After Mitigation

Implementation of Mitigation Measure GEO-1 would reduce potential impacts on geological features to less-than-significant levels.

3.6 GREENHOUSE GASES

This section describes the impacts on GHG emissions that would result from implementation of the Project. Included is a review of existing conditions, a summary of applicable policies and regulations related to GHG emissions, and analysis of environmental impacts of the proposed Project. Where applicable, Mitigation Measures are included for significant impacts. The information provided in this section is based on the information provided in the Air Quality Analysis, prepared by RECON Environmental, Inc. (March 2021), and the Greenhouse Gas Analysis prepared by RECON Environmental, Inc. (March 2021), included as Appendix D and Appendix G, respectively.

3.6.1 Regulatory Framework

3.6.1.1 Federal

The federal government is taking steps to address the challenge of climate change. The EPA collects various types of GHG emissions data. This data helps policy makers, businesses, and the EPA track GHG emissions trends and identify opportunities for reducing emissions and increasing efficiency. The EPA has been collecting a national inventory of GHG emissions since 1990 and in 2009 established mandatory reporting of GHG emissions from large GHG emissions sources. The EPA is also achieving GHG reductions through partnerships and initiatives; evaluating policy options, costs, and benefits; advancing the science; partnering internationally and with states, localities, and tribes; and helping communities adapt.

Corporate Average Fuel Economy Standards

The federal Corporate Average Fuel Economy (CAFE) standards determine the fuel efficiency of certain vehicle classes in the United States (U.S.). While the standards had not changed since 1990, as part of the Energy and Security Act of 2007, the CAFE standards were increased in 2007 for new light-duty vehicles to 35 mpg by 2020. In May 2009, plans were announced to further increase CAFE standards to require light-duty vehicles to meet an average fuel economy of 35.5 miles per gallon (mpg) by 2016. In August 2012, fuel economy standards were further increased to 54.5 mpg for cars and light-duty trucks by Model Year 2025; this will nearly double the fuel efficiency of those vehicles compared to new vehicles currently on our roads. With improved gas mileage, fewer gallons of transportation fuel would be combusted to travel the same distance, thereby reducing nationwide GHG emissions associated with vehicle travel.

Energy Star

Energy Star is a joint program of the EPA and the U.S. Department of Energy, which promotes energy efficient products and practices. Numerous companies from industrial, commercial, utility, state and local organizations have partnered with the EPA to develop solutions that deliver energy efficiency resulting in improved air quality and protecting the climate (Energy Star 2020). With implementation of Energy Star solutions since 1992, residences and businesses have been able to save approximately four trillion kW-hours and an estimated 3.5 billion MT of GHG reductions (Energy Star 2020).

Stationary Sources

The EPA is proposing to set separate standards for natural gas-fired turbines and coal-fired units. Although periodically debated in Congress, no federal legislation concerning GHG limitations has yet been adopted. In Coalition for Responsible Regulation, Inc., et al. v. EPA, the United States Court of Appeals upheld the EPA's authority to regulate GHG emissions under the CAA. Furthermore, under the authority of the CAA,

the EPA is beginning to regulate GHG emissions starting with large stationary sources. In 2010, the EPA set GHG thresholds to define when permits under the New Source Review PSD standard and Title V Operating Permit programs are required for new and existing industrial facilities. In 2012, EPA proposed a carbon pollution standard for new power plants.

State

California has been innovative and proactive in addressing GHG emissions through passage of legislation including Senate and Assembly bills and executive orders, some of which are listed below.

Executive Order S-3-05

In 2005, the governor issued EO S-3-05, establishing statewide GHG emissions reduction targets. The goal of this EO is to reduce California's GHG emissions to year 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. The EO further directed the secretary of the California EPA to oversee the efforts made to reach these targets, and to prepare biannual reports on the progress made toward meeting the targets and on the impacts to California related to global warming. The first such Climate Action Team Assessment Report was produced in March 2006 and has been updated every two years thereafter. This goal was further reinforced with the passage of AB 32 in 2006 and SB 32 in 2016.

Assembly Bill 32- California Global Warming Solutions Act

In 2006, California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500, et seq.), which codified the 2020 GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that CARB create a scoping plan and implement rules to achieve "real, quantifiable, cost- effective reductions of greenhouse gases." The Legislature also intended that the statewide GHG emissions limit continue in existence and be used to maintain and continue reductions in emissions of GHGs beyond 2020 as stated in the Health and Safety Code Section 38551(b)). The law requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions. The Scoping Plan was prepared and approved on December 11, 2008 and was later updated in May 2014. The update highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals (to the level of 427 $MMTCO_2e$) defined in the original Scoping Plan. It also evaluates how to align the State's long-term GHG reduction strategies with other State policy priorities, such as for water, waste, natural resources, clean energy and transportation, and land use. In 2005, Governor Schwarzenegger issued EO S-3-05, establishing statewide GHG emissions reduction.

Under the BAU scenario established in 2008, statewide emissions were increasing at a rate of approximately one percent per year, as noted below. It was estimated that the 2020 estimated BAU of 596 $MMTCO_2e$ would have required a 28 percent reduction to reach the 1990 level of 427 $MMTCO_2e$.

In July 2017, Governor Brown signed AB 617 which would reduce air pollution and associated health impacts in highly impacted communities. AB 617 provides a community-focused action framework to improve air quality and reduce exposure to criteria air pollutants and TACs in the communities most impacted by air pollution. Currently, 13 communities have been selected to participate. AB 617 includes a variety of strategies to address air quality issues in impacted communities, including community-level monitoring, uniform emission reporting across the State, stronger regulation of pollution sources, and incentives for both mobile and stationary sources. The programs and incentives of AB 617 would also result also result in reductions of GHG emission.

Senate Bill 32

Chapter 249 of SB 32 codifies the GHG reduction targets established in EO B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030. SB 32 provides another intermediate target between the 2020 and 2050 targets set in EO S-3-05.

Senate Bill 97

Chapter 185 of SB 97 requires the Governor's OPR to develop recommended amendments to the CEQA Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

Executive Order S-01-07

This order, signed by Governor Schwarzenegger, sets forth the LCFS for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by the year 2020. CARB re-adopted the LCFS regulation in September 2015, and the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low-carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 GHG reduction goals.

Senate Bill 375

SB 375, Chapter 728 requires CARB to set regional emissions reduction targets for passenger vehicles. The MPO for each region must then develop a SCS that integrates transportation, land-use, and housing policies to plan how it will achieve the emissions target for its region.

Executive Order B-30-15

On April 20, 2015, Governor Brown signed EO B-30-15 to establish a GHG reduction target of 40 percent below 1990 levels by 2030. The Governor's EO aligns California's GHG reduction targets with those of leading international governments such as the 28-nation European Union which adopted the same target in October 2014. California is on track to meet or exceed its legislated target of reducing GHG emissions to 1990 levels by 2020, as established in the California Global Warming Solutions Act of 2006 (AB 32, summarized above). California's new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the ultimate goal of reducing emissions 80 percent below 1990 levels by 2050. This is in line with the scientifically established levels needed in the U.S. to limit global warming below 2°C, the warming threshold at which there will likely be major climate disruptions such as severe droughts and rising of sea levels. The targets stated in EO B-30-15 have not been adopted by the state legislature.

Climate Change Scoping Plan

In December 2008, the CARB approved the AB 32 Scoping Plan outlining the state's strategy to achieve the 2020 GHG emissions limit. The Scoping Plan estimates a reduction of 174 $MMTCO_2e$ (about 191 million U.S. tons) from the transportation, energy, agriculture, forestry, and high climate-change-potential sectors, and proposes a comprehensive set of actions designed to reduce overall GHG emissions in California, improve the environment, reduce dependence on oil, diversify California's energy sources, save energy, create new jobs, and enhance public health. The Scoping Plan must be updated every five years to evaluate the implementation of AB 32 policies to ensure that California is on track to achieve the 2020 GHG reduction goal. The First Update to the Climate Change Scoping Plan was approved by the CARB on May 22, 2014. In 2016, the Legislature passed SB 32, which codified a 2030 GHG emissions reduction target of 40 percent

below 1990 levels. With SB 32, the Legislature passed companion legislation AB 197, which provides additional direction for developing the Scoping Plan.

On December 14, 2017, the CARB approved the Second Update to the Climate Change Scoping Plan, the 2017 Climate Change Scoping Plan (2017 Scoping Plan). In the 2017 Scoping Plan, CARB estimated the projected statewide 2030 emissions for the Reference Scenario (under BAU conditions [i.e., emissions that would occur without any plans, policies, or regulations to reduce GHG emissions]) to be 389 $MMTCO_2e$ (CARB 2017). Health and Safety Code 25.5 set the emissions target of 260 $MMTCO_2e$. Based on this, the Reference Scenario is expected to exceed the 2030 target by 129 $MMTCO_2e$ (CARB 2017).

California Code of Regulations, Title 24 – California Building Code

CCR, Title 24 - CBC, consists of a compilation of several distinct standards and codes related to building construction, including plumbing, electrical, interior acoustics, energy efficiency, handicap accessibility, and so on. Of particular relevance to GHG reductions are the CBC's energy efficiency and green building standards as outlined below.

Title 24, Part 6 – Energy Efficiency Standards

The CCR, Title 24, Part 6 is the California Energy Efficiency Standards for Residential and Nonresidential Buildings (also known as the California Energy Code). This code, originally enacted in 1978, establishes energy efficiency standards for residential and non-residential buildings in order to reduce California's energy consumption. The California Energy Code is updated periodically to incorporate and consider new energy-efficient technologies and methodologies as they become available, and incentives in the form of rebates and tax breaks are provided on a sliding scale for buildings achieving energy efficiency above the minimum standards.

The current version of the California Energy Code, known as 2016 Title 24, or the 2016 Energy Code, became effective January 1, 2017. The 2016 Energy Code provides mandatory energy efficiency measures as well as voluntary tiers for increased energy efficiency. The CEC, in conjunction with the CPUC, has adopted a goal that all new residential and commercial construction achieve zero net energy by 2020 and 2030, respectively. It is expected that achievement of the zero net energy goal will occur via revisions to the Title 24 standards. New construction and major renovations must demonstrate their compliance with the current 2016 Energy Code through submission and approval of a Title 24 Compliance Report to the local building permit review authority and the CEC. The compliance reports must demonstrate a building's energy performance through use of CEC approved energy performance software that shows iterative increases in energy efficiency given the selection of various heating, ventilation, and air conditioning; sealing; glazing; insulation; and other components related to the building envelope.

Title 24, Part 11 – California Green Building Standards

Title 24 as Part 11 first in 2009 as a voluntary code, which then became mandatory effective January 1, 2011 (as part of the 2010 CBC). The 2016 CALGreen institutes mandatory minimum environmental performance standards for all ground-up new construction of non-residential and residential structures. Local jurisdictions must enforce the minimum mandatory Green Building Standards and may adopt additional amendments for stricter requirements.

The mandatory standards require:

- Outdoor water use requirements as outlined in Model Water Efficient Landscape Ordinance emergency standards

- Twenty percent mandatory reduction in indoor water use relative to specified baseline levels
- Sixty-five percent construction/demolition waste diverted from landfills
- Infrastructure requirements for electric vehicle charging stations
- Mandatory inspections of energy systems to ensure optimal working efficiency
- Requirements for low-pollutant emitting exterior and interior finish materials such as paints, carpets, vinyl flooring, and particleboards

Similar to the reporting procedure for demonstrating 2016 Energy Code compliance in new buildings and major renovations, compliance with the CALGreen water reduction requirements must be demonstrated through completion of water use reporting forms for new low-rise residential and non-residential buildings. The water use compliance form must demonstrate a 20 percent reduction in indoor water use by either showing a 20 percent reduction in the overall baseline water use as identified in CALGreen or a reduced per-plumbing-fixture water use rate.

Renewable Energy Portfolio

The Renewable Portfolio Standard (RPS) promotes diversification of the state's electricity supply and decreased reliance on fossil fuel energy sources. Originally adopted in 2002 with the initial requirement that 20 percent of electricity retail sales must be served by renewable resources by 2017 (referred to as the "initial RPS"). The goals have been accelerated and increased by EOs S-14-08 and S-21-09 to a goal of 33 percent by 2020.

The program was accelerated in 2015 with SB 350 (de León 2015) which mandated a 50 percent RPS by 2030. SB 350 includes interim annual RPS targets with three-year compliance periods and requires 65 percent of RPS procurement to be derived from long-term contracts of 10 or more years. In 2018, SB 100 (de León 2018) was signed into law, which again increases the RPS to 60 percent by 2030 and requires all the state's electricity to come from carbon-free resources by 2045.

In April 2011, Governor Brown signed SB 2 (1X) codifying California's 33 percent RPS goal; Section 399.19 requires the CPUC, in consultation with the CEC, to report to the Legislature on the progress and status of RPS procurement and other benchmarks. The purpose of the RPS upon full implementation was to provide 33 percent of the state's electricity needs through renewable energy sources. Renewable energy includes (but is not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas.

The program was further accelerated in 2015 with SB 350 (de León 2015) which mandated a 50 percent RPS by 2030. SB 350 includes interim annual RPS targets with three-year compliance periods and requires 65 percent of RPS procurement to be derived from long-term contracts of 10 or more years. Most recently, on September 10, 2018, Governor Brown signed the SB 100 which aims at eliminating fossil fuel from electricity generation in California. The Bill sets a target of 100 percent carbon-free electricity by 2045.

The RPS is included in CARB's Scoping Plan list of GHG reduction measures to reduce energy sector emissions. It is designed to accelerate the transformation of the electricity sector through such means as investment in the energy transmission infrastructure and systems to allow integration of large quantities of intermittent wind and solar generation. Increased use of renewables would decrease California's reliance on fossil fuels, thus reducing emissions of GHGs from the electricity sector. In 2008, as part of the Scoping Plan original estimates, CARB estimated that full achievement of the RPS would decrease statewide GHG emissions by 21.3 $MMTCO_2e$. In 2010, CARB revised this number upwards to 24.0 $MMTCO_2e$.

Cap-and-Trade Program

The California Cap-and-Trade Program began in January 2013 and is authorized to continue until the end of 2030. The program is a market-based regulation that is designed to reduce GHG emissions associated with major sources by setting a firm cap on overall GHG emissions from covered entities and gradually reducing that cap over time. The program defines major sources as facilities that generate more than 25,000 $MTCO_2e$ per year, which includes many electricity generators, refineries, cement production facilities, oil and gas production facilities, glass manufacturing facilities, and food processing plants. Each entity covered by the program is allocated specific GHG emission allowances and is able to buy or sell additional offset credits to other major sources-covered entities. Thus, the program employs market mechanisms to cost-effectively reduce overall GHG emissions. Throughout the program's duration, CARB continues to adjust the overall GHG emissions cap to achieve emission levels consistent with 2020 statewide GHG emission reduction targets established by AB 32 and the 2030 statewide GHG emission reduction targets established by SB 32.

3.6.1.2 Local

The County General Plan Renewable Energy and Transmission Element was adopted in October 2015. As stated in the element, the benefits of renewable energy development include reduction in potential GHG by displacing fossil-fuel-generated electricity with renewable energy, which does not add to the greenhouse effect; contribution towards meeting the state's RPS mandate; and minimization of impacts to local communities, agriculture, and sensitive resources (Imperial County 2015b).

The General Plan Conservation and Open Space Element policies related to the Project are identified below. Table 3.6-1 summarizes the Project's consistency with the applicable General Plan air quality policies. While this EIR analyzes the Project's consistency with the General Plan pursuant to CEQA Guidelines Section 15125(d), the Imperial County Board of Supervisors ultimately determines consistency with the General Plan.

Table 3.6-1 Imperial County General Plan Consistency Analysis

General Plan Policies	Consistent with General Plan?	Analysis
Conservation and Open Space Element		
Protection of Air Quality		
Objective 7.1: Ensure that all project and facilities comply with current Federal, State, and local requirements for attainment of air quality objectives.	Yes	The Project would support the State's goal to increase use of renewable energy. The Project would assist the State's goal of utilizing 100 percent renewable energy by 2045 which would result in a net decrease in use of fossil fuel and Greenhouse Gas (GHG) emissions. Therefore, the Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emission of GHGs, and impacts would be less than significant.
Objective 7.2: Develop management strategies to mitigate fugitive dust. Cooperate with all federal, state, and local agencies in the effort to attain air quality objectives.	Yes	The Project will comply with Imperial County Air Pollution Control District (ICAPACD) Regulation VIII, Fugitive Dust Rules. A construction analysis and fugitive dust control measures are provided in Appendix D

General Plan Policies	Consistent with General Plan?	Analysis
Objective 7.3: Work cooperatively with the EPA and CARB in evaluating air quality monitoring in Imperial County.	Yes	The Project will comply with all Environmental Protection Agency, California Air Resources Board, and ICAPACD air quality monitoring and reporting requirements.
Objective 7.4: Enforce and monitor environmental mitigation measures relating to air quality.	Yes	The Project would reduce emissions by providing solar photovoltaics (PV) on the Project Site to the extent feasible.
Objective 7.5: Coordinate efforts with Imperial County Transportation Commission (ICTC) and other appropriate agencies to reduce fugitive dust from unpaved streets.	Yes	The Project will comply with ICAPACD Regulation VIII, Fugitive Dust Rules. A construction analysis and fugitive dust control measures are provided in Appendix D.
Objective 7.6: Explore and assess strategies to reduce greenhouse gas emissions in the County	Yes	It is estimated that a range of 17,000 to 34,000 Megawatt hours would be produced annually by on-site solar PV at full build-out. On-site solar PV would offset 7,276 to 14,552 metric tons of carbon dioxide equivalent per year of the Project's GHG emissions. For informational purposes, the energy offset associated with on-site solar PV was calculated and is summarized in Table 3.6-3.

3.6.2 Environmental Setting

3.6.2.1 GHG Setting

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to GHGs, particularly those generated from the production and use of fossil fuels. While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy.

GHGs refer to atmospheric gases that absorb solar radiation and subsequently emit radiation in the thermal infrared region of the energy spectrum, trapping heat in the Earth's atmosphere. These efforts are primarily concerned with the emissions of GHGs generated by human activity, including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), tetrafluoromethane, hexafluoroethane, HFC-23 (fluoroform), HFC-134a (1,1,1,2-tetrafluoroethane), and HFC-152a (difluoroethane). A growing body of research attributes long-term changes in temperature, precipitation, and other elements of Earth's climate to large increases in GHG emissions since the mid-nineteenth century, particularly from human activity related to fossil fuel combustion. Anthropogenic GHG emissions of particular interest include CO_2, CH_4, N_2O, and fluorinated gases. These gases are described in further detail below.

GHGs differ in how much heat each can trap in the atmosphere (global warming potential [GWP]). The GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO_2, the most abundant GHG. The definition of GWP for a particular GHG is expressed relative to CO_2 over a specified time period. For example, the 2007 International Panel on Climate Change Fourth Assessment Report calculates the GWP of CH_4 as 25 and the GWP of N_2O as 298,

over a 100-year time horizon (IPCC 2007). Generally, estimates of all GHGs are summed to obtain total emissions for a project or given time period, usually expressed in $MTCO_2e$ or $MMTCO_2e$.

In the U.S, the main source of GHG emissions is electrical generation followed by transportation (USEPA 2016). In California however, transportation sources are the largest contributors of GHG emissions (CARB 2019). Emissions associated with electricity generation are the second largest contributor and are dominated by CO_2 emissions from fossil fuel combustion.

Carbon Dioxide

CO_2 is a colorless, odorless gas consisting of molecules made up of two oxygen atoms and one carbon atom. CO_2 is produced when an organic carbon compound (such as wood) or fossilized organic matter, (such as coal, oil, or natural gas) is burned in the presence of oxygen. CO_2 is removed from the atmosphere by CO_2 "sinks", such as seawater, ocean-dwelling plankton, forests, and grasslands. Under certain circumstances, however, these sinks can also be a source of CO_2. Whereas the biosphere and ocean achieve a natural balance of CO_2 production and absorption, humankind has altered the natural carbon cycle since the industrial revolution. Beginning in the mid-1700s, the burning of coal, oil, natural gas, and wood has increased globally. Prior to the industrial revolution, concentrations of CO_2 were stable between 275 and 285 ppm. The National Oceanic and Atmospheric Administration (NOAA's) Earth System Research Laboratory indicates that global concentrations of CO_2 were 405.1 ppm in March 2016, an increase that matched the record jump observed in 2015 (NOAA 2017). The 6-year, 6-ppm surge in CO_2 between 2015 and 2017 is unprecedented in the observatory's 59-year record. It was a record fifth consecutive year that CO_2 rose by 2 ppm or greater. These concentrations of CO_2 far exceed the natural range over the last 650,000 years (180 to 300 ppm) as determined from ice cores (IPCC 2007).

Methane

Methane (CH_4) is a colorless, odorless, combustible, non-toxic gas consisting of molecules made up of four hydrogen atoms and one carbon atom. CH_4 is the main constituent of natural gas, a fossil fuel. CH_4 is released when organic matter decomposes in low oxygen environments. Natural sources include decomposition processes generated by wetlands, swamps and marshes, termites, and oceans. Human sources include the mining of fossil fuels and transportation of natural gas, digestive processes in ruminant animals such as cattle, rice paddies, and buried waste in landfills. Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of CH_4. Other anthropogenic sources include fossil fuel combustion and biomass burning.

Nitrous Oxide

Nitrous Oxide (N_2O) is a colorless, non-flammable gas with a sweetish odor, commonly known as "laughing gas", and sometimes used as an anesthetic. N_2O is naturally produced in the oceans and in rainforests. Manmade sources of N_2O include agricultural fertilizers, nylon and nitric acid production, cars with catalytic converters, and the burning of organic matter. Concentrations of N_2O also began to rise at the beginning of the industrial revolution.

Chlorofluorocarbons

Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in CH_4 or ethane with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the Earth's surface). CFCs were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. In the 1970s, scientists discovered that CFCs destroy stratospheric ozone, leading to thinning of the Earth's protective ozone layer. Since then,

there has been an ongoing global effort to halt their production, which has been extremely successful, so much so that levels of the major CFCs are now remaining steady or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

Hydrofluorocarbons

Hydrofluorocarbons (HFCs) are synthesized chemicals that are used as a substitute for CFCs. Out of all of the GHGs, HFCs are one of three groups with the highest GWP. HFCs are synthesized for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons

Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays are able to destroy the compounds only in the upper atmosphere. Consequently, PFCs have very long lifetimes – between 10,000 and 50,000 years. The two main sources of PFCs are primary aluminum production and semiconductor manufacture.

Sulfur Hexafluoride

Sulfur hexafluoride (SF_6) is a manmade and extremely potent GHG. SF_6 is very persistent, with an atmospheric lifetime of more than a thousand years. Thus, a relatively small amount of SF_6 can have a significant long-term impact on global climate. SF_6 is used primarily by the electric power industry. Because of its inertness and dielectric properties, it is the industry's preferred gas for electrical insulation, current interruption, and arc quenching (to prevent fires) in the transmission and distribution of electricity. SF_6 is used extensively in high-voltage circuit breakers and switchgear, and in the magnesium metal casting industry.

3.6.3 Environmental Impacts

3.6.3.1 Thresholds of Significance

The Impact analysis provided below is based on Appendix G of the CEQA guidelines. The Project would result in a significant impact to GHG emissions if it would result in any of the following:

a) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of GHGs.

As stated in the CEQA Guidelines, these questions are “intended to encourage thoughtful assessment of impacts and do not necessarily represent thresholds of significance” (Title 14, Division 6, Chapter 3 Guidelines for Implementation of the CEQA, Appendix G, Environmental Checklist Form). The CEQA Guidelines encourage lead agencies to adopt regionally specific thresholds of significance. When adopting these thresholds, the amended Guidelines allow lead agencies to consider thresholds of significance adopted or recommended by other public agencies, or recommended by experts, provided that the thresholds are supported by substantial evidence. No GHG emission significance threshold has been adopted by the ICAPCD for land development projects. Thus, in the absence of a threshold of significance for GHG emissions that has been adopted in a public process following environmental review, this analysis considers guidance promulgated by other agencies. The County is a member of SCAG, which is composed of several different counties including Imperial, Los Angeles, Orange, Riverside, San Bernardino, and

Ventura counties. Air districts responsible for managing air quality of within SCAG's boundaries include the Antelope Valley Air Quality Management District (Antelope Valley AQMD), the Mojave Desert Air Pollution Control District, the SCAQMD, and the Ventura County Air Pollution Control District.

Due to the climate and land use patterns, the Antelope Valley AQMD and Mojave Desert APCD are air districts that are most similar to the Imperial County APCD's jurisdiction. The Antelope Valley AQMD is within the northern part of Los Angeles County, and the Mojave Desert APCD contains San Bernardino County's high desert region and Riverside County's Palo Verde Valley region. These jurisdictions are in inland desert regions with rural land use patterns; with a substantial number large-scale agricultural, warehousing/distribution, industrial, and military operations. Additionally, both of these agencies have adopted GHG thresholds for use in CEQA analysis. As outlined in the Antelope Valley AQMD's 2016 *California Environmental Quality Act (CEQA) and Federal Conformity Guidelines and Mojave Desert APCD's 2016 California Environmental Quality Act (CEQA) and Federal Conformity Guidelines,* the two air districts both recommend use of a GHG emissions significance threshold of 100,000 short tons of CO_2E per year (90,718 MT CO_2E). Projects with emissions that exceed this threshold are required to incorporate mitigation sufficient to reduce emissions to less than this significance threshold or must incorporate all feasible mitigation. In the absence of adopted GHG significance thresholds, the threshold of 90,718 MT CO_2E is an appropriate CEQA significance threshold for the assessment of GHG emissions for the purposes of this Project.

3.6.3.2 Issues Scoped Out as Part of the Initial Study

None of the thresholds of significance, as listed above, were eliminated for further analysis in the Initial Study (Appendix A).

3.6.3.3 Methodology

Construction and operation of the Project would result in GHG emissions. Emissions were calculated using the CalEEMod (Version 2016.3.2). The CalEEMod program is a tool used to estimate emissions resulting from land development projects in the state of California. CalEEMod was developed with the participation of several state air districts including the SCAQMD.

CalEEMod estimates parameters such as the type and amount of construction equipment required, trip generation, and utility consumption based on the size and type of each specific land use using data collected from surveys performed in SCAQMD. Where available, parameters were modified to reflect Project-specific data.

3.6.3.4 Project Impacts and Mitigation Measures

a) Would the Project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Construction and operation of the Project would generate GHG emissions from a variety of sources. Construction GHG emissions were amortized over the lifetime of the Project (30-years) and were added to annual operational GHG emissions (Appendix G). Annual GHG emissions for the Project are shown in Table 3.6-2.

Table 3.6-2 Project Annual Greenhouse Gas Emissions

Emission Source	Annual Greenhouse Gas Emissions (metric tons of carbon dioxide equivalents per year)
Construction	
Total Construction	5,687
Amortized Construction	190
Operation	
Maximum Battery Energy Losses and Auxiliary Load	82,344
Emergency Generators (Testing)	62
Mobile	741
Area Sources	<1
Water Use	30
Solid Waste Disposal	3
Total Operation	**83,181**
Project Total	**83,370**
Significance Threshold	*90,718*

Notes:
Totals may not add up exactly due to rounding.
Source: RECON 2021b

As shown in Table 3.6-2, construction and operation of the Project would generate a maximum of 83,370 MTCO annually. Therefore, Project GHG emissions would be less than the applicable screening threshold, and impacts would be less than significant. In order to further reduce Project-related GHG-emissions, the Project would provide solar PV on the Project Site to the extent feasible. It is estimated that a range of 17,000 to 34,000 MWh would be produced annually by on-site solar PV at full build-out. On-site solar PV would offset 2,761 to 5,522MT CO2E per year of the Project's GHG emissions. For informational purposes, the energy offset associated with on-site solar PV was calculated and is summarized in Table 3.6-3. As with energy-related emissions, the GHG off-set emissions associated with on-site solar depends on the state's progress towards RPS goals. GHG off-set emissions were calculated assuming an RPS target of 60 percent by year 2030.

Table 3.6-3 Solar Photovoltaics/Greenhouse Gas Emissions Offset

Solar Photovoltaic Electricity Generation (megawatt hours/year)	Off-Set Greenhouse Gas Emissions (metric tons of carbon dioxide equivalents per year)
17,000	2,761
34,000	5,522

Note: The installation of more solar PV would not be feasible due to space restrictions.

Construction

The Project would be constructed in three to five phases over a 10-year period. Construction activities is anticipated to take approximately 32 months to complete the full Project build-out. Phase 1 of the Project

would include construction of the common components such as roads, permanent clear-span bridge, O&M facilities, water connections and water mains, stormwater retention, switching station and Project substation, legal permanent vehicle access, as well as the first energy storage facility. The additional phases after Phase 1 would only construct energy storage facilities, and construction activities would be less intensive overall compared to Phase 1, in addition to requiring less construction equipment.

Construction GHG emissions would be generated from the operation of off-road equipment, emergency generators, and worker and haul truck trips. The Project would implement the standard measures for fugitive PM_{10} control as described in the ICAPCD handbook. Details of the construction analysis and fugitive dust control measures are provided in Appendix D.

Off-road Equipment

CalEEMod calculates GHG emissions from construction equipment using emission factors from CARB's off-road diesel equipment emission factors database, OFFROAD 2011. All equipment was assumed to meet CARB Tier 3 In-Use Off-Road Diesel Engine Standards.

Mobile Sources

CalEEMod calculates mobile source emissions using emission factors derived from CARB's EMFAC2014. Construction mobile emissions would be based on construction worker trips, vendor trips, and hauling trips. During peak construction activities, approximately 200 workers and 30 daily deliveries would be required. An average trip length was used to calculate total mobile emissions.

Water Consumption

Water would be used for fugitive dust control during construction activities. Typically, water use for fugitive dust control during construction activities would have indirect GHG emissions associated with it. These emissions are a result of the energy used to supply, treat, and distribute water. However, during all construction activities, the water truck would access water directly from the Westside Main Canal immediately adjacent to the Project Site; and therefore, there would not be any emissions associated with transporting water to the Project Site.

Operation

Operation of the Project would generate GHG emissions from mobile sources, electricity and water consumption, waste generation, and area sources such as landscaping equipment. The Project would also include emergency generators to supply auxiliary power to the facility during power outages. Generators would be periodically tested each year to maintain backup capabilities in the event of a grid emergency. All generators would be subject to ICAPCD review and permitting requirements.

Mobile Sources

CalEEMod calculates mobile source emissions using emission factors derived from EMFAC2014. Operation of the Project at full build-out would require up to approximately 20 full-time employees depending upon the number of phases and type of energy storage facility constructed. The Project may require fewer full-time equivalent employees, but 20 employees were assumed to provide a conservative estimate. Assuming two one-way trips per employee, the Project would be anticipated to generate up to 40 trips per day from all maintenance and security personnel. A 20-mile trip length was modeled.

Area Sources

An area source is any non-permitted stationary source of emission. Common area sources include fireplaces, natural gas used in space and water heating, consumer products, architectural coatings, dust from farming operations, landscaping equipment, and small combustion equipment such as boilers or backup generators. The Project does not include measurable amounts of fireplace use, natural gas use, consumer products, architectural coatings, or other area sources. Landscaping equipment would be used during routine weed abatement and landscaping activities and would occur on an as needed basis. The Project Site is bounded by roads, agricultural uses, and solar generation facilities. As the Project is not adjacent to natural lands, landscaping maintenance for maintaining a fire-clearing zone would be minimal and would result in negligible GHG emissions.

Energy Sources

Energy use emissions typically include indirect GHG emissions associated with the generation of electricity from off-site fossil fuel power plants that supply energy to the CAISO electricity grid. A majority of the Project's energy demand would be associated with the battery system energy losses and auxiliary load necessary to operate the battery storage system. The battery system energy losses and auxiliary load includes energy needed to power HVAC units to control the temperature of the battery components, battery energy losses, inverter and transformer energy losses, and AC and DC wire losses. Energy consumption modeling, provided by the Applicant, is based on full build-out of a 2,000 MW capacity Li-ion battery storage facility. The facility would be served primarily by the CAISO.

GHG emissions associated with the auxiliary load were calculated using an emission rate of 0.428 MT CO2E per MWh as identified in CAISO's Greenhouse Gas Emission Tracking Methodology (CAISO 2016). This emission rate was assigned by CARB and is established in Section 95111(b)(1) of CARB's February 2014 update to the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions. This rate was established in 2014 when only 22.77 percent of California's total system power contained renewable energy sources. As of 2018, 32.35 percent of California's total system power was derived from renewable sources, and with the approval of SB 100, 100 percent of California's total system power will be derived from renewable sources by the year 2045. The emissions rate of 0.428 MT CO_2E per MWh assigned by CARB in 2014 does not reflect the State's renewable resources targets established in SB 100. Thus, the analysis adjusts the assigned emission rate proportionally to the RPS target schedule established in SB 100.

The Project would also install BTM (energy that is generated on-site for on-site use) solar PV facilities to offset as much of the battery system auxiliary loads as feasible. The installed capacity would depend on a number of factors including the amount of available space (rooftop and ground), and other economic and technological considerations. The energy-related GHG emissions that would be offset by the Project's BTM solar PV systems were calculated using CAISO emissions factors, and it is estimated that a range of 17,000 to 34,000 MWh would be produced annually at full build-out.

Waste and Wastewater

Water usage for the O&M facilities and personnel would be less than 10,000 gallons per day. Additionally, approximately 1,000,000 gallons of water would be stored on-site in storage tanks for fire suppression. Potable water would be delivered to the Project Site from a third-party water supplier that would require a maximum of two truck deliveries per month. Therefore, direct emissions associated with potable water deliver would be negligible. The water use of the Project has indirect GHG emissions associated with it. These emissions are a result of the energy used to supply, distribute, and treat water. Water use emissions are estimated based on regional efficiency factors for water supply, treatment, and distribution.

Solid Waste Generation

The disposal of solid waste produces GHG emissions from anaerobic decomposition in landfills, incineration, and transportation of waste. Battery energy storage facilities are not known to generate substantial quantities of biodegradable waste. Some amount of solid waste would be generated by employees and maintenance staff at the O&M building. The amount of solid waste generated was modeled using standard generation rates for light industrial uses.

Propane Fueled Emergency Generators

The Project would include propane-fueled emergency backup generators to augment the backup battery storage capacity, as well as BTM solar power generation during rare events in which the entire facility or portions of the facility, are disconnected from the electrical grid. The generators would be tested monthly to help ensure backup capacity in the event of a grid emergency. GHG emissions were calculated using EPA AP-42 emission factors and a fuel consumption rate of approximately 23 gallons per hour, based on specifications for a representative propane-fueled generator. The Project would include up to 20 generators. For the GHG emission calculations, it was assumed that each of the 20 generators would be tested once per month for a total operation time of two hours each month. The results in total annual operation time of 480 hours. Therefore, emergency generator testing would result in total annual emissions of approximately 62 $MTCO_2e$.

Decommissioning

The Project is anticipated to operate for a total of approximately 30 years from the construction of the final phase. At the end of the Project Site's operational term, the Applicant may determine that the Project Site should be decommissioned and deconstructed, or it may seek an extension of its CUP. Project decommissioning emissions were not calculated, as the equipment and fuel types may change in the future. The overall impacts of decommissioning would be anticipated to be somewhat less than Project construction and operation. Overall, similar to construction and operations, emissions associated with decommissioning would be less than significant.

Potential impacts related to the generation of GHG emissions would be less than significant.

Mitigation Measures

None required.

Level of Significance After Mitigation

Not applicable.

b) Would the Project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions?

The Project would generate GHG emissions associated with constructing and operating a utility scale energy storage facility, including electricity generation to be used on-site. As shown in Table 3.6-2, implementation of the Project has the capability to result in GHG reductions. Using 2020 and 2030 IID energy intensity factors, it was calculated that the Project could potentially offset 2,693 to 6,959 MTCO2e annually from traditional fossil fuel electricity generation. The Project would support the State's goal to increase use of renewable energy consistent with the RPS established by SB 100. As California procures increasing amounts of renewable energy to meet the goals of SB 100, the state will need to deploy a

significant amount of energy storage. Renewable energy resources such as wind and solar generate electricity intermittently. Energy storage allows utilities and system operators to manage the effect of intermittent renewable generation on the grid as a firm, dispatchable resource. Energy storage also allows excess solar energy produced during the day to be stored and dispatched optimally during peak evening hours or other periods of high demand. Thus, the Project would be consistent with state goals in AB 32 and the 2017 Scoping Plan for reducing GHG emissions from fossil fuel sources, as well as supporting meeting RPS requirements. The Project would not conflict with an applicable, plan, policy or regulation adopted for the purpose of reducing GHG emissions; therefore, impacts would be less than significant.

As shown in Table 3.6-2 above, the Project's annual GHG emissions would be less than the screening threshold of 90,718CO2E per year., Additionally, the Project would support the State's goal to increase use of renewable energy consistent with the RPS. In September 2018, the California Legislature passed SB 100, which set a goal aimed at eliminating fossil fuel from California's electricity generation and requires all the State's electricity resources to be carbon-free by 2045. The Project would serve as an integral component of the State's overarching renewable energy strategy by providing the necessary energy The Project would store energy generation from the electrical grid, and optimally discharge that energy back into the grid as firm, reliable generation and/or grid services. The Project's Conceptual Site Plan (Figure 2.3-1) includes a representation of Li-ion buildings and containers, as well as flow buildings and containers. The components that make up the energy storage systems and common facilities require various preventative maintenance and at times corrective maintenance.

The Project would assist the State's goal of utilizing 100 percent renewable energy by 2045, which would result in a net decrease in use of fossil fuel and GHG emissions. Therefore, the Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emission of GHGs, and impacts would be less than significant.

Mitigation Measures

None required.

Level of Significance After Mitigation

Not applicable.

3.7 HAZARDS AND HAZARDOUS MATERIALS

This section describes the regulatory and environmental setting for hazards and hazardous materials. It also describes potential impacts regarding hazards and hazardous materials that would result from implementation of the Project and includes mitigation measures for significant impacts, where applicable. The information provided in this section is based on the information provided in the Hazard Consequences Analysis Report prepared by Stantec (April 2020), and the Phase I Environmental Site Assessment (ESA) prepared by GS Lyon Consultants (March 2019), Appendix J.1 and Appendix J.2, respectively, of this EIR.

3.7.1 Regulatory Framework

3.7.1.1 Federal

Resource Conservation and Recovery Act of 1976 (42 USC et seq.)

The Resource Conservation and Recovery Act (RCRA) grants authority to the United States Environmental Protection Agency (EPA) to control hazardous waste from start to finish. This covers the production, transportation, treatment, storage, and disposal of hazardous waste. The RCRA amendments to the RCRA enabled the EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. The Project would routinely transport and use hazardous materials, including battery storage components and fuels such as gasoline. These components and materials would be necessary to support construction and operational activities apart of the Project. Disposal of battery components could contain potentially hazardous materials (USEPA 2020).

Federal Water Pollution Control Act (Clean Water Act)

The Federal Water Pollution Control Act, better known as the CWA, is a comprehensive statute focused on restoring and maintaining the chemical, physical, and biological integrity of the nation's waters (EPA 2002). Originally enacted in 1948, the CWA was amended numerous times until it was reorganized and expanded in 1972. It continues to be amended on an annual basis.

The primary authority for the implementation and enforcement of the CWA rests with the EPA. The CWA authorizes water quality programs, requires federal effluent limitations and state water quality standards, requires permits for the discharge of pollutants into navigable waters, provides enforcement mechanisms, and authorizes funding for wastewater treatment works construction grants and state revolving loan programs, as well as funding states and tribes for their water quality programs. Programs have also been added to address water quality programs in specific regions and waterways.

Pursuant to CWA Section 402(p), the SWRCB has issued a Statewide NPDES General Permit for Stormwater Discharges Associated with Construction Activity (Order No. 2009-0009-DWQ, NPDES No. CAR000002 Construction General Permit, adopted September 2, 2009, and modified by Order 2010-0014) (SWRCB 2008). Every construction project that disturbs one or more acres of land surface or that is part of a common plan of development or sale that disturbs more than one acre of land surface would require coverage under the Construction General Permit.

Occupational Safety and Health Act

Congress passed the Occupational Safety and Health Act (OSHA) to assure safe and healthful working conditions for the working men and women. OSHA authorizes enforcement of the standards developed under the Act and by assisted States in its efforts to assure safe and healthful working conditions. OSHA

also provides for research, information, education, and training in the field of occupational safety and health. The Project would be subject to OSHA requirements during construction, operations and maintenance, and decommissioning.

3.7.1.2 State

Title 22 of the California Code of Regulations

Hazardous Materials Defined

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency, of it has characteristics as defined as hazardous by such agency (DTSC 2018). According to Title 22, Section 66260.10 of the CCR, a hazardous material is defined as:

> *…A substance or combination of substances which because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or, (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed.*

This definition includes, but is not limited to, any chemical that requires a Material Safety Data Sheet (MSDS) or a Safety Data Sheet (SDS) per Hazardous Substances defined at Health and Safety Code 25501(q), materials listed in 49 CFR 172, and Hazardous Waste.

Chemical and physical properties that cause a substance to be considered hazardous include the properties of toxicity, ignitability, corrosivity, and reactivity (22 CCR sections 66261.20 through 66261.24). Factors that influence the health effects of exposure to hazardous materials include dosage, frequency, the exposure pathway, and individual susceptibility. The Project would require use of small amounts of hazardous materials, such as diesel fuel, gasoline, oil, and grease for heavy equipment, during construction, operations, and maintenance. The Project would use both flow and Li-ion battery technologies, each with fire protection systems designed in accordance with California Fire Code 2016 and will take into consideration the recommendations of the National Fire Protection Association (NFPA) 855, Standard for the Installation of Stationary Energy Storage Systems.

California Environmental Protection Agency

The California Environmental Protection Agency (CalEPA) and the State Water Resource Control Board (SWRCB) establish rules governing the use of hazardous materials and the management of hazardous waste (CalEPA 2016). Applicable state and local laws include the following:

- Public Safety/Fire Regulations/Building Codes
- Hazardous Waste Control Law
- Hazardous Substances Information and Training Act
- Air Toxics Hot Spots and Emissions Inventory Law
- Underground Storage of Hazardous Substances Act
- Porter-Cologne Water Quality Control Act

The use of Li-ion batteries and small quantities of hazardous materials as part of the Project would be subject to state and local laws.

Department of Toxic Substances Control

The Department of Toxic Substances Control (DTSC) has primary regulatory responsibility for the management of hazardous materials and the generation, transport, and disposal of hazardous waste under the authority of the Hazardous Waste Control Law (HWCL; DTSC 2018). Enforcement is generally delegated to local jurisdictions that enter into agreements with DTSC; however, DTSC acts directly as the Certified Unified Program Agency (CUPA) for the County.

California's Secretary of Environmental Protection established a unified hazardous waste and hazardous materials management regulatory program as required by Health and Safety Code Chapter 6.11. The unified program consolidates, and coordinates the following six programs:

- Hazardous Waste Generations and Hazardous Waste On-Site Treatment
- Underground Storage Tanks
- Hazardous Material Release Response Plans and Inventories
- California Accidental Release Prevention Program
- Aboveground Storage Tanks (spill control and countermeasure plan only)
- Uniform Fire Code Hazardous Material Management Plans and Inventories

The statute requires all counties to apply to the CalEPA Secretary for the certification of a local unified program agency. Qualified cities are also permitted to apply for certification. The local CUPA is required to consolidate, coordinate, and make consistent the administrative requirements, permits, free structures, and inspection and enforcement activities for these six program elements within the county. Most CUPAs have been established as a function of a local environmental health or fire department.

The Office of the State Fire Marshal participates in all levels of the CUPA program including regulatory oversight, CUPA certifications, evaluations of the approved CUPAs, training, and education. The DTSC serves as the CUPA in the County.

Title 8, California Code of Regulations, Section 2700 et seq. "High Voltage Safety Orders"

Title 8 of the CCR specifies requirement and minimum standards for safety when installing, operating, working around, and maintaining electrical installations and equipment. The Project is subject to Title 8 regulations.

California Code of Regulations, Sections 1250-1258, "Fire Prevention Standards for Electric Utilities"

14 CCR provides specific exemptions from electric pole and tower firebreak. 14 CCR also provides conductor clearance standards and specifies when and where standards apply. These standards address hazards that could be caused by sparks from conductors of overhead lines, or that could result from direct contact between the line and combustible objects.

2016 California Fire Code

The 2016 CFC is an enforceable set of regulations for the safeguarding of public health, safety, and general welfare from the hazards of fire, explosion or dangerous conditions in new and existing buildings, structures, and premises, and to provide safety and assistance to fire fighters and emergency responders during emergency operations (CFC 2017).

3.7.1.3 Local

Imperial County General Plan

The County General Plan contains goals, objectives, policies, and programs created to minimize the risk associated with hazards and identify the potential natural and human induced hazards.

Seismic and Public Safety Element

Goal 3: Protect the public from exposure to hazardous materials and wastes.

> **Objective 3.1:** Discourage the transporting of hazardous materials/waste near or through residential areas and critical facilities.
>
> **Objective 3.2:** Minimize the possibility of hazardous materials/waste spills.
>
> **Objective 3.3:** Discourage incompatible development adjacent to sites and facilities for the production, storage, disposal, and transport of hazardous materials/waste as identified in the County General Plan and other regulations.
>
> **Objective 3.4:** Adopt and implement ordinances, policies, and guidelines that assure the safety of County ground and surface water from toxic or hazardous materials and wastes.

Imperial County Office of Emergency Services – Emergency Operations Plan

The Imperial County Fire Department (ICFD) and Office of Emergency Services (OES) administer the emergency management program within the County. The County Emergency Operations Plan (EOP) provides a comprehensive, single source of guidance and procedures for the County to prepare for and respond to significant or catastrophic natural, environmental, or conflict-related risks that produce situations requiring coordinated response. It further provides guidance regarding management concepts relating to response and abatement of various emergency situations, identifies organizational structures and relationships, and describes responsibilities and functions necessary to protect life and property. The EOP is consistent with the requirements of the Standardized Emergency Management System (SEMS) as defined in Government Code Section 8607(a) and the U.S. Department of Homeland Security National Incident Management System (NIMS) for managing response to multi-agency and multi-jurisdictional emergencies. SEMS/NIMS incorporates the use of the Incident Command System (ICS), mutual aid, the operational area concept, and multi/interagency coordination.

3.7.2 Environmental Setting

The Project would provide a utility-scale battery energy storage complex with Li-ion battery systems, and/or flow battery technologies. The Project would be located north of the IV Substation and south of the Liebert Road and the Westside Main Canal intersection. The Project Site is located directly south of the Campo Verde solar generation facility.

3.7.2.1 Project Site

Phase I Environmental Site Assessment

A Phase I Environmental Site Assessment (ESA) Report was prepared for the Project Site in conformance to ASTM Standard E1527-13 *"Standard Practice for Environmental Site Assessments: Phase I*

Environmental Site Assessment Process". The Phase I ESA was prepared to determine if any recognized environmental conditions, associated with past and present activities, are present within the boundaries of the Project property, or in its vicinity.

Transformers were noted on three power poles on the Project Site. No evidence of leakage from the transformers was noted and labels were affixed to the transformers indicating that the transformers do not contain polychlorinated biphenyl (PCB). The IID has tested all transformers in the Imperial Valley for PCB content and replaced those containing PCB's. Regulatory database review did not identify any recognized environmental conditions for the Project Site or within a one-mile radius.

The results of the Phase I ESA indicate the Project Site is located in an area of historical agriculture use. The Project Site is void of any structures and was utilized as active agricultural fields until the early 2000s, after which it has not been utilized for any agriculture purpose in the last 15 to 20 years. No recognized environmental conditions or historical recognized environmental conditions were identified during the Phase I ESA. GS Lyon Consultants Inc. identified the potential of residual pesticides, such as DDT (dichlorodiphenyltrichloroethylene) or DDE (dichlorodiphenyldichloroethylene), to be present in limited concentrations in surface soils, and determined that no further investigation was necessary.

Battery Storage System

The on-site battery storage system could deploy Li-ion, and/or flow batteries. The batteries could contain a variety of valuable metals, and recycling of these batteries is expected to become increasingly commonplace with the increased use of batteries in consumer goods and electric vehicles. Some batteries may have the capacity at the end of the operating life of the Project to be reused. The chemical components of flow batteries may either be disposed of as hazardous waste (i.e., neutralization of the liquid within the battery), or they may comprise valuable elements which would also be recycled or reused.

3.7.2.2 Valley Fever

Valley Fever is a disease caused by fungi, specifically *Coccidioides immitis* and *Coccidioides posadasii,* that grows in the soils of areas of southwestern California and southwestern U.S. Valley Fever is contracted through the inhalation of the microscopic fungal spores. The fungal spores become airborne through soil disturbance. Individuals in occupations such as construction, agriculture, and other soil disturbing activities have higher risks of exposure. With its location in the County, the soil underlying the Project Site, would fit the profile to harbor *Coccidioides immitis* and *Coccidioides posadasii* fungal spores (CDPH 2020).

3.7.3 Environmental Impacts

3.7.3.1 Thresholds of Significance

The impact analysis provided below is based on Appendix G of the CEQA Guidelines, as listed in Appendix G. The Project would result in a significant impact to hazards and hazardous materials if it would result in any of the following:

a) Create a significant hazard to the public or the environment through the routine transportation, use, or disposal of hazardous materials?

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

3.7.3.2 Issues Scoped Out as Part of the Initial Study

The following thresholds of significance were eliminated from further consideration in the Initial Study (see Appendix A of this EIR) since they were determined to be less than significant or no impact. They are briefly described in Chapter 7:

- Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school
- Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area
- Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan
- Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires

3.7.3.3 Methodology

The analysis of hazardous materials is twofold: hazards potentially existing on the site parcels; and hazardous materials that would be used as part of Project construction, operations and maintenance, and decommissioning.

Potential existing hazards were assessed based on information contained in the Phase I Environmental Site Assessment Report (Appendix H.2). Potential hazards related to accidental upset conditions and the potential for offsite toxics migrations is assessed based on the information, modeling, and analysis contained in the Hazard Consequences Analysis Report (Appendix H1).

Some hazardous materials would be used on a short-term basis during construction and decommissioning. Others would be stored on-site for use during operation and maintenance. Some materials, such as the batteries, are not necessarily hazardous during use, but are classified as hazardous materials based on state disposal requirements. Therefore, this analysis was conducted by examining the choice and amount of chemicals to be used, the manner in which the Applicant would use the chemicals, the manner by which they would be transported to the facility, and the way in which the Applicant plans to store the materials on the site during construction, operation, and decommissioning. The greatest amount of chemicals used, transported, and stored on the Project Site parcels have the potential to occur during the Full Build-out Scenario (regardless of near-term or long-term), assuming the entire Project is constructed of Li-ion batteries. Therefore, the Full Build-out Scenario is considered the worst-case scenario for the purposes of this analysis.

3.7.3.4 Project Impacts and Mitigation Measures

a) Would the Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Construction

Construction of the Project would involve the routine use of hazardous materials such as equipment fuels (gasoline, diesel), oils and lubricants, and hydraulic fluid. These materials could be released during construction as a result of mishandling, accidents, or leaking equipment; however, existing regulations would require the Applicant (and by extension, the construction contractors) to monitor work areas for the release of hazardous materials and to take steps to prevent the release of contaminants into the surrounding environment.

During construction-related activities of the Project, fuels and other materials such as greases used with construction-related equipment may be stored on-site within locked aboveground containers within a fenced and secure staging area. The USEPA requires that any non-transportation related facility, if storing an aggregate aboveground oil storage capacity of more than 1,320 U.S. gallons in containers that are 55 gallons or greater, should submit a Spill Prevention, Control, and Countermeasure (SPCC) Plan (40 CFR §112). Project construction activities are not expected to store this amount of fuel; however, BMPs would be implemented to ensure any accidental spill is contained by providing secondary containment or similar measures. Trucks and construction vehicles, if serviced on-site, would also follow similar BMPS to prevent spill. The use, storage, transport, and disposal of hazardous materials used in construction of the facility would be carried out in accordance with federal, state, and County regulations. MSDSs for all applicable materials present on-site would be made readily available to on-site personnel.

Release of hazardous materials could also impact soil and water quality if conveyed by storm runoff. To prevent this from happening, Mitigation Measure HYD-1 would be implemented that requires preparation of a SWPPP prior to initiation of construction-related activities. Additional details of the SWPPP are provided in Section 3.8, Hydrology and Water Quality. Based on the above, construction related impacts would be less than significant with mitigation.

Operation

Operation of the Project would require the use of hazardous materials (such as pesticides or herbicides) only where necessary to manage vegetation. Materials containing electrolytes and graphite could also be transported during operation if replacement of batteries is needed. All of these various materials would be transported and handled in compliance with DTSC regulations. Therefore, likelihood of an accidental release during transport or residual contamination following accidental release is not anticipated.

As part of the existing regulations, the Applicant would obtain an approved Hazardous Materials Business Plan) from the CUPA. This plan is used to provide information to the general population regarding hazardous materials at facilities and includes safe handling requirements, storage requirements, and periodic training requirements. Additionally, the plan also requires a release reporting requirement in the event that there is a reasonable belief that the release or threatened release poses a significant present or potential hazard to human health, safety, property, or the environment (County 2019). All chemicals stored on-site for operations would be included in the (hazardous materials business plan) HMBP.

Li-ion batteries may contain cobalt oxide, manganese dioxide, nickel oxide, carbon, electrolyte, graphite, and polyvinylidene fluoride. While one of these chemicals are considered extremely hazardous substances, the electrolyte and graphite would be considered hazardous because of its potential to ignite when reacts

with water. The U.S. Department of Transportation (DOT) regulates transport of Li-ion batteries under the DOT's Hazardous Materials Regulations (HMR; 49 C.F.R., Parts 171-180). The HMR apply to any material DOT determines is capable of posing an unreasonable risk to health, safety, and property when transported in commerce. Li-ion batteries must conform to all applicable HMR requirements when offered for transportation or transported by air, highway, rail, or water (DOT 2020).

Personnel training and personal protective equipment would be provided to all employees. To ensure compliance with the OSHA Emergency Action Plan Standard, 29 CFR 1910.38, and to prepare personnel for dealing with emergency situations, an emergency action plan would be developed. This emergency action plan would be developed to effectively address all emergencies that may be reasonably expected to occur at the BESS. Such a plan may include a designated emergency coordinator who would be responsible for notification of emergency personnel and safely evacuating Project employees, as well as the proper use of fire extinguishers (if applicable). All personnel working on-site would receive instruction and training on the emergency action plan. Adherence to the requirements and regulations, personnel training, safe interim storage, and segregation from other potential waste streams would minimize any public hazard related to transport, use, or disposal of hazardous materials during operations.

The BTM solar generation may be constructed using PV panels that contain a thin semiconductor layer containing cadmium telluride (CdTe). While CdTe itself is a hazardous substance in an isolated form, the CdTe in the PV panels is bound and sealed within the glass sheets and a laminate material. During the PV module manufacturing process, CdTe is bound under high temperature to a sheet of glass by vapor transport deposition, coated with an industrial laminate material, insulated with solar edge tape, and covered with a second sheet of glass. The module design results in the encapsulation of the semiconductor material between two sheets of glass thereby preventing the exposure of CdTe to the environment. Studies indicate that unless the PV module is purposefully ground to a fine dust, use of CdTe in PV modules do not generate any emissions of CdTe (Fthenakis 2003). CdTe PV modules, therefore, do not present an environmental risk during operations. CdTe releases are also unlikely to occur during accidental breakage or fire due to the high chemical and thermal stability of CdTe.

Alternatively, the BTM solar generation may be constructed using PV panels that contain a layer containing polycrystalline silicon material. This material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). In the manufacturing process, the polycrystalline silicon is encapsulated from the top and bottom with an industrial laminate material then covered with a sheet of tempered glass on top. The back of the panel is covered with an insulating layer of polymer laminate to protect against electrical shock with boosting the efficiency of the panel. This back sheet could also be a second layer of tempered glass which allows for reflected light to pass through. These are called bifacial modules, and they can produce power from light hitting the panel from above and below. The entire module is contained within a powder-coated aluminum frame and sealed to be water-tight.

With enforcement of federal, state, and County regulations, employee training, potential for accident conditions as part of use and storage during operation of the BESS, operation of the Project would be less than significant.

Decommissioning

At the end of the 40-year Project CUP lifespan, decommissioning activities would be undertaken. Following expiration of the CUP, reissuance of the CUP would be possible by the Applicant or successor-in-interest. Decommissioning activities of the Project would apply to those portions of the Project that involve operational components, including, but not limited to, an electrical switching station, substation, battery modules, inverters, transformers, and PV modules. All operational components would be disassembled and removed, with all materials recycled, reused, or disposed of appropriately. A number of solar panel

manufacturers have joined recycling associations for voluntary take-back and recycling of photovoltaic modules. These recycling centers will disassemble the panels and recycle all main components. All solar panels located at the Project Site will be removed and transported to a recycling facility, for safe recapture of the metals and polycrystalline silicon for re-use and/or responsible disposal. The transport and disposal of hazardous materials during decommissioning of the facility would be carried out in accordance with federal, State, and County regulations.

Compliance with existing hazardous materials regulations and CUPA permitting would ensure that the potential for the Project to create a significant hazard to the public through the routine transport, use, or disposal of hazardous materials would be less than significant during the construction, operations, and decommissioning.

Mitigation Measures

Implement Mitigation Measure AIR-1 and HYD-1.

Level of Significance After Mitigation

Implementation of the mitigation measures above would reduce potential impacts of hazardous materials to less-than-significant levels.

b) Would the Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Construction

As discussed under Impact Analysis (a), the Project is not expected to cause a significant hazard to the public or the environment through the transport, use, or disposal of hazardous materials, largely because the Project will not transport, use, or dispose such materials in meaningful quantities. Construction-related activities would require the limited use of hazardous materials that could result in potential adverse health and environmental impacts if these materials were released into the environment, implementation of construction-related water quality BMPs (implemented as part of the Project's SWPPP) would reduce the potential for such releases and ensure quick response to any spills such that impacts would be less than significant. In addition, a SPCC or BMPs to address accidental fuel spills during construction would be implemented to reduce impacts from the release of hazardous materials into the environment.

The Site was farmed from 1953 through 2005 or 2006. The Phase I ESA noted that, based on the historical use of the Site, residues of currently available pesticides and currently banned pesticides, such as DDT/DDE may be present in near surface soils in limited concentrations. The concentrations of these pesticides found on other Imperial Valley agricultural sites are typically less than 25 percent of the current regulatory threshold limits and, at those levels, are not considered a significant environmental hazard. The presence and concentration of near surface pesticides at the Project Site can be accurately characterized only by site-specific sampling. However, the Phase I ESA did not consider this as a recognized environmental condition. While chemical retention in surface and subsurface soils could be of concern, a majority of agricultural chemicals degrade rapidly in the presence of ultraviolet light from the sun. Furthermore, most newer-formulated chemicals have lower retention time, especially at the lower application concentrations directed by regulatory agencies. No soil remediation was recommended. This is considered a de minimis condition. Therefore, impacts associated with release of herbicides/pesticides during construction are considered less than significant.

It is possible that previously unknown hazardous materials could be released during ground clearance or disturbing activities during construction. The Project Site has been used for illegal dumping in the past. The Project Site exhibits dumped materials ranging from unwanted clothing and toys to construction materials, abandoned vehicles, and broken appliances. The Phase I ESA did not identify any recognized environmental conditions in connection with the Project Site, and as such, no further investigation was recommended. Transformers were noted on three power poles on the Project Site. As noted in Phase I ESA, all transformers containing PCBs have been replaced by IID. Therefore, if during construction activities, on-site transformers require removal, would not result in release of hazardous chemicals into the environment. The potential for disturbing undocumented subsurface utilities or structures would be further reduced by screening for subsurface structures in areas prior to commencement of subsurface work as required by California Government Code Section 4216.

Construction activities, including grading and construction vehicle traffic, would generate fugitive dust and could expose construction personnel to potential health hazards associated with the Valley Fever during high winds. Extended periods of high heat or unusually windy conditions could increase fugitive dust and the resulting potential for exposure to the Coccidioides fungus. As a result, sensitive receptors could be exposed to potential health hazards during Project construction, resulting in a potentially significant impact.

The Project will minimize the generation of fugitive dust during these activities by complying with IPAPCD's regulations and implementing standard construction BMPs. The Project would implement Mitigation Measures AIR-1 for dust suppression measures as noted in Section 4.3, Air Quality. This measure would minimize the likelihood or extent of fugitive dust, thereby reducing the potential for exposure to the Coccidioides fungus. When exposure to dust is unavoidable, employers must provide National Institute of Occupational Safety and Health (NIOSH)-approved respiratory protection with particulate filters rated as N95, N99, N100, P100, or high-efficiency particulate arrestance (HEPA), and employers must develop and implement a respiratory protection program in accordance with California's Occupational Safety & Health Administration's (Cal/OSHA) Respiratory Protection standard (8 CCR 5144). The Project would comply with this requirement if needed.

Therefore, construction activities would result in a less than significant impact with regard to accidental release of hazardous substances in the environment.

Operation

The Project is not anticipated to store large quantities of chemicals during operations. However, if the Project would store hazardous substances exceeding regulatory thresholds, the Applicant would be required to prepare and submit a HMBP and obtain hazardous materials permits from CUPA. These permits would include preventive requirements and best practices for the use of hazardous materials related to the Project. CUPA requires a HMBP for any facility that stores 55 gallons of a hazardous liquid material, 500 pounds of a hazardous solid material, or 200 cubic feet of a hazardous gaseous material. The HMBP would detail the location and quantities of hazardous materials stored onsite. MSDSs for all applicable materials would be present on-site. That information would be made available to emergency responders such as firefighters and medical personnel, who would, in part, use such information to contain the hazardous materials and avoid the creation of a significant hazard.

While the Project is not expected to store regulated substances in quantities greater than the threshold quantities, there may be potential upset and accident conditions with a risk of initiating a thermal runaway[1] (fire/explosion) event if Li-ion batteries are used. Potential upset and accident conditions include fire that

[1] Thermal runaway describes a process that is accelerated by increased temperature, in turn releasing energy that further increases temperature.

results from overheating within the battery energy storage system. A hazard consequences analysis was prepared to determine impacts resulting from the release of air toxics from a credible fire or thermal runaway event at the Project Site. There are four hazardous substances that are potentially released during a thermal runaway event and include hydrogen chloride, hydrogen fluoride, hydrogen cyanide, and carbon monoxide. These air toxics were analyzed using Areal Locations of Hazardous Atmospheres (ALOHA) modeling to determine the characteristics of emissions, possible smoke or emissions plume under several weather and wind scenarios, and potential exposure impacts to population and animals within the plume area. The results of this off-site consequence analysis showed that should an accidental event occur, the toxic endpoint distance would be approximately 33 feet from the toxic release point. The distance to the toxic endpoint is the distance a toxic vapor cloud, heat from a fire, or blast waves from an explosion will travel before dissipating to the point where serious injuries from short-term exposures would no longer occur. The nearest sensitive receptor is a single-family residence approximately 4,000 feet northeast from the Project Site boundary, far beyond the potential for harm from a thermal runaway hazard.

In addition, fire protection systems for the BESS will be designed in accordance with California Fire Code 2016 and will take into consideration the recommendations of the NFPA 855. Depending on the technology used, fire suppression agents, such as Novec 1230 or FM 200, or water may be used as a suppressant. In addition, fire prevention methods will be implemented to reduce potential fire risk, including voltage, current and temperature alarms. Energy storage equipment will comply with UL-9540 and will account for the results of UL-9540A. As noted in Section 2.0, Project Description, as applicable, fire suppression methods would be installed such as sprinklers, redundant separate methods of failure detection, and alarms from the BMS. Detection methods for off gas detection will be implemented, as applicable. These are in addition to other protective measures such as ventilation, overcurrent protection, battery controls operating batteries within designated parameters, temperature and humidity controls, smoke detection, and maintenance in accordance with manufacturer guidelines. Flow battery tanks are not susceptible to fire but would be designed to have secondary containment in the event of a failure.

Certain major manufacturers do not have built-in fire suppression systems and hazards of a battery fire at the Site-level are managed by standard fire service response equipment because they use outdoor enclosures that are not buildings. If such a system would be installed for energy storage, the hazards from a battery fire at the Site-level would be managed by standard fire service response equipment. In addition, an Incidence Response Plan will be implemented depending upon the technology installed for each phase. Additionally, the Project intends to commit to contribute its proportionate share to purchase, a Type 1 Fire Engine which shall meet all NFPA standards for structural firefighting for the ICFD.

Potential CdTe emissions from fire are unlikely to occur at the Project Site because of the general lack of fuel to support a sustained wildfire and the regular vegetation management activities that would occur as part of the Project. Grass fires are the most likely fire exposure scenario for ground mounted PV systems, and these fires tend to be short-lived “flash” fires due to the thinness of grass fuels. As a result, these fires are unlikely to expose PV modules to prolonged fire conditions or to temperatures high enough to volatilize CdTe (which has a melting point of 1,906˚F). Moreover, even if a wildfire could reach that temperature, the actual CdTe emissions from a PV module would be insignificant (approximately 0.04 percent) due to encapsulation in the molten glass matrix (Fthenakis 2003).

In the event of an accidental upset condition, the estimated maximum toxic endpoint distance is primarily within the Project Site’s boundary but could extend to the adjacent undeveloped parcel (APN 051-350-011), which is also controlled by CED Westside Canal Battery Storage, LLC. No schools or residences are located within the estimated maximum toxic endpoint boundary. Also, the endpoint would not reach the Westside Main Canal as no batteries would be stored within 10 meters of the water. Therefore, Project-related operational impacts would be less than significant.

Decommissioning

At the end of the 40-year term of the CUP all operational components would be disassembled and removed, with all materials recycled, reused, or disposed of appropriately. At the end of a Li-ion module's useful life (typically estimated to be 10 to 20+ years) and final Project decommissioning, the batteries would be decommissioned and recycled per manufacturer guidelines. Certain manufacturers allow for the batteries to be returned to the manufacturing facility or a third-party recycling facility where the batteries are disassembled and certain materials are recovered from the battery for reuse.

Flow batteries have an expected lifecycle of over 20 years, as the electrolyte does not degrade over time. All aspects of the flow battery are capable of being recycled using currently existing processes available in the U.S. The electrolyte itself can be re-used in other batteries, the salts can be recovered for industrial use or disposed of directly in event that recovery options are uneconomic. Other chemistries that have the potential to be more toxic, such as vanadium, would be decommissioned and recycled per manufacturer and industry guidelines and best practices. All electrolytes will be handled per their designated MSDS.

Therefore, potential impacts associated with the release of hazardous materials from construction, operation, and decommissioning would be less than significant.

Mitigation Measures

None required.

Level of Significance After Mitigation

Not applicable.

3.8 HYDROLOGY AND WATER QUALITY

This section describes the regulatory setting and current conditions of the Project Site related to hydrology and water quality. Each subsection includes descriptions of existing hydrology/drainage, existing flooding hazards, and the environmental impacts on hydrology and water quality resulting from implementation of the Project, and mitigation measures where appropriate. Information in this section is based in part on the Preliminary Drainage Study, prepared by Burns & McDonnell (April 2020). This technical report is hereby incorporated by reference and included as Appendix I of this EIR.

3.8.1 Regulatory Framework

3.8.1.1 Federal

Federal Clean Water Act

The federal Clean Water Act (CWA) of 1977 (33 U.S. Code Section 1251 et seq.), which amended the federal Water Pollution Control Act of 1972, established the basic structure for regulating discharges of pollutants into the waters of the United States (not including groundwater). The CWA delegates authority to the USEPA to implement pollution control programs. Under the CWA, it is unlawful for any person to discharge any pollutant from a point source into navigable waters, unless a National Pollutant Discharge Elimination System (NPDES) permit is obtained and implemented in compliance. In addition, the CWA requires that states adopt water quality standards (WQS) for water bodies and that those standards be approved by USEPA. Water quality standards consist of two components: designated beneficial uses for a particular receiving water body (e.g., wildlife habitat, agricultural supply, fishing), and water quality criteria necessary to support those uses. The following sections outline the various elements of the CWA that apply to the Project.

Water Quality Criteria and Standards

The USEPA is the federal agency with authority for implementing the regulations adopted under the CWA. The USEPA has delegated its authority to implement and oversee most of the programs authorized or adopted for CWA compliance to the State of California through the Porter-Cologne Act, described further below.

Under federal law, the USEPA has published water quality regulations in the Code of Federal Regulations within Volume 40. CWA Section 303 requires all states to adopt water quality standards for all surface waters of the United States. The CWA defines water quality standards as the designated beneficial uses of a particular water body and associated criteria which protect the designated beneficial uses. CWA Section 304(a) requires the USEPA to determine and publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. For water bodies that have multiple uses, water quality standards must protect the most sensitive use.

Section 303: Impaired Water Bodies (303(d) list) and Total Maximum Daily Loads

The SWRCB is required by Section 303 of the CWA to publish a list of impaired water bodies which do not meet water quality standards (promulgated under the National Toxics Rule [NTR] or the California Toxics Rule [CTR]) after a minimum of technology-based effluent limitation strategies have been implemented for known point sources. The waterbodies on these lists are ranked for their potential development of a total maximum daily load (TMDL). TMDL is a calculation of the total maximum amount of a pollutant that a water body can receive daily and still safely meet water quality standards. The California Regional Water Quality

Control Board (RWQCB) and USEPA are responsible for establishing TMDL waste-load allocations and incorporating improved load allocations into water quality control plans, NPDES permits, and waste discharge requirements, described further below under State regulations. Section 305(b) of the CWA requires that states assess the status of water quality conditions within the State in a report to be submitted every two years.

Section 402: National Pollutant Discharge Elimination System Permits

Section 402 of the CWA requires the USEPA to establish regulations for permitting of construction, municipal, and industrial storm water discharges under the NPDES permit program. The NPDES program requires all industrial facilities and municipalities of a certain size that discharge pollutants into waters of the U.S. to obtain a permit. Storm water discharges in California are commonly regulated through general and individual NPDES permits, which are adopted by the SWRCB or RWQCBs and are administered by the RWQCBs. Water quality criteria in NPDES permits for discharges to receiving waters are based on criteria specified in the NTR, the CTR, and Water Quality Control Plans (Basin Plans), discussed below under State regulations.

U.S. Army Corps of Engineers

The United States Army Corps of Engineers (USACE) is responsible for issuing permits for the placement of fill or discharge of material into waters of the United States. These permits are required under Sections 401 and 404 of the CWA. Water supply projects that involve stream construction, such as dams or other types of diversion structures, trigger the need for these permits and related environmental reviews by the USACE. The USACE is also responsible for flood control planning and assisting state and local agencies with the design and funding of local flood control projects.

Section 401: Water Quality Certification. Section 401 of the CWA requires that an applicant which is pursuing a federal permit to conduct an activity that may result in a discharge of a pollutant obtain a Water Quality Certification (or waiver). For the Project, the federal permit associated with the Project is a Clean Water Act Section 404 permit, discussed further below. A Water Quality Certification requires the evaluation of water quality considerations associated with dredging or placement of fill materials into waters of the United States. The Water Quality Certifications are issued by one of the nine geographically separated RWQCBs in California. For the Project, the Colorado River Regional Water Quality Control Board (Region 7) has jurisdiction. Under the CWA, the RWQCB must issue or waive a Section 401 Water Quality Certification for a project to be permitted under CWA Section 404.

Section 404: Discharge of Dredged or Fill Materials. Section 404 of the CWA regulates fill and disturbance of wetlands and waters of the United States, specific activities that are regulated are fills for development (including physical alterations to drainages to accommodate storm drainage, stabilization, and flood control improvements), water resource projects (such as dams and levees), infrastructure development (such as highways and airports), and conversion of wetlands to uplands for farming and forestry.

3.8.1.2 State

State Water Resources Control Board

In California, the State Water Resources Control Board (SWRCB) has authority over issues related to controlling water quality for the State. The SWRCB is responsible for developing statewide water quality policy and exercises the powers delegated to the State by the federal government under the CWA. Regional authority for planning, permitting, and enforcement is delegated to the nine RWQCBs. The regional boards are required to formulate and adopt basin plans for all areas in the region and establish water quality objectives in the plans. California water quality objectives (or “criteria” under the CWA) are found in the

basin plans adopted by the SWRCB and each of the nine RWQCBs. The Colorado River RWQCB is responsible for the study area and surrounding region.

Colorado River Regional Water Quality Control Board Basin Plan

The study area is within the jurisdiction of the Colorado River RWQCB, which is responsible for the preparation and implementation of the water quality control plan for the Colorado River Region (SWRCB 2019a). The Basin Plan defines the beneficial uses, water quality objectives, implementation programs, and surveillance and monitoring programs for waters of all Imperial County and portions of San Bernardino, Riverside, and San Diego Counties. The Basin Plan contains specific numeric water quality objectives that apply to certain water bodies or portions of water bodies. Objectives have been established for aesthetic qualities, tainting substances, toxicity, temperature, pH, dissolved oxygen, suspended and settleable solids, total dissolved solids, bacteria, biostimulatory substances, sediment, turbidity, radioactivity, and chemical constituents. Numerous narrative water quality objectives have also been established.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act is California's statutory authority for the protection of water quality. Under the Porter-Cologne Act, the State must adopt water quality policies, plans, and objectives that protect the State's waters for the use the CWA and Porter-Cologne Act in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The Porter-Cologne Act also requires waste dischargers to notify the RWQCBs of their activities through the filing of reports of waste discharge and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements (WDR), NPDES permits, Section 401 water quality certifications, or other approvals. The RWQCBs also have authority to issue waivers to reports of waste discharge and/or WDRs for broad categories of "low threat" discharge activities that have minimal potential for adverse water quality effects when implemented according to prescribed terms and conditions and enjoyment of the people. The act sets forth the obligations of the SWRCB and RWQCBs to adopt and periodically update basin plans.

NPDES Permit System and Waste Discharge Requirements for Construction

The SWRCB and Colorado River RWQCB have adopted specific NPDES permits for a variety of activities that have potential to discharge wastes to waters of the State. The SWRCB General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009- Division of Water Quality) applies to all land-disturbing construction activities that would affect one acre or more.

Construction activities subject to the general construction activity permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce non-stormwater discharges to storm sewer systems and other waters. The permit also requires dischargers to install post-construction permanent BMPs that would remain in service to protect water quality throughout the life of the Project consistent with the planning and land development requirements of the MS4 Permit. Types of BMPs include source controls, treatment controls, and site planning measures.

Activities subject to the NPDES general permit for construction activity must develop and implement a SWPPP. The SWPPP includes a site map and description of construction activities and identifies the BMPs that will be employed to prevent soil erosion and discharge of other construction-related pollutants, such as petroleum products, solvents, paints, and cement, that could contaminate nearby water resources. A monitoring program is generally required to ensure that BMPs are implemented according to the SWPPP and are effective at controlling discharges of pollutants that are related to stormwater.

Construction General Permit

Pursuant to CWA Section 402(p) and as related to the goals of the Porter-Cologne Water Quality Control Act, the SWRCB has issued a Statewide NPDES General Permit for Storm Water Discharges Associated with Construction Activity (Order No. 2009-0009-DWQ, NPDES No. CAR000002 Construction General Permit, adopted September 2, 2009, and modified by Order 2010-0014). Every construction project that disturbs one or more acres of land surface or that is part of a common plan of development or sale that disturbs more than one acre of land surface would require coverage under this Construction General Permit. To obtain coverage under this Construction General Permit, the landowner or other applicable entity must file Permit Registration Documents prior to the commencement of construction activity, which include a Notice of Intent (NOI) and SWPPP and mail the appropriate permit fee to the SWRCB. Construction activities subject to the Construction General Permit include clearing, grading, and disturbances to the ground, such as stockpiling or excavation, that result in soil disturbances of at least one acre of total land area.

3.8.1.3 Local

Imperial County General Plan

The Imperial County General Plan contains goals, objectives, policies, and programs created to ensure water resources are preserved and protected.

Conservation and Open Space Element

The following goals and objectives from the County's Conservation and Open Space Element are applicable to the Project.

> **Goal 6.** The County will conserve, protect, and enhance water resources in the County.
>
> **Objective 6.2:** Ensure proper drainage and provide accommodation for storm runoff from urban and other developed areas in manners compatible with requirements to provide necessary agricultural drainage.

Water Element

The following policies and programs from the County's Water Element are applicable to the Project.

> **Policy:** Adoption and implementation of ordinances, policies, and guidelines which assure the safety of County ground and surface waters from toxic or hazardous materials and/or wastes.
>
> **Program:** The County of Imperial shall make every reasonable effort to limit or preclude the contamination or degradation of all groundwater and surface water resources in the County.
>
> **Program:** All development proposals brought before the County of Imperial shall be reviewed for potential adverse effects on water quality and quantity and shall be required to implement appropriate mitigation measures for any significant impacts.

Imperial County Land Use Ordinance, Title 9

Division 22 of Title 9 of the Land Use Ordinance contains groundwater requirements. The focus of this division is to preserve, protect and manage the groundwater within the County.

Division 31 of Title 9 of the Land Use Ordinance contains stormwater control requirements. The purpose of this Division is to ensure the health, safety and general welfare of citizens, and to protect and enhance the water quality of watercourses and water bodies in a manner pursuant to and consistent with the Federal Clean Water Act (33 U.S.C. § 1251 et seq.) and the Porter-Cologne Water Quality Control Act (Water Code § 13000 et seq.) by reducing pollutants in storm water discharges to the maximum extent practicable and by effectively prohibiting non-storm water discharges to the storm water conveyance system.

Engineering Design Guidelines Manual for the Preparation and Checking of Street Improvement, Drainage and Grading Plans within Imperial County

The Engineering Design Guidelines Manual establishes uniform engineering design guidelines for the preparation and plan checking of street improvement plans, drainage, and grading plans, and includes standards and design guidelines for use within the unincorporated areas of Imperial County. It is intended to assist the engineer, developer and/or architect in preparing these plans for private development projects within the County, to assist the Department of Public Works (DPW) staff for their review of the same, and to provide standards and specifications that meet current engineering standards of practice.

Local Agency Management Program/Advanced Protection Management Program: Onsite Wastewater Treatment Systems

The Local Agency Management Program (LAMP) Advanced Protection Management Program (APMP) was designed as a customized management program for On-Site Wastewater Treatment Systems (OWTS) in the County and addressed the County's diversity of geology, population, community areas, and future land use planning considerations. Approximately 85 percent of the County is connected to a sanitary sewer system, while the remainder utilize private septic systems. The OWTS includes standards for both existing and new septic systems, including siting locations, setbacks from an irrigation supply canal, soil conditions, percolation rates, projected flows, leach field design, and other such factors.

3.8.2 Environmental Setting

The Colorado River Basin Region covers approximately 13 million acres (20,000 square miles) in the southeastern portion of California. It includes all Imperial County and portions of San Bernardino, Riverside, and San Diego Counties. A significant geographical feature of the Colorado River Basin Region is the Salton Trough, which contains the Salton Sea and the Coachella and Imperial Valleys. The Colorado River Basin Region has the driest climate in California, characterized by mild winters and extremely hot summers with an average annual temperature of 73 degrees and a mean daily high of 108 degrees in July. The typical mean seasonal precipitation within the desert valleys is less than three inches per year, but its distribution and intensity are often sporadic. Annual precipitation in the region ranges from eight inches in the Coyote Mountains to less than three inches over most of the area (Basin Plan). Localized thunderstorms may contribute to all the average seasonal precipitation in one storm event, or conversely only a trace of precipitation may be recorded at any locale for the entire season. Little of the rainwater percolates into the groundwater, and almost all is lost to evaporation and evapotranspiration. The Colorado River Basin Region is divided into the following seven major planning areas based on different economic and hydrologic characteristics. The Project Site lies within the Imperial Valley Planning Area.

3.8.2.1 Hydrologic Unit

According to the Basin Plan, the Project is located within the Imperial Hydrologic Unit, Brawly Hydrologic Area (Code Section 723.10). The Imperial Hydrologic Unit consists of the majority of the Imperial Valley, encompassing over 1.3 million acres of land. The watershed includes vast acreages of agricultural land and towns such as El Centro, Calexico, and Brawley, along with a large network of IID operated canals and drains. The watershed is atypical of most watersheds in California, as it currently and historically has been

shaped by man-made forces. The watershed's primary watercourses, the New and Alamo Rivers flow north, from the Mexican border toward their destination, the Salton Sea.

3.8.2.2 Water Quality

Outlined in the Basin Plan and indicated on the CWA Section 303(d) list, the Project's nearest waters are classified as the Imperial Valley Drains (CalEPA 2014, 2016a). As outlined in Table 2-3 of the Basin Plan, the Imperial Valley Drains have the following beneficial uses.

- FRSH – Freshwater Replenishment
- REC I – Water Contact Recreation (unauthorized, infrequent fishing activity)
- REC II – Non-contact Water Recreation (unauthorized)
- WARM – Warm Freshwater Habitat
- WILD – Wildlife Habitat
- RARE – Preservation of Rare, Threatened, or Endangered Species (applies to a subset of the drains)

According to California's 2014/2016 303(d) listing, the Imperial Valley Drains are impaired for Pesticides (Chlordane, DDT, Dieldrin, and Toxaphene), Other Organics (PCBs), Metals/Metalloids (Selenium), and Sedimentation/Siltation (CalEPA 2014, 2016a). However, a number of these impairments apply only to a smaller subset of the drains. For example, the listing for Chlordane only applies to the Barbara Worth Drain, Peach Drain, Greeson Drain, South Central Drain, and Holtville Main Drain areas of the Imperial Valley Drain area. The segment of the Westside Main Canal (the nearest drain area to the Project) is not listed on the 303(d) list.

3.8.2.3 Project Site

As defined by FEMA, the Project Site is in Flood "Zone X (Unshaded)," delineated on Map No. 06025C2050C. Flood Zone X (Unshaded) is defined as an area of minimal flood hazard, an area outside the Special Flood Hazard Area, and higher than the elevation of the 0.2 percent annual chance flood (Appendix I).

Under existing conditions, the Site is a vacant and fallow historic agricultural field consisting of sandy soils with minimal vegetation and no impervious cover. The Site is divided into eastern and western halves by an existing transmission corridor that follows the Liebert Road alignment. The western portion of the Site slopes from the southeast to the northwest while the eastern portion of the Site slopes from the southwest to the northeast. The Site is relatively flat with slopes varying from 0.2 percent to 2.5 percent. The Site currently has a berm along the western and southern boundaries which divert all offsite flows around the Site. The berm elevation on the western portion varies from approximately 10 to 15 feet above adjacent grade. The berm along the southern boundary is approximately three feet in height.

Groundwater

The Project Site overlays the Imperial Valley groundwater basin (Code 7-30). The basin is bounded by the Salton Sea to the north, the Fish Creek and Coyote Mountains to the west, and by the Sand Hills to the east (DWR 2004). The southern physical boundary of the basin extends across the United States border into Mexico; but for regulatory purposes, the southern border of this groundwater basin is considered the international border. Salton Sea is the discharge point for groundwater in the basin.

This basin is made of three principal physiographic and hydrologic areas that include: (1) the Central Irrigated Area, which lies within the valley floor generally inside the boundaries of Lake Cahuilla; (2) the East Mesa; and (3) the West Mesa. The total storage capacity of the basin is estimated at approximately 14 million acre-feet (DWR 2004). Groundwater recharge within the basin is primarily from irrigation return.

Other recharge sources are deep percolation of rainfall and surface runoff, underflow into the basin, and seepage from unlined canals which traverse the valley. Groundwater levels within most of the basin have remained stable from 1970 to 1990 because of relatively constant recharge and an extensive network of subsurface drains. Groundwater quality varies extensively throughout the basin; however, it is generally unusable for domestic and irrigation purposes without treatment (DWR 2014). Groundwater depths over this larger basin may fluctuate slightly from year to year, but this is not typically associated with seasonal precipitation due to its minimal contribution to groundwater recharge. County standards for siting new and replacement OWTS require consideration of localized fluctuations or mounding that may occur due to nearby flood irrigation activities. Within the Project Site, groundwater was encountered between nine and 19 feet below the existing ground surface.

3.8.3 Environmental Impacts

3.8.3.1 Thresholds of Significance

The impact analysis provided below is based on Appendix G of the CEQA Guidelines. The Project would result in a significant impact to hydrology and water quality if it would result in any of the following:

a) Violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality

b) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river through the addition of impervious surfaces, in a manner which would:

   i. Result in substantial erosion or siltation on- of off-site

   ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site

   iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff

   iv. Impede or redirect flood flows

3.8.3.2 Issues Scoped Out as Part of the Initial Study

The following thresholds of significance were eliminated from further consideration in the Initial Study (Appendix A), since they were determined to result in less than significant or no impact, as briefly described in Chapter 7:

- Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin

- In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation

- Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan

3.8.3.3 Methodology

The analysis of impacts to hydrology and water quality is based on the results from the Preliminary Drainage Study, the physical characteristics of the Imperial Valley Planning Area watershed, and groundwater basin. The drainage design will be conducted in accordance with the County's design criteria, which establishes that 100 percent of the 100-year storm (3 inches of rain) will be stored for percolation.

3.8.3.4 Project Impacts and Mitigation Measures

a) Would the Project violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Construction

Clearing, grading, excavation, and construction activities have the potential to impact water quality through soil erosion and increased silt and debris discharged via surface runoff. Additionally, the use of construction materials such as fuels, solvents, and paints may present a risk to surface water quality. Temporary storage of construction materials and equipment in work areas or staging areas could also create the potential for a release of hazardous materials, trash, or sediment to Westside Main Canal. In addition, the Project would require water connections to the Westside Main Canal and could result in direct discharge of materials into the Westside Main Canal during construction of the water connections. When this occurs, these visible and/or non-visible constituents become entrained in storm water runoff. If they are not intercepted or are left uncontrolled, the polluted runoff would otherwise freely sheet flow from the Project to the Westside Main Canal and could result in the accumulation of these pollutants in the receiving waters. This is considered a potentially significant impact.

Since construction of the Project would result in disturbance of an area greater than one acre, the Project Applicant would be required to enroll for coverage under the Storm Water Construction General Permit for the NPDES program. The Storm Water Construction General Permit requires the submittal of Permit Registration Documents to the SWRCB prior to the start of construction and a NOI, risk assessment, site map, annual fee, signed certification statement, SWPPP, and post-construction water balance calculations would be included in the submittal. A Project-specific SWPPP would be prepared and BMPs would be implemented during construction. Typical BMPs would include diversion of runoff from disturbed areas, protective measures for sensitive areas, temporary soil stabilization measures, storm water runoff quality control measures, concrete waste management, watering for dust control, and installation of perimeter silt fences, as needed. New requirements by the SWRCB also require the SWPPP to include post-construction treatment measures aimed at minimizing stormwater runoff. Implementation of MM HYD-1, which requires compliance with the Construction General Permit and preparation and implementation of a SWPPP and its BMPs, would reduce potential erosion and sedimentation-related water quality impacts to a less-than-significant level. In addition, as noted in Section 3.4, Biological Resources, a USACE 404 Clean Water Permit, CDFW Streambed Alteration Agreement, and RWQCB 401 Water Quality Certification would be required to install water connections to the Westside Main Canal for construction and fire. Therefore, construction of the Project would not violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.

Operational

During operations, the Project could result in discharge of non-point source water quality impacts from potential pollutants including, but not limited to, oil and grease, pesticides, trace metals, and nutrients. Long-term operation of the energy storage facility and an increase in impervious surfaces also poses a threat to surface water quality after the completion of construction. This could result significant direct and indirect impacts related to a violation of water quality standards or waste discharge requirements.

Due to the increase in impervious area, retention basins would be constructed to capture the increase in runoff. The Site would be graded to divert on-site flows to retention basins via roadside swales. Culverts would be installed under roadway/driveway crossings to connect the drainage swales. The retention basins would be in the northeast and northwest corners of the Site at the historic discharge locations. The Westside Main Canal bounds the Project to the north and has elevated banks approximately two feet tall which prevents runoff from leaving the Site. However, if the stormwater ponds to a height to overtop the Westside Main Canal bank, then it would degrade the water quality.

Proposed battery storage structures and equipment pads would need to be elevated above the ultimate outfall elevation at the top of the bank. The retention basins would be designed such that stormwater will percolate within 72 hours in accordance with County requirements. A geotechnical study would be performed as part of final design to verify the infiltration rates. If testing shows poor infiltration rates for the basins, injection/dry wells would be installed as needed to meet the 72-hour percolation requirement. Implementation of MM HYD-2 would require the Project to incorporate post-construction BMPs into the Project's final drainage plan that would include but not limited to, source control, and treatment control BMPs. Impacts would be reduced to less than significant with mitigation.

The County Public Health Department coordinates with the Colorado River RWQCB to permit OWTSs on new development projects. An OWTS permit from the Public Health Department would be required prior to the construction of the on-site septic leach field system proposed to support the O&M building. The Project Site lies within Imperial Valley groundwater basin but is outside the basin's areas of special concern for high nitrate levels (PHD 2015). Approval of an OWTS permit from the County for the septic system would require compliance with requirements identified in the LAMP and reduce potential impacts on water quality standards, waste discharge, or degradation of surface or groundwater quality to a less than significant level.

Decommissioning

Decommissioning would remove some Project components, and the potential impacts would be similar to those of the construction phase. The approved SWPPP (MM HYD-1) would be implemented during decommissioning phase, reducing potentially significant impacts to a less than significant level.

Mitigation Measures

MM HYD-1: Prepare Stormwater Pollution Prevention Plan and Implement Best Management Practices

Prior to issuance of any grading permit, the Applicant or its contractor shall prepare a Project-specific SWPPP and be responsible for securing coverage under SWRCB's NPDES stormwater permit for general construction activity (Order 2009-0009-DWQ). The SWPPP shall detail the treatment measures and BMPs to control pollutants that shall be implemented and complied with during both the construction and decommissioning of the Project. Example BMPs may include but are not limited to the following practices:

- Designation of restricted-entry zones
- Sediment tracking control measures (e.g., crushed stone or riffle metal plate at construction entrance)
- Truck washdown areas
- Diversion of runoff away from disturbed areas
- Protective measures for sensitive areas, outlet protection

- Provision mulching for soil stabilization during construction, and provision for revegetation upon completion of construction within a given area
- Treatment measures to trap sediment once it has been mobilized, such as straw bale barriers, straw mulching, fiber rolls and wattles, silt fencing, and siltation or sediment ponds

MM HYD-2: Final Project Drainage Plan

Prior to issuance of any grading permit, the applicant shall submit a Final Project Drainage Plan. The Drainage Plan shall adhere to the County's Engineering Guidelines Manual, IID "Draft" Hydrology Manual, or other recognized source with approval by the County Engineer to control and manage the discharge of stormwater to the proposed retention basins. Retention basins shall be integrated into the Drainage Plan to the maximum extent practical. The Drainage Plan shall provide both short- and long-term drainage solutions to ensure the proper sequencing of drainage facilities and management of runoff generated from the Project's impervious surfaces, as necessary.

Level of Significance After Mitigation

With the implementation of MM HYD-1, impacts to surface water quality would be reduced to a less-than-significant level through the inclusion of focused BMPs for the protection of surface water resources from both construction and decommissioning. With the implementation of MM HYD-2, potential water quality impacts resulting from post-construction discharges would be reduced to a less-than-significant level by incorporating the post-construction BMPs into the Project's Final Drainage Plan.

b) Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river through the addition of impervious surfaces, in a manner which would: result in substantial erosion or siltation on- or off-site; substantially increase the rate or amount of surface in a manner which would result in flooding on- or off-site; create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flood flows?

i) Erosion or Siltation On-site or Off-site

Construction

The Project would disturb more than one acre of land during construction and result in grading and soil exposure at the Project Site, increasing the potential for erosion. If not controlled, the transport of these materials into local waterways could increase suspended sediment concentrations. MM HYD-1 would require preparation of a SWPPP in accordance with the NPDES Construction General Permit. The SWPPP would identify BMPs, such as the use of temporary mulching, seeding, or other stabilization measures to protect uncovered soils, and storing materials and equipment to ensure that spills or leaks cannot enter the Westside Main Canal. With incorporation of MM HYD-1, potential construction-related erosion impacts would be reduced to a less than significant level.

Operation

Operation of the Project would alter existing on-site drainage patterns with the addition of new impervious surfaces at the Project Site. The addition of new impervious surfaces could increase the rate and volume of stormwater runoff at the Project Site and potentially cause erosion. However, the Project Site experiences very low annual rainfall (on average three inches per), and as a result, the soils are rarely saturated to the point that any measurable runoff can be generated. Furthermore, most of the rainwater that would run off

the impervious Project facilities (e.g., concrete pads or other impervious improvements) would run off onto the proposed retention basin and infiltrate into the ground. Therefore, the amount of land converted to impervious surfaces that would reduce water infiltration and potentially impact existing drainage would be minimal. The impact of the Project operation on the existing erosion or siltation processes would be less than significant.

Decommissioning

Decommissioning activities would require earth-moving activities that could contribute to soil erosion and/or release of sediment. Earth-moving activities would be similar to construction activities. During decommissioning, soil erosion would be controlled by implementation of Mitigation Measure HYD-1. In addition, the retention basins would continue to receive stormwater from the site and not result in siltation on-site or off-site and impacts would be less than significant with mitigation.

ii) Result in Flooding On- or Off-site

Construction

Construction activities would result in ground disturbance, excavations, and grading increasing the potential for flooding. Mitigation Measure HYD-1 would be required to prepare a SWPPP in accordance with the NPDES Construction General Permit. The SWPPP would identify BMPs such as include using temporary mulching, seeding, or other stabilization measures to protect uncovered soils; storing materials and equipment to ensure that spills or leaks cannot enter the Westside Main Canal. With mitigation potential flooding impacts would be reduced to a less than significant level.

Operation

The Project Site is in a minimal flood hazard area. However, addition of new structures and impervious areas could alter drainage patterns and result in flooding on- or off-site. The Westside Main Canal to the north and has elevated banks approximately two feet tall which prevents runoff from leaving the Site. Ultimate outfall for the site occurs when stormwater ponds to a height to overtop the canal bank. The proposed battery storage structures and equipment pads would be elevated at one foot above the ultimate outfall elevation at the top of the bank. In addition, retention ponds would be designed such that stormwater will percolate within 72 hours in accordance with Imperial County requirements and not result in flooding the Westside Main Canal. Mitigation Measure HYD-2 would be implemented that requires that a Final Drainage Plan would be submitted to the County to ensure retention basins would be properly sized and sited. Impacts would be less than significant with mitigation.

Decommissioning

At the end of the Project's operational life, the Project would be decommissioned, and the components removed. Drainage patterns would be substantially unchanged during decommissioning as the retention basins and the buildings would not be removed. Mitigation Measure HYD-1 would be implemented to reduce flooding on-site and off-site and impacts would be less than significant with mitigation.

iii) Exceed Drainage Systems and Additional Sources of Polluted Runoff

As noted previously, although onsite drainage patterns would be altered the Project would not result in the alteration of a stream or river since none exist onsite. In addition, while impervious surfaces would be increased, stormwater flows would be directed to onsite retention basins which would capture and percolate the predicted flows during rain events. Mitigation Measure HYD-2 would require preparation of a Final Drainage Plan to ensure that retention basins would be sized to store Site run-off and not result in spill over into the Westside Main Canal. Similarly, the Project would include post-construction BMPs in compliance

with Division 31, Title 9 of the Imperial County Land Use Ordinance. These would include properly designed materials and storage areas, proof of on-going BMP maintenance, and other items relevant to operations of the site. Project Site. Therefore, potential impacts from drainage capacity and additional runoff would be less than significant.

Mitigation Measures

Implement Mitigation Measures HYD-1 and HYD-2.

Level of Significance After Mitigation

Implementation of the mitigation measures above would reduce potential impacts on drainage patterns to less-than-significant levels.

3.9 LAND USE AND PLANNING

This section describes the affected environment and regulatory setting for land use and planning related to the Project Site and surrounding area. It also describes the potential land use and planning impacts that would result from implementation of the Project. As noted in the analysis below, direct impacts associated with land use and planning during construction or operation of the Project would be less than significant.

3.9.1 Regulatory Framework

3.9.1.1 Federal

There are no federal land use plans applicable to the Project.

3.9.1.2 State

Assembly Bill 2514

In 2010, the California legislature authorized the CPUC to evaluate and determine energy storage targets, if any, for the State LSEs through AB 2514 (Skinner 2010). In 2013, the CPUC issued D.13-10-040 which set an AB 2514 energy storage procurement target of 1,325 MW by 2020.

The CPUC's energy storage procurement policy was formulated with three primary goals:

- Grid optimization, including peak reduction, contribution to reliability needs, or deferral of transmission and distribution upgrade investments
- Integration of renewable energy
- GHG reductions in support of the State's targets

To date the CPUC has approved procurement of more than 1,533.52 MW of new storage capacity to be built in California. Of this total, 506 MW are operational. The AB 2514 mandate is procured in three distinct grid domain targets, with some flexibility between the grid domain targets of customer sited, distribution-connected, and transmission connected. Cumulatively, the three major IOUs have exceeded the AB 2514 target of 1,325 MW and satisfied nearly all domain-specific requirements (CPUC, 2020).

3.9.1.3 Local

Imperial County General Plan

The General Plan consists of ten elements entitled Land Use, Housing, Circulation and Scenic Highways, Noise, Seismic and Public Safety, Agricultural, Conservation and Open Space, Geothermal/Alternative Energy and Transmission, Water, and Parks & Recreation. The General Plan also includes a Land Use Map designating various land use categories identifying locations and describing the type and anticipated maximum allowable density of ultimate development.

The General Plan was developed following a thorough examination of the County’s physical and cultural resources, socio-economic conditions, and business climate. It provides a balance of land use policies and programs which seek to maintain the "quality of life" in the region. The General Plan is a dynamic document, subject to amendment as needed to respond to changing community and regional goals, physical and public infrastructure resources, and social concerns. The General Plan is aimed at creating a comprehensive guide for development within the County and provides mechanisms to achieve desired community goals

and objectives through a coordinated implementation program. Specific General Plan elements, goals and objectives which are applicable to the Project are listed and evaluated in Table 3.9-1.

Table 3.9-1 Project General Plan Consistency Analysis

General Plan Goals and Objectives	Consistent with General Plan	Analysis
Land Use Element		
Economic Growth		
Goal 2: Diversify employment and economic opportunities in the County while preserving agricultural activity.	Yes	The Project would provide additional employment and economic opportunities by creating a utility-scale energy storage facility that would create both temporary and permanent employment within Imperial County (County). The Economic Impact Analysis (EIA) prepared for the Project (Appendix C) indicated that the economic benefits associated with Project operation would result in approximately $165.13 million benefit to the County over the lifespan of the Project. The Fiscal Impact Analysis (FIA) indicated that Project operation would result in a net revenue surplus to the County of approximately $59.08 million over the lifespan of the Project. Therefore, the Project would be consistent with this goal. Refer to Section 3.2 for further discussion.
Objective 2.1: Achieve a balanced and diversified local economy with a variety of economic and employment opportunities.	Yes	The Project would create both temporary and permanent employment opportunities within the local economy by constructing a utility-scale energy storage facility which is in alignment with the County's goal of diversifying its economy and incorporating renewable and clean energy industries and employment. In addition, the Employment (Jobs) Impact Analysis (JIA) prepared for the Project (Appendix C) would result in the equivalent of 1,549 full-time equivalent jobs during the 10-year construction period and 20 entirely new, full-time equivalent permanent jobs over the lifespan of the Project. Therefore, the Project would be consistent with this objective. Refer to Section 3.2 for further discussion.
Regional Vision		
Goal 3: Achieve balanced economic and residential growth while preserving the unique natural, scenic, and agricultural resources of Imperial County.	Yes	See responses to Goal 2 and Objective 2.1 above.
Objective 3.2: Preserve agriculture and natural resources while promoting diverse economic growth through sound land use planning.	Yes	See responses to Goal 2 and Objective 2.1 above.
Objective 3.15: Support the safe and orderly development of renewable energy in conformance with the goals and objectives of the Renewable Energy and Transmission Element.	Yes	The Project would develop a utility-scale energy storage facility that would store energy generated from the electrical grid, and optimally discharge that energy back into the grid as firm, reliable generation and/or grid services, and thereby support development of the County's renewable and clean energy technologies portfolio. Therefore, this Project would be consistent with this objective.

General Plan Goals and Objectives	Consistent with General Plan	Analysis
Circulation/Scenic Highway Element		
Safe, Convenient, and Efficient Transportation System		
Goal 1: The County will provide and require an integrated transportation system for the safe and efficient movement of people and goods within and through Imperial County with minimum disruption to the environment.	Yes	The Project would include the construction of temporary and permanent access roads designed and built to County roadway standards. The Project would improve the transportation system in the surrounding Project area by providing new access roadways, a clear span bridge over the Westside Main Canal, and creating new roadway connections. Furthermore, Project-related transportation impacts were determined to be less than significant in the Initial Study prepared for the Project, included as Appendix A. Therefore, the Project would be consistent with this goal.
Objective 1.2: Require a traffic analysis for any new development which may have a significant impact on County roads. A traffic analysis may not be necessary in every situation, such as when the size or location of the project will not have a significant impact upon and generate only a small amount of traffic. Also, certain types of projects, due to the trip generation characteristics, may add virtually no traffic during peak periods. These types of projects may be exempt from the traffic analysis requirements. Whether a particular project qualifies for any exemption will be determined by the Department of Public Works Road Commissioner.	Yes	A traffic impact analysis was prepared for the Project. As noted in the Initial Study (Appendix A), the analysis determined that potential traffic impacts related to Project construction and operation were less than significant, and no further analysis would be required. Therefore, the Project would be consistent with this objective.
Objective 1.11: Improve County circulation system roadways in concert with land development to ensure sufficient levels of service.	Yes	The Project would include the construction of access roadways that would assist in improving the County's circulation system roadways that meet County standards. Therefore, the Project would be consistent with this objective.
Objective 1.12: Review new development proposals to ensure that the proposed development provides adequate parking and would not increase traffic on existing roadways and intersection to a level of service (LOS) worse than "C" without providing appropriate mitigations to existing infrastructure. This can include fair share contributions on the part of developers to mitigate traffic impacts caused by such proposed developments.	Yes	The Project would include sufficient parking, per County Municipal Code requirements. In addition, see the response to Goal 1 and Objective 1.2 and the analysis contained in the Initial Study (Appendix A) which determined that the analyzed roadways would operate at LOS B. Therefore, the Project would be consistent with this objective.

General Plan Goals and Objectives	Consistent with General Plan	Analysis
Objective 1.17: Assure that road systems are adequate to accommodate emergency situations and evacuation plans.	Yes	The analysis contained in the Initial Study (Appendix A) determined that the Project would provide adequate emergency access and not impede existing evacuation plans. Therefore, the Project would be consistent with this objective.
Agricultural Element		
Goal 1: All Important Farmland, including the categories of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance, as defined by Federal and State agencies, should be reserved for agricultural uses.	Yes	The Project Site contains land which is mapped as Farmland of Local Importance. Based on the current land use and zoning designation, the Project is inconsistent with this policy. However, the Project proposes a General Plan Amendment, Zone Change, and a Conditional Use Permit to convert the current Agriculture land use designation to Industry and the zoning from A-3 to M-2. Both the EIA and FIA prepared for the Project indicated that the economic benefits of the Site outweigh the loss of Farmland as the Project Site is landlocked and—due to limited accessibility—has remained unused for over 15 years. In addition, Mitigation Measure (MM) AG-1 is included to reduce impacts from loss of Farmland. Refer to Section 3.2 for further discussion.
Objective 1.1: Maintain existing agricultural land uses outside of urbanizing areas and allow only those land uses in agricultural areas that are compatible with agricultural activities.	Yes	The Project would convert land zoned for agriculture to an industrial use (battery storage). A change in the land use designation from Agriculture to Industry and the zoning from A-3 to M-2 would be required. The Project Site is located at the fringes of agricultural uses with lands to the south and west designated for open space and recreational uses. There are several renewable energy projects to the north of the Project Site. In addition, the EIA and FIA prepared for the Project indicated that the economic benefits of the Project outweigh the loss of Farmland. Refer to Section 3.2 for further discussion. Therefore, the Project would be consistent with this objective.
Objective 1.2: Encourage the continuation of irrigation agriculture on Important Farmland.	Yes	The Project Site would be located on land that is currently zoned for agricultural use. Due to lack of accessibility and irrigation at the Project Site, the land has remained fallow for over 15 years. The Project would not impede the irrigation practices of adjacent agricultural land. Therefore, the Project would be consistent with this objective.
Objective 1.3: Conserve Important Farmland for continued farm-related (nonurban) use and development while ensuring its proper management and use.	Yes	The Project would convert the land from agricultural use to non-agricultural use after the General Plan Amendment and Zone Change. Although Farmland and agricultural uses would not be maintained on the Project Site, implementation of MM AG-1 would reduce this impact to a less-than-significant level. Therefore, the Project would be compatible with this objective. Refer to Section 3.2 for further discussion.

General Plan Goals and Objectives	Consistent with General Plan	Analysis
Objective 1.4: Discourage the location of development adjacent to productive agricultural lands.	Yes	As indicated in Goal 1 of the Agricultural Element above, the Project would include a General Plan Amendment and Zone Change for the Project Site. The Project consists of a more passive use which would not impede agricultural practices of adjacent agricultural lands. Therefore, the Project would be compatible with this objective. Refer to Section 3.2 for further discussion
Objective 1.5: Direct development to less valuable farmland (i.e., Unique Farmland and Farmland of Local Importance rather than Prime Farmland or Farmland of Statewide Importance) when conversion of agricultural land is justified.	Yes	The Project Site is currently designated as Farmland of Local Importance which is less valuable as per the EIA and FIA (Appendix C) and does not contain any Prime Farmland or Farmland of Statewide Importance. The Project would change the land use designation from Agriculture to Industry and the zoning from A-3 to M-2. Conversion of this agricultural land was justified in accordance with County requirements, as indicated in the JIA, EIA and FIA prepared for the Project, which are discussed in more detail in Section 3.2 and in Appendix C. Also see responses to Goal 1 of the Agricultural Element above. After decommissioning of the Project, the Project Site would retain its Industry land use designation and M-2 zoning. Therefore, the Project would be consistent with this objective.
Objective 1.8: Allow conversion of agricultural land to non-agricultural uses including renewable energy only where a clear and immediate need can be demonstrated, based on economic benefits, population projections and lack of other available land (including land within incorporated cities) for such nonagricultural uses. Such conversion shall also be allowed only where such uses have been identified for non-agricultural use in a city general plan or the County General Plan and are supported by a study to show a lack of alternative sites.	Yes	The Project Site is proposed on a parcel that is located near existing utility-scale renewable and energy transmission facilities. Although it is currently zoned A-3, the land has remained fallow for over 15 years as a result of lack of accessibility and irrigation. As described in Goal 1 of the Agricultural Element above, the Project proposes a General Plan Amendment and Zone Change to change the land use designation from Agriculture to Industry and the zoning for the Project Site from A-3 to M-2. The new Industry land use designation and M-2 zoning would limit the land uses to energy production/use. This conversion would allow the Project Site to be used for utility-scale energy storage. Also described in Goal 1 of the Agricultural Element above, the JIA, EIA, and FIA (Appendix C) confirm that the Project would represent a more beneficial use than current Site conditions as well as an overall benefit for the County from the conversion of this unused agricultural land to the development of a utility-scale battery storage facility. This is evaluated in more detail in Section 3.2. Impacts related to the loss of agricultural land were considered less than significant with the incorporation of MM AG-1. In addition, Chapter 5 provides an analysis of Project alternatives. Therefore, the Project is consistent with this objective.
Objective 1.9: Preserve major areas of Class II and III soils which are currently nonirrigated but which offer significant potential when water is made available.	Yes	According to the Land Evaluation and Site Assessment, which is evaluated in more detail in Section 3.2 and Appendix C, the Project Site comprises approximately 101.8 acres of Class I-II soils and approximately 61.4 acres of Class III soils. As mentioned above, the land has remained unused for over 15 years due to lack of accessibility and irrigation. According to economic studies prepared for the Project, the benefits of the Project to the County outweigh the loss of agricultural land on this Project Site. Furthermore, impacts related to the loss of agricultural land were considered less than significant with the incorporation of MM AG-1. Therefore, the Project is consistent with this objective.

General Plan Goals and Objectives	Consistent with General Plan	Analysis
Goal 2: Adopt policies that prohibit "leapfrogging" or "checkerboard" patterns of nonagricultural development in agricultural areas and confine future urbanization to adopted Sphere of Influence areas.	Yes	The Project Site currently resides outside of the seven spheres of influence designated by the Imperial County Local Agency Formation Commission. In addition, the Project Site is located at the outer edge of other solar facilities and is not surrounded by active agricultural development. Therefore, the Project is consistent with this goal.
Objective 2.1: Do not allow the placement of new non-agricultural land uses such that agricultural fields or parcels become isolated or more difficult to economically and conveniently farm.	Yes	The Project would convert fallow, agricultural land to industrial use. Phase I of the Project would involve the construction and development of legal permanent vehicular access to the Project Site, and no adjacent agricultural fields would become isolated or more difficult to access. In addition, the Project would not be located in the midst of other agricultural uses. Therefore, the Project is consistent with this objective.
Objective 2.3: Maintain agricultural lands in parcel size configurations that help assure that viable farming units are retained.	Yes	Development of the Project would not alter the parcel size configurations that help assure that viable farming units are retained. Therefore, the Project is consistent with this objective.
Objective 2.4: Discourage the parcelization of large holdings	Yes	The Project does not encourage parcelization of large holdings as the entirety of the Project Site would be used for a single project and would not be divided. Therefore, the Project is consistent with this objective.
Objective 2.6: Discourage the development of new residential or other nonagricultural areas outside of city "spheres of influence" unless designated for non-agricultural use on the County General Plan, or for necessary public facilities.	Yes	The Project Site currently resides outside of the seven spheres of influence designated by the Imperial County Local Agency Formation Commission. The Project proposes a General Plan Amendment from Agriculture to Industry and a Zone Change from A-3 to M-2. The Project Site would no longer be used for agricultural uses. According to economic studies prepared for the Project, the benefits of the Project to the County outweigh the loss of agricultural land on this Project Site. Furthermore, impacts related to the loss of agricultural land were considered less than significant with the incorporation of MM AG-1. Therefore, the Project is consistent with this objective.
Goal 3: Limit the introduction of conflicting uses into farming areas, including residential development of existing parcels which may create the potential for conflict with continued agricultural use of adjacent property.	Yes	The Project proposes a General Plan Amendment from Agriculture to Industry and a Zone Change from A-3 to M-2. As noted in response to Objective 1.8, there are utility-scale facilities currently located near the Project Site, and development of the Project would not conflict with the agricultural use of adjacent property. Therefore, the Project is consistent with this goal.
Objective 3.5: As a general rule, utilize transitional land uses around urban areas as buffers from agricultural uses. Such buffers may include rural residential uses, industrial uses, recreation areas, roads, canals, and open space areas.	Yes	The Project proposes a General Plan Amendment from Agriculture to Industry and a Zone Change from A-3 to M-2. The Project Site is located at the fringes of agricultural lands and is not located near urban uses. The Site is divided by the Westside Main Canal to the north that provides buffer to distance itself from neighboring uses. Therefore, the Project is consistent with this objective.

General Plan Goals and Objectives	Consistent with General Plan	Analysis
Objective 3.8: Renewable energy projects will be allowed within the RE Overlay Zone and mitigation for agricultural impacts have been identified and addressed.	Yes	The Project is located adjacent to, but outside of, the Renewable Energy (RE) Overlay Zone. The Project would develop a utility-scale energy storage facility that would store energy generated from the electrical grid, and optimally discharge that energy back into the grid as firm, reliable generation and/or grid services, and thereby support development of the County's renewable and clean energy technologies portfolio. Project-related impacts related to the loss of agriculture would be mitigated with implementation of MM AG-1 as described in more detail in Section 3.2. Therefore, the Project is consistent with this objective.
Renewable Energy and Transmission Element		
Goal 1: Support the safe and orderly development of renewable energy while providing for the protection of environmental resources.	Yes	The Biological Resources Report for the Project (Appendix E) indicates that sensitive species may be present on-site. However, implementation of Project mitigation measures would reduce potential impacts on these species to a less-than-significant level. Impacts related to cultural resources were scoped out in the Initial Study prepared for the Project, and it was determined that there would be no impacts to cultural resources either adjacent to and/or within the Project Site, although the presence of unknown burials may be present. Mitigation measure requiring pre-construction surveys is included in Section 3.4 to minimize and/or reduce impacts. Therefore, the Project is consistent with this goal.
Objective 1.2: Lessen impacts of site and design production facilities on agricultural, natural, and cultural resources.	Yes	See response to Goal 1 of the Agricultural Element, above.
Objective 1.4: Analyze potential impacts on agricultural, natural, and cultural resources, as appropriate.	Yes	See response to Goal 1 of the Agricultural Element above. In addition, the Initial Study prepared for the Project (Appendix A) determined that impacts related to cultural resources would either be less than significant or result in no impacts, and no further analysis was required. Therefore, the Project is consistent with this objective.
Goal 2: Encourage development of electrical transmission lines along routes which minimize potential environmental effects.	Yes	The Campo Verde-Imperial Valley 230 kV radial transmission line easement, which lies inside and along the western property line and runs north/south, would be utilized to connect to the Project Site. This connection's proximity to the Project Site would assist in minimizing the potential environmental effects by reducing the construction footprint and using existing facilities. Appropriate mitigation measures would be implemented to reduce potential impacts to a less-than-significant level. Therefore, the Project is consistent with this goal.
Objective 2.1: To the extent practicable, maximize utilization of IID's transmission capacity in existing easements or rights-of-way. Encourage the location of all major transmission lines within designated corridors, easements, and rights-of-way.	Yes	See response to Goal 2 of the Renewable Energy and Transmission Element above.

General Plan Goals and Objectives	Consistent with General Plan	Analysis
Goal 3: Support development of renewable energy resources that will contribute to and enhance the economic vitality of Imperial County.	Yes	See response to Goal 2 of the Renewable Energy and Transmission Element and Objective 2.1 of the Land Use Element (Economic Growth) above.
Objective 3.3: Encourage the development of services and industries associated with renewable energy facilities.	Yes	See response to Objective 3.15 of the Land Use Element (Regional Vision) above.
Objective 3.5: Encourage employment of County residents by the renewable energy industries wherever and whenever possible.	Yes	See response to Goal 2 of the Land Use Element (Economic Growth) above.
Objective 3.7: Evaluate environmental justice issues associated with job creation and displacement when considering the approval of renewable energy projects.	Yes	See response to Goal 2 of the Land Use Element (Economic Growth) above.
Goal 5: Encourage development of innovative renewable energy technologies that will diversify Imperial County's energy portfolio.	Yes	The Project would construct a utility-scale energy storage facility that would support development of the County's renewable and clean energy technologies portfolio by providing important storage capacity. Therefore, the Project is consistent with this goal.
Objective 5.2: Encourage development of utility-scale distributed generation projects in the County.	Yes	See response to Goal 5 of the Renewable Energy and Transmission Element, above.
Noise Element		
Goal 1: Provide an acceptable noise environment for existing and future residents in Imperial County.	Yes	The Initial Study prepared for the Project (Appendix A) determined that impacts related to noise would either be less than significant or result in no impacts, and no further analysis was required. As such, an acceptable noise environment would be maintained for County residents. Therefore, the Project is consistent with this goal.
Objective 1.3: Control noise levels at the source where feasible.	Yes	See response to Goal 1 of the Noise Element, above.
Goal 2: Review proposed projects for noise impacts and require design which will provide acceptable indoor and outdoor noise environments.	Yes	See response to Goal 1 of the Noise Element, above.
Objective 2.3: Work with project proponents to utilize site planning, architectural design, construction, and noise barriers to reduce noise impacts as projects are proposed.	Yes	See response to Goal 1 of the Noise Element, above.

3.9.2 Environmental Setting

3.9.2.1 Regional

The Project Site is in the unincorporated Mount Signal area of the County, approximately eight miles southwest of the City of El Centro and approximately 5 miles north of the U.S.-Mexico border as shown in Figure 1.2-1: Regional Location. The area is generally characterized by agricultural and recreation/open space land uses, as well as large-scale renewable energy projects.

Surrounding Area

As noted above, the dominant uses within the surrounding areas are primarily agricultural and recreation/open space, as well as large-scale renewable energy projects (see Figure 2.3-2: Surrounding Land Uses). The Westside Main Canal forms the de facto border between the two uses. The surrounding parcels to the north and east have a land use designation of Agriculture, with a corresponding zoning of A-3, according to the General Plan. Areas to the west and southwest are lands designated as open space/recreation areas. Lands southwest of the Project Site are BLM lands and are not subject to County zoning designations (Imperial County 2020).

Project Site

The Project Site currently consists of vacant agricultural land, with an Agriculture land use designation and corresponding A-3 zoning. The Project Site has not been used for farming nor has it been irrigated for at least 15 years. In addition, as described in Section 2.0, Project Description, there are apparently abandoned pumping stations and a concrete-lined ditch on the Project Site. Within the Project Site, all infrastructure associated with the previous agriculture operations south of the Westside Main Canal is deteriorated and non-functional, and any current activities on the Project Site are minimal and largely limited to the land north of the Westside Main Canal.

3.9.3 Environmental Impacts

3.9.3.1 Thresholds of Significance

The impact analysis provided below is based on the following threshold, as listed in Appendix G of the CEQA Guidelines. The Project would result in a significant impact to land use and planning if it would result in any of the following:

a) Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

3.9.3.2 Issues Scoped Out as Part of the Initial Study

The following thresholds of significance were eliminated from further consideration in the Initial Study (see Appendix A) since they were determined to be less than significant or no impact. They are briefly described in Chapter 7:

- Would the project physically divide an established community?

3.9.3.3 Methodology

Potential significant impacts associated with the Proposed Project were based upon a review and assessment of applicable land use and zoning documents of this EIR for a list of required permits, including the General Plan and Municipal Code. Permits and/or planning entitlements that may be pursued are noted in the Project Description. The Project Site has a current land use designation of Agriculture and a corresponding zoning of A-3. According to the County Municipal Code, Section 90509.01, Permitted Uses in the A-3 Zone, the Project conflicts with the allowable uses in the A-3 zone. Therefore, the Project will seek a General Plan Amendment and Zone Change to change the land use designation to Industry and the zoning for the Project Site to M-2. In addition, a CUP is being proposed specifically limited to Energy Production/Use.

3.9.3.4 Project Impacts and Mitigation Measures

a) Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Construction

The Project Site currently has a land use designation of Agriculture with a corresponding zoning of A-3. The Project is proposing a General Plan Amendment and Zone Change to change the land use designation for the Project Site to Industry with a corresponding zone of M-2. The Project would also need to adhere to the conditions of approval of the CUP, which would restrict the industrial use zoning to Energy Production/Use only in order to allow a utility-scale energy storage complex use in the M-2 zone. Construction would involve development of the Project Site in 3 to 5 phases over a 10-year period and would include construction and installation of BESS components, O&M facilities, utilities infrastructure, private access roads and the new clear span bridge over the Westside Main Canal. Construction of Project components during this time would be conducted in accordance with all applicable regulations and requirements and would not conflict with any land use plan, policy or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, this impact would be less than significant, and no mitigation measures would be required.

Operation

Project operation would be ongoing throughout the lifespan of the CUP, which provides a maximum term of 40 years. In order for Project operation to commence, a number of permits need to be obtained, most notably including the General Plan Amendment and Zone Change, as discussed previously and listed in Section 2.0, Project Description. As approval of the General Plan Amendment and Zone Change is a fundamental requirement of the Project, the approval of this discretionary action would bring all nonconforming or inconsistent aspects of the Project into conformance and consistency will all applicable General Plan goals and objectives, County requirements, as well as the requirements of other relevant agencies. Table 3.9-1 provides a consistency analysis of the Project with the General Plan elements and associated goals and objectives. As noted therein, operation of the Project would be consistent with the goals and objectives of the General Plan after approval of the General Plan Amendment and Zone Change. Therefore, based upon the analysis within this section, operation of the Project would result in less than significant impacts, since it would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. No mitigation measures are required.

Decommissioning

At the end of the 40-year term of the CUP, decommissioning activities would be undertaken and would apply to those portions of the Project that involve operational components including, but not limited to, the electrical switching station, substation, battery modules, inverters, transformers, and PV modules. All operational components would be disassembled and removed from the Project Site. Once decommissioning activities are completed, the Project Site would retain its M-2 zoning and Industry land use designation. Decommissioning of the Project would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, this impact would be less than significant, and no mitigation measures are required.

Mitigation Measures

None required.

Significance After Mitigation

Not applicable.

3.10 TRIBAL CULTURAL RESOURCES

This section addresses the potential for the existence of tribal cultural resources (TCRs) on the Project Site and in the Project area, and the potential for Project impacts on those resources. This discussion is based in part on the results of County outreach to tribes as required under Assembly Bill (AB) 52. Outreach correspondence documentation is provided as Appendix J.

3.10.1 Regulatory Framework

3.10.1.1 Federal

No federal regulations pertaining to TCRs apply to the proposed Project.

3.10.1.2 State

Senate Bill 18

Under Senate Bill (SB) 18, the County, as the CEQA Lead Agency, is required to consult with appropriate tribes that have ancestral connections region prior to the adoption of any amendment to a general or specific plan for the purpose of preserving or mitigating potential impacts to cultural places within the local government's jurisdiction. The Lead Agency is required to contact the Native American Heritage Commission (NAHC) for a list of tribes, groups, or individuals who are recognized as having a cultural connection to the proposed plan amendment area. The Lead Agency must notify the tribes and invite them to consult. Tribes are given a 90 period to respond to the agency's request.

Assembly Bill 52

The legislature added requirements regarding TCRs for CEQA in AB 52 that took effect July 1, 2015. AB 52 requires consultation with California Native American tribes and consideration of TCRs in the CEQA process. By including tribal cultural resources early in the CEQA process, the legislature intended to ensure that local and tribal governments, public agencies, and applicants would have information available early in the proposed Project's planning process, to identify and address potential adverse impacts to tribal cultural resources. By taking this proactive approach, the legislature also intended to reduce the potential for delay and conflicts in the environmental review process. To help determine whether a project may have such an effect, the PRC requires a lead agency to notify and consult with any California Native American tribe that requests consultation. The County maintains an AB 52 list with tribes that are traditionally and culturally affiliated with the geographic area of the Project.

The purpose of the consultation is to determine if TCRs are present or may be impacted by a proposed project. TCRs are defined as sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either included or determined to be eligible for inclusion in the California Register of Historical Resources (California Register) or included in a local register of historical resources, or a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant. A cultural landscape that meets these criteria is a TCR to the extent that the landscape is geographically defined in terms of the size and scope of the landscape. Historical resources, unique archaeological resources, or non-unique archaeological resources may also be TCRs if they meet these criteria.

Executive Order N-54-20

Due to the State of Emergency declaration by Governor Gavin Newsom resulting from the threat caused by COVID-19, Executive Order N-54-20 was issued effective April 22, 2020. Time extensions were provided to public agencies and applicants under CEQA and the time in which tribes are required to respond to requests for consultation under AB 52. Order 9 reads as follows: "The timeframes set forth in Public Resources Code sections 21080.3.1 and 21082.3, within which a California Native American tribe must request consultation and the lead agency must begin the consultation process relating to an Environmental Impact Report, Negative Declaration, or Mitigated Negative Declaration under the California Environmental Quality Act, are suspended for 60 days."

3.10.1.3 Local

Imperial County General Plan Conservation and Open Space Element

The County Conservation and Open Space Element includes goals and objectives related to the preservation of cultural resources. Objective 3.3 states the following: "Engage all local Native American Tribes in the protection of tribal cultural resources, including prehistoric trails and burial sites."

3.10.2 Environmental Setting

3.10.2.1 Summary of County Outreach Efforts

Mr. David Black of the County Planning and Development Services (ICPDS) requested a list of tribes, groups, and individuals from the NAHC for the purposes of conducting tribal consultation for the Project, under both SB 18 and AB 52. The NAHC responded via letter, dated March 4, 2020, from Mr. Steven Quinn, Cultural Resources Analyst at the NAHC, with a list of tribes for the purposes of consultation known to have traditional lands or cultural places located within the boundaries of Imperial County. On March 24, 2020, Mr. Black sent certified letters to individual contacts at the specified tribes inviting them to consult for both SB 18 and AB 52.

The following tribal entities and individuals were sent invitations to consult on the Project:

- Barona Group of the Capitan Grande, Attn: Edwin Romero
- Campo Band of Diegueno Mission Indians, Attn: Ralph Goff
- Eqiiaapaayp Band of Kumeyaay Indians, Attn: Michael Garcia
- Ewiiaapaayp Band of Kumeyaay Indians, Attn. Robert Pinto
- Iipay Nation of Santa Ysabel, Attn: Virgil Perez
- Inaja-Cosmit Band of Indians, Attn: Rebecca Osuna
- Jamul Indian Village, Attn: Erica Pinto
- Jamul Indian Village, Attn: Lisa Cumper
- Kwaaymii Laguna Band of Mission Indians, Attn: Carmen Lucas
- La Posta Band of Diegueno Mission Indians, Attn: Javaughn Miller
- La Posta Band of Diegueno Mission Indians, Attn: Gwendolyn Parada
- Manzanita Band of Kumeyaay Nation, Attn: Angela Elliott Santos
- Mission Grande Band of Diegueno Mission Indians, Attn: Michael Linton
- Quechan Tribe of the Fort Yuma Reservation, Attn: Jill McCormick
- San Pasqual Band of Diegueno Mission Indians, Attn: Allen Lawson
- Sycuan Band of Kumeyaay Nation, Attn: Cody Martinez
- Viejas Band of Kumeyaay Indians, Attn: John Christman

On March 27, 2020, the County sent two additional invitations to consult to:

- Quechan Indian Tribe, Attn: Jordan D. Joaquin
- Quechan Indian Tribe Attn: Jill McCormick

On April 8, 2020, a letter response to the County's invitation to consult was received from the San Pasqual Band of Mission Indians Tribal Historic Preservation Office. Ms. Angelina Gutierrez, Monitor Supervisor for the San Pasqual Band of Mission Indians responded on behalf of David L. Toler, Tribal Historic Preservation Officer. Ms. Gutierrez stated it was determined that the Project as described was not within the boundaries of the recognized San Pasqual Indian Reservation. The Project was, however, within the boundaries of the territory that the tribe considers its Traditional Use Area (TUA). Ms. Gutierrez stated that the San Pasqual Band of Mission Indians would defer to the wishes of Campo, a tribe in closer proximity to the Project; however, "[i]f Campo Does not Respond in a timely manner, we would like (our) right to Reserve comment." The County did not receive any other responses from tribes invited to consult.

TCRs were not identified within the Project footprint following review of the Sacred Lands Files at the NAHC or following invitations to consult with tribes identified by the NAHC as having ancestral ties to the entire County. The Project was identified as within a TUA of the San Pasqual Band of Mission Indians who have requested further consultation if the Campo Band of Diegueno Mission Indians does not respond.

As a result of the extension for consultation requests provided by Executive Order N-54-20, the deadline for tribes to request consultation was extended to June 22, 2020, which is 60 days after the Executive Order was signed. No requests for consultation were made by the Campo Band of Diegueno Mission Indians; therefore, the County sent correspondence to the San Pasqual Band of Mission Indians, on July 8, 2020, to inform David L. Toler that the Campo Band of Diegueno Mission Indians has not responded and invited them to comment. As of the date of publication of the EIR, no further correspondence or requests for consultation under AB 52 were received by the County.

3.10.3 Environmental Impacts

3.10.3.1 Thresholds of Significance

The impact analysis provided below is based on Appendix G of the following CEQA Guidelines. The Project would result in a significant impact to TCRs if it would result in any of the following:

a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

   i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

   ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

3.10.3.2 Issues Scoped Out as Part of the Initial Study

No issues related to TCRs were scoped out in the Initial Study.

3.10.3.3 Methodology

Under CEQA, the evaluation of impacts to TCRs consists of two-parts: (1) identification of TCRs within a project site or immediate vicinity through AB 52 consultation; and (2) a determination of whether the project may result in a "substantial adverse change" in the significance of the identified resources. The impact analysis in this section is based on the results of archival research, the cultural resources survey performed on the Project Site, and the results of AB 52 and SB 18 consultation undertaken between the County and tribes. Compiled correspondence related to tribal outreach is included as Appendix J.

3.10.3.4 Project Impacts and Mitigation Measures

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?

There were no listed TCR resources identified or determined eligible for listing in the CRHR or local register as indicated by the documentation provided by the NAHC received August 27, 2018, or through AB 52 consultation efforts. Therefore, construction and operation of the proposed Project would have no impact to historical resource as defined in PRC Section 5020.1(k).

Mitigation Measures

None required.

Level of Significance After Mitigation

Not applicable.

b) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

There were no listed TCRs identified by the NAHC received by RECON August 27, 2018, or through AB 52 consultation efforts; however, the San Pasqual Band of Mission Indians requested continued consultation with Imperial County, if the Campo Band of Diegueno Mission Indians did not respond. The Campo Band of Diegueno Mission Indians have not requested consultation, and correspondence between the County and the San Pasqual Band of Mission Indians is ongoing. MM CULT-1 requires a process to be implemented if unexpected archaeological resources or human remains are encountered and in the event that those remains are determined to be Native American. MM CULT-2 addresses the request by the San

Pasqual Band of Mission Indians to continue consultation. With implementation of MM CULT-1 and MM CULT-2, impacts to TCRs will be reduced to a less-than-significant level.

Mitigation Measures

MM CULT–1 Workers Environmental Awareness Program

A qualified archaeologist shall be retained to prepare a cultural resource focused Workers Environmental Awareness Program (WEAP) training that shall be given to all ground disturbing construction personnel to minimize harm to undiscovered archaeological resources or potential tribal resources that may be discovered during construction. All Site workers shall be required to complete WEAP Training with a focus on cultural resources, including education on the consequences of unauthorized collection of artifacts and that reviews discovery protocol. WEAP training shall also explain the protocol for notification, and requirements to retain a qualified archaeologist to evaluate any unexpected finds, as well as protocols regarding notification of tribal representatives.

MM CULT-2 Continued Consultation with the San Pasqual Band of Mission Indians

If no other responses to Imperial County's invitation to consult on the Project are received, prior to construction, the County shall continue consultation with the San Pasqual Band of Mission Indians (San Pasqual). If the County, as the lead agency, determines through continued consultation that there is substantial evidence the Project may adversely impact a yet unidentified Tribal Cultural Resource that meets criteria established in Public Resources Code Section 5024.1, the County shall determine if measures are needed to minimize potential impacts to TCRs including:

- Requirements for Native American Monitoring of Project Ground Disturbing Activities
- Development of an Unexpected Discovery Plan for Archaeological Resources
- Development of a Treatment Plan for Artifacts Considered to be Tribal Cultural Resources

If the County, through continued consultation efforts, determines there is not substantial evidence to support the existence of potential TCRs at the Project Site, no additional measures shall be required.

Level of Significance After Mitigation

Implementation of the mitigation measures above would reduce potential impacts on tribal cultural resources to less-than-significant levels.

3.11 UTILITIES AND SERVICE SYSTEMS

This section describes the regulatory framework and existing conditions related to utilities and service systems, evaluates the potential impacts to water, sanitary sewers, storm drainage, solid waste facilities, and energy systems as a result of implementation of the Project, and details mitigation measures needed to reduce significant impacts, as necessary. The information in this section is also based on the Water Supply Assessment, prepared by Dubose Design Group (January 2021), and included as Appendix N.

3.11.1 Regulatory Setting

3.11.1.1 State

California Senate Bill 610

With the introduction of SB 610, on October 9, 2001, any project under CEQA shall provide a Water Supply Assessment (WSA) if:

The project meets the definition of the Water Code Section 10912:

For the purposes of this part, the following terms have the following meanings:

a) "Project" means any of the following:

1) A proposed residential development of more than 500 dwelling units.

2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.

3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

4) A proposed hotel or motel, or both, having more than 500 rooms.

5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.

6) A mixed-use project that includes one or more of the projects specified in this subdivision.

7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by 500 dwelling unit project.

b) If a public water system has fewer than 5,000 service connections, then "project" means any proposed residential, business, commercial, hotel or motel, or industrial development that would account for an increase of 10 percent or more in the number of public water system's existing service connections, or a mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by residential development that would represent an increase of 10 percent or more in the number of the public water system's existing service connections.

Under SB 610, water supply assessments must be furnished to local governments for inclusion in environmental documentation for certain projects (as defined in Water Code 10912 [a]) subject to CEQA. Due to increased population, land use changes and water demands, this water bill seeks to improve the

link between information on water availability and certain land use decisions made by cities and counties. As per California Department of Water Resources policy, “Even though a water supplier may not be a ‘public water system’ or become a ‘public water system’ as a result of serving the Project, it will still be involved, in a consultation role, in the preparation of the assessment.” SB 610 takes a significant step toward managing the demand of California’s water supply as it provides regulations and incentives to preserve and protect future water needs. The intent of this bill is to coordinate local water supply and land use decisions to help provide California’s cities, farms, rural communities, and industrial developments with adequate water supplies.

California Water Code

Water Code Sections 10656 and 10657 restrict state funding for agencies that fail to submit their urban water management plan to the Department of Water Resources. In addition, Water Code Section 10910 describes the WSA that must be undertaken for projects referred under PRC Section 21151.9, including an analysis of groundwater supplies. Water agencies are given 90 days from the start of consultation in which to provide a WSA to the CEQA lead agency. Water Code Section 10910 also specifies the circumstances under which a project for which a WSA was once prepared would be required to obtain another assessment. Water Code Section 10631 directs that contents of the urban water management plans include further information on future water supply project and programs and groundwater supplies.

California Urban Water Management Planning Act – Assembly Bill 797

The Urban Water Management Planning Act was established by AB 797, on September 21, 1983. Passage of this law was a recognition by state legislators that water is a limited resource and a declaration that efficient water use, and conservation would be actively pursued throughout the state. The law requires water suppliers in California, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet per year (AFY) of water, to prepare and adopt a specific plan every five years, which defines their current and future water use, sources of supply and its reliability, and existing conservation measures.

California Public Utilities Commission

California Public Utilities Commission (CPUC) has discretionary approval authority over the planning, design, economic, and environmental considerations for new facilities proposed by the three investor-owned utilities, Pacific Gas and Electric, San Diego Gas and Electric, and Southern California Edison, referred to in the Public Utilities Code as electrical corporations. PUC General Order 131(d)(Rules Relating to the Planning and Construction of Electric Generation, Transmission/Power Distribution Line Facilities, and Substations Located in California) requires the PUC to conduct CEQA review for transmission line applications. Delineated in General Order 131(d), a new transmission line proposal could fall under the jurisdiction of one of two permits: (1) the Certificate of Public Convenience and the Necessity or (2) a Permit to Construct. The Certification of Public Convenience and the Necessity process applies to transmission line upgrades and substation modification (50 kV to 200kV).

3.11.1.2 Local

County of Imperial General Plan

The County of Imperial General Plan contains goals, objectives, policies, and programs created to ensure water and energy resources are preserved and protected.

Water Element

The following goals and objectives from the County of Imperial Water Element are applicable to the Project.

Goal 1: The County will secure the provision of safe and healthful sources and supplies of domestic water adequate to assure the implementation of the County General Plan and the long-term continued availability of this essential resource.

> **Objective 1.2:** Cooperation between the Cities and County for the need to maintain, upgrade, and expand domestic water and sewage treatment facilities of the communities within the County, the need for the implementation of appropriate development fees, and the raising of service fees to off-set limited public financial resources.
>
> **Objective 1.3:** The efficient regulation of land uses that economizes on water consumption, enhances equivalent unit demand for domestic water resources, and that makes available affordable for continued urban growth and development.

Program: All development proposals brought the County of Imperial shall be reviewed for potential adverse effects on water quality and quantity and shall be required to implement appropriate mitigation measures for any significant impacts.

Renewable Energy and Transmission Element

The following goals and objectives from the County of Imperial Renewable Energy and Transmission Element are applicable to the Project.

Goal 1: Support the safe and orderly development of renewable energy while providing for the protection of environmental resources.

> **Objective 1.5:** Require appropriate mitigation and monitoring for environmental issues associated with developing renewable energy facilities.
>
> **Objective 1.6:** Encourage the efficient use of water resources required in the operation of renewable energy generation facilities.
>
> **Objective 1.7:** Assure that development of renewable energy facilities and transmission lines comply with Imperial County Air Pollution Control District's regulations and mitigation measures.

Goal 2: Encourage development of electrical transmission lines along routes which minimize potential environmental effects.

> **Objective 2.2:** Where applicable and cost-effective, design transmission lines to minimize impacts on agricultural, natural and cultural resources, urban areas, military operations areas, and recreational activities.

Goal 5: Encourage development of innovative renewable energy technologies that will diversify Imperial County's energy portfolio.

> **Objective 5.2:** Encourage the development of utility-scale distributed generation projects in the County.

Imperial Region Integrated Regional Water Management Plan

The purpose of the Imperial Region Integrated Regional Water Management Plan (Imperial IRWMP) is to define a portfolio of cost-effective water management strategies that support economic development and provide a reliable water supply for new municipal, commercial, and industrial demands without impacting historical municipal, commercial, and industrial, and agricultural uses of water or impacting existing agreements or contracts. The IRWMP is to guide action on resource management strategies and projects to be implemented by participating agencies and stakeholder groups in order to meet the Region's water management goals and objectives.

Imperial Irrigation District Interim Water Supply Policy for Non-Agricultural Projects

The Interim Water Supply Policy (IWSP) was adopted by the IID Board on September 29, 2009. The IWSP identifies and recommends potential programs and projects to develop new water supplies and new storage, enhance the reliability of existing supplies, and provide more flexibility for IID water department operations, all in order to maintain service levels within the District's water service area. The IWSP designates up to 25,000 AFY of IID's water from the Colorado River water supply for new non-agricultural projects, provides a mechanism and process to develop a water supply agreement for any appropriately permitted project, and establishes a framework and set of fees to ensure the supplies used to meet new demands (Imperial Irrigation District 2009).

3.11.2 Environmental Setting

3.11.2.1 Water

The Imperial Valley is located within the south-central portion of Imperial County. The Imperial Valley is bounded by the Salton Sea on the north, Mexico on the south, the Coyote Mountains and the Yuha Desert to the southwest, and San Diego County on the northeast. The Imperial Valley is characterized as a subtropical desert climate, averaging 3 inches of rainfall per year (SWRCB 2019). This area is distinguished by the heavy agriculturally used land. The agricultural use of the area is the highest water consumption use of the County. The Project Site is located within the Salton Sea Transboundary Watershed within the Colorado River Basin Region. The Colorado River Basin Region covers approximately 20,000 square miles in the southeastern portion of California (Basin Plan).

The Colorado River is the main surface water supply to the Imperial Valley for irrigation, industrial, and domestic purposes. Imperial Irrigation District (IID) is entitled to 3.1 million AFY of untreated water from the Colorado River (IID 2020). IID imports water from the Colorado River to the Imperial Valley through the 80-mile-long All-American Canal. The All-American Canal distributes water via the three main canals, which are East Highline, Central Main, and Westside Main, to the seven unincorporated cities within the Imperial Valley, which are Brawley, Calexico, Calipatria, El Centro, Holtville, Imperial, and Westmorland.

3.11.2.2 Wastewater

IID serves as the main untreated water provider for the Imperial Valley. Untreated water is provided to the seven municipal cities and two districts, which is then treated and then distributed throughout the area (IID 2020). The Project Site is located approximately 5 miles south of the nearest wastewater treatment facility, Seeley County Water District. However, this wastewater treatment facility would not provide wastewater treatment services for the Project.

3.11.2.3 Stormwater

IID operates and maintains an extensive drainage system as part of its operating system. Approximately 160 acres of drainage outlet systems have been established to collect excess surface flow from agricultural fields, subsurface tile discharges, and operational discharge from nearby canals (IID 2020). Under existing conditions, the western portion of the Site slopes from the southeast to the northwest while the eastern portion of the Site slopes from the southwest to the northeast. The Site currently has a berm along the western and southern boundaries which divert all offsite flows around the Site. Existing stormwater drainage at the Project Site is natural overland flow and infiltration into on-site soils. No man-made stormwater drainage facilities occur on the Project Site.

3.11.2.4 Electrical Energy

The Project Site is undeveloped, and the current energy demand is negligible. The IID supplies electricity to the unincorporated areas of Imperial County and would provide service to the Site. IID's IV Substation is located approximately one-third mile south of the Project Site's southern property line. IID maintains a number of distribution and substation facilities throughout the County and provides electric power to more than 150,000 customers in the Imperial Valley. IID controls more than 1,100 MW of capacity that is derived from various resources including its own generation and long- and short-term power purchased (IID 2020). In a region with abundant renewable resources, IID has emphasized the importance of environmentally friendly operations and procuring renewable energy to provide to its service area. In 2018, approximately 31 percent of energy supplied by the IID was considered Eligible Renewable Energy in the forms of geothermal, hydroelectric, solar, wind, and biomass and biowaste (IID 2018a).

IID's 2018 Integrated Resource Plan (IRP) addresses the current goals to provide reliable, efficient, and affordably priced water and energy service to the communities IID serves (IID 2018a). The IRP also addresses the current challenges to meet load requirements, adapt to new renewable energy portfolio standards and reduce greenhouse gas emissions. The IRP includes goals to implement efficiency programs to reduce load by at least five percent by 2020 (IID 2018a). In addition, the IRP calls for an increase in renewable portfolio to 50 percent by 2030 and to increase building energy efficiency by 50 percent by 2030. The IID had roughly 20.5 percent of load met by renewable resources in 2016 and is anticipated to meet the goal increasing of 50 percent load reduction between 2029 and 2030 (IID 2018a).

3.11.2.5 Telecommunications

The main telecommunications provider for the Imperial Valley is the Imperial Valley Telecommunications Authority (IVTA). The IVTA is a collaborative of all Imperial County school districts, city agencies, county agencies, Imperial Community College, and San Diego State University- IVC (IVTA 2020). Major projects of the IVTA include the connection of participating agencies to a modernized fiber-optic communications network (IVTA 2020). There are no telecommunication facilities at the Project Site currently. The Project would install approximately three-mile-long fiber optic telecommunication cables to connect the proposed substation to the IV Substation, using existing transmissions lines. Based on review of an online database (AntennaSearch.com), there are two existing cell phone towers located in the vicinity of the Project: eNB ID 90416 (located at 497 Brockman Road, Mount Signal, CA, 92231) and eNB ID 89110 located adjacent to the first tower. These towers are owned by SBA Towers II LLC and Ntch-CA West, Inc. However, overall cell reception in the Project vicinity is considered poor.

3.11.3 Environmental Impacts

3.11.3.1 Thresholds of Significance

The impact analysis provided below is based on Appendix G of the CEQA Guidelines. The Project would result in a significant impact to utilities and service systems if it would result in any of the following:

a) ***Result in the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which would cause significant environmental effects?***

b) ***Have sufficient water supply available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?***

3.11.3.2 Issues Scoped Out as Part of the Initial Study

The following thresholds of significance were eliminated from further consideration in the Initial Study (Appendix A), since they were determined to result in less than significant or no impact, as briefly described in Chapter 7.0:

- Would the project result in a determination by the wastewater treatment provider which serves to may serve the project that is has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments
- Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals
- Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste

3.11.3.3 Methodology

Project-specific data was used to calculate the water consumption during construction and at build-out collectively (“operational”). Potential water supply and service impacts of the Project were based on the Water Supply Assessment. Evaluation of potential stormwater impacts was based on the Preliminary Drainage Study. Evaluation of potential electricity and electrical infrastructure as well as telecommunications (telephone and internet) impacts are based on information provided by the Applicant and correspondence with the IID.

3.11.3.4 Project Impacts and Mitigation Measures

a) ***Would the Project result in the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which would cause significant environmental effects?***

Water Treatment

The Project would not require or result in the construction of new water treatment facilities or the expansion of existing water treatment facilities. During construction, the primary use of water would be for dust control. The total water volume used during the 10-year construction period would be up to 210 AF and would be received from the Westside Main Canal through temporary water connections. During the operation and

maintenance phase, approximately 1,000,000 gallons of water for fire suppression would be obtained from the Westside Main Canal and stored in the on-site water storage tanks. The Applicant would obtain approval from the IID for non-agricultural water supply request in accordance with IID's Temporary Land Conversion Fallowing Policy. In addition, a water supply agreement would be obtained from IID, including a formal request for new water delivery and payment for new water delivery. The Project would obtain all required permits in accordance with IID requirements. Potable water would be delivered to the Site from other water purveyors. Water providers would be permitted and licensed businesses and, correspondingly, in compliance with regulatory requirements. Water for decommissioning activities either be obtained from the Westside Main Canal if permitted by IID or trucked in. Therefore, no new or relocated water facilities would be required and impacts resulting from construction, operation, and decommissioning of new water treatment facilities would be less than significant.

Wastewater

The Project Site does not have existing wastewater facilities or connections to wastewater conveyance systems and, therefore, would not require the relocation of existing wastewater facilities. Portable restrooms would be used for the duration of Project construction and would be removed upon completion of construction. During Project operation, wastewater would be held in a septic leach field and removed routinely. The Project would install an on-site septic leach field, and no connection to the region's wastewater treatment systems would be required. As discussed in Section 3.5, Geology and Soils, the OWTS would be permitted through the County Public Health Department and would be installed and maintained in compliance with all applicable regulations to ensure containment and protection of groundwater quality including the Westside Main Canal. During decommissioning, if the proposed septic leach field is determined to be abandoned, it would be done in accordance with the County Ordinance 1516. Any future reuse of the septic leach field may be subject to additional permitting requirements that would be determined during the subsequent regulatory review for a future use. Therefore, the Project would not require the relocation or construction of new wastewater facilities that would result in significant environmental impacts.

Stormwater Drainage

During construction and decommissioning, coverage under the State's Construction General Permit would be required since the project would disturb more than one acre. As part of the permit and as noted in Mitigation Measure HYD-1, a project-specific SWPPP would be prepared and implemented. Impacts from the construction of the two stormwater retention basins would be less than significant.

Due to the increase in impervious area, stormwater retention basins would be located at the northeast and northwest corners of the Site at the historic discharge locations during operation of the Project to manage stormwater flows. Additional overland flow would be accommodated within the proposed retention basins designed to percolate within 72 hours. As discussed in Section 3.8, Hydrology and Water Quality, Mitigation Measure HYD-2 would be implemented to prepare a Site-specific drainage study to ensure the Project would not increase stormwater conveyance off-site.

Therefore, impacts regarding installation of stormwater runoff during Project construction, operations, and decommissioning would be less than significant with mitigation.

Electric Power

The Project Site is primarily undeveloped, current energy demand is minimal, and electrical capacity in the Project area is limited. As such, primary electrical power and connection to the grid would be provided through construction of a new 230 kV switching station and new collector substation for interconnection with the existing IID Campo Verde-Imperial Valley radial gen-tie line. This existing gen-tie line connects to the IV Substation approximately one-third mile south of the Project. This location is the point of

interconnection to the CAISO grid. The Applicant has submitted the necessary Interconnection Request Applications to the CAISO and IID. In addition, the Project would include on-site solar generation and emergency backup generators to supply auxiliary power to the facility during rare events in which connection to the electrical grid system would be disrupted.

The energy-related components of the Project, such as the on-site solar generation for auxiliary power, complement IID's goal to reduce industry's carbon footprint and providing reliable, renewable energy to its service area. The Project would comply with the IID's standards and local and state requirements regarding energy generation and efficiency. Therefore, impacts regarding expansion and/or construction and operation of new utility services are considered less than significant.

Telecommunication Facilities

The Project and surrounding area are not currently served by telecommunications facilities aside from two cell phone towers owned by SBA Towers II LLC and Ntch-CA West, Inc. During construction, the Project would install an approximately one-third-mile long fiber optic telecommunications cable route to connect the new proposed substation to the existing IV Substation utilizing existing transmission lines. The fiber optic telecommunications cable would be utilized for SCADA controls to allow for local and remote monitoring.

The Project would meet the Federal Communications Commission applicable standards and requirements; this agency is responsible for regulating communications by radio, television, wire, satellite, and cable across the U.S. In addition, the Project would be required to adhere to the IVTA's Acceptable Use Policy. The intent of the IVTA Acceptable Use Policy is to ensure that all uses are consistent with IVTA's stated purpose, mission, and goals (IVTA 1996, 2020).

Additional wireless communications, such as new and/or relocated cell phone towers, may also be required to support Project construction and operations. The Applicant would be responsible for contacting the existing service providers to request service and/or changes to existing towers and to pay all applicable fees. Telephone and internet services are provided and approved on a project-by-project basis. The Project would comply with applicable regulations and requirements regarding installation or relocation of telecommunications facilities. Therefore, impacts to telecommunications facilities would be less than significant.

Mitigation Measures

Implement Mitigation Measures HYD-1 and HYD-2.

Level of Significance After Mitigation

Implementation of the mitigation measures above would reduce potential impacts on water to less-than-significant levels.

b) Would the Project have sufficient water supply available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

The Project Site is located within IID's Imperial Unit and district boundary. Imperial Valley depends on the Colorado River for its water, which IID transports, untreated, to delivery for agricultural, municipal, industrial (including geothermal and solar energy), environmental (managed marsh), recreational (lakes), and other non-agricultural uses, and as such is eligible to receive water service. IID has adopted an Interim Water Supply Policy (IWSP) for Non-Agricultural Projects, from which water supplies can be contracted to serve new developments within IID's water service area. For applications processed under the IWSP, applicants shall be required to pay a processing fee and, after IID board approval of the corresponding agreement,

will be required to pay a reservation fee(s) and annual water supply development fees. Water supplies considered in the WSA for Project construction, and operation include water from the Westside Main Canal and off-site water imported to the Project Site from water providers. The Project's estimated water demand is 210 AF for construction and 227.14 AF for operations over the 40-year term of the CUP, for an amortized total of 14.57 AFY over the 40-year term of the CUP.

Long-term water supply availability projections provided in the IID service area were reviewed and assessed in the WSA. Based on the WSA, water availability for the Project in a normal year is no different from water availability during a single-dry and multiple-dry year scenarios because IID continues to rely solely on its entitlement for Colorado River water. Due to the priority of IID water rights and other agreements, drought conditions affecting Colorado River water supplies cause shortages for other customers before impacting IID.

The IWSP sets aside 25,000 AFY of IID's Colorado River water supply to serve new non-agricultural projects. As of June 2020, a balance of 23,800 AFY remains available under the IWSP for new non-agricultural projects. The Project would present 0.06 percent of the annual unallocated supply set aside for new nonagricultural projects. Therefore, the Project's demand would not affect IID's ability to provide water to other users in IID's water service area.

If there are any changes in the IID's water agreement that would result in less water available for non-agricultural development contractors, the Applicant would work with IID to ensure it can manage the reduction. IID has further indicated that, provided a water supply agreement is approved and executed by IID under the provisions of the IWSP, IID will have sufficient water to support the water of this Project and impacts to water supply during construction and operations are considered less than significant.

The water demand during decommissioning activities is expected to be lower than construction water demand and for a shorter duration as well. Based on the WSA, IID has adequate water availability to serve the Project. The Applicant would either use the water from the Westside Main Canal for decommissioning activities or truck it in, as determined during the agreement with IID. Since the water demand would be temporary and low, impacts for decommissioning activities on water supply would be less than significant.

Mitigation Measures

None required.

Level of Significance After Mitigation

Not applicable.

4.0 CUMULATIVE IMPACTS

4.1 INTRODUCTION

Section 15130(a) of the CEQA Guidelines requires a discussion of the cumulative impacts of a project when the project's incremental effect is cumulatively considerable. Cumulatively considerable, as defined in CEQA Guidelines Section 15065(a)(3), means that the "incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." Section 15355 of the CEQA Guidelines defines a cumulative impact as two or more individual effects that, when considered together, are considerable or that compound or increase other environmental impacts. Cumulative impacts can result from individually minor but collectively significant projects taking place over time.

According to the CEQA Guidelines:

> Cumulative impacts refer to two or more individual effects that, when considered together, are considerable and that compound or increase other environmental impacts.
>
> a) The individual effects may be changes resulting from a single project or multiple separate projects.
>
> b) The cumulative impact from several projects is the change in the environment, which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period. (CCR, Title 14, Division 6, Chapter 3, Section 15355)

In addition, as stated in CEQA Guidelines:

> The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable (CCR, Title 14, Division 6, Chapter 3, Section 15064[T][5]).

4.2 CUMULATIVE IMPACT SETTING

Cumulative impact discussions for each environmental issue area are provided within each individual impact section. As established in the CEQA Guidelines, related projects consist of "closely related past, present, and reasonably foreseeable probable future projects that would likely result in similar impacts and are located in the same geographic area" (CCR, Title 14, Division 6, Chapter 3, Section 15355).

The CEQA Guidelines define a cumulative impact as two or more individual impacts that, when considered together, are significant or that compound or increase other significant environmental impacts. Cumulative impacts can result from individually minor but collectively significant projects taking place over time (State CEQA Guidelines Section 15355). The incremental impact of a project, although less than significant on its own, may be considerable when viewed in the cumulative context of other closely related past, present, and reasonably foreseeable projects. A considerable contribution is considered significant from the point of view of cumulative impact analysis.

CEQA Guidelines Section 15130 identifies two basic methods for establishing the cumulative environment in which a project is considered: the use of a list of past, present, and probable future projects or the use

of adopted projections from a general plan, other regional planning document, or a certified EIR for such a planning document. The analysis conducted in this EIR utilizes the list approach to generate the most reliable future projections of possible cumulative impacts. Figure 4.2-1 provides the location of each of these projects in relation to the Project Site.

4.3 GEOGRAPHIC SCOPE

The geographic area analyzed for cumulative impacts is dependent on the resource being analyzed. The geographic area associated with the Project's environmental impacts defines the boundaries of the area used for compiling the list of past, present, and reasonably foreseeable projects considered in the cumulative impact analysis. Each section of this EIR considers the specific geographic area that is directly related to the individual topic addressed within that section. For example, the analysis of air quality is evaluated on a regional level, because air quality impacts are regional in nature; whereas, analysis of aesthetic impacts only considers related projects in the vicinity of the Project Site because of the localized nature of aesthetic impacts.

The geographic area that could be affected by implementation of the Project, in combination with other projects, varies depending on the type of environmental resource being considered. Table 4.3-1 provides the geographic area evaluated in the cumulative analysis for each resource area.

Table 4.3-1 Geographic Scope of Cumulative Impact and Method of Evaluation

Resource Topic	Geographic Area
Aesthetics	Immediate Project vicinity
Agricultural and Forestry Resources	Immediate Project vicinity and region
Air Quality	Local (toxic air contaminants) Air Basin (construction-related and mobile sources)
Biological Resources	Immediate Project vicinity
Geology and Soils	Immediate Project vicinity (effects are highly localized)
Greenhouse Gas Emissions	State
Hazards and Hazardous Materials	Project Site only (does not contribute to cumulative impacts)
Hydrology and Water Quality	Immediate Project vicinity and region
Land Use and Planning	Immediate Project vicinity
Tribal Cultural Resources	Project Site only (does not contribute to cumulative impacts)
Utilities and Service Systems	Immediate Project vicinity

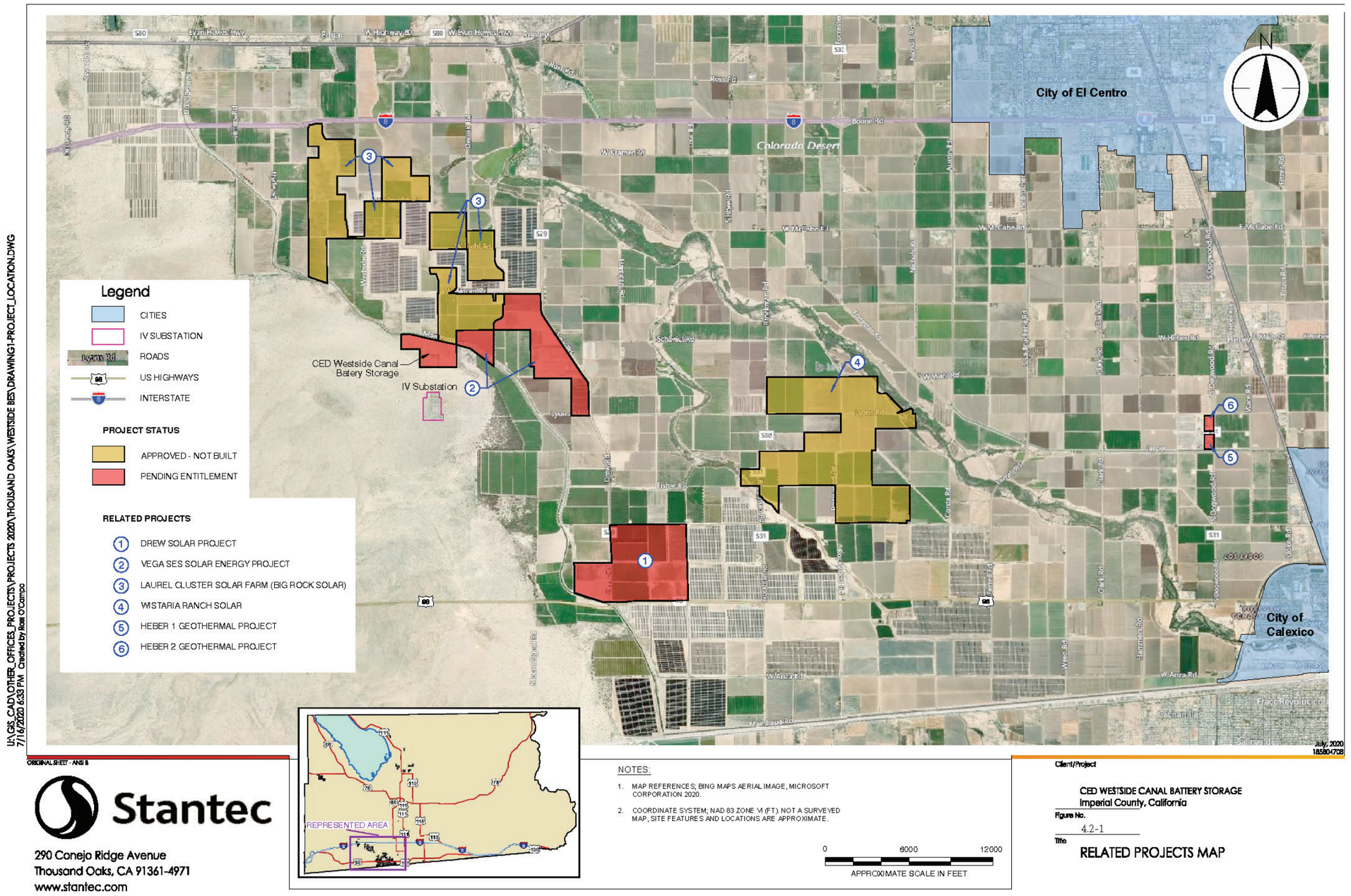


Figure 4.2-1 Related Projects

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4.4 LIST OF RELATED PLANS AND PROJECTS

Table 4.4-1 lists the past, present, and probable future Related Projects considered in the cumulative impact analysis. This list was developed based on communication with the County Development and Planning representatives responsible for approval of projects within its jurisdiction that could be affected by Project construction and operation. The list shown in Table 4.4-1 is not intended to encompass every development project in the region; rather, it identifies the projects of a similar nature with the greatest potential for impacts that would overlap with those of the Project.

Table 4.4-1 Related Projects

Project Number	Name of Project	Use	Project Description	Status
1	Drew Solar Project	Photovoltaic (PV) Solar Energy Facility	• Drew Road and State Route 98, approximately 3.5 miles southeast of Project Site • 100 megawatt (MW) PV solar energy facility • Approximately 762 acres consisting of six parcels • Up to 10-year construction period	Approved 2019; not yet constructed.
2	VEGA SES Solar Energy Project	PV Solar Energy Facility	• Drew and Wixom Roads, immediately adjacent to Project site to the northeast • 100 MW PV solar energy facility with integrated battery storage system • Approximately 574 acres, consisting of five parcels	Approved 2019; not yet constructed.
3	Laurel Cluster Solar Farm (Big Rock Solar)	PV Solar Energy Facility	• Drew Road and Westside Main Canal, immediately adjacent to Project Site to the north and northeast • 325 MW PV solar energy facility • Approximately 1,380 acres, consisting of four parcels	Approved 2019; not yet constructed
4	Wistaria Ranch Solar	PV Solar Energy Facility	• Wahl Road and Rockwood Road, approximately 4 miles east and southeast of Project Site • 250 MW solar energy facility • Approximately 2,793 acres on five total clusters across 32 parcels; four southern clusters built out and largest cluster not yet constructed	Approved 2014; partially constructed
5	Heber 1 Geothermal Project	Geothermal Energy Facility	• Dogwood and Willoughby Roads, approximately 11 miles east of Project Site • Construction and operation of new geothermal energy converters capable of generating 52 MW • Located on an existing facility, directly south of Heber 2; similar characteristics to Heber 2	Not yet approved
6	Heber 2 Geothermal Project	Geothermal Energy Facility	• Dogwood Willoughby Roads, approximately 11 miles east of Project Site • Construction and operation of new geothermal energy converters capable of generating 33 MW • Approximately 4 acres of disturbance on an existing 40-acre site	Not yet approved

CEQA defines “probable future projects” as those with an active application at the time the NOP was released for a project (in this case, April 13, 2020). The list of projects in Table 4.4-1 was used in the development and analysis of the cumulative settings and impacts for each resource topic. Past and current projects in the Project vicinity were also considered as part of the cumulative setting as they contribute to the existing conditions upon which the Project and each probable future project’s environmental effects are compared.

Unless otherwise specified, significance criteria are the same for cumulative impacts as they are for Project impacts for each environmental topic area. When considered in relation to other reasonably foreseeable projects, cumulative impacts to some resources would be significant and more severe than those caused by the Project alone.

4.5 CUMULATIVE IMPACT ANALYSIS

For purposes of this EIR, the Project would result in a significant cumulative effect if either of the following apply:

- the cumulative effects of Related Projects (past, current, and probable future projects) are not significant, and the incremental impact of implementing the Project is substantial enough when added to the cumulative effects of Related Projects to result in a new cumulatively significant impact

- the cumulative effects of Related Projects are already significant, and implementation of the Project makes a considerable contribution to the effect. The standards used herein to determine a considerable contribution are that either the impact must be substantial or must exceed an established threshold of significance

This cumulative impact analysis assumes that all mitigation measures identified in Sections 3.1 through 3.11 to mitigate project impacts are adopted. The analysis herein analyzes whether, after adoption of Project-specific mitigation, the residual impacts of the Project would cause a cumulatively significant impact or would contribute considerably to existing and anticipated (without the Project) cumulatively significant effects. Where the Project would so contribute, additional mitigation is recommended where feasible.

4.5.1 Aesthetics

4.5.1.1 Cumulative Setting

As indicated above, there are six Related Projects in the County, including two that are in the Project vicinity. Portions of Related Project 2, the VEGA SES Solar Energy Project (immediately north of the Project Site, across the Westside Main Canal), and Related Project 3, Laurel Cluster Solar Farm (immediately northeast of the Project Site, across the Westside Main Canal), are within the same viewshed as the Project as they are within closest proximity to the Project. Of the remaining Related Projects, Related Project 1, Drew Solar Project, is the next closest, at approximately 3.5 miles away, followed by Related Project 4 (approximately 4 miles away), Related Project 5 and # 6 (approximately 11 miles away). All four of these projects are too distant to have cumulative aesthetic impacts.

The short-term visual impacts of the Project would be related to general construction activities; however, these views would be available only to a limited number of people that are in relatively close to the Project Site. Longer-term visual impacts of the Project would be related to the presence of the Project itself and its various components, including structures, the clear-span bridge and roadways, as well as the transmission system.

4.5.1.2 Cumulative Impacts and Mitigation Measures

Related Projects 2 and 3 are located to the north and northeast of the Project Site, and these projects would be constructing similar project components over a very large area. They would be constructed in phases over several years and would add onto the less than significant temporary construction and long-term operational visual character and light and glare impacts associated with the Project. Although the visual character of the Project vicinity would gradually change with the continued development of PV solar energy projects in the area, construction of Related Projects 2 and 3 would not significantly impede any views in the area, as those projects would not consist of tall structures, other than power poles and lines, and would be of a similar character as the Project. Additionally, the Related Projects, in conjunction with the Proposed Project, would be in remote areas and would be only visible to a small number of people passing by on local roadways. Development of the Related Projects, in conjunction with the Project, would gradually change the visual character of the Imperial Valley on a more regional basis; however, these projects would be required to comply with the County ordinances to protect visual resources.

Furthermore, many of the Related Projects would be decommissioned at the end of their useful life, thereby returning these areas to their current agricultural or otherwise undeveloped conditions. Similarly, the Project would be decommissioned but would maintain its new M-2 zoning designation. Decommissioning would remove transmission towers and tie lines that would be the most visible Project components, and as such, after the Project's useful life, there would be no long-term contribution to cumulative visual character impacts.

Similar to the Proposed Project, development of the Related Projects would not include significant sources of illumination that would increase the amount of light and glare in the projects' vicinity. They would also be required to comply with Title 24 requirements, as well as applicable County ordinances related to the light and glare. In addition, the Related Projects would be constructed at a significant distance from the Project such that any cumulative lighting impacts in the area would be negligible.

Based on the above, none of the Related Projects would significantly alter the aesthetic or visual character of the Project vicinity, affect the lighting environment, produce glare that would affect views in the area or otherwise contribute to a cumulative significant aesthetic impact. Therefore, the construction and operation of the Project, considered together with the Related Projects, would have a less than significant cumulatively considerable contribution to cumulative aesthetic impacts.

4.5.2 Agricultural and Forestry Resources

4.5.2.1 Cumulative Setting

Related Projects 1, 2, 3 and 4 consist of solar PV projects located on agricultural lands, while Related Projects 5 and 6 are geothermal projects that are not located on agricultural land. Related Projects would be temporarily converting agricultural land for use as renewable energy projects. Solar projects are considered temporary, as their respective CUPs would limit their operational time. In reviewing the respective EIRs for Related Projects 1, 2, 3 and 4, there would be a total temporary conversion of approximately 1,339 acres of Prime Farmland, approximately 3,915.4 acres of Farmland of Statewide Importance, and approximately 209.5 acres of other Farmland, such as Unique Farmland, Farmland of Local Importance or Grazing Land.

4.5.2.2 Cumulative Impacts and Mitigation Measures

The Project does not contain any Prime Farmland or Farmland of Statewide Importance. Therefore, when considered together with the Related Projects, there would not be a cumulative impact to the temporary loss of this most valuable Farmland. In addition, the land on the Project Site has not been used for

agriculture in over 15 years, due to the lack of irrigation and accessibility. Related Projects 1, 2, 3 and 4 would all entail the temporary conversion of agricultural land, each with their respective CUPs to limit operational of these facilities. The Project, as well as Related Projects 1, 2, 3 and 4 would all involve decommissioning of the renewable energy facility components. Related Projects 1, 2, 3 and 4 could revert to an agricultural use and retain its agricultural land use designation and zoning, at the end of those projects' operational life. After decommissioning of the Project, the Site would retain its Industry land use designation and M-2 zoning. Related Projects 1, 2, 3 and 4, as well as the Project (MM AG-1), would require implementation of project specific County mitigation measures to reduce impacts to the loss of Farmland. MM AG-1 would require the Project Applicant to minimize the impacts associated with the permanent loss of valuable Farmland through either provision of an agricultural conservation easement, payment into the County agricultural fee program, or entering into a public benefit agreement. With mitigation incorporated, these projects would have a less than significant impact on agriculture and forestry resources, which would help reduce the impact of conversion of Farmland of Local Importance to a non-agricultural use. Therefore, construction, operation, and decommissioning activities of the Project, considered together with the Related Projects, would have a less than significant cumulatively considerable contribution to cumulative agricultural resources impacts.

4.5.3 Air Quality

4.5.3.1 Cumulative Setting

The geographic extent for cumulative air quality impacts is the Salton Sea Air Basin within the ICAPDC jurisdiction, because this is the air basin in which the generated air pollutants are created, spread, and have most consequences. Therefore, Imperial County is used as the geographic scope for analysis of cumulative air quality impacts. The ICAPDC has created air quality plans to document the strategies and measures needed to reach attainment of ambient air quality standards.

The Project Site is in non-attainment areas for NAAQS and CAAQS for ozone and particulate matter. The majority of regional PM_{10} and $PM_{2.5}$ emissions originate from dust stirred up by wind or by vehicle traffic on unpaved roads (Imperial County APCD 2009). Other PM_{10} and $PM_{2.5}$ emissions originate from grinding operations, combustion sources such as motor vehicles, power plants, wood burning, forest fires, agricultural burning, and industrial processes. Ozone is not emitted directly but is a result of atmospheric activity on precursors. NO_X and ROG are known as the chief "precursors" of ozone. These compounds react in the presence of sunlight to produce ozone. Approximately 88 percent of NO_X and 40 percent of ROG regional emissions originate from on- and off-road vehicles (Imperial County APCD 2010). Other major sources include solvent evaporation and miscellaneous processes such as pesticide application.

4.5.3.2 Cumulative Impacts and Mitigation Measures

The Related Projects are large-scale renewable energy generation projects, where the main source of air emissions would be generated during the construction phases of these projects; however, there would also be limited operational emissions associated with operations and maintenance activities for these facilities. Therefore, the potential for a cumulative short-term air quality impact as a result of construction activities is anticipated to be less than significant.

The Project would not result in significant impacts and is consistent with the ICAPCD's air quality plans, and with SCAG's growth projections. As shown in the technical analysis for the Project, all construction-related emissions would be less than the applicable significance thresholds. However, as required by the ICAPCD, mitigation measures MM AIR-1 and MM AIR-2 would be required to help ensure that emissions do not exceed the thresholds. The Project, in conjunction with the construction of other Related Projects could result in a cumulatively considerable increase in the generation of PM10 and NOx; however, like the Project, cumulative projects would be required to comply with all applicable Imperial County APCD standard

measures for fugitive dust and construction equipment. With implementation of mitigation measures, the Project would not result in a cumulatively considerable net increase in criteria pollutants for which the region is in non-attainment of federal or state standards during construction. The Project, considered together with the Related Projects, would have a less than significant cumulatively considerable contribution to cumulative air quality impacts.

All Project-related operation-related emissions would be less than the applicable ICAPCD's significance thresholds; therefore, there would not be a cumulatively considerable impact related to Project operation, in conjunction with operation of the Related Projects. Project emissions would be consistent with SCAG's growth projections and the ICAPCD's air quality plans; therefore, the Project is consistent with the cumulative emissions modeling that has been completed for the overall air basin and cumulative impacts would be less than significant.

The Project is anticipated to operate for a total of approximately 30 years from the construction of the final phase, with a maximum of 40 years from the CUP effective date. At the end of the Project's useful operational life, the Applicant may determine that the Project Site should be decommissioned and deconstructed, or it may seek an extension of its CUP. The emissions associated with decommissioning of the Project are not quantitatively estimated, as the extent of activities and emissions factors for equipment and vehicles at the time of decommissioning are unknown. The overall activity would be anticipated to be somewhat less than Project construction, and the emissions from off-road and on-road equipment are expected to be much lower than those for the Project construction. However, without changes in fugitive dust control methods it is likely that fugitive dust emissions would be closer to those estimated for construction. Overall, similar to construction, emissions associated with decommissioning would be less than significant.

Similar to construction, decommissioning of the Project would require compliance with ICAPCD standard measures and mitigation measures AIR-1 and AIR-2. Related Projects would also comply with the ICAPCD's regulations and measures during decommissioning. Therefore, cumulative impacts from decommissioning would be less than significant with implementation of mitigation measures.

4.5.4 Biological Resources

4.5.4.1 Cumulative Setting

The cumulative setting includes all areas containing biological resources within the County region. Development anticipated as part of the cumulative condition is reflected in the land uses shown on the County's General Plan Land Use Map and Figure 4.2-1. Future proposed and planned development would change the intensity of land uses in the County. Future growth under cumulative conditions may result in biological and natural resources impacts, including loss of natural habitats and associated species. Generally, regulatory agencies, such as the CDFW, have instituted regulations to limit impacts to protected species. Potential impacts would be reduced to less than significant levels through mitigation requiring compliance with all applicable regulations protecting biological resources, as well as jurisdictional waters. Related Projects would also be required to avoid impacts special-status species and/or mitigate impacts in accordance with regulatory requirements.

4.5.4.2 Cumulative Impacts and Mitigation Measures

Most Project construction related impacts to sensitive wildlife, sensitive plants, and jurisdictional waters would be permanent and direct. Operational impacts would not result in significant additional impacts. There are no known bird or bat migratory corridors that would be directly impeded by the Project. Large concentrations of migrant species are not known to utilize any specific portion of the Project Site, and construction, O&M and decommissioning activities are not expected to preclude use of the area. Migrating birds would have access to suitable habitat within the adjacent areas. Although species would be disrupted

during certain activities, impacts to migratory corridors from the Project would not be significant. Impacts to sensitive wildlife, sensitive plants, jurisdictional waters, and wildlife corridors, when combined with Related Projects, would not be cumulatively considerable.

However, the Project would result in direct impacts to native vegetation known to support-special status plants and wildlife, including burrowing owl, flat-tailed horned lizard, American badger, and Colorado Desert fringe-toed lizard. Most potential impacts would be permanent and direct in nature. Although, the Project would impact the native habitat, the overall loss of these communities within California, and their suitability to support several special-status species, the loss of this habitat when combined with Related Projects could be considered a cumulatively significant impact.

Implementation of MM BIO-1 through BIO-19 would minimize the Project's contribution to cumulatively considerable impacts during construction, operation, and decommissioning. These measures include worker education describing the sensitive biological resources that occur on the Project Site, implementation of BMPs to minimize and avoid impacts, pre-construction surveys, nesting bird buffer protocols, and conducting biological monitoring during ground-disturbing and other construction-related activities. Implementation of these mitigation measures would reduce the Project's contribution to cumulative impacts. Therefore, with implementation of mitigation measures, the Project, considered together with the Related Projects, would have a less than significant cumulatively considerable contribution to cumulative biological resources impacts.

4.5.5 Geology and Soils

4.5.5.1 Cumulative Setting

The study area for potential cumulative geology and soil impacts consists of the Project site and the surrounding area, which encompasses the Related Projects identified in Table 4.4-1. This study area contains similar geologic conditions that could be affected by cumulative soil impacts (e.g., cumulative geology, seismically and soil-related impacts).

4.5.5.2 Cumulative Impacts and Mitigation Measures

In general, the Project, in combination with the Related Projects, would not contribute to significant cumulative geologic impacts, because geologic/seismic impacts would be generally site specific. The Project and Related Projects would not change the geologic properties of the area. There would continue to be some level of seismic and other geologic risks during operation of the Project and Related Projects because of their locations within a seismically active region of Southern California; however, these risks would not increase or decrease as a result of the construction, operation or decommissioning activities attributed to the Project and Related Projects. Additionally, similarly to the Project, the Related Projects would be subject to preparation of site-specific geotechnical evaluations and applicable seismic standards, safety requirements, and standard design specifications to reduce the potential risk of damage from seismic and other geologic hazards to an acceptable level. Therefore, construction, operation and decommissioning of the Project and Related Projects would not result in cumulatively considerable impacts with respect to geology, seismicity, or soils, resulting in a less than significant cumulatively considerable contribution to geology and soil impacts.

4.5.6 Greenhouse Gas Emissions

4.5.6.1 Cumulative Setting

Section 15064.4 addresses the significance of GHG emissions, directing that a lead agency shall make a "good-faith effort" to "describe, calculate or estimate" GHG emissions in CEQA environmental documents

(CNRA 2018). Section 15064.4 further states that the analysis of GHG impacts should include consideration of (1) the extent to which the project may increase or reduce GHG emissions, (2) whether the project GHG emissions would exceed a threshold of significance that the lead agency determines applies to the project, and (3) the extent to which the project would comply with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions."

The CEQA Guidelines focus on the effects of GHG emissions as cumulative impacts and direct that they should be analyzed in the context of CEQA's requirements for cumulative impact analysis (CNRA 2009). CEQA Guidelines section 15064.4 states that "the lead agency should focus its analysis on the reasonably foreseeable incremental contribution of the project's emissions to the effects of climate change. A project's incremental contribution may be cumulatively considerable even if it appears relatively small compared to statewide, national, or global emissions. The agency's analysis should consider a timeframe that is appropriate for the project. The agency's analysis also must reasonably reflect evolving scientific knowledge and state regulatory schemes."

4.5.6.2 Cumulative Impacts and Mitigation Measures

The CEQA Guidelines establish that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program (including plans or regulations for the reduction of GHG emissions) that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located (CEQA Guidelines section 15064(h)(3)). The Project and Related Projects are required to comply with these requirements and would, therefore, have a less than significant cumulatively considerable impact.

Analysis of GHG emissions is cumulative in nature because impacts are caused by cumulative global emissions and additionally, climate change impacts related to GHG emissions do not necessarily occur in the same area as the Project is located. Given that the Project would generate GHG emissions consistent with applicable reduction plans and policies and that GHG emission impacts are cumulative in nature, the Project's incremental contribution to cumulatively significant GHG emissions, in conjunction with the GHG contributions of the Related Projects, would have a less than significant cumulatively considerable contribution to cumulative GHG impacts.

4.5.7 Hazards and Hazardous Materials

4.5.7.1 Cumulative Setting

The geographic scope of the cumulative hazards and hazardous materials analysis is the project area that could cause soil or groundwater contamination or create a risk of upset conditions, which is the Project Site and the immediate vicinity, as adverse effects of hazards and hazardous materials tend to be localized since they tend to be related to on-site existing hazardous conditions and/or hazards caused by the project's construction or operation. Impacts related to the transport, use, or disposal of hazardous materials and hazards to the public or environment because of upset and accident conditions are primarily site-specific.

4.5.7.2 Cumulative Impacts and Mitigation Measures

Cumulative impacts could occur if Related Projects would have the potential to cause an accidental release to the public or environment during transport, use, or disposal of hazardous materials, and any project that would potentially expose sensitive receptors to an accidental release of hazardous materials. Compliance with existing applicable laws would help ensure that impacts related to exposure to hazardous materials would be minimized and/or avoided. The development, operation, and decommissioning of the Project would comply with these requirements resulting in cumulative effects that would be less than significant.

Therefore, the Project's potential impacts to hazards would not combine with impacts from Related Projects, such that a cumulatively significant impact associated with hazards or hazardous materials could occur. In addition, the Related Projects must comply with all applicable regulations similar to the Project, thereby reducing the potential to create a hazard to the public or environment. The Project also intends to commit to contribute its proportionate share to purchase, a Type 1 Fire Engine which shall meet all NFPA standards for structural firefighting for the ICFD. Related Projects are anticipated to contribute their fair share as well as determined by the ICFD. Therefore, construction, operation, and decommissioning of the Project, considered together with the Related Projects, would have a less than significant cumulatively considerable contribution to cumulative hazards and hazardous materials impacts.

4.5.8 Hydrology and Water Quality

4.5.8.1 Cumulative Setting

The geographic scope for cumulative impacts on hydrology and water quality includes the Imperial Hydrologic Unit, Brawly Hydrologic Area, which includes the Related Projects listed above.

4.5.8.2 Cumulative Impacts and Mitigation Measures

Construction and decommissioning of the Project would include compliance with of all required laws, permits, ordinances and plans, and mitigation measure HYD-1 that would reduce incremental effects to hydrology and water quality. Each of the cumulative projects noted in Table 4.4-1 would be required to comply with the Construction General Permit. The SWRCB has determined that the Construction General Permit protects water quality, is consistent with the CWA, and addresses the cumulative impacts of numerous construction activities throughout the state. This determination in conjunction with the implementation of mitigation would help ensure short-term water quality impacts are not cumulatively considerable.

The Project would result in an increase of impervious surfaces within the watershed. However, the Project is not expected to result in long-term operations-related impacts related to water quality as impacts due to run off and water quality would be mitigated by implementation of mitigation measure HYD-2. The areas surrounding the Project area are agricultural or open space, and any future development there or at the sites of the Related Projects would include compliance with of all required laws, permits, ordinances and plans to meet runoff minimization requirements. Therefore, construction, operation, and decommissioning of the Project, considered together with the Related Projects, would have a less than significant cumulatively considerable contribution to hydrology and water quality impacts.

4.5.9 Land Use and Planning

4.5.9.1 Cumulative Setting

The Project area is comprised of vacant land and agricultural land uses, as well as utility-scale solar PV facilities. The Project represents a continuation of planned renewable and clean energy development within this existing environment and includes the construction of a utility-scale battery storage facility adjacent to an existing solar farm, an existing transmission facility, and a buffer area (e.g., IID Canal). The Related Projects consist of more renewable energy projects, reflective of the encouraged use of renewable energy projects by the County. Typically, cumulative impacts associated with land use can include an evaluation of a broad geographic (e.g., City or County jurisdiction) area to better understand the past, current, and future development patterns of the area and their relation to the Project.

4.5.9.2 Cumulative Impacts and Mitigation Measures

The Proposed Project in conjunction with cumulative development in the area could contribute to an increase in development in the Project vicinity and result in the incremental loss of these agricultural lands in the County. However, potential land use impacts require evaluation on a case-by-case basis to accurately evaluate the impacts of a specific development on its immediate environment. The Project would be consistent with the goals and policies of the Imperial County General Plan, upon approval of the General Plan Amendment and Zone Change and Conditional Use Permit. The Project determined no land use or cumulative related land use impacts would result and therefore, no mitigation measures would be required. Similarly, all Related Projects have and/ or would be required to undergo separate environmental review on a case-by-case basis in accordance with the requirements of the CEQA Guidelines. Each related project would also require demonstrating consistency with all applicable planning documents governing the project sites, including the Imperial County General Plan, Zoning Ordinance, and Municipal Code.

The Project and Related Projects 1, 2, 3 and 4 would undergo decommissioning at the end of the projects' useful life or expiration of their respective CUPs. The Project would retain its proposed zoning designation of M-2 pursuant to decommissioning, while the Related Projects would revert to agricultural uses. The potential for the cumulative effects caused by the decommissioning of multiple renewable utility-scale solar power and/or energy storage facilities in the County could result in impacts on surrounding land uses. To address this, decommissioning of the Project and Related Projects would require an approved Decommissioning Plan. The requirement of both an approved Decommissioning Plan, as well as consistency with the County General Plan, Zoning Ordinance and Municipal code would reduce potential cumulative land use impacts associated with construction, operation, and decommissioning to less than significant levels. Therefore, construction, operation, and decommissioning of the Project, considered together with the Related Projects, would have a less than significant cumulatively considerable contribution to cumulative land use and planning impacts.

4.5.10 Tribal Cultural Resources

4.5.10.1 Cumulative Setting

According to CEQA, the importance of TCRs is the value of the resource to California Native American tribes culturally affiliated with a specific project area. Therefore, the issue in a cumulative impact analysis is the loss of TCRs in the vicinity of a project site. For TCRs that are avoided or preserved through dedication within open space, no impacts would occur. However, if avoidance or dedication of open space to preserve TCRs is infeasible, those impacts must be considered in combination with TCRs that would be impacted for other projects included in the Related Projects list.

4.5.10.2 Cumulative Impacts and Mitigation Measures

The Related Projects located in the region would have the potential to result in a cumulative impact associated with the loss of TCRs through development activities that could cause a substantial adverse change in the significance of a tribal resource. Any cumulative projects that involve ground-disturbing activities would have the potential to result in significant impacts to TCRs. All projects, including the Related Projects would be regulated by applicable federal, state, and local regulations to avoid the destruction of TCRs.

Construction, operation, and decommissioning of the Project would include activities limited to the confines of the Project site. As discussed in Section 3.10 of this EIR, the cultural resources study and the County's tribal consultation efforts did not identify TCRs within the Project footprint. The Project is considered unlikely to adversely affect TCRs. Furthermore, the Project is required to implement MM CULT-1, which provides training for construction workers in the event resources are unexpectedly encountered during construction.

The San Pasqual Band of Mission Indians has requested additional consultation; therefore, MM CULT-2, which requires consultation to determine if monitoring or treatment plans for unexpected discoveries shall be required, would be implemented. As there are no known TCRs identified that would be impacted by the Project, and implementation of MM CULT-2 requires continued consultation, the Project's impacts to TCRs were determined to be less than significant. The Related Projects would, like the Project, be required to comply with regulatory requirements governing TCRs, including consultation with California Native American Tribes, as required by AB 52. For these reasons, the Project, when considered together with the Related Projects, would have a less than cumulatively considerable contribution to cumulative impacts on TCRs.

4.5.11 Utilities and Service Systems

4.5.11.1 Cumulative Setting

The cumulative setting with respect to utilities and service systems is the immediate Project vicinity. As indicated above, Related Project 2 and Related Project 3 are located adjacent to the Project Site, to the north and northeast, so they are the most relevant projects to consider for potential cumulative impacts. Related Project 1, Drew Solar Project, is the next closest, at approximately 3.5 miles away, followed by Related Project 4 (approximately 4.3 miles away), Related Project 5 and Related Project 6 (both approximately 10.6 miles away).

Water

As described above, the Colorado River is the main supplier of water to the Imperial Valley for irrigation as well as commercial, industrial, and residential uses. IID is entitled to its share of untreated imported water from the Colorado River, which is conveyed via the All-American Canal. The Related Projects along with the Project would use either IID imported water or provide their own water supply by digging wells or importing water from other sources.

Wastewater

IID serves as the main untreated water provider for Imperial Valley. The Related Projects would either utilize their own on-site wastewater treatment methods or connect to the Seeley County Water District wastewater treatment facility, located 4.7 miles south of the Project Site. However, the Project and some of the Related Projects would provide their own wastewater treatment services by utilizing septic tanks and leach fields or other engineered methods. As such, they would not be connecting to existing wastewater treatment facilities.

Stormwater

IID operates and maintains extensive drainage outlet systems to collect excess surface flows, subsurface tile discharges, and operational discharges from nearby canals. Due to the increase in impervious surfaces associated with PV solar energy projects, new and/or expanded stormwater conveyance systems (e.g., pipes, ditches, and channels), as well as retention basins are required to support the Project and Related Projects. The Project and Related Projects would be required to design their projects in accordance with applicable regulations related to stormwater conveyance.

Electric Power

IID supplies electricity to unincorporated areas of the County, providing electrical power to more than 10,000 customers in the Imperial Valley, as well as maintaining distribution and substation facilities throughout the County. In accordance with IID's stated goals in its 2018 IRP, IID wants to increase its renewable energy

portfolio to 50 percent by 2030 and its mix of renewable energy generating sources account for less than 21 percent of the total load currently. The Project and Related Projects are helping IID to meet its goals to provide reliable, renewable energy to its customers.

Telecommunication Facilities

IVTA is the main telecommunications provider for the Imperial Valley, including for the Project and Related Projects. IVTA seeks to connect participating agencies to a modernized fiber-optic telecommunications network. There are cell phone towers located throughout the County, including two existing cell phone towers in the Project vicinity; however, overall cell reception in the vicinity is considered poor.

4.5.11.2 Cumulative Impacts and Mitigation Measures

Water

The Related Projects, in conjunction with the Project, would be responsible to seek service agreements with IID and/or prepare a project-specific WSA pursuant to SB 610. By doing so, water demand for projects developed within the IID service area would be supported by IWSP forecasted water supplies evaluated for multiple dry-year scenarios. Compliance with applicable codes and regulations related to water supply and water conservation would assist in ensuring that adequate water supplies are available for the Related Projects. In addition, each project would be required to account for its own water supply as part of its approval, demonstrating that sufficient water supplies would be available from existing water resources and entitlements. This is intended to help ensure that water service would meet the projected cumulative demand. Therefore, the Project, considered together with the Related Projects, would have a less than significant cumulatively considerable contribution to cumulative impacts on water supply.

Wastewater

The Project would treat its own wastewater on-site by utilizing septic leach fields. The Related Projects would either utilize their own on-site wastewater treatment methods or connect to the Seeley County Water District wastewater treatment facility. If a related project would connect to the Seeley County Water District wastewater treatment facility, if would be required to apply for the appropriate sewer permit prior to connecting to the sewer system, in compliance with all applicable regulations. The Project, when considered together with the Related Projects, would not result in new or expanded wastewater treatment facilities, since each project would be required to comply with all applicable regulations relating to wastewater treatment based on project-specific studies. Therefore, the Project, considered together with the Related Projects, would have a less than significant cumulatively considerable contribution to cumulative impacts on wastewater.

Stormwater

The Project, in conjunction with the Related Projects, would be required to manage stormwater and runoff for their respective project sites. The Project proposes to include stormwater retention basins on-site as required, which would be designed in accordance with applicable County guidelines. Similarly, the Related Projects would also be required to comply with applicable regulations related to stormwater conveyance with project-specific design considerations implemented to minimize impacts related to stormwater. In addition, four of the six Related Projects are at least 3.5 miles away from the Project Site, and stormwater flows from these projects would be too far away to be cumulatively considerable. Therefore, the Project, considered together with the Related Projects, would have a less than significant cumulatively considerable contribution to cumulative impacts on stormwater.

Electric Power

The Project is anticipated to generate 25 to 400 MW per phase over a 10-year period. The rated capacity of the Project at full buildout is approximately 2,000 MW. The Related Projects would generate an additional minimum of 860 MW of renewably sourced electricity for the Imperial Valley and beyond. The Project, together with the Related Projects, complement IID's goal of reducing industrial carbon footprints and providing reliable, renewable energy complemented by battery storage. Furthermore, each project would comply with all applicable standards and regulations regarding energy generation and efficiency. Therefore, the Project, considered together with the Related Projects, would have a less than significant cumulatively considerable contribution to cumulative impacts on electric power.

Telecommunication Facilities

The Project proposes to install an approximately one-third-mile long telecommunication cable using existing gen-tie lines. Should new cell phone towers be required, each respective project would be required to request service from existing service providers. As such, cell phone service in these areas may improve. The Project and Related Projects would be required to comply with applicable regulations and requirements regarding installation and relocation of telecommunications facilities, including Federal Communications Commission standards. Therefore, the Project, considered together with the Related Projects, would have a less than significant cumulatively considerable contribution to cumulative impacts on telecommunication facilities.

In conclusion, based on the above, construction and operation of the Project, considered together with the Related Projects, would have a less than significant cumulatively considerable contribution to cumulative impacts on utilities and service systems.

5.0 ALTERNATIVES

The purpose of an alternatives analysis pursuant to CEQA is to identify feasible options that would attain most of the basic objectives of a proposed project while reducing its significant effects. Provisions of CEQA Guidelines (Section 15126.6) that address the number of project alternatives required in an EIR state the following:

> *The range of alternatives required in an EIR is governed by a "rule of reason;" the EIR must evaluate only those alternatives necessary to permit a reasonable choice. The alternatives shall be limited to those that would avoid or substantially lessen any of the significant effects of a proposed project while meeting most of the underlying project objectives.*

5.1 REQUIREMENTS FOR THE CONSIDERATION OF ALTERNATIVES

An important aspect of EIR preparation is the identification and assessment of alternatives to a proposed project that have the potential to avoid or substantially lessen potentially significant impacts. In addition to mandating consideration of the "No Project" alternative, CEQA Guidelines (Section 15126.6(e)) emphasize the selection of a reasonable range of feasible alternatives and adequate assessment, which allows decision-makers to have a comparative analysis. CEQA Guidelines (Section 15126.6(a)) states:

An EIR shall describe a reasonable range of alternatives to the Project, or to the location of the Project, which would feasibly attain most of the basic objectives of the Project but would avoid or substantially lessen any of the significant effects of the Project and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation.

In accordance with CEQA Guidelines 15126.6, this EIR contains a comparative impact assessment of alternatives to the Project. The primary purpose of this assessment is to provide decision-makers and the public with a reasonable number of feasible alternatives to the Project that could attain most of the basic objectives of the Project while avoiding or reducing any of the Project's significant adverse environmental effects. Important considerations for the analysis of alternatives are provided below:

- An EIR need not consider every conceivable alternative to a project
- An EIR should identify alternatives that were considered by the lead agency, but rejected as infeasible during the scoping process
- Reasons for rejecting an alternative include:
  - Failure to meet most of the basic project objectives
  - Infeasibility
  - Inability to avoid significant environmental effects

5.1.1 No Project Alternative

CEQA Guidelines require that the alternatives be compared to the Project's environmental impacts and that the "No Project" alternative be considered (CEQA Guidelines Section 15126.6(d)(e)). Section 15126.6(d)(e)(1) states:

> *The specific alternative of "no project" shall also be evaluated along with its impact. The purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. The no project alternative analysis is not the baseline for determining whether the proposed*

> *project's environmental impacts may be significant, unless it is identical to the existing environmental setting analysis which does establish that baseline.*

5.1.2 Consistency with Project Objectives

A project's statement of objectives describes the purpose of the project and the reasons for undertaking the project. To be considered for detailed analysis in the EIR, an alternative must meet most of the Project Objectives. Among the suite of Project Objectives identified by the Applicant, the County as Lead Agency has identified the following as the basic Project Objectives for purposes of screening potential alternatives to the Project:

- To construct and operate utility-scale energy storage technologies that are safe, efficient, and environmentally responsible
- To provide load-serving entities and system operators the ability to effectively manage intermittent renewable generation on the grid, thereby creating reliable, dispatchable generation as a firm, dispatchable resource
- To facilitate deployment of additional renewable energy resources in furtherance of the State of California Renewable Portfolio Standard
- To develop an up to 2,000 MW energy storage facility on previously disturbed land that is no longer used for agricultural production
- To promote local economic development by maximizing the utilization of the local workforce for a variety of trades and businesses

5.1.3 Feasibility

According to CEQA Guidelines (Section 15126.6(f)(1):

> *Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives.*

Based on CEQA Guidelines, "feasible" is defined as, "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors" (CEQA Guidelines Section 15364). CEQA does not require that an EIR determine the ultimate feasibility of a selected alternative, but rather that an alternative be potentially feasible.

For the screening analysis, the potential feasibility of potential alternatives was assessed using the following considerations:

- **Technological Feasibility:** Is the alternative feasible from a technical perspective, considering available technology? Are there any construction, operation, or maintenance constraints that cannot be overcome?
- **Legal Feasibility:** For example, do legal protections on lands or financing strategies preclude or substantially limit the feasibility of constructing the alternative?
- **Economic Feasibility:** Is the alternative so costly that its costs would prohibit its implementation?

5.1.4 Potential to Avoid or Lessen Significant Environmental Effects

CEQA requires that alternatives to a proposed project have the potential to avoid or substantially lessen one or more significant effects of the Project (CEQA Guidelines Section 15126.6). At the Project and/or cumulative level, the EIR identified no environmental issues that would cause significant and unavoidable environmental impacts after incorporation of mitigation measures.

5.2 METHODOLOGY AND SCREENING CRITERIA

A range of potential alternatives was developed and subjected to the screening criteria. Several representative alternatives were considered. There was no attempt to include every conceivable alternative. The following criteria were used to screen potential alternatives:

- Does the alternative meet most of the Project Objectives?
- Is the alternative potentially feasible?
- Would the alternative substantially reduce one or more of the significant impacts associated with the Project?

5.3 ALTERNATIVES CONSIDERED BUT NOT SELECTED FOR ANALYSIS

As described above, CEQA Guidelines Section 15126.6(c) provides that the range of potential alternatives for the Project shall include those that could feasibly accomplish most of the basic objectives of the Project and could avoid or substantially lessen one or more of the significant effects. Alternatives that fail to meet the fundamental Project purpose need not be addressed in detail in the EIR. (*In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings* (2008) 43 Cal.4th 1143, 1165-1167.)

In determining what alternatives should be considered in the EIR, it is important to acknowledge the Project, the Project Objectives, significant effects, and unique Project considerations. These factors are crucial to the development of alternatives that meet the criteria specified in Section 15126.6(a). Although, as noted above, EIRs must contain a discussion of "potentially feasible" alternatives, the ultimate determination as to whether an alternative is feasible or infeasible is made by lead agency decision-makers. (PRC, § 21081(a)(3).) At the time of action on the Project, the decision-makers may consider evidence beyond that found in this EIR in addressing such determinations. The decision-makers, for example, may conclude that a particular alternative is infeasible (i.e., undesirable) from a policy standpoint, and may reject an alternative on that basis provided that the decision-makers adopt a finding, supported by substantial evidence, to that effect, and provided that such a finding reflects a reasonable balancing of the relevant economic, environmental, social, and other considerations supported by substantial evidence. (*City of Del Mar v. City of San Diego* [1982] 133 Cal.App.3d 401, 417; *California Native Plant Society v. City of Santa Cruz* [2009] 177 Cal.App.4th 957, 998.)

The EIR should also identify any alternatives that were considered by the Lead Agency but were rejected during the planning or scoping process and briefly explain the reasons underlying the Lead Agency's determination. The following alternatives were considered by the County but are not evaluated further in this EIR for the reasons discussed below.

5.3.1 Alternative Location

Off-site alternatives are generally considered in EIRs when one of the means to avoid or eliminate the significant impacts of a project is to develop it in a different available location. Such alternative locations sites would need to be large enough to accommodate the size of the Project. In addition, they need to be located closer to the Project Site so that the Project's proposed loop-in switching station would be able to

connect the Project to the existing IID Campo Verde-Imperial Valley 230 kV radial gen-tie line, which connects to the IV Substation and the CAISO.

Since the lands to the south are owned by BLM, and parcels north of the IID Canal have pending solar entitlements (Imperial County 2018), this alternative would entail locating the Project on an alternative site located on APN 051-390-016, which is zoned A-3 and is located east of the Project Site and south of the Westside Main Canal. This alternative site parcel is approximately 553.8 acres and is privately owned. Based on its proximity to the Project Site, it can be reasonably assumed that the proposed loop-in switching station would be able to connect the Project to the existing IID Campo Verde-Imperial Valley 230 kV radial gen-tie line, which connects to the IV Substation and the CAISO. It is assumed that access to the alternative site would be achieved via SR 98 and the San Diego Gas & Electric's IV Substation Maintenance Road, requiring an extension of this road for at least one additional mile to the Project Site. Similar to the Project, a clear-span bridge may need to be constructed over the Westside Main Canal to access that site.

The General Plan and zoning designation for APN 051-390-016 is Agriculture, and A-3, respectively, which permits battery storage/solar uses pursuant to a Conditional Use Permit. APN 051-390-016 is designated as Prime Farmland. Since 2015, this alternative site has been cropped for alfalfa.

Construction or operational impacts associated with this alternative site location are expected to be similar to the Project and would involve the same environmental resource issues. Because this alternative assumes the same basic design and layout of the Project, it is assumed key engineering or technology issues would be limited and would not inhibit its implementation. However, impacts to agricultural resources would be more adverse, as this alternative would require conversion of Prime Farmland to a non-agricultural use, whereas the Project is identified only as a Farmland of Local Importance. It is assumed that land costs for the area have remained stable and that this alternative location is more sufficiently sized, considering that it is abundantly larger than the Project Site. However, it would be speculative to conclude that the alternative site can be readily purchased from the private landowner at market-rate for an agriculturally zoned parcel. The alternative site is currently actively used for alfalfa agricultural production.

As noted above, alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the Project Objectives, are infeasible, or do not avoid or substantially reduce any significant environmental effects. Therefore, this alternative was eliminated from further consideration because of the following:

- It would not substantially reduce the environmental impacts associated with permanent loss of Farmland as an alternative location would likely impact Prime Farmlands or active farmlands.
- If an alternative location is selected farther to the north, the connection to the existing IID Campo Verde-Imperial Valley 230 kV radial gen-tie line would not be feasible.
- It would fail to meet Project Objective 4, which is to develop an up to 2,000 MW energy storage facility on previously disturbed land that is no longer used for agricultural production.

5.4 ALTERNATIVES CONSIDERED AND ANALYZED

Section 15126 of CEQA Guidelines requires an EIR to identify and discuss a No Project alternative, as well as a reasonable range of alternatives to the Project that would feasibly attain most of the basic Project objectives and would avoid or substantially lessen any of the significant environmental impacts.

Alternatives to the proposed project considered for analysis in this EIR are:

1. No Project Alternative
2. Alternate Access Routes to the Project Site Alternative

3. Reduced Footprint Alternative

5.4.1 Alternative 1 – No Project Alternative

CEQA Guidelines Section 15126.6(e)(1) requires that the No Project Alternative be described and analyzed, "to allow decision-makers to compare the impacts of approving the Project with the impacts of not approving the project." The No Project analysis is required to discuss, "the existing conditions at the time the Notice of Preparation is published . . . as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services" (Section 15126.6(e)(2)).

The No Project Alternative assumes the Project would not be approved or constructed on the Project Site. The existing Site would continue to remain fallow, under its current land use and zoning designations. The No Project Alternative would not provide for the storage of power/renewable power to help meet the State's energy need since no storage facilities or technologies would be implemented. In addition, the Site would continue to be inaccessible due to lack of roadway infrastructure and access restrictions. By not constructing the Project, the parcels would remain in their current condition.

5.4.1.1 Impact Analysis

While the No Project Alternative would avoid any Project-related impacts, as defined in §15064.5, it would not meet any of the stated Project Objectives.

Aesthetics

The No Project alternative would not develop the energy storage facility, the gen-tie line, and any access improvements, nor would it result in new construction and operational activities. The No Project alternative would not result in any adverse effects related to the visual character or quality of the Site or lighting or glare. While no impacts would occur under this alternative, no significant impacts to aesthetics were identified for the Project. Nonetheless, overall aesthetic impacts of the No Project alternative would be less than the Project, as no change in visual character would occur.

Agricultural Resources

Under the No Project Alternative, the Project Site would not be developed. A majority of the Project Site comprises fallow agricultural lands, which have not been actively farmed nor irrigated for over 15 years. The future land use may continue to be utilized as agricultural land or fallow land. Compared to the Project, implementation of this alternative would avoid the conversion of land designated as Farmland of Local Importance to a non-agricultural use. Therefore, this alternative would not contribute to the conversion of agricultural lands or otherwise adversely affect agricultural operations and mitigation would not be required. Overall impacts of this alternative to agricultural resources would be less than the Project.

Air Quality

The No Project alternative would not develop the energy storage facility, the gen-tie line, and any access improvements or require new construction and/or operational activities. Construction and operational emissions of criteria air pollutants, ozone precursors, and TACs would not increase above existing levels. Impacts to air quality were determined to be less than significant for the Project. Nonetheless, overall air quality impacts of this alternative would be less than the Project as no construction and operational activity would occur.

Biological Resources

Under the No Project Alternative, existing biological resource conditions within the Project Site would largely remain unchanged and no impact would be identified. Unlike the Project which requires mitigation for potential impacts on wildlife, special status plants, nesting birds, this alternative would not result in construction of battery energy storage facilities that could otherwise result in significant impacts on these biological resources. Because there would be no construction under the No Project Alternative, this alternative would avoid any impacts associated with habitat modification, the movement of wildlife species, and would not conflict with policies or ordinances relative to protection of biological species or any provisions of an applicable habitat conservation plan. Compared to the Project, this alternative would avoid potential direct and indirect impacts on biological resources. Impacts to biological resources within the Project Site, and the Project's significant impacts would be avoided (although project impacts can be mitigated to a less-than-significant level). Overall, impacts to biological resources would be less than the Project.

Geology and Soils

Under the No Project alternative, no grading or construction of new facilities would occur, and existing on-site conditions would not change. Therefore, there would be no impacts on Project-related facilities as a result of local seismic or liquefaction hazards, unstable or expansive soils, or suitability of soils for supporting septic tanks. Compared to the Project, this alternative would avoid impacts related to local geological and soil conditions. Therefore, the No Project alternative would result in less impacts compared to the Project.

Greenhouse Gases

Under the No Project alternative, there would be no GHG emissions resulting from Project construction or operation. Therefore, no impact on global climate change would result from Project-related GHG emissions, primarily associated with construction activities. A less-than-significant impact was identified for construction related GHG emissions for the Project. The Project would develop a utility-scale energy storage facility that would store energy generated from the electrical grid, and optimally discharge that energy back into the grid as firm, reliable generation and/or grid services, and thereby support development of the County's renewable and clean energy goals, which would ultimately result in an overall beneficial impact on global climate change. While the No Project alternative would not result in new GHG emissions during construction, it would be less beneficial to global climate change as compared to the Project. Because no significant GHG impact has been identified nor associated with the Project, this alternative would not avoid or reduce a significant impact related to this issue and therefore, it is considered similar to the Project.

Hazards and Hazardous Materials

The No Project alternative would not include any new construction or operations. Therefore, no potential exposure to hazardous materials would occur. The Project's impacts to hazards are determined to be less than significant with compliance with applicable codes and mitigation measures. Nonetheless, overall hazards and hazardous materials impacts of this alternative would be less than the Project as no construction and operational activity would occur.

Hydrology and Water Quality

If the No Project Alternative is implemented, the Project would not be constructed or operated. Therefore, there would be no impact to hydrology and water quality as the drainage patterns would not change. There

would be no water quality impacts from construction or operational activities. This alternative would have fewer impacts than the Project. This alternative would have less impacts than the Project.

Land Use and Planning

The No Project alternative would not result in the modification of the existing land use on the Project Site from agricultural to nonagricultural use. A General Plan Amendment and Zone Change would not be required under this alternative unlike the Project. Under the No Project alternative, the Project Site would not be developed and potentially continue to be remain as fallow agricultural land since there is not irrigation or readily available access to the Site. Similar to the Project, the No Project alternative would not divide an established community and would not conflict with any applicable habitat conservation plan or natural community conservation plan. While no significant land use impact has been identified for the Project, this alternative would not require a General Plan Amendment or zone change and therefore, would have fewer impacts than the Project. While no significant land use impact has been identified for the Project, this alternative would not require a General Plan Amendment or zone change and therefore, would have less impacts than the Project.

Tribal Cultural Resources

Under the No Project alternative, no construction would occur. Therefore, no earthwork or ground-disturbing activities would occur. The Project Site would continue to remain as fallow agricultural land. Because no earth-disturbing activities would occur, there would be no potential for disturbance to any TCRs. The Project's impacts on TCRs are determined to be less than significant with mitigation. Implementation of the No Project alternative would eliminate the need for mitigation. Therefore, overall TCRs impacts would be less than the Project.

Utilities and Service Systems

The No Project alternative would not require the expansion or extension of existing utilities, since there would be no Project facilities that would require utility service. Under the current conditions, the Project Site is not served by any utility as the land has been fallow for the last 15 years. The Project would not result in any significant impacts on existing utilities. However, compared to the Project, this alternative would have less impacts than the Project related to utilities and service systems.

5.4.2 Alternative 2 – Alternate Access Routes Alternative

Alternative 2, the Alternate Access Routes alternative would include construction of all components of the Project, including the battery energy storage facility and supporting equipment. No change in Project Site location nor area would occur. However, under this alternative, the clear-span bridge over the Westside Main Canal would be eliminated and an alternative access scenario via the I-State Route 8 and SR 98 would be developed. Under this alternative, only existing unpaved access roads would be used, via I-8 and/or SR, via Route 8 Freeway and/or State Highway 98, and no clear-span bridge would be constructed over the Westside Main Canal. The primary access to the Project would be via the Dunaway Road exit from I-8 (Kumeyaay Highway). From Dunaway Road an approximately seven-mile drive on an unpaved dirt road would lead to the Project Site. The secondary alternative access to the Project Site would be via an unnamed dirt access road after Signal Road off SR 98. From SR 98, an approximately 5mile drive on this unpaved dirt road would lead to the Project Site. The proposed access roads would eliminate the need for a clear-span bridge over the Westside Main Canal but would require a number of right-of-way encroachments on private properties surrounding the Project Site. Obtaining these encroachment permits and/or to obtaining these right-of-way permits on private properties would likely be infeasible due to the high associated costs to the Applicant, as well as the uncertain and difficult legal processes for the Project to obtain access to these roads for such lengthy distances.

5.4.2.1 Impact Analysis

Aesthetics

Under Alternative 2, the Project Site would be developed into a battery energy storage facility and would include new construction and operational activities. The new access routes would result in temporary construction impacts similar to the Project. Operational impacts due to the new access roads would not change visual character of the area or result in deterioration of the area's scenic quality, or result in new sources of light and glare, since these dirt roads are currently in use for adjacent agricultural uses. No significant impacts to aesthetics were identified for the Project. Alternative 2 would also result in less than significant effects related to the visual character and light and glare as the Project components would remain the same. Overall, aesthetic impacts of Alternative 2 would be similar to the Project, as a similar change in visual character of the Project Site would occur.

Agricultural Resources

Under Alternative 2, the Project Site would be developed into a battery energy storage facility and have alternate access routes to the Site, in order to eliminate the need for a clear-span bridge over the Westside Main Canal. The Project Site comprises fallow agricultural land, which have not been actively farmed nor irrigated for over 15 years. This alternative would still result in the conversion of land designated as Farmland of Local Importance to a non-agricultural use, similar to the Project. This alternative could potentially contribute to the conversion of agricultural lands or adversely affect other agricultural operations. The new access roads would be located on existing dirt roads and not impact the adjacent agricultural operations. This alternative could contribute to the conversion of agricultural lands and would adversely affect agricultural operations similar to the Project. Therefore, the same mitigation measures would be implemented to reduce impacts to agricultural resources to less than significant levels, and impacts would be similar to those of the Project.

Air Quality

Under Alternative 2, construction and operational emissions of criteria air pollutants, ozone precursors, and TACs would increase above existing levels due to the longer site access routes to the Project Site that would require more grading and compaction. Impacts to air quality were determined to be less than significant for the Project with mitigation. The same mitigation measures would be required under this alternative to reduce impacts to less than significant. Nonetheless, overall air quality impacts of this alternative would be more significant than the Project as additional access road construction activity would occur.

Biological Resources

Under Alternative 2, all components and infrastructure would be developed. Additional biological resources may potentially be impacted due the construction of lengthy access routes into the Project Site. This alternative could likely require additional mitigation for potential impacts on wildlife, special status plants, and nesting birds since the alternative access routes could result in significant impacts on these biological resources. This alternative may cause greater impacts related to the potential to avoid impacts associated with habitat modification and the movement of wildlife species and may conflict with policies or ordinances relative to protection of biological species or provisions of an applicable habitat conservation plan. Compared to the Project, this alternative would have more significant direct and indirect impacts on biological resources. Overall, impacts to biological resources would be greater than the Project.

Geology and Soils

Under Alternative 2, grading and construction of new facilities would still occur, and existing on-site conditions would change. Potential impacts with regard to seismic or liquefaction hazards, unstable or expansive soils, or suitability of soils for supporting alternative wastewater treatment systems would remain less than significant, under Alternative 2. Impacts related to the potential for soil erosion would require implementation of BMPs or other measure to help ensure that erosion impacts would remain less than significant, due to the length alternative roadways along the Westside Main Canal and adjacent to active agricultural uses. Similar to the Project, under this alternative, potential impacts to unknown paleontological resources would be reduced to less than significant levels with implementation of measures related to inadvertent discovery. This alternative would have similar impacts than the Project in relation to geology and soils.

Greenhouse Gases

Under Alternative 2, there could be more GHG emissions resulting from Project construction and operation, due to the longer access routes to the Project Site. A less than-significant-impact was identified for construction and operation related GHG emissions for the Project. Under this alternative, the same regulatory measures for fugitive dust would be implemented during construction. The number of employees would be same as the Project for Alternative 2, this alternative but the trip length may change. The Project assumed a 20-mile trip length for modeling GHG. Considering the alternative access routes are longer, the trip length is anticipated to add additional 10 to 15 miles that would result in an increase in GHG emissions. However, majority of the GHG emissions are from the Project's auxiliary loads and that would stay the same under Alternative 2. Overall, in the long run, the Project would be a net generator of clean, renewable, electricity compared to traditional fossil fuel electricity generation and would result in an overall beneficial impact on global climate change. Impacts under Alternate Access Routes Alternative would be similar to the Project.

Hazards and Hazardous Materials

Under Alternative 2, there would still be new construction and operations of a battery energy storage facility. Therefore, potential exposure to hazardous materials could occur. The Project's impacts with respect to hazards and hazardous materials were determined to be less than significant after compliance with applicable codes and mitigation measures. Overall, impacts related to hazards and hazardous materials for Alternative 2 would be similar to the Project, as construction and operational activity would be similar.

Hydrology and Water Quality

Under Alternative 2, there would still be new construction and operations of a battery energy storage facility. Therefore, there would be potential impact to hydrology and water quality as the drainage patterns would alter the existing conditions of the Project Site and require mitigation similar to the Project. No additional impervious surfaces would be created than those evaluated for the Project as the new access roads would remain pervious. Under Alternative 2, there would be potential water quality impacts from construction and operational activities; however, impacts related to this alternative would be similar to those of the Project.

Land Use and Planning

Under Alternative 2, there would be a modification of the existing land use from an agricultural to a non-agricultural use. A General Plan Amendment and Zone Change would similarly be required under this alternative. Similar to the Project, this alternative would not divide an established community and would not conflict with any applicable habitat conservation plan or natural community conservation plan as the proposed access routes would be on existing dirt roads currently in use. However, this alternative would require a number of encroachments permits on privately owned land. Obtaining these encroachment

permits and/or to obtain along these right-of-way permits on private properties would likely be infeasible due to the high associated costs to the Applicant, as well as the uncertain and difficult legal processes for the Project to obtain access to these roads for such lengthy distances. No significant land use impact has been identified for the Project. Therefore, this alternative would have similar impacts as compared to the Project.

Tribal Cultural Resources

Under Alternative 2, construction of the battery energy storage facility would occur. Therefore, construction related earthwork and ground-disturbing activities would occur. The Project Site would change its use from an agricultural use to an industrial use and would result in potential for disturbance to TCRs. The Project's impacts on TCRs are determined to be less than significant with mitigation related to a worker awareness program and inadvertent discovery protocols. Implementation of this alternative would be similar to the Project and would require the same mitigation measures.

Utilities and Service Systems

Under Alternative 2, the expansion and extension of existing utilities would occur and would require utility service. Under the current conditions, the Project Site is not served by any utility as the land has been fallow and unused for the last 15 years. The Project would not result in any significant impacts on existing utilities and impacts. Alternative 2 would be similar impacts to the Project, in relation to utilities and service systems.

5.4.3 Alternative 3 – Reduced Footprint Alternative

Under Alternative 3, the Reduced Footprint Alternative, 122 acres would be developed on the Project Site, constituting a reduction of 25 percent of the Project's currently proposed size of 163 acres. Under Alternative 3, the Project footprint would be reduced by not developing the approximately 40-acres of land located in the southeast section of the Project Site. Under Alternative 3, the capacity of the battery energy storage system at full buildout would remain the same at 2,000 MW. Similar to the Project, the Reduced Footprint Alternative would include a substation, switching station, O&M building, and associated infrastructure. Alternative 3 would create some logistical challenges related to the battery storage facility, as the battery storage units include racks and cell stacks which can only be assembled in a limited number of configurations. The CBC dictates a specified distance between each cell stack for safety and fire prevention. Stacking the units vertically would result in heavy structural loading and seismic concerns. Given this, the height of the storage buildings may not be extended, unless a variance to the height limit is accepted by the County. In addition, the BTM solar generation, which is planned to serve as auxiliary power may also face similar logistical challenges. Because the on-site solar generation is planned to be used both on the building rooftops and/or as ground-mounted units, the reduced acreage required by this alternative makes it less practicable to include solar PV units as an auxiliary power source. However, it is assumed that key engineering or technology issues would be limited and would not inhibit the implementation of this alternative. In addition, this alternative would also request a General Plan Amendment and Zone Change, similar to the Project.

5.4.3.1 Impact Analysis

Aesthetics

Under Alternative 3, the Project Site would be developed into a battery energy storage facility and would include new construction and operational activities. Alternative 3 may result in adverse effects related to the visual character and quality of the Project Site in relation to potential lighting and glare and an increased building height above the height restrictions of the County Municipal Code. Potential impacts under this alternative could be more significant compared to the Project. Overall, aesthetic impacts related to

Alternative 3 would be slightly greater than the Project, as changes in visual character of the Project Site may be more noticeable.

Agricultural Resources

Under Alternative 3, the Project Site development of a battery energy storage facility would be reduced by 25 percent. Therefore, impacts to agricultural lands would be reduced, as less land designated as Farmland of Local Importance would be converted to a non-agricultural use. This alternative would reduce the impact on conversion of agricultural lands; however, as with the Project, mitigation would still be required. Overall, impacts of this alternative to agricultural resources would be less than those of the Project, as less agricultural land would be converted to a non-agricultural use.

Air Quality

Under Alternative 3, construction and operational emissions of criteria air pollutants, ozone precursors, and temporary air contaminants would decrease under the Reduced Footprint Alternative. Impacts to air quality were determined to be less than significant for the Project. Nonetheless, as with the Project, County-required mitigation would be implemented to further reduce potential air quality impacts. Overall air quality impacts of this alternative would be less than those of the Project, as the Project footprint and related air quality emissions would be reduced by 25 percent due to the reduction in less grading.

Biological Resources

Under Alternative 3, a reduced amount of biological resources would have the potential to be impacted under the Reduced Footprint Alternative. This alternative would reduce or remove additional mitigation for potential impacts on wildlife, special status plants, and nesting birds, since the reduction of the Project footprint would accordingly reduce potential impacts on biological resources. This alternative would also reduce the potential impacts associated with habitat modification, the movement of wildlife species, and would lessen potential conflict with policies or ordinances relative to protection of biological species or any provisions of an applicable habitat conservation plan. As compared to the Project, this alternative would have less direct and indirect impacts on biological resources than implementation of the full Project. Overall, impacts to biological resources under Alternative 2 would be less than those of the Project.

Geology and Soils

Under Alternative 3, grading and construction of new facilities would be reduced due to the decreased development footprint. Therefore, there would be reduced impacts on Project-related facilities as a result of local seismic or liquefaction hazards, unstable or expansive soils, or suitability of soils for supporting septic tanks; however, mitigation measures related to the inadvertent discovery of unknown paleontological resources would still be required. As compared to the Project, Alternative 3 would have lesser impacts related to geology and soils.

Greenhouse Gases

Under Alternative 3, there would be reduced GHG emissions resulting from Project construction and operation under the reduced Project footprint. Therefore, impacts related to global climate change would be reduced from construction related GHG emissions, primarily associated with the reduction in construction activities. A less-than-significant impact was identified for construction related GHG emissions for the Project. Similarly, Alternative 3 would have less-than-significant impact for construction related GHG emissions. Overall, in the long run, the Project would develop a utility-scale energy storage facility that would store energy generated from the electrical grid, and optimally discharge that energy back into the grid as firm, reliable generation and/or grid services, and thereby support development of

the County's renewable and clean energy goals, which would ultimately result in an overall beneficial impact on global climate change. However, overall GHG emissions from the Reduced Footprint Alternative would be similar to those of the Project as the storage capacity is the same.

Hazards and Hazardous Materials

Under Alternative 3, there would be new construction and operations of a battery energy storage facility on a reduced Project footprint, that may pose some challenge for layout of the battery stacks and cells that need to have some specific distance between them. While these distances and layout are regulated by CBC, considering the footprint is reduced under this alternative, additional mitigation measures may be required to reduce impacts from a hazardous situation such thermal runaway. The Project's impacts to hazards were determined to be less than significant, with compliance with applicable codes and implementation of mitigation measures, which would also be required under Alternative 3. However, since additional measures may potentially be required under Alternative 3, impacts related to hazards and hazardous materials would be greater than the Project, as operation activities would be occurring in a smaller area.

Hydrology and Water Quality

Under Alternative 3, there would be new construction and operations of a battery energy storage facility under the Reduced Footprint Alternative. Impacts related to hydrology and water quality would be less than those of the Project, as the drainage patterns would be reduced in relation to the existing conditions of the Project Site. There would be a reduction in the potential of water quality impacts from construction and operational activities. Overall, this alternative would have less impacts as compared to the Project.

Land Use and Planning

Under Alternative 3, there would be a modification of the existing land use from an agricultural to a non-agricultural use. A General Plan Amendment and Zone Change would similarly be required under this alternative. Under Alternative 3, the Project Site would be developed and will no longer remain as fallow and unused agricultural land. Similar to the Project, this alternative would not divide an established community and would not conflict with any applicable habitat conservation plan or natural community conservation plan. No significant land use impacts were identified for the Project. Therefore, this alternative would have similar impacts related to land use as compared to the Project.

Tribal Cultural Resources

Under Alternative 3, construction of the battery energy storage facility would occur within a reduced Project footprint. Therefore, construction related earthwork and ground-disturbing activities would impact a smaller footprint than the Project. The Project Site would still require a change inland use designation from Agriculture to Industry, and zone change from A-3 to M-2, but the reduced Project footprint would result in a reduction of potential disturbances to TCRs. The Project's impacts on TCRs were determined to be less than significant with implementation of mitigation measures. Impacts to TCRs under this alternative would be less than those of the Project and would have a less than significant impact with implementation of mitigation measures.

Utilities and Service Systems

Under Alternative 3, the expansion and extension of existing utilities would occur on a reduced Project footprint; however, the Site would still require utility service. Under current conditions, the Project Site is not served by any utilities, as the land is fallow and has been unused for at least the last 15 years. The Project

would not result in any significant impacts on existing utilities. Alternative 3 would have similar impacts to the Project, as related to utilities and service systems.

5.5 ANALYSIS OF ALTERNATIVES

This section identifies the environmental effects of the alternatives and compares the environmental effects with those resulting from the Project. Table 5.5-1 provides a summary of the comparisons and Table 5.5-2 provides a comparison of the alternatives to the Project Objectives. An "environmentally superior" alternative is also identified.

Table 5.5-1 Comparison of the Environmental Effects of Project Alternatives

	Alternative 1	Alternative 2	Alternative 3
Aesthetics	L	S	G
Agriculture and Forestry Resources	L	S	L
Air Quality	L	G	L
Biological Resources	L	G	L
Geology and Soils	L	S	L
Greenhouse Gas Emissions	S	S	S
Hazards and Hazardous Materials	L	S	G
Hydrology and Water Quality	L	S	L
Land Use and Planning	L	S	S
Tribal Cultural Resources	L	S	L
Utilities and Service Systems	L	S	S

Notes:
S = Similar impact compared to the Proposed Project
L = Less Impact compared to the Proposed Project
G = Greater Impact compared to the Proposed Project

Table 5.5-2 Comparison of Project Objectives

	Objective 1	Objective 2	Objective 3	Objective 4	Objective 5
Alternative 1	No	No	No	No	No
Alternative 2	Yes	Yes	Yes	Yes	Yes
Alternative 3	Yes	Yes	Yes	Yes	Yes

5.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Based upon the evaluation described in this section, the No Project Alternative (Alternative 1) is considered to be the environmentally superior as it would avoid all adverse impacts associated with the proposed Project. The No Project Alternative was determined to have less adverse environmental impacts than the Project on most issues overall assuming that the site remains in its existing condition as farmland. The No Project Alternative, however, would not meet the objectives of the proposed project.

State CEQA Guidelines Section 15126.6(e)(2) states that "if the environmentally superior alternative is the No Project Alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives." As shown on Table 5.5-2, Alternative 2 would result in greater impact to air quality, and

biological resources because of longer access route that would result in increased trip length and disturbance of habitat. Alternative 3 would result in greater impacts to aesthetics as a variance would be required to exceed the County's ordinance for height restrictions. In addition, impacts to hazards could be greater as the battery layout would be adjusted for reduced footprint and may require additional mitigation measures or design features to reduce impacts from hazardous conditions such as thermal runaway. However, most of the impacts under Alternative 3 would result in less impacts than the Project as compared to Alternative 2. While both Alternatives 2 and 3 would meet all Project objectives, Alternative 3, is considered the Environmentally Superior Alternative other than the No Project Alternative as overall it would result in fewer impacts.

6.0 OTHER CEQA CONSIDERATIONS

The Applicant is proposing to develop the Westside Canal Battery Storage Project (proposed Project, Project) which would provide a utility-scale energy storage complex with solar panels, Li-ion battery systems, and/or flow battery technologies distributed throughout the Site. The Project would allow for excess, intermittent renewable energy to be stored and later dispatched optimally back into the electric grid as firm, reliable generation. The Project complements both the existing operational renewable energy facilities, and those planned for development, in the County and supports the broader Southern California bulk electric system by serving as a transmission asset.

6.1 SOCIOECONOMIC IMPACTS

The EIA examined impacts of converting the Site parcels from an agricultural use to an industrial use for battery storage. Three analyses were undertaken to determine how the Project would affect the region: 1) an EIA; 2) a JIA; and 3) a FIA. The findings of each analysis are briefly summarized below with the full report provided as Appendix C.2 of this EIR.

6.1.1 Economic Impact Analysis

The EIA calculates the predicted impact to a community or region as a result of the Project. It gives an understanding of the quantity of dollars that will flow through an economy because of a project. In the case of an energy battery storage project, this includes such items as labor, construction materials, local purchases, and operations. This includes all known direct and indirect expenditures from both construction and operation for the projected life of the Project. The economic benefits to the County and region, due to Project operation, would be approximately $165.13 million over the lifespan of the Project, at full build-out, not including governmental revenues from taxes and fees.

6.1.2 Employment or Jobs Impact Analysis

The JIA calculated the total amount of construction and operational jobs specific to the Project and determined that the Project would generate the equivalent of 1,549 full-time one-year equivalent construction jobs over the construction period (five-phases in odd years (1-9)) and 20 full-time equivalent permanent jobs, at buildout.

6.1.3 Fiscal Impact Analysis

The FIA calculates the amount of revenue that a governmental agency is expected to receive and calculates the projected costs they will incur to provide appropriate services to both the Project and the additional population/employment generated as a result of the Project. A comparison is undertaken to determine if the Project would generate either economic benefit or cost to the government agency.

Based on the FIA analysis, the Project would generate approximately $81.53 million in net local (County) tax revenue over the 30-year life of the Project. This is derived from an estimated $34.77 million in sales tax revenue and $46.77 in net property tax revenue. It is projected that it would cost the County about $22.46 million to provide appropriate services to the Project and related employment, thus generating a projected surplus to the County of approximately $59.08 million over the 30-year period (subject to acceptance of the recommendations provided within the report in Appendix C.2).

These are all new economic benefits and jobs related to a Project Site that has not been actively used for agriculture or any other uses for at least fifteen (15) years.

6.1.4 Statement Regarding Urban Decay as a Result of the Proposed Project

The CEQA Guidelines discuss and define the parameters for which the consideration of socioeconomic impacts should be included in an environmental evaluation. CEQA Guidelines Section 15131 states that "economic or social information may be included in an EIR or may be presented in whatever form the agency desires." Section 15131(a) of the Guidelines states that "economic or social effects of a project shall not be treated as significant effects on the environment." CEQA Guidelines Section 15131(b) also states that "economic or social effects of a project may be used to determine the significance of physical changes caused by the project." One example that has been used by others has been the physical division of a community if rail lines were installed, thereby bisecting the community. It is possible that the impacts upon the community could be measured.

In recent years, California Courts have generally defined the term "urban decay" to mean the physical changes that a projects potential socioeconomic impacts could bring to other parts in a community. The case that brought the concept of urban decay to light is Bakersfield Citizens for Local Control v. City of Bakersfield (204) 124 Cal.App.4th 1184 in which the court set aside two EIR's for proposed Wal-Mart projects that would have been located less than 5 miles from each other. This appears to be the first time the courts used the words "urban decay" rather than "blight". In essence, the courts ruled that two Wal-Mart projects could result in a chain reaction of store-closures and vacancies because new retail growth may or may not be supported by other changes in market conditions (i.e., the downtowns would become ghost towns because the Wal-Mart(s) moved the retail business away from the urban center).

As noted in the EIA, the surrounding area contains a combination of solar energy generation projects and agriculture uses (as well as agriculture infrastructure). The Project is in keeping with the users in that corridor and in and of itself will not create a physical change to the physical characteristics of that area. In fact, the Project would add significant value to the solar generation in that area, as it would create needed storage capacity for energy to be placed onto the grid at peak demand times.

6.2 SIGNIFICANT AND UNAVOIDABLE ENVIRONMENTAL EFFECTS

CEQA Guidelines Section 15126.2(b) requires an EIR to discuss unavoidable significant environmental effects, including those that can be mitigated but not reduced to a level of insignificance. In addition, Section 15093(a) of the CEQA Guidelines requires the decision-making agency to balance, as applicable, the economic, legal, social, technological, or other benefits (including region-wide or statewide environmental benefits of a project) against its unavoidable environmental risks when determining whether to approve the project. The County can approve a project with unavoidable adverse impacts if it adopts a "Statement of Overriding Considerations" setting forth the specific reasons for its decision. Based on the analysis provided in Sections 3.1 through 3.11, the Project would not result in any significant and unavoidable adverse impacts, and a Statement of Overriding Considerations would not be required.

6.3 GROWTH-INDUCING IMPACTS

Section 15126.2(d) of the CEQA Guidelines requires that an EIR evaluate the growth-inducing impacts of a proposed project. A project is identified as growth inducing if it "could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment." Growth-inducing impacts can occur when development of a project imposes new burdens on a community by directly inducing population growth or by leading to the construction of additional development in the project area. Also included in this category are projects that would remove physical obstacles to population growth, such as the construction of a new roadway into an undeveloped area or a wastewater treatment plant with excess capacity to serve additional new development. Construction of these types of infrastructure projects cannot be considered isolated from the immediate development that they facilitate and serve. Projects that physically remove obstacles to growth or projects that indirectly

induce growth are those that may provide a catalyst for future unrelated development in the area (such as a new residential community that requires additional commercial uses to support residents). The growth-inducing potential of a project could also be considered significant if it fosters growth in excess of what is assumed in the local master plans and land use plans or in projections made by regional planning agencies.

Potential growth-inducing components of the Project addressed in this section relate to employment and population growth, increased power reliability and regional population growth, and increased transmission capacity that supports renewable power development.

6.3.1 Employment and Population Growth

6.3.1.1 Construction/Decommissioning Workforce

Construction phases of the Project are expected to generate the equivalent of 1,549 full-time one-year equivalent construction jobs. Decommissioning is expected to have fewer construction workers and would be of much shorter duration. Workers are expected to be hired from within the County to the extent practicable. Some of the workers originating from outside of the County may temporarily relocate to accommodations within the Project area for the duration of construction activities.

The vacancy rate for unincorporated Imperial County is 24.6 percent, which denotes a surplus of available housing (SCAG 2020). Therefore, it is reasonable to assume that the demand for temporary accommodations during construction would be accommodated by existing housing in the region, and no new housing would be needed.

The County had a labor force of 67,100 workers and an unemployment rate of 17.7 percent in December 2020 (EDD 2021). If all labor would be hired from within the county, this would represent approximately two percent of the total labor force, although the construction workers are also expected to come from the surrounding areas. Therefore, construction and decommissioning of the Project would not trigger additional population growth in the area.

6.3.1.2 Operational Workforce

No more than 20 full-time staff would be employed during operation of the Project at full build out. Considering the high vacancy rates in the County, it is anticipated that adequate housing would be available without the need for new housing. Therefore, Project operation would not result in new growth in the area relating to the potential population increase. There would be no new growth in employment and housing in the area from new restaurants, mobile home parks, convenience stores, or other services that would serve the workers during project construction, because existing facilities in the region would be adequate to accommodate both the construction and operations workforces.

The Project would also result in permanent change in the land use from an agricultural use to an industrial use. The change to an industrial land use designation could potentially attract a new use that could result in additional growth. However, any future use upon expiration of the CUP is speculative and would be subject to subsequent regulatory review.

6.3.2 Increased Power Reliability

While the Project would contribute to the reliability of the energy supply, which indirectly supports population growth, the development of the Project is responding to the State's need for renewable energy to meet its RPS. Unlike a gas-fired power plant, the Project is not being developed as a source of base load power in response to growth in demand for electricity. The development and operation of the Project would create energy stability in times of production shortages and outages and provide energy at times of peak demand (such as early evening hours) to accommodate and support existing County energy demands; however, it

would not foster any new growth, as the energy would be used to support existing and projected growth. The factors affecting growth are so diverse that any potential connection between energy storage and growth would necessarily be too speculative and tenuous to merit extensive analysis.

6.3.3 Increased Transmission Capacity

The Project would include a new loop-in switching station on the Project Site to connect to the existing IID Campo Verde-Imperial Valley 230 kV radial gen-tie line. This existing gen-tie line connects to the IV Substation approximately one-third mile south of the Project. The power from the on-site substation would then be transferred to the IV Substation via this gen-tie line. This connection is described in detail in Section 2, Project Description. No upgrades are proposed to the IV Substation that would increase transmission capacity. IID is a public agency, regulated by the CPUC. The utility's transmission system is operated by CAISO under regulations established by the Federal Energy Regulatory Commission. When an electricity generator requests use of IID's transmission facilities, IID is required to provide access after completion of power flow and cost studies. The CPUC evaluates each IID project to ensure that its need and costs are justified and appropriate, and that financial effects on California electricity ratepayers are appropriate. Any transmission system upgrades that are required as a result of other energy storage or renewable energy projects would need to be evaluated by the CPUC, in accordance with CEQA, as a part of the CPUC permitting process. Because any potential transmission system upgrades would be speculative, the potential for population growth induced by the transmission system upgrades would also be speculative. Therefore, the Project is not expected to be large enough to induce the development of other large battery energy storage projects and population growth in the region.

6.4 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Section 15126.2(c) of the CEQA Guidelines defines an irreversible impact as an impact that uses nonrenewable resources during the initial and continued phases of the project. Irretrievable commitments of resources should be evaluated to ensure that such consumption is justified. Irreversible impacts can result from loss of habitat of sensitive biological resources, change in land use, damage caused by environmental accidents associated with project construction or operation, or damage to cultural or paleontological resources.

As discussed in Section 3.2 and Section 3.9, construction and operation of the Project would result in permanent conversion of 148 acres of agricultural land, identified as Farmland of Local Importance to non-agricultural uses. In addition, the Project includes a zone change from A-3 to M-2. Future use of the Site after decommissioning is not known but would be subject to a separate regulatory review and is not discussed further. However, decommissioning activities would occur in accordance with an approved Decommissioning Plan. The Applicant would implement mitigation measures to reduce impacts to the loss of Farmland of Local Importance. However, the loss of Farmland would still be a permanent change. Based on the data presented in the JIA, EIA and FIA, the Project has demonstrated significant economic benefits, in conformance with Objective 1.8 of the County General Plan Agricultural Element. Considering the land has been fallow and non-irrigated for at least last 15 years, the Project would facilitate deployment of additional renewable energy resources in furtherance of the RPS. Therefore, conversion of farmland to a non-agricultural use would not be considered a significant irreversible change.

Construction of the Project would require a permanent commitment of natural resources from the direct consumption of fossil fuels, construction materials, and energy required to produce materials, as well as the manufacture of new components; most Project components would be recycled or repurposed at the end of the Project's useful life (see Section 2, Project Description). The Project would not result in significant impacts on air quality due to emissions of NO_X, and PM_{10} during construction. Nevertheless, as discussed in Section 3.3, ICAPCD required mitigation measures would be implemented to further reduce impacts on air quality to a less than significant level.

Construction and operation of the Project would require the use of a limited amount of hazardous materials, such as fuel, lubricants, and cleaning solvents. All hazardous materials would be stored, handled, and used in accordance with applicable federal, state, and local regulations. As noted in Section 3.7, the potential for harm from a thermal runaway hazard is determined to be less than significant. The Applicant would be required to develop and comply with a SWPPP as noted in HYD-1. Appropriate implementation of these plans and practices would reduce the potential for environmental accidents associated with the Project to less than significant levels.

One of the objectives of the Project is to construct and operate a battery energy storage facility that is safe, efficient, and environmentally responsible. The Project would develop a facility that would store energy generated from the electrical grid, and optimally discharge that energy back into the grid upon demand. As discussed above, resources that would be consumed as a result of Project implementation include water, electricity, and fossil fuels during construction and operations; however, the amount and rate of consumption of these resources would not result in significant environmental impacts or the unnecessary, inefficient, or wasteful use of resources over the long-term. Compliance with all applicable building codes, as well as County policies and the mitigation measures identified in this EIR, would help ensure that natural resources are conserved to the extent feasible.

7.0 EFFECTS FOUND NOT TO BE SIGNIFICANT

In accordance with Section 15128 of the CEQA Guidelines, an EIR must contain a statement briefly indicating the reasons that various potential significant effects of a project were determined not to be significant and were therefore not discussed in detail in this EIR. Based on the Initial Study prepared for the Project (Appendix A), the County has determined that the Project would not have the potential to cause significant adverse effects associated with the issues identified below. These topics have not, therefore, been addressed in detail in this EIR.

7.1 CULTURAL RESOURCES

To be considered historically significant, a resource must meet one of the four criteria for listing outlined in the CRHR (CEQA Guidelines 15064.5(a)(3)) and noted below:

a) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

b) Is associated with the lives of persons important in our past;

c) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

d) Has yielded, or may be likely to yield, information important in prehistory or history.

Literature review and cultural resources surveys of the Project study area did not identify any other historical sites within the Project study area and the Project would have no impact to the significance of a historical resource as identified in Section 15064.5. However, a section of the Westside Main Canal is eligible for listing on the NRHP and CRHR on the local and state levels under Criterion A for its significance in association with development of the Imperial Valley. The Westside Main Canal would be impact by the Project due to the construction of the proposed clear-span bridge across the Westside Main Canal to provide vehicular access from Liebert Road. The proposed bridge would not result in physical alteration of the Westside Main Canal itself. Impacts from maintenance improvements such as dredging and concrete lining, the proposed bridge will not affect the qualities or values that qualify the resource for listing in the NRHP or CRHR. The Westside Main Canal would still maintain its association with the development of agriculture in the Imperial Valley. The potential for intact subsurface prehistoric or historic historical sources to be present on the Project property is considered very low due to the extensive disturbance owed to agricultural activities. Although the potential for currently encountering subsurface human remains within the Project footprint is unlikely, there remains a possibility that human remains could be present beneath the ground surface, and that such remains could be exposed during Project construction. If evidence of human remains is discovered, construction activities within 50 feet of the discovery shall be halted or diverted, and the County Coroner will be notified (Section 7050.5 of the Health and Safety Code). No subsurface disturbance will occur during Project operation. Decommissioning activities will involve the removal of some Project components. The ground disturbance that would occur as a result of the decommissioning would be in the same locations of disturbance that occurred during the construction of the Project. Additional ground disturbances outside of those during construction are not anticipated. Therefore, no further disturbance of potential human remains is anticipated to occur.

7.2 ENERGY

The construction and operation of the Project would include the consumption of water, electricity, and fossil fuel resources. The energy required to produce new materials would result in the irretrievable commitment of natural resources. The amount and rate of consumption of resources for the anticipated equipment and materials required for the construction of the Project would not result in significant environmental impacts or the unnecessary, inefficient, or wasteful use of resources. The Project would provide up to approximately 400 MW (per phase) of firm dispatchable at times when demand is highest. This energy resource would be used to create other goods or more efficiently power regional services, thus ensuring that no wasteful or inefficient consumption of energy resources would occur and offset demand which would otherwise be met by less efficient methods of energy generation.

The Project would be compliant with all state and local plans for renewable energy or energy efficiency because it would develop a demand responsive source of power helping to offset the use of nonrenewable resources and contribute to an overall reduction of nonrenewable resources currently used to generate electricity. The Project would increase the effectiveness of other regional renewable projects by increasing the storage capacity. Therefore, the Project would have no impact on a state or local energy plan.

7.3 MINERAL RESOURCES

The Project Site is primarily zoned for agricultural use except for a portion of the Site owned by the BLM. The Site is not utilized for mineral resource production. According to the California DOC, there are no mapped mineral resource zones in or near the Project Site. Therefore, the Project would not result in a significant impact on the availability of a known mineral resource or mineral resource zone.

7.4 NOISE

Noise associated with construction of the Project would potentially result in short-term impacts to the surrounding properties; however, there are no nearby residences which would be affected by the noise associated with either the construction or operation of the Project. The construction activities would only occur between Monday through Friday between the hours of 7:00 AM and 7:00 PM, or Saturday between the hours of 9:00 AM and 5:00 PM, which would be in compliant with the time-of-day restrictions and noise level limits set forth in the County's General Plan Noise Element. However, during hot weather, it may be necessary to commence work earlier than the designated times to avoid pouring concrete during high ambient temperatures. If construction is to occur outside the County's specified working hours, coordination with the County would occur in advance of these activities. As modeled in the Noise Technical Report (Appendix M), the noise associated with the Project operation would attenuate to less than 60 dB(a) $L_{eq(8h)}$ which would not exceed the 70 dB(a) property line noise level limit. Therefore, the Project would not result in a generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan, noise ordinance, or applicable standards.

The nearest sensitive receptor to the Project is a residence located 0.85 mile from the Project's property line. The main vibratory sources from the Project would be generated during the temporary and short-term construction activities. The General Plan or Noise Ordinance does not contain any specific performance standards or vibration, therefore, a vibration analysis exceeding 0.1 PPV would be considered the threshold of concern. At this level, the vibration would be barely perceptible by humans, with a doubling of vibration level still required to potentially generate damage to structures. For demonstration, a typical piece of construction such as a large bulldozer produces 0.0048 PPV at 175 feet. As the nearest sensitive receptor is located 0.85 miles from the Project's property line, the PPV produced by a large bulldozer would be significantly less than the 0.1 PPV threshold of concern. Therefore, vibration generated by the Project would not result in a significant impact to nearby sensitive receptors.

The Project is not located within the bounds of any airport land use plan, as outline in the County Airport Land Use Compatibility Plan. Therefore, the Project would not impact a private airship or airport land use plan.

7.5 POPULATION AND HOUSING

Due to the longevity of the construction activities, approximately 10 years, it is assumed that the construction workforce would likely be expected to be filled by the local workforce. During operations, workers would be present at the Project Site for maintenance activities. Typical maintenance would be expected to require up to 20 employees at full buildout. The maintenance staff would be expected to be filled by the local workforce that has readily available labor and would not induce unplanned population growth. Therefore, the Project would not have the potential to cause substantial direct or indirect population growth.

As the Project Site is currently zoned as A-3, the Project would not remove any available housing units or displace existing people or housing. Therefore, the Project would not impact population and housing.

7.6 PUBLIC SERVICES

Increased demand in fire protection, emergency services, and police services are typically correlated with an increase in residential population. Approximately 20 full time employees would remain for Project O&M after Project buildout. This relatively small number of permanent employees would not result in a significant increase in the need for fire protection and emergency services. The Project includes an on-site fire protection system for all battery systems and additional security measures, such as an eight-foot tall barbed wired-topped fence, a camera equipped call button at the front gate, security cameras throughout the Project Site, and an on-site security guard during non-active construction hours. Therefore, the Project would not cause a substantial increase in the demand for police and fire protection services.

As the Project does not include a housing element, there would be no increase in residential population size. Therefore, the Project would not impact schools, parks, or other public facilities.

7.7 RECREATION

The Project is limited to a battery energy storage facility and does not include a component that would result in population growth or increased demand for recreational facilities. Therefore, the Project would not impact parks or other recreational facilities.

7.8 TRANSPORTATION

A Traffic Impact Analysis was prepared for the Project and is included as Appendix L in this EIR. The traffic analysis concluded, based on the significance criteria of the County and Caltrans, that roadway segments would operate as LOS B or better with the Project. The Project is anticipated to generate an increase in construction related traffic. Although an increase is expected, the Project-related traffic is still considered lower than the County's threshold of significance as operating at LOS B or better. As such, the Project would not result in a significant conflict with a program plan, ordinance, policy addressing the circulation systems, or with CEQA Guidelines Section 15064.3 subdivision (b).

The Project is located in a rural portion of the County with low traffic volumes. The Project would not increase hazards due to a geometric design or an incompatible use with surrounding agricultural land.

The Project includes a clear-span bridge over the Westside Main Canal to provide access to the Project Site from the north. Additional access roads would be paved on the north and south sides of the Westside

Main Canal providing access. Until the bridge construction is complete, temporary access is proposed from the south of the Project Site at SR-98 to Drew Road, or from the north of the Project Site at I-8 to Wixom Road. Temporary and permanent access helps ensure that adequate access would consistently be provided. Therefore, the Project would result in less-than-significant impacts to inadequate emergency access.

7.9 WILDFIRES

The Project is not located in a State Responsibility Area, or near a State Responsibility Area, or on lands classified as a VHFHSZ. Under these significance thresholds, the Project would not significantly impact an adopted emergency response or evacuation plans, exacerbate wildfire risks, or expose people or structures to significant risks from runoff, instability, or drainage changes. Therefore, impacts to wildfire would be less than significant.

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APPENDIX A - INITIAL STUDY

APPENDIX A – INITIAL STUDY

A.1. Notice of Preparation and CED Westside Canal Battery Storage Project Initial Study

Notice of Preparation

To: Office of Planning & Research

P.O. Box 3044, 1400 Tenth Street, Room 212

Sacramento, CA 95812-3044

Subject: Notice of Preparation of a Draft Environmental Impact Report

Lead Agency:		**Consulting Firm:**	
Agency Name	Imperial County Planning & Development Services Department	**Firm Name**	Stantec Consulting Services Inc.
Street Address	801 Main Street	**Street Address**	290 Conejo Ridge Avenue
City/State/Zip	El Centro, CA 92243	**City/State/Zip**	Thousand Oaks, CA 91361
Contact	David Black	**Contact**	Kevin Kohan

The County of Imperial will be the California Environmental Quality Act (CEQA) Lead Agency and will prepare an Environmental Impact Report (EIR) for the proposed project identified below. We need to know the views of your agency as to the scope and content of the environmental information, which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the proposed project.

The project description, location, and the potential environmental effects are contained in the attached materials. A copy of the Initial Study is attached.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but ***not later than 35 days*** after the start of the noticing period on **April 13, 2020. The 35-day noticing period ends on May 18, 2020.**

Please send your response to Imperial County Planning & Development Services, Attention: David Black at the address shown above. Please provide a name, title, phone number, and email of the contact person in your agency.

Project Title: Westside Canal Battery Storage Project

Project Applicant: Consolidated Edison Development Inc. (CED)

Project Location and Primary Components: The Westside Canal Battery Storage Project is proposed for development by Consolidated Edison Development Inc. (CED) and consists of the following primary components:

1) construction of a lithium ion battery and/or flow battery storage facility (herein referred to as "battery energy storage facility") and associated buildings and facilities; 2) permanent vehicular access on both the north and south side of the Imperial Irrigation District's (IID) Westside Main Canal and a bridge over the canal; 3) a loop-in substation with connection to the Campo Verde Imperial Valley 230 kV radial transmission line; and, 4) photovoltaic solar generation facility (herein referred to as "solar facility"). These components are collectively referred to as the "proposed project" or "project."

- ***Battery Energy Storage Facility, Solar Facility, and Related Facilities.*** The project site is located in Mount Signal in unincorporated Imperial County, approximately 8-miles southwest of the City of El Centro and 5.3-miles north of the United States and Mexico border. The proposed project footprint encompasses two Assessor's Parcels Numbers 051-350-010 and 051-350-011, totaling approximately 148 acres. This area is zoned as Agriculture (A-3). The project site is bounded by the Westside Main Canal to the north,

Bureau of Land Management (BLM) lands to the south and west, and vacant private land to the east (Figure 1).

- ***Campo Verde Imperial Valley 230 kV Substation loop-in.*** The proposed project includes a new loop-in substation on the site and connects to the existing IID Campo Verde Imperial Valley 230 kV Radial gen-tie line which ultimately connects a one-third mile long gen-tie line into the Imperial Valley substation south of the project site. The proposed project would also access a small portion of Assessor's Parcel Number 051-350-009 for this connection (Figure 2).
- ***Permanent Vehicle Access.*** The proposed project will utilize two additional parcels on the north side of the Westside Main Canal: Accessor Parcel Number 051-350-019 owned by IID, and Assessor Parcel Number 051-350-018 owned by a private landowner, totally approximately 15.32 acres. This site includes approximately 60 feet of frontage along the north project fence line and south of the IID maintenance road to be used for site and public access. The proposed project includes a Caltrans/County specified bridge to span the Westside Main Canal to connect the project site to Liebert Road to the west.

Project Description: The proposed Westside Canal Battery Storage Project involves the construction and operation of a utility-scale energy storage complex with a capacity of approximately 2,000 MW on approximately 163.32-acres of land owned by the Bureau of Land Management (BLM), Imperial Irrigation District (IID), and private landowners. The proposed project will be constructed in 3 – 5 phases over a 10-year period with each phase ranging from approximately 25 MW to 400 MW per phase. Assuming a 10-year development period and 30-year operating life of each phase, the expected end date of the project would be 30 years from the construction of the final phase. The proposed project would be comprised of a lithium ion battery and/or flow battery energy storage facility, solar energy facility, a new 230 kV loop-in substation, underground electrical cables, and permanent vehicular access over a proposed bridge to and from the site. The proposed project includes the connection of the proposed on-site substation to the existing Campo Verde Imperial Valley radial transmission line.

The power produced and stored by the proposed project would be conveyed to the local grid via a proposed loop-in substation on-site, which will be connected into the existing IID Campo Verde 230-kV Radial gen-tie line that ultimately connects to the Imperial Valley Substation. The project applicant has submitted the necessary Interconnection Request Applications to the California Independent System Operator (CAISO) grid and IID.

The proposed project would allow for excess, intermittent renewable energy to be stored and later dispatched back into the electrical grid as firm, reliable generation. The proposed project supports the Southern California bulk electric system by serving as a transmission asset.

Date: April 9. 2020

Title: David Black, Planner IV, Imperial County Planning & Development Services

Telephone: 442-265-1749

Signature: David Black

Reference: California Administrative Code, Title 14, (CEQA Guidelines) Section 15082(a), 15103, 15375.

Figure 1. Project Location

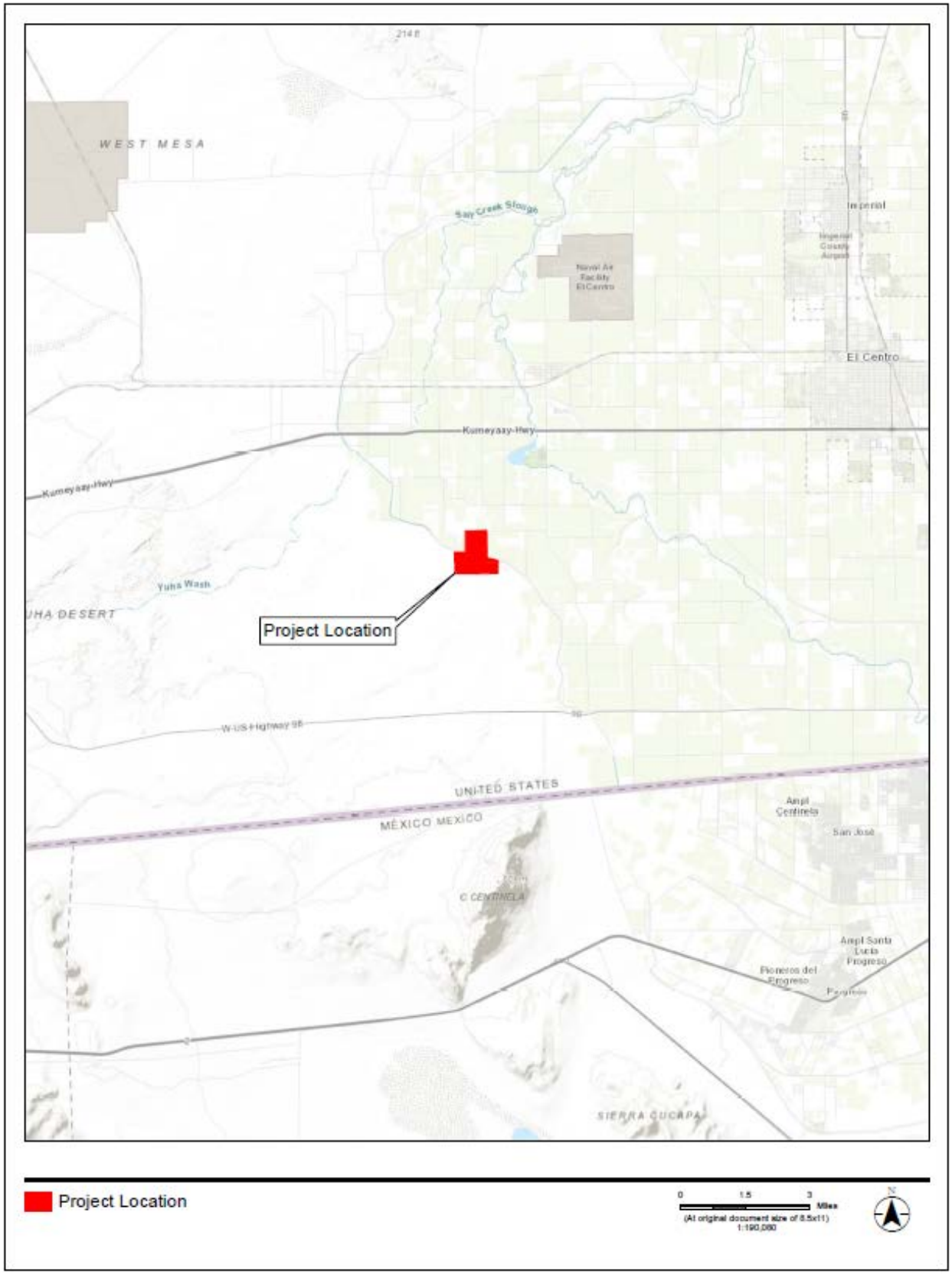
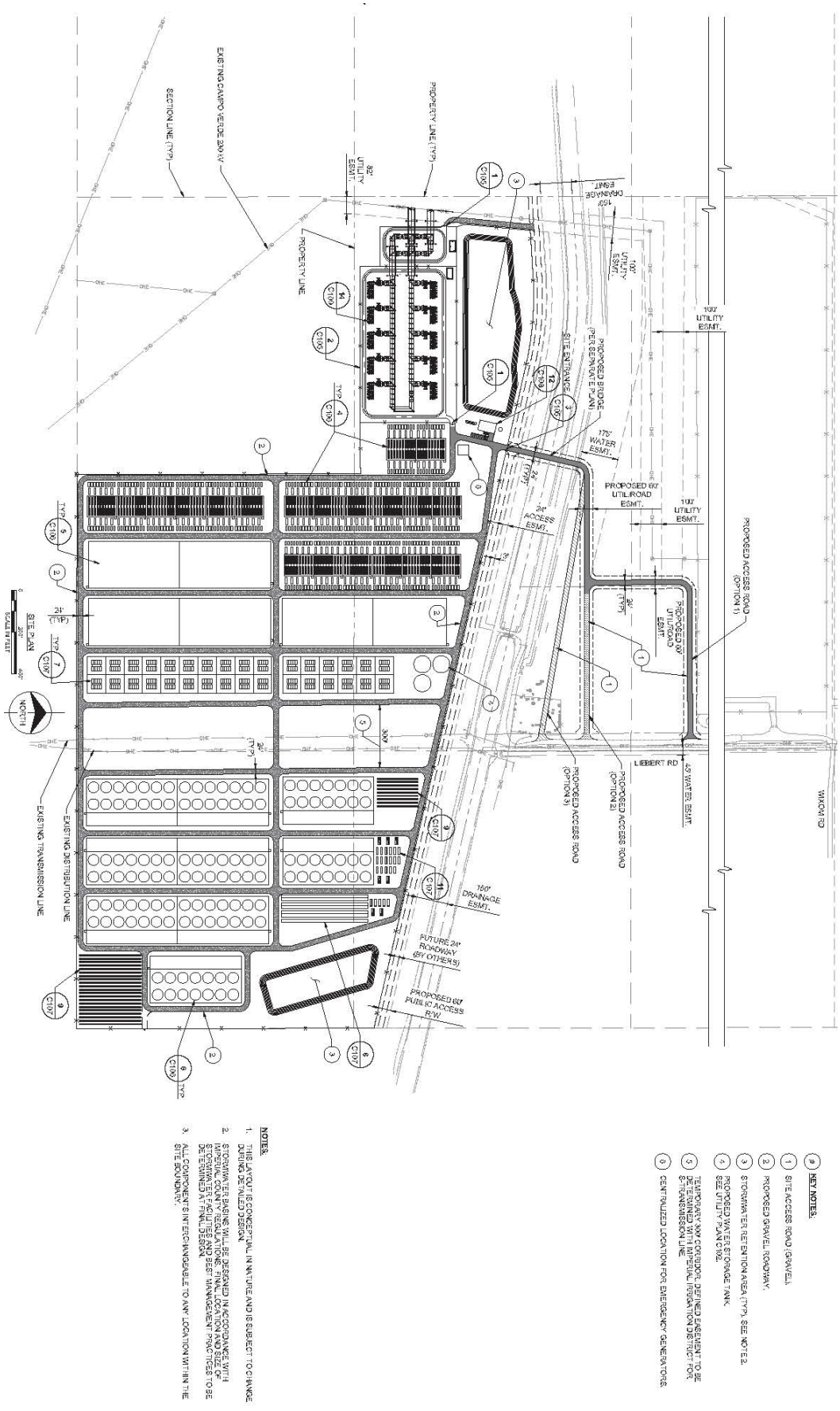


Figure 2. Proposed Project Conceptual Site Plan



Westside Canal Battery Storage Project Initial Study

Initial Study

April 9, 2020

Prepared for:

County of Imperial
Planning & Development Services
801 Main Street
El Centro, CA 92243

Prepared by:

Stantec Consulting Services Inc.
290 Conejo Ridge Avenue
Thousand Oaks, CA 91362

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Abbreviations

A-3	Agriculture Zone
AB	Assembly Bill
AC	Alternating current
APN	Assessor Parcel Number
AF	Acre-feet
AP	Alquist-Priolo
APCD	Air Pollution Control District
Applicant/CED	Consolidated Edison Development
ASCE	American Society of Civil Engineers
BESS	Battery Energy Storage Systems
BLM	Bureau of Land Management
BMS	Battery Management System
BRTR	Biological Resources Technical Report
CAAQS	California Ambient Air Quality Standards
CAISO	California Independent System Operator
CALFIRE	Department of Forest and Fire Protection
Caltrans	California Department of Transportation
Canal	Westside Main Canal
CARB	California Air Resources Board
CBC	California Building Code
CdTe	Cadmium telluride
CEC	California Energy Commission
CED	Consolidated Edison Development
CEQA	California Environmental Quality Act
County	Imperial County
CRHR	California Register of Historical Resources
CWA	Clean Water Act
DWR	Department of Water Resources
EIR	Environmental Impact Report
FRA	Federal Responsibility Area
ft	feet
gpd	Gallons per day
GW	Gigawatt
HDD	Horizontal Directional Drilling
HVAC	Heating, Ventilation, and Air Conditioning
I	Interstate
ICFD/OES	Imperial County Fire Department/Office of Emergency Services

ICOE	Imperial County Office of Education
ICSO	Imperial County Sheriff's Office
IID	Imperial Irrigation District
IS	Initial Study
ISMND	Initial Study Mitigated Negative Declaration
IV Substation	Imperial Valley Substation
kV	Kilovolt
kW	Kilowatt
ICAC	Imperial County Agricultural Commissioner
ICDPW	Imperial County Department of Public Works
LE	Land Evaluation
LESA	Land Evaluation and Site Assessment
Li-ion	Lithium ion
LRA	Local Responsibility Area
M-2	Medium Industrial
MCE	Maximum Considered Earthquake
MLD	Most Likely Descendant
MRZ	Mineral Resources Zone
MW	Megawatts
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NFPA	National Fire Protection Agency
NO_2	Nitrogen dioxide
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O&M	Operating and Maintenance
O_3	Ozone
PM	Particulate Matter
$PM_{2.5}$	Particulate matter 2.5 micrometer or less in diameter
PM_{10}	particulate matter 10 micrometers or less in diameter
Project	Westside Canal Battery Storage Project
PV	Photovoltaic
SA	Site Assessment
SCIC	California Historical Resources Information System: Southern California Information Center
S-Line	S-Transmission line
SCADA	Supervisory Control and Data Acquisition
SF_6	Sulfur hexafluoride

SoCal Gas	Southern California Gas Company
SR	State Route
SRA	State Responsibility Area
UL	Underwriters Laboratories
U.S.	United States
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VHFHSZ	Very High Fire Hazard Severity Zone

1.0 INTRODUCTION

1.1 PROJECT TITLE

Westside Canal Battery Storage Project (Project, proposed Project)

1.2 LEAD AGENCY NAME AND ADDRESS

County of Imperial
Planning and Development Services
801 Main Street
El Centro, CA 92243-2811

1.3 CONTACT PERSON AND PHONE NUMBER

Dave Black, Planner IV
Imperial County Planning & Development Services
801 Main Street
El Centro, CA 92243
442-265-1749

1.4 PROJECT LOCATION

The Project is proposed to be located in the unincorporated Mount Signal area of Imperial County (County), approximately 8.0 miles southwest of the city of El Centro and approximately 5.3 miles north of the U.S.-Mexico border (Figure 1). The Project site is comprised of two parcels, Assessor Parcel Number (APN) 051-350-010 and APN 051-350-011, totaling approximately 148 acres. These parcels have limited access corridors for vehicular traffic and are considered less desirable for agricultural production, as reflected by the last 15 years in which no farming activities have occurred, as indicated on the Project Site Aerial (Figure 2).

The Project site is located approximately one-third mile north of the Imperial Valley Substation (IV Substation) and directly south of the intersection of Liebert Road and the Imperial Irrigation District's (IID) Westside Main Canal (the Canal). The Project site is bounded by the Canal to the north, Bureau of Land Management (BLM) lands to the south and west, and vacant private land to the east. The Campo Verde solar generation facility is located north of the Project site, across the Canal. The two Project parcels will be developed as a utility-scale energy storage complex. The Project will utilize portions of two parcels located north of the Canal (APN 051-350-019 owned by IID and APN 051-350-018 owned by a private landowner) for site access and as a temporary construction staging area. The Project will also access a small portion of APN 051-350-009 within an IID easement for connection to the existing IID Campo Verde Imperial Valley 230 kilovolt (kV) radial gen-tie line during the construction of a substation on the Project site. The total proposed Project development footprint, encompassing both temporary and permanent impacts, will be 163.32 acres.

Figure 1. Regional Location Map

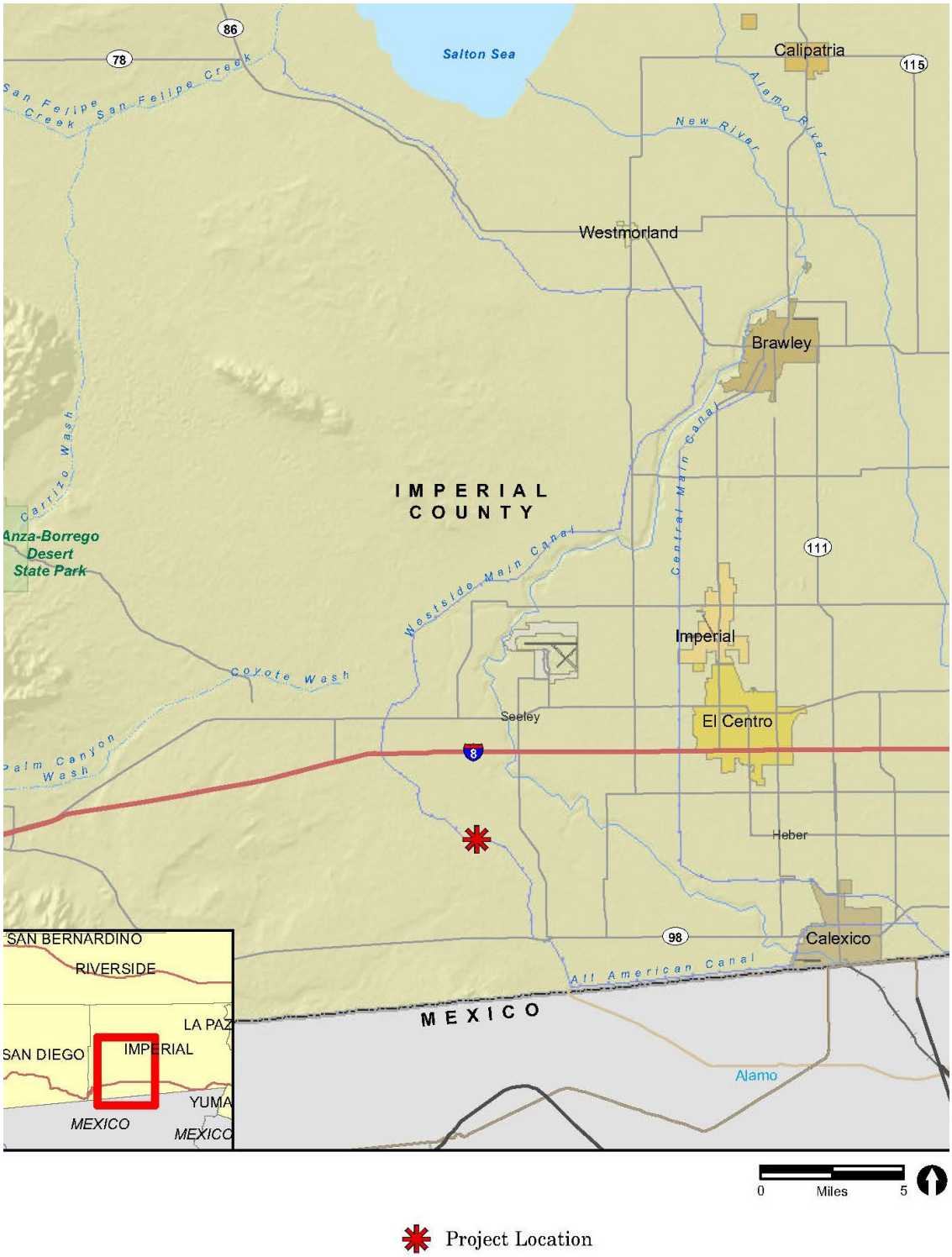
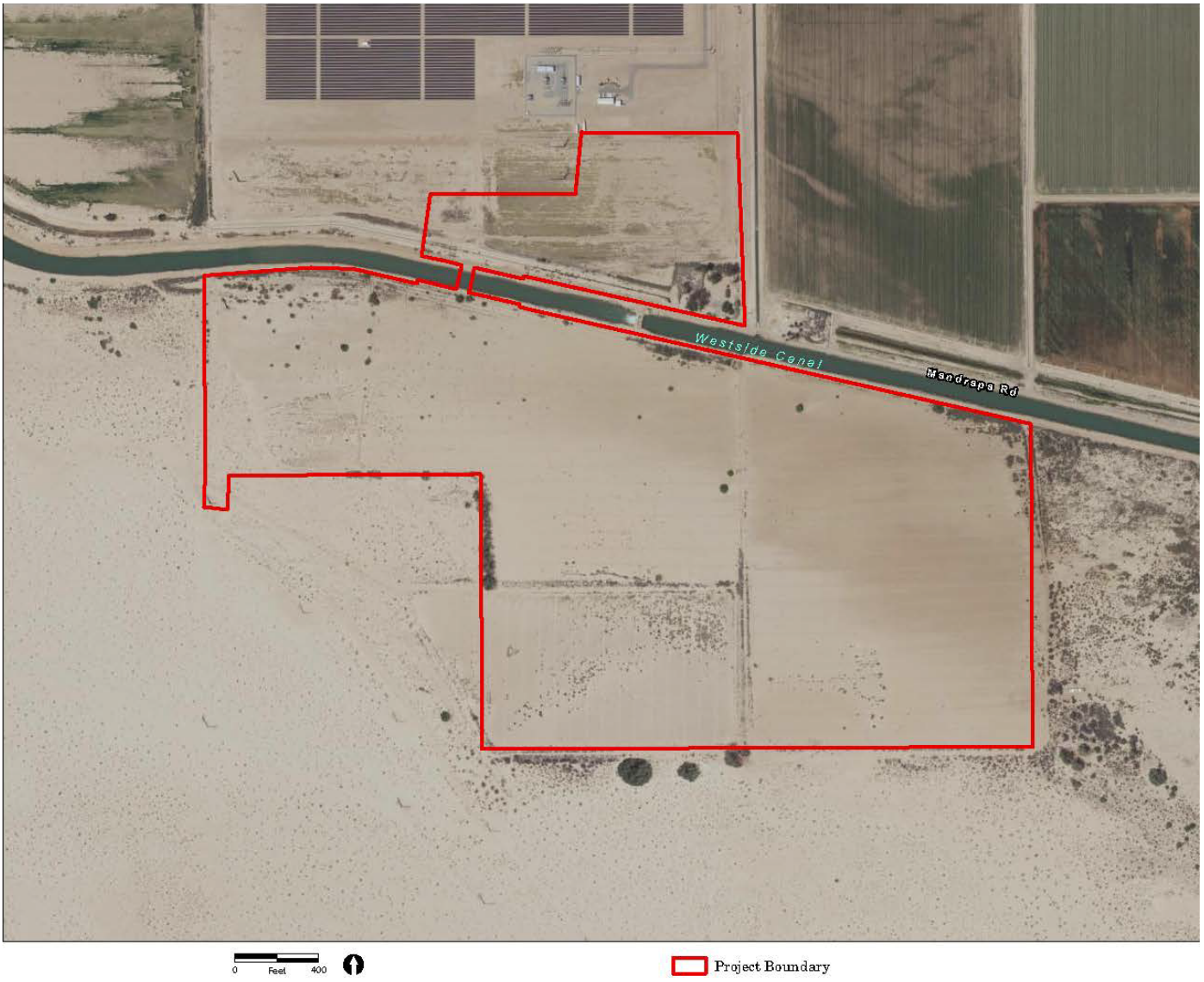
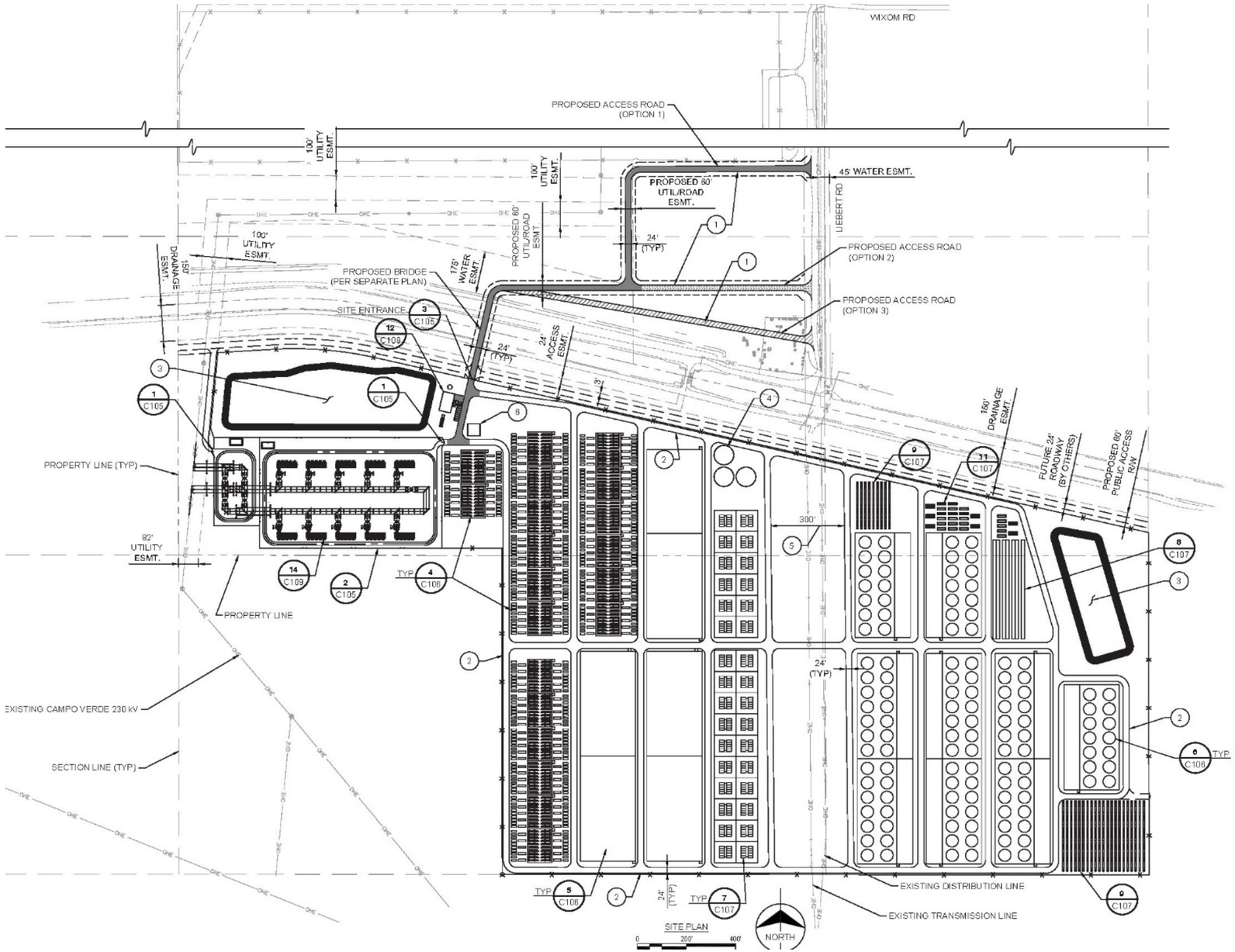


Figure 2. Project Site Aerial



Prepared by RECON Environmental, Inc.

Figure 3. Proposed Site Plan



KEY NOTES:

1. SITE ACCESS ROAD (GRAVEL).
2. PROPOSED GRAVEL ROADWAY.
3. STORMWATER RETENTION AREA (TYP). SEE NOTE 2.
4. PROPOSED WATER STORAGE TANK. SEE UTILITY PLAN C102.
5. TEMPORARY 300' CORRIDOR. DEFINED EASEMENT TO BE DETERMINED WITH IMPERIAL IRRIGATION DISTRICT FOR S-TRANSMISSION LINE
6. CENTRALIZED LOCATION FOR EMERGENCY GENERATORS.

NOTES:

1. THIS LAYOUT IS CONCEPTUAL IN NATURE AND IS SUBJECT TO CHANGE DURING DETAILED DESIGN.
2. STORMWATER BASINS WILL BE DESIGNED IN ACCORDANCE WITH IMPERIAL COUNTY REGULATIONS. FINAL LOCATION AND SIZE OF STORMWATER FACILITIES AND BEST MANAGEMENT PRACTICES TO BE DETERMINED AT FINAL DESIGN.
3. ALL COMPONENTS INTERCHANGEABLE TO ANY LOCATION WITHIN THE SITE BOUNDARY.

Prepared by Burns McDonnell for ConEdison Development.

1.5 PROJECT SPONSOR'S NAME AND ADDRESS

Curtis Kebler
Director, Business Development
Consolidated Edison Development (CED, or Applicant)
KeblerC@ConEdCEB.com
619-318-6735
101 West Broadway, Suite 1120
San Diego, CA 92101

1.6 GENERAL PLAN DESIGNATION AND ZONING

Table 1: General Plan Land Use Designations and Zoning

Relationship to Project Site	APN	Existing Land Description	General Plan Land Use Designation	Zone
Southwest	051-350-009	Agricultural	Recreational	A-3
Project Site	051-350-010	Agricultural	Agricultural	A-3
Project Site	051-350-011	Agricultural	Agricultural	A-3
North	051-350-018	Agricultural	Agricultural	A-3
North	051-350-019	Agricultural	Agricultural	A-3

1.7 PURPOSE AND INTENDED USE OF THE PROJECT

Development of the Westside Canal Battery Storage Project (Project) will provide a utility-scale energy storage complex incorporating lithium-ion battery systems and/or flow battery technologies throughout the site. The Project will allow excess, intermittent renewable energy to be stored and later dispatched optimally back into the existing electrical grid as firm, reliable generation when needed. The Project would complement currently operating clean energy solar and wind projects, as well as those planned for development, in the County and supports the broader Southern California bulk electric system by serving as a transmission asset.

1.8 OTHER PUBLIC AGENCIES WHOSE APPROVAL IS REQUIRED

1.8.1 Intended Uses of the Initial Study and Permit Requirements

This Initial Study (IS) is an informational document intended to inform the lead agency, other responsible or interested agencies, and the general public of potential environmental effects of the proposed Project. The environmental review process has been established to enable public agencies to evaluate potential environmental consequences and to examine and implement methods of eliminating or reducing any potentially significant adverse impacts. This document is intended to aid the County and the Applicant in determining the appropriate California Environmental Quality Act (CEQA) document needed to support

agency discretionary approvals, permits, and consultations. These permits, approvals, and consultations are described in Table 2.

Table 2: Agency Permits and Environmental Review Requirements

Agency	Permits and Other Approvals
County of Imperial	General Plan Amendment Zone Change Development Agreement & Conditional Use Permit Solar Overlay Annexation Grading Permit Conceptual Drainage Plan Domestic Wastewater/Septic System Permit Fire Suppression Plan Variance of Height Limits Transportation Permits Mechanical Permits Electrical Permits Structural/Foundation Permits Haul Route Plan Rule 310 Dust Control Plan & Rule 801 Compliance National Pollutant Discharge Elimination System (NPDES) Construction General Permit NPDES General Permit for MS4 Compliance AB 52 Consultation & SB 18 Consultation SB 610 Water Supply Assessment
Imperial Irrigation District	Generator Interconnection Agreement
California ISO	Generator Interconnection Agreement
United States Army Corps of Engineers	Clean Water Act (CWA) Section 404
Regional Water Quality Control Board	CWA Section 401
California Department of Fish and Wildlife	California Fish and Game Code 1600
County of Imperial Air Pollution Control District	Dust Control Plan

2.0 PROJECT DESCRIPTION

The Applicant is proposing to develop the Westside Canal Battery Storage Project (proposed Project, Project) which would provide a utility-scale energy storage complex with solar panels, lithium-ion battery systems, and/or flow battery technologies distributed throughout the site. The Project would allow for excess, intermittent renewable energy to be stored and later dispatched optimally back into the electric grid as firm, reliable generation. The Project complements both the existing operational renewable energy facilities, and those planned for development, in the County and supports the broader Southern California bulk electric system by serving as a transmission asset.

2.1 PROJECT OBJECTIVES

The Project is pursuing the following objectives:

- To allow for the storage of power/renewable power to help meet the state energy needs.
- To be able to receive renewable generated electricity during times of excess generation or times of less desirable generation and store that power for future release when the customer (i.e., a load-serving entity) deems it to be more valuable.
- To be a valuable tool in allowing the customer and system operators to manage and convert intermittent renewable generation into reliable, dispatchable generation upon demand.
- To utilize available land that is in a less desirable location for agricultural production, due to over 15 years of agricultural inactivity, but also due to limited access corridors for vehicular traffic to the remote property.

2.2 PROJECT LOCATION AND SITE DESCRIPTION

The Project is proposed to be located in the unincorporated Mount Signal area of the County, approximately 8.0 miles southwest of the City of El Centro and approximately 5.3 miles north of the U.S.- Mexico border.

2.2.1 Current Side Conditions

The Project site is comprised of two parcels, Assessor Parcel Number (APN) 051-350-010 and APN 051-350-011, totaling approximately 148 acres. This land has limited access corridors for vehicular traffic and was historically used for agricultural production but has not been farmed for the last 15 years. The Project would also utilize portions of two parcels, totaling approximately 15 acres, located north of IID's Canal (APN 051-350-019 owned by IID and APN 051-350-018 owned by a private landowner) for site access and as a temporary construction staging area. The Project would also access a small portion of APN 051-350-009 within an IID easement, for connection to the existing IID Campo Verde Imperial Valley 230 kV radial gen-tie line during the construction of a substation on the Project site. The total proposed Project development footprint, encompassing both temporary and permanent impacts, would be approximately 163 acres.

2.2.2 Surrounding Land Uses

The Project site is approximately one-third mile north of the IV Substation and directly south of the intersection of Liebert Road and the Canal. The Project site is bounded by the Canal to the north, BLM lands to the south and west, and vacant private land to the east. The Campo Verde solar generation facility is located north of the Project site, across the Canal. Figure 2 shows an aerial photograph of the Project site and the above-mentioned nearby facilities.

The General Plan land use designation and zoning for the Project site and all surrounding parcels to the north and southwest is Agriculture and Recreational. County of Imperial's General Plan land use designation and zoning does not apply to BLM lands that surround the Project site to the west. The Campo Verde solar generation facility is located north of the Project site and agricultural uses are located northeast of the Project site. Parcels farther north of the Project site also include a mix of agricultural uses and solar generation facilities. The parcel immediately east of the Project site is undeveloped. BLM land south and west of the Project site is generally undeveloped, relatively flat, and barren. The IV Substation is located approximately one-third mile south of the southern property line of the site.

2.3 PROJECT COMPONENTS

The Project is expected to be constructed in 3-5 phase over a 10-year period, with each phase ranging from approximately 25 megawatts (MW) up to 400 MW per phase. Construction of the first phase includes roads, bridge and common facilities, and the first battery storage facility and, if approved, is anticipated to begin in 2021 with completion expected in 2022. Subsequent phases would then be completed as demand/market conditions require. Phase I of the Project would store energy for up to a 12-hour duration based on grid and market conditions. The total nameplate (or rated capacity) capacity of the Project at full build-out (all phases completed) is approximately 2,000 MW.

On-site photovoltaic (PV) solar generation would serve as station auxiliary power and be deployed throughout the Project site as both rooftop solar on buildings, as well as ground-mounted solar, constructed during each phase of the Project. Figure 3 shows the conceptual site plan for the Project with a representation of the various energy storage technologies, ground and roof-mounted solar, common facilities within the Project site, and vehicular access and bridge outside the Project site.

2.3.1 Phasing

The timing and energy storage capacity of the Project's phases would be dependent on commercial contracts for the energy/capacity to be stored/discharged in response to the need for energy storage to manage renewable energy growth throughout the greater southern California area. This energy storage complex would thus become a valuable tool for commercial customer(s) and system operators to better manage intermittent renewable generation by converting it into reliable, dispatchable generation. The date for Project build-out is currently not known and would be dependent on the factors listed above. It is anticipated that each phase would be constructed within 1 to 2 years of each other.

2.3.2 Common Components

The Project would consist of multiple phases of development, construction, and operation of an energy storage facility. Although the Applicant plans to build the energy storage components over time and in multiple phases, the first phase of Project construction would include the majority of required construction activities. The first phase would include construction of the Operating and Maintenance (O&M) facilities, water connections and fire suppression systems for the Project, storm water retention, substation, and legal permanent vehicle access, as well as the first energy storage facility. As per the site plan (see Figure 2), the northwest area of the Project serves as the location for the common facilities, which include

substation(s) and the O&M building. With the Project being built in phases, the necessary infrastructure, such as water-mains, retention ponds and access roads, would be built out to serve the Project phases from west to east and expanded over time to serve each phase.

A summary of the common facilities is presented below:

- 230 kV loop-in substation
    - Connection to Campo Verde Imperial Valley 230 kV radial transmission line
    - Located on Applicant property
- Project substation
- O&M building
- Project parking
- Storm water detention basins
- Fencing and Gates

Large industrial buildings, warehouses, engineered containers, and/or electrolyte storage tanks would be the primary structures needed to house the main Project components. Other components to be located on the Project site and adjacent to the proposed buildings/warehouses include some of the following:

- Inverters, transformers, power distribution panels
- Underground water-main loop for Project operation and fire prevention
- Underground wiring to connect to Project substation
- Project site access roads (unpaved/crushed rock)
- Fire water storage tanks
- Aboveground water storage tanks
- Heating, Ventilation, and Air Conditioning (HVAC) units
- Ground-mounted or roof-mounted PV arrays
- Energy Storage sites
- Emergency backup generator(s)

2.3.2.1 Operations and Maintenance Facilities

The O&M building described in Phase 1 above is expected to be the only manned facility on the site and would include up to approximately 20 full-time employees working in three shifts during a 24-hour period. No offices or staffed control centers would be located within the storage-specific warehouses/buildings. For sanitary waste, the Project would include a septic leach field to be located near the O&M building. The proposed O&M building would also require an HVAC unit.

2.3.2.2 Water Connections

During construction the Project would utilize at least two temporary connections to the Canal for dust suppression and other construction uses such as concrete production. Permanent water to serve the Project's water and fire suppression needs would come from the Canal. Water infrastructure for the water/fire suppression would be laid underground throughout the site by open trenching. A segment of line from the Project boundary to the connection at the Canal would be constructed by a horizontal directional drilled underground bore to clear the existing IID Canal O&M road. It is anticipated that approximately 210 acre-feet (AF) of water would be required for the full buildout/construction of the site, over the projected 10-year construction time frame.

Following construction, service water would be supplied either by an on-site water treatment system (package plant) drawing water from the Canal or from deliveries from water suppliers via the Canal connection. This service water would be used for operations using on-site aboveground storage. Water usage for the O&M building and personnel would be less than 10,000 gallons per day (gpd). Additionally, approximately 1,000,000 gallons of water would be stored on site in storage tanks for fire suppression.

The Project would connect to the Canal via an underground horizontal directional drilling (HDD). Once drilling commences, drilling would extend into the side of the Canal underwater. A water pipe (size to be decided once final engineering design is complete) will be installed through the drill hole and into the Canal. The Applicant understands that IID prefers an underground bore versus open excavation watermain trenching to IID canals.

2.3.2.3 Stormwater Retention

As part of the proposed Project, stormwater retention basins would be constructed at designated locations throughout the site, based upon the hydrology analysis, to channel and manage stormwater flows. The retention basins would be sized in accordance with the County's design guidelines. Based upon these design guidelines, the basins will be able to retain at least 3 inches of rainfall across the entire site. The current basin design has a maximum depth of 5 feet with 4:1 side slopes and provides a retention volume of approximately 40.8 AF. The basins will be excavated out of and constructed using native soil. Retention basins may be added with each phase, such that the site might have different drainage areas contributing to each basin.

2.3.2.4 Permanent Vehicle Access

There are no circulation element roadways in the immediate vicinity of the Project site. The nearest freeways are Interstate 8 (I-8), located 4.6 miles north of the Project site, and State Route 98 (SR-98), located 5.2 miles south of the Project site. Drew Road, a 2-lane collector, is located 1.3 miles east of the Project site. All other roadways in the immediate vicinity of the Project site are rural roadways. All roadways that would be used to access the Project site from I-8 are currently paved, except for the portion of Liebert Road south of Wixom Road. However, this segment would be paved prior to Project operation.

Public Access Roads

Prior to any construction on the main Project site (Phase I), vehicular access for the Project would need to be established. The proposed Project site is surrounded by private landowners to the east, BLM land to the south and west, and IID maintenance roads and the Canal to the north. Due to the property having no current (or legal) direct vehicular access routes, the Applicant is proposing to construct public access roads on both the north and south side of the canal on private land and a permanent clear-span bridge over the Canal (Figure 4 and 5). The proposed new public access roads would be designed and constructed in accordance with County standards. In addition, the Project would dedicate 60 feet of frontage along the north Project fence line and south of the IID maintenance road to be used for both employee access to the site as well as limited public access (i.e., adjacent neighboring landowners).

Clear-Span Bridge

The permanent new clear-span County/California Department of Transportation (Caltrans) specified bridge would span the Canal to connect to a proposed access road easement on the north side of the Canal. The north proposed access road would ultimately connect the Project to Liebert Road.

Construction of the permanent clear-span bridge spanning the IID's Westside Main Canal requires CED to have access to both the north side and the south of the Canal to perform the necessary construction activities. In addition to being necessary to facilitate construction of the new permanent clear-span bridge, access from the south side of the Westside Main Canal would allow CED to commence construction on the initial phase (Phase I) of the Project simultaneously, thereby shortening the duration of construction and potentially minimizing the associated impacts. CED is evaluating various options for temporary construction access, including accessing the Project site from the south side of the Canal off SR-98, as well as options involving access from the north side of the Canal from I-8. The preferred temporary access option would be used until construction of the permanent bridge is completed.

2.3.2.5 Substation Components

The proposed Project substation is a central hub for the 34.5 kV collector circuits from the energy storage components and step-ups the electricity voltage from 34.5 kV to 230 kV. The substation site is comprised of approximately 10 acres and includes, but is not limited to, the following major components:

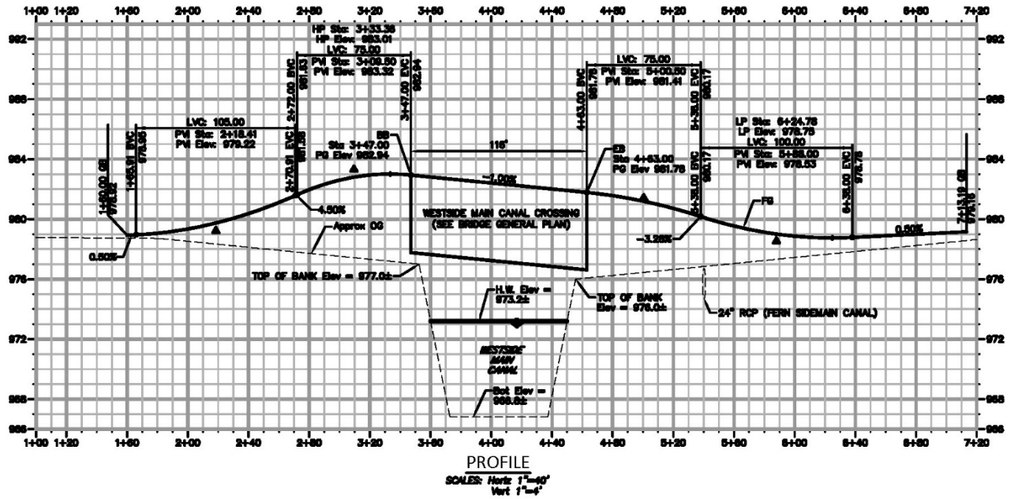
1. 34.5 kV bus and associated switching devices
2. 230 kV bus and associated switching devices
3. 34.5/230 kV transformers
4. 34.5 kV capacitors, as needed
5. Tubular steel support structures
6. Circuit Breakers
7. Grounding grid
8. Prefabricated modular control building to house Supervisory Control and Data Acquisition (SCADA) (unoccupied except during inspection and maintenance)

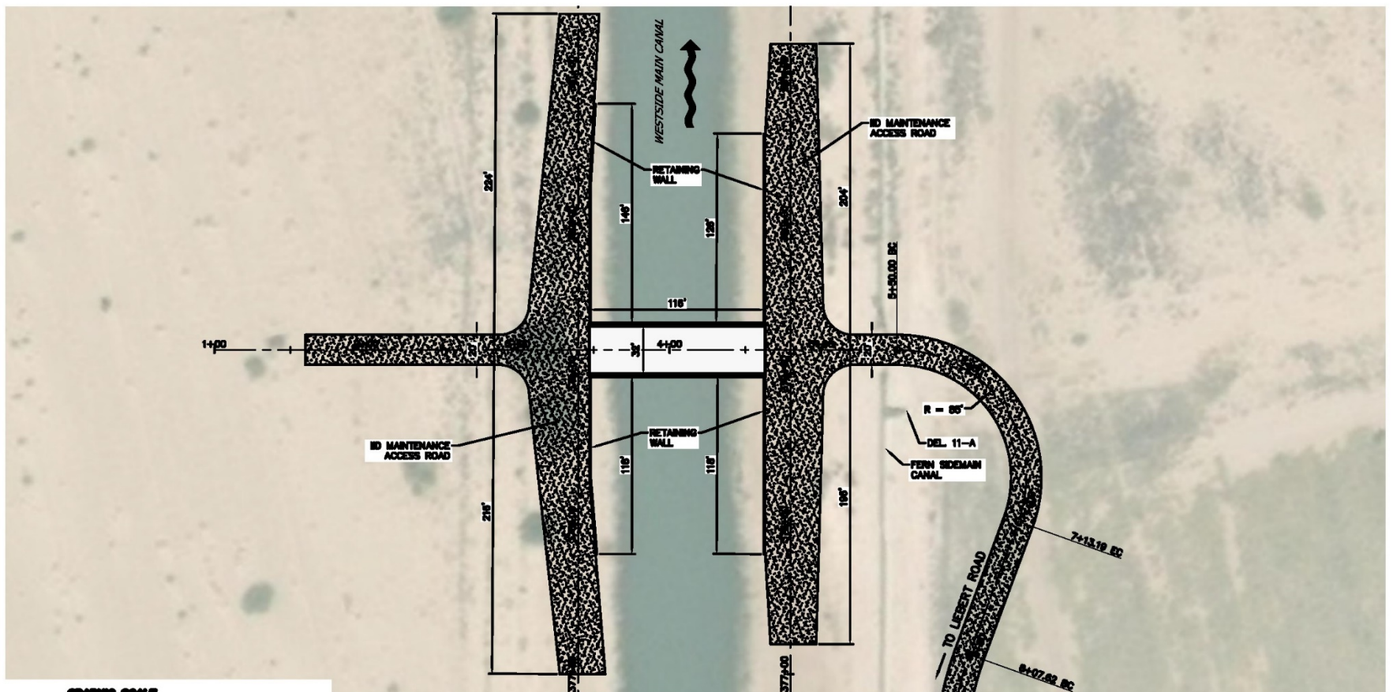
The substation will be constructed as part of the Phase I of the Project. Sequencing is proposed as follows:

The entire 10-acre site will be graded:

- Install concrete foundations
- Install grounding grid
- Install steel support structures
- Install bus, switching devices, capacitors
- Install control building
- Install fencing
- Install transformer

Figure 4. Westside Main Canal Bridge Site Plan

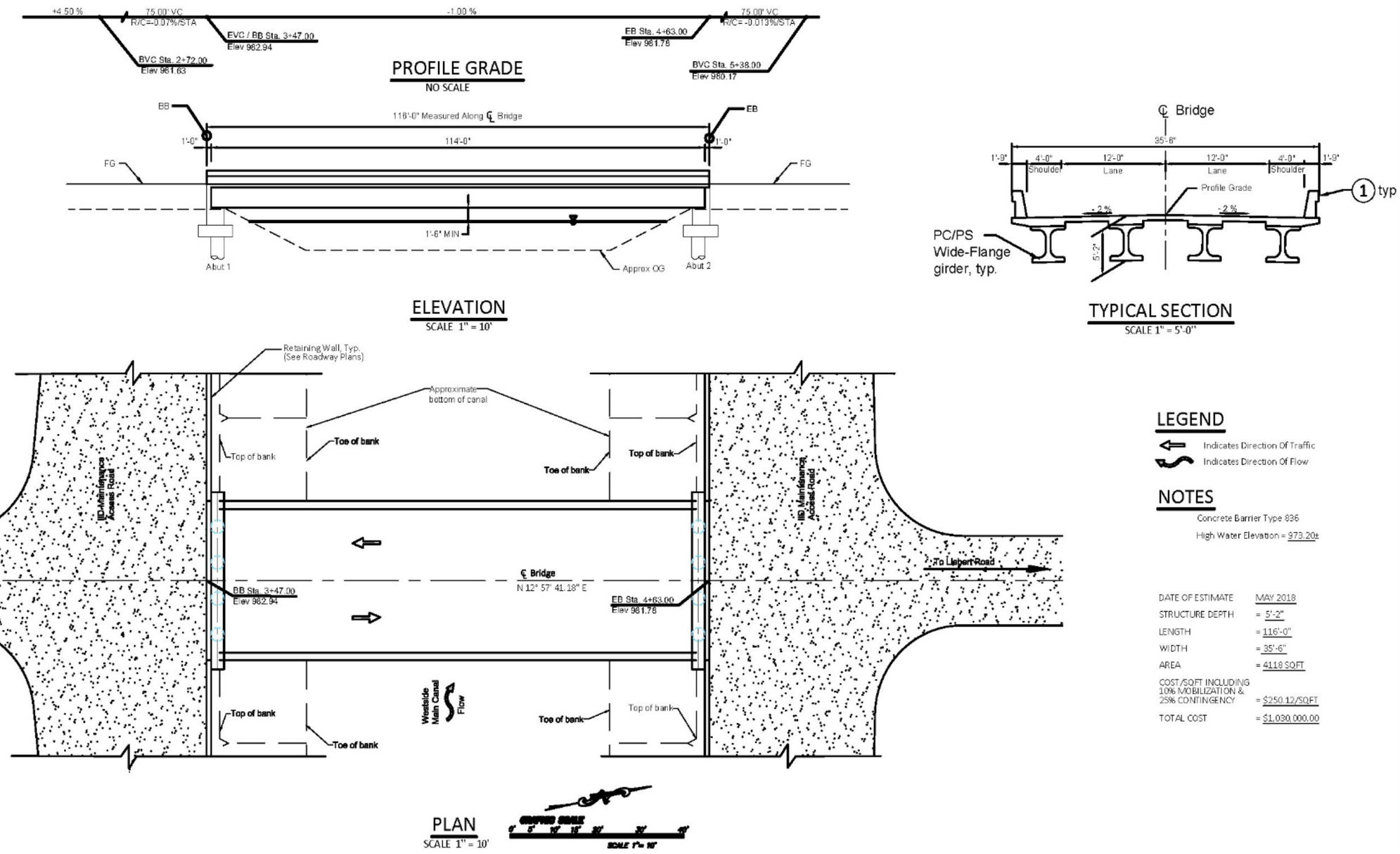




PLAN
SCALE: 1"=40'

Prepared by County of Imperial Public Works Department.

Figure 5. Westside Main Canal Bridge Elevation



LEGEND

Indicates Direction Of Traffic

Indicates Direction Of Flow

NOTES

Concrete Barrier Type 836

High Water Elevation = 973.20±

DATE OF ESTIMATE	MAY 2018
STRUCTURE DEPTH	= 5'-2"
LENGTH	= 116'-0"
WIDTH	= 35'-6"
AREA	= 4118 SQFT
COST/SQFT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $250.12/SQFT
TOTAL COST	= $1,030,000.00

Prepared by County of Imperial Public Works Department.

Items 2, 4, 5, and 8 (from above) will be constructed in conjunction with each new Project phase. The perimeter fence, ground grid, and grading will be fully completed for the entire Project during Phase I construction. SCADA and Alternating Current (AC) collection circuits will be constructed per their corresponding phase. The transformers will contain mineral oil or natural esters oil and would not contain Sulfur hexafluoride (SF_6). The substation would be an open-air substation (not gas insulated).

2.3.2.6 Construction

The Project would include the construction of a substation located at the western Project boundary. The substation would include equipment such as switches, circuit breakers, and transformers.

2.3.2.7 Fire Protection/Fire Suppression

Fire protection systems for battery systems will be designed in accordance with California Fire Code 2016 and will take into consideration the recommendations of the National Fire Protection Association (NFPA) 855, Standard for the Installation of Stationary Energy Storage Systems. Depending on the technology used in a phase, fire suppression agents such as Novec 1230 or FM 200, or water may be used as a suppressant. In addition, fire prevention methods will be implemented to reduce potential fire risk, including voltage, current and temperature alarms. Energy storage equipment will comply with Underwriters Laboratories (UL) standard UL-9540 and will account for the results of UL-9540A. The Project has the potential to utilizing either lithium-ion batteries and/or flow batteries. Flow batteries are generally not flammable and do not require fire suppression systems. In locations where equipment is located within buildings, automated fire sprinkler systems will be designed in accordance with California Fire Code. A fire loop system and fire hydrants will be located throughout the site for general fire suppression. Buildings and containers for both lithium-ion and flow batteries will be unoccupied enclosures. These buildings will have an automatic sprinkler system designed in accordance with California Fire Code Section 903.

To mitigate potential hazards, redundant separate methods of failure detection will be implemented. These include alarms from the Battery Management System (BMS), including voltage, current, and temperature alarms. Detection methods for off gas detection will be implemented, as applicable. These are in addition to other protective measures such as ventilation, overcurrent protection, battery controls operating batteries within designated parameters, temperature and humidity controls, smoke detection, and maintenance in accordance with manufacturer guidelines. Flow battery tanks would be designed to have secondary containment in the event of a failure. Remote alarms will be installed for operations personnel as well as emergency response teams in addition to exterior hazard lighting. In addition, an Incidence Response Plan will be implemented depending upon the technology installed for each phase.

Additionally, the Project intends to commit to purchase or contribute its proportionate share to purchase, a Type 1 Fire Engine which shall meet all NFPA standards for structural firefighting for the Imperial County Fire Department. The Type 1 Fire Engine would be housed off-site within Fire Station 2, located approximately 12 miles from the Project site.

The fire suppression systems will be designed in accordance with the 2016 California Fire Code or current Fire Code at the time of construction. A fire loop system will be installed around the site with fire hydrants

spaced at 300-foot intervals in accordance with fire flow requirements. The fire loop will be built out and extended to serve each phase as the Project site is developed. Fire water will be obtained by tapping into the Canal and will be stored in tanks (described above) adjacent to the Canal. Multiple tanks will be required to provide the needed fire flow volume, and the tanks will also be installed in phases as the site is developed and eventually built-out. The fire suppression system will consider NFPA 855 standards. Depending on the technology used in a particular phase, fire suppression agents such as Novec 1230 or FM 200 may be used. In addition, fire prevention methods will be implemented to reduce potential fire risk, including voltage, current and temperature alarms. Energy storage equipment will comply with UL-9540 and will account for the results of UL-9540A.

2.3.2.8 Supervisory Control and Data Acquisition

Each station (the substation and switching station) proposed on the site plan would also have fences installed around its perimeter in order to limit and control access.

2.3.3 Battery Storage Components

Once vehicle access to the Project site is established, the first phase of site construction would consist of either a lithium-ion battery storage facility or a flow battery storage facility. This first phase would be dependent on the first commercial contract awarded to the Applicant by a customer. Large industrial buildings, warehouses, and/or containers to house the storage equipment, including battery cells, modules, racks, and controls for lithium-ion technologies, would be needed. For flow battery technologies, cell stack modules, pumps, and controls may be installed inside industrial buildings or pre-engineered outdoor enclosures. Electrolyte storage tanks and associated piping may be located indoors or outdoors, depending on the technology.

2.3.3.1 Construction

Following completion of the access road and bridge over the Canal, the Project would grade the entire Project site and begin construction of the utility-scale energy storage complex. To access the Project site, construction workers would travel along I-8 and head 4.6 miles south to the Project site, utilizing the constructed bridge. During peak construction activities, approximately 200 workers and 30 daily deliveries would be required. Construction activities for the utility-scale energy storage complex would last for up to 32 months.

2.3.3.2 Battery Modules Technology

Flow Battery

A flow battery is a rechargeable fuel cell in which an electrolyte containing one or more dissolved electroactive elements flows through an electrochemical cell that reversibly converts chemical energy directly to electricity. Additional electrolyte is stored externally, generally in tanks, and is usually pumped through the cell (or cells) of the reactor, although gravity feed systems are also known to be used. Flow batteries can be rapidly "recharged" by replacing the electrolyte liquid while simultaneously recovering the

spent material for re-energization. Many flow batteries use carbon felt electrodes due to its low cost and adequate electrical conductivity.

Lithium-Ion Battery

A lithium-ion battery is also a type of rechargeable battery. In the batteries, lithium ions move from the negative electrode through an electrolyte to the positive electrode during discharge, and back when charging. Lithium-ion batteries use an intercalated lithium compound as the material at the positive electrode and typically graphite at the negative electrode. The batteries have a high energy density, no memory effect and low self-discharge.

Energy Storage

Energy storage is the capture of energy produced at one time for use at a later time. A device that stores energy is generally called an accumulator or battery. Energy comes in multiple forms including radiation, chemical, gravitational potential, electrical potential, electricity, elevated temperature, latent heat and kinetic. Energy storage involves converting energy from forms that are difficult to store to more conveniently or economically storable forms. Energy storage technology may be centralized or may be distributed throughout the plant. Depending on the technology selected for the energy storage component, the substation and transmission lines as well as the solar field inverters and transformers may be active during both daylight and nighttime hours.

2.3.3.3 Backup Generator

The Project would include an emergency backup generator(s) to supply auxiliary power to the facility during rare events in which the entire facility or portions of the facility are disconnected from the local electrical grid system. The generators would be sized to accommodate control systems and minimal targeted HVAC system loads for equipment protection. The purpose of the generators would be to provide system safety and during the event that neither the transmission interconnection or the on-site solar generation system are available to maintain battery safety and warranty temperature parameters.

These generators may be either installed in a central location near the common facilities or distributed among individual buildings. They may be diesel, natural gas, or propane fueled. The generators would be periodically tested each year to maintain backup capability in the event of a grid emergency. All generators would be subject to Imperial County Air Pollution Control District review and permitting requirements.

Below is a generalized table for emergency generators based on 1 gigawatt (GW) of lithium-ion (Li-Ion) batteries and 1 GW of flow batteries, including their safety and warranty temperature parameters. Size and quantity will scale with the MW proposed in each phase. Detailed design is required to accurately calculate the generator load, which will be included with each design phase and the final battery technology selection.

Table 3: Approximate Generator Size

Technology	Project Size (MW)	Backup Gen Size (kW)	Backup Gen Qty.	Total Backup Gen Size (kW)
Li-ion	1,000	1,750	20	35,000
Flow	1,000	4,000	20	20,000
Total	2,000	--	--	55,000

2.3.4 Solar Facility Components

2.3.4.1 Photovoltaic Cells

Solar photovoltaic cells, also called PV cells, convert sunlight directly into electricity. PV gets its name from the process of converting light (photons) to electricity (voltage), which is called the PV effect. The panels are mounted at a fixed angle facing south, or they can be mounted on a tracking device that follows the sun, allowing them to capture the most sunlight. Many solar panels combined together to create one system is called a solar array. Traditional solar cells are made from silicon, are usually flat-plated, and generally are the most efficient.

Second-generation solar cells are called thin-film solar cells because they are made from amorphous silicon or non-silicon materials such as cadmium telluride (CdTe). Thin film solar cells use layers of semiconductor materials only a few micrometers thick. Because of their flexibility, thin film solar cells can double as rooftop shingles and tiles, building facades, or the glazing for skylights.

Third-generation solar cells are being made from variety of new materials besides silicon, including solar inks using conventional printing press technologies, solar dyes, and conductive plastics. Some new solar cells use plastic lenses or mirrors to concentrate sunlight onto a very small piece of high efficiency PV material. The PV material is more expensive, but because so little is needed, these systems are becoming cost effective for use by utilities and industries. However, because the lenses must be pointed at the sun, the use of concentrating collectors is limited to the sunniest parts of the country.

2.3.4.2 On-site Solar Generation

On-site PV solar generation will serve as station auxiliary power and be deployed throughout the Project site as rooftop solar on buildings, as well as ground-mounted solar, constructed during each phase. The solar PV generating component would consist of a 3.2 foot by 6.5-foot PV modules (or panels) on single-axis horizontal trackers in blocks. Each PV module would be constructed out of a poly-crystalline silicon semiconductor material encapsulated in glass, in which the PV effect would allow the electrons to flow through that material to produce electricity. The panels would be oriented from east to west for maximum exposure and the foundation would be designed based on soil conditions. The PV modules are made of a poly-crystalline silicon semiconductor material encapsulated in glass. Installation of the PV arrays would include installation of mounting posts, module rail assemblies, PV modules, inverters, transformers and buried electrical conductors. Concrete would be required for the footings, foundations and pads for the

transformers and substation work. Tracker foundations would be comprised of either driven or vibrated steel posts/pipes and/or concrete in some places (depending on soil and underground conditions).

2.3.4.3 Construction Sequence and Equipment

Construction activities would be sequenced and conducted in a manner that addresses storm water management and soil conservation. During construction, electrical equipment would be placed in service at the completion of each power-block. The on-site workforce would consist of laborers, electricians, supervisory personnel, support personnel, and construction management personnel.

Construction would generally occur during daylight hours, Monday through Friday. However, non- daylight work hours may be necessary to make up schedule deficiencies or to complete critical construction activities. For example, during hot weather, it may be necessary to start work earlier to avoid pouring concrete during high ambient temperatures. If construction is to occur outside of the County's specified working hours, coordination with the County will occur in advance of these activities.

2.4 SITE SECURITY

An eight-foot-tall fence (e.g., chain-link) topped with barbed wire would be installed around the entire Project site for safety and in order to control access. Each station proposed on the site plan would also have fences installed around its perimeter. A camera-equipped call button would be installed at the front entry gate to the site which would be monitored from the Project's O&M building. Throughout the site at various points, security cameras may be installed to monitor other areas of the Project site. During the construction of each Project phase, the Applicant would have on-site security personnel between dusk and dawn and during hours of non-active construction.

2.5 INTERCONNECTION OPTIONS

The proposed point of interconnection for the Project is the Imperial Valley Substation 230 kV bus. As reflected in the conceptual site plan, to achieve this, the Applicant plans to build a new loop-in substation on the Project site and connect to the existing IID Campo Verde Imperial Valley 230 kV Radial gen-tie line. This gen-tie line ultimately connects about one-third mile south of the Project site into the Imperial Valley Substation, which is ultimately the Project's point of interconnection to the California Independent System Operator (CAISO) grid. The Applicant submitted the necessary Interconnection Request Applications to the CAISO and IID in 2017 and 2018 and approval is pending.

2.6 EXISTING AND PROPOSED UTILITY EASEMENTS

Existing Easements

The site (APNs 051-350-10 and 051-350-011) has three major existing utility easements lying across the site. The first is for overhead collector transmission circuits and utility facilities, as well as access. This is for the IID Campo Verde Imperial Valley 230 kV transmission line easement, which lies inside and along the west property line and runs north/south. The second major easement is a prescriptive easement for an

overhead collector transmission circuit and utility distribution for access to/from the Project site. This easement runs north/south and lies directly in the center of the Project site. The IID transmission line within this prescriptive easement is known as the S-Transmission line (S-Line). The third major easement lies along the north property line. This easement was granted to IID for the purposes of the existing Canal and appropriate infrastructure and operation and maintenance roads for the Canal.

Proposed Easement

The Applicant and IID are in the process of determining the width of this S-Line easement to create a non-exclusive easement. This easement would also include the existing distribution line that lies within the easement. Until this new easement agreement is in place, the Applicant has planned for a 300-foot temporary corridor on the Project site plan (centerline of 300-foot corridor is the S-Line) to allow the IID energy engineering team to design and implement an appropriate new easement. Once the width and location of the new easement is determined, all other areas that are not part of the new S-Line easement lying within the 300-foot corridor would become part of the Project site

2.7 PROJECT OPERATION

Operation of the Project would require routine maintenance and security. It is anticipated that the Project would employ a plant manager and an O&M manager, as well as the addition of a facility manager once the complex deploys 500 MW of generation. The complex would also employ staff technicians, with at least one additional technician for every approximately 250 MW of generation.

Operation of the Project would require up to 20 employees or 2.5 employees working three eight-hour shifts in order to provide 24-hour personnel coverage at the plant. Assuming two one-way trips per employee, the Project would be anticipated to generate up to 40 trips per day from all maintenance and security personnel.

Figure 3 shows the floor plan for each lithium-ion 50 MW building. As shown, each building would include 10 air cooling units (5 on each side of the building) and 20 transformers and inverters (10 on each side of the building). The current site plan includes 20 of these buildings, and more would be constructed during subsequent phases as the market demands.

Depending on the technology selected for the energy storage component, the substation and transmission lines as well as the solar field inverters and transformers may be active during both daylight and nighttime hours.

2.8 CONSTRUCTION EQUIPMENT AND WORKFORCE

Construction would include the use of standard construction equipment such as scrapers, excavators, loaders, and water trucks, and other similar machinery. Construction equipment would be used for site preparation activities such as clearing, grading, perimeter fencing, development of staging areas and site access roads and would involve facility installation activities, including support masts, trenching utility connections, construction of electrical distribution facilities, O&M building, access roads and the clear-span bridge. Delivery trucks also would bring materials to the site. Depending on the specific phasing of the Project and construction schedule, on-site equipment may be used simultaneously or in phases.

Phase 1 of the proposed Project would require grading of the entire site and construction of the utility-scale energy storage complex, which would take approximately 12 months to complete. The remaining phases would be completed in approximately 24 months. During peak construction activities, approximately 200 workers and 30 daily deliveries would be required. Construction staff and equipment will be determined based on the size and design specifications of each phase. The table below shows estimates of the construction staff and equipment that will be needed for each phase. It is anticipated that the common facilities will be constructed simultaneously with the first phase of battery storage in order to bring both online at the same time.

Table 4: Estimated Construction Staff and Equipment Per Project Phase

Facility Type	Phase 1		Subsequent Phases 2-5
	Common Facilities	BESS[1]	BESS[1]
Vehicle Type	**# of equipment for 8 hours/day**		
Air Compressor	1	2	2
Backhoe	2	2	2
Concrete Pump	1	1	1
Crane	3	1	1
Dozer	2	--	--
Drill Rig	1	--	--
Excavator	1	1	1
Forklift	2	2	2
Generator	2	3	3
Grader	2	--	--
Paver	1	--	--
Rollers	3	2	2
Scraper	1	1	1
Water Truck	2	1	1
Wheeled Loader	1	1	1
Wheeled Tractor	1	--	--
Construction Personnel	**# of people for 8 hours/day**		
Site Superintendent	1	1	1
Construction Manager	1	1	1
Assistant Construction Manager	1	1	1
Safety Manager	1	1	1
Foreman	6	4	2
Field Engineer	3	2	2
Surveyor	2	2	2

Geotechnical Engineer	1	1	1
Heavy equipment operator	19	12	12
Laborer/Installer	90	50	50

[1] BESS = Battery Energy Storage System

2.9 SCHEDULE

Depending on the size of the battery system for a given phase, construction and commissioning (approval to operate) is anticipated to take approximately 6 to 12 months. The 100- to 200-MW first phase would require build out of Project facilities, roads, and the proposed clear-span bridge. Subsequent phases will require improvements such as additional substation equipment, water main and site road extension, but will not require construction of additional common facilities.

Construction activities may only occur Monday through Friday, between the hours of 7:00 a.m. and 7:00 p.m. or Saturday between the hours of 9:00 a.m. and 5:00 p.m., excluding holidays, per County Ordinance.

2.10 DISCRETIONARY ACTIONS

2.10.1 General Plan Amendment and Zone Change

The Project proposes a General Plan Amendment and Zone Change to change the land use designation and zoning for the Project site from Agriculture (A3) to Industrial. The Industrial zoning would be limited to Energy Production/Use.

2.10.2 Development Agreement

The Applicant may pursue a Development Agreement with the County of Imperial for this Project.

2.10.3 County Solar Overlay Annexation

The Applicant may pursue annexation into the County of Imperial Solar Overlay Plan.

2.10.4 Conditional Use Permit (CUP 19-0015)

The Applicant has requested a Conditional Use Permit to allow a utility-scale energy storage complex in an Industrial zone.

2.10.5 Water Supply Assessment

The Applicant has requested a Water Supply Assessment, in accordance with SB 610, to identify critical water supply and water quality needs for the proposed Project.

3.0 ENVIRONMENTAL SETTING, ANALYSIS, AND MITIGATION MEASURES

3.1 INTRODUCTION TO ENVIRONMENTAL ANALYSIS

As defined by Section 15063 of the State CEQA Guidelines and Section 7 of the County's Guidelines for Implementing CEQA, an Initial Study is prepared primarily to provide the Lead Agency with information to use as the basis for determining whether an Environmental Impact Report (EIR), Negative Declaration, or Mitigated Negative Declaration would be appropriate for providing the necessary environmental documentation and clearance for any proposed project.

☒ According to Section 15065, an EIR is deemed appropriate for a particular proposal if the following conditions occur:

- The proposal has the potential to substantially degrade quality of the environment.
- The proposal has the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.
- The proposal has possible environmental effects that are individually limited but cumulatively considerable.
- The proposal could cause direct or indirect adverse effects on human beings.

☐ According to Section 15070(a), a Negative Declaration is deemed appropriate if the proposal would not result in any significant effect on the environment.

☐ According to Section 15070(b), a Mitigated Negative Declaration is deemed appropriate if it is determined that though a proposal could result in a significant effect, mitigation measures are available to reduce these significant effects to insignificant levels.

This Initial Study (IS) has determined that the proposed applications will result in potentially significant environmental impacts and therefore, an Environmental Impact Report is deemed as the appropriate document to provide necessary environmental evaluations and clearance for the proposed Project.

This Initial Study and Notice of Preparation are prepared in conformance with the California Environmental Quality Act of 1970, as amended (Public Resources Code, Section 21000 et. seq.); Section 15070 of the State & County of Imperial's Guidelines for Implementation of the California Environmental Quality Act of 1970, as amended (California Code of Regulations, Title 14, Chapter 3, Section 15000, et. seq.); applicable requirements of the County of Imperial; and the regulations, requirements, and procedures of any other responsible public agency or an agency with jurisdiction by law.

Pursuant to the County of Imperial Guidelines for Implementing CEQA, depending on the project scope, the County of Imperial Board of Supervisors, Planning Commission and/or Planning Director is designated

the Lead Agency, in accordance with Section 15050 of the CEQA Guidelines. The Lead Agency is the public agency which has the principal responsibility for approving the necessary environmental clearances and analyses for any project in the County.

3.1.1 Intended Uses of Initial Study and Notice of Preparation

This IS and Notice of Preparation (NOP) are informational documents which are intended to inform County decision makers, other responsible or interested agencies, and the general public of potential environmental effects of the proposed applications. The environmental review process has been established to enable public agencies to evaluate environmental consequences and to examine and implement methods of eliminating or reducing any potentially adverse impacts. While CEQA requires that consideration be given to avoiding environmental damage, the Lead Agency and other responsible public agencies must balance adverse environmental effects against other public objectives, including economic and social goals. The IS and NOP prepared for the Project will be circulated for a period of 35 days for public and agency review and comments.

3.1.2 Environmental Assessment Methodology

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that requires mitigation to reduce the impact from “Potentially Significant” to “Less than Significant” as indicated by the checklist on the following pages.

☒ Aesthetics	☒ Greenhouse Gases	☐ Public Services
☒ Agricultural and Forestry Resources	☒ Hazards and Hazardous Materials	☐ Recreation
☒ Air Quality	☒ Hydrology and Water Quality	☐ Transportation
☒ Biological Resources	☒ Land Use and Planning	☒ Tribal Cultural Resources
☐ Cultural Resources	☐ Mineral Resources	☒ Utilities and Service Systems
☐ Energy Resources	☐ Noise	☐ Wildfires
☒ Geology and Soils	☐ Population and Housing	☒ Mandatory Findings of Significance

3.1.2.1 Evaluation of Environmental Impacts

Section 3.0, Environmental Checklist and Environmental Evaluation presents the environmental checklist form found in Appendix G of the CEQA Guidelines. The checklist form is used to describe the impacts of the Project. A discussion follows each environmental issue identified in the checklist. Included in each discussion are project-specific mitigation measures, if needed.

For the checklist, the following designations are used:

Potentially Significant Impact: An impact that could be significant and for which mitigation has not been identified. If any potentially significant impacts are identified, an EIR must be prepared. An Initial Study Mitigated Negative Declaration (ISMND) cannot be used if there are potentially significant impacts that cannot be mitigated.

Less Than Significant with Mitigation Incorporated: This designation applies when applicable and feasible mitigation measures previously identified in prior applicable EIRs or in the General Plan Environmental Impact Report (General Plan EIR) have reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact" and, pursuant to Section 21155.2 of the PRC, those measures are incorporated into the ISMND.

This designation also applies when the incorporation of new project-specific mitigation measures not previously identified in prior applicable EIRs or in the General Plan EIR have reduced an effect from a "Potentially Significant Impact" to a "Less Than Significant Impact".

Less Than Significant Impact: Any impact that would not be considered significant under CEQA, relative to existing standards.

No Impact: The proposed Project would not have any impact.

3.1.2.2 Important Note to the Reader

The California Supreme Court in a December 2015 opinion [California Building Industry Association v. Bay Area Air Quality Management District, 62 Cal. 4th 369 (No. S 213478)] confirmed that CEQA, with several specific exceptions, is concerned with the impacts of a project on the environment, not the effects the existing environment may have on a project. Therefore, the evaluation of the significance of project impacts under CEQA in the following sections focuses on impacts of the project on the environment, including whether a project may exacerbate existing environmental hazards.

This is consistent with one of the primary objectives of CEQA and this document, which is to provide objective information to decision-makers and the public regarding the proposed project as a whole. The CEQA Guidelines and the courts are clear that a CEQA document (e.g., EIR or IS) can include information of interest even if such information is not an "environmental impact" as defined by CEQA.

3.2 AESTHETICS

AESTHETICS Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
Except as provided in Public Resources Code Section 20199:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	☐	☐	☒	☐
c) In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings. (Public Views are those that are experienced from a publicly accessible vantage point). If the Project is in an urbanized area, the potential of the project to conflict with applicable zoning and other regulations governing scenic quality?	☒	☐	☐	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☒	☐	☐	☐

3.2.1 Environmental Setting

The proposed Project site currently consists of undeveloped parcels which were historically used for agricultural purposes. Surrounding uses consist of undeveloped land, agricultural uses, BLM land, solar PV installations and the IV Substation, further south. As the Project site would be developed with new energy facilities, industrial uses, structures, roadways and other new developed features, potential impacts to aesthetics are evaluated below.

3.2.2 Environmental Impact Analysis

a) Would the project have a substantial adverse effect on a scenic vista?

Finding: Less Than Significant Impact

Scenic vistas generally include extensive panoramic views of natural features, unusual terrain, or unique urban or historic features, for which the field of view can be wide and extend into the distance, and focal views that focus on a particular object, scene or feature of interest. Panoramic views across the Project site include generally unobstructed views of agricultural and undeveloped areas surrounding the Project site. To the north is the Campo Verde solar generation facility and a construction staging area. To the west, BLM land is barren, undeveloped and relatively flat, with distant views of the Jacumba Wilderness Area and hills in the far distance. To the east are undeveloped and agricultural areas, and to the south is undeveloped land with the IV Substation further south.

The proposed Project site is characterized by open vistas and largely unobstructed views. While the Project proposes to construct buildings, warehouses, and other structures; however, there are extremely limited opportunities for the public to enjoy views of the Project site from any direction. There are no major public circulation roadways in the Project area, as the Project site is located in an area which is primarily accessible only by rural roadways. The nearest paved road is Drew Road, located approximately 1.3 miles east of the Project site.

Project components and structures may be visible from a distance along roadways in the vicinity; however, due to the lack of opportunities for the public to enjoy scenic vistas across the Project site, this impact would be less than significant and does not require further evaluation in the EIR.

b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Finding: Less Than Significant Impact

The State Scenic Highway Program, which is administered by the California Department of Transportation (Caltrans), identifies designated scenic highways across the state. The Project is not located within a state- or city-designated scenic highway, and there are no trees, rock outcroppings or historic buildings on the Project site. The closest highway which is considered as eligible for designation as a State Scenic Highway in the County is SR-111, in the vicinity of the Salton Sea by Bombay Beach, which is over 70 miles to the northeast of the Project site (Caltrans 2020). The County does not identify any officially designated scenic roadways; however, the County Circulation and Scenic Highways Element identifies four areas which have the potential to be considered eligible for designation as a state-designated scenic highway (Imperial 2008a). One of these areas is SR-111 by Bombay Beach along the Salton Sea, as described above. Another identified area is I-8 at its intersection with SR-98, by Ocatillo, which is approximately 25 miles west of the Project site. The other two areas are even farther away from the Project site. Due to the distance of the Project site from any state- or county-designated or eligible scenic highways, the Project site would not be visible. Therefore, there would be less than significant impact to scenic resources due to Project implementation, and no further analysis is required in the EIR.

c) In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings (Public views are those that are experienced from a publicly accessible vantage point)? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Finding: Potentially Significant Impact

The Project is located in a non-urbanized area, and Project implementation may potentially impact the existing visual character of the Project site and its surroundings. According to the County Conservation and Open Space Element, the Project site is located in an area where maintenance of visual quality has high value (Imperial 2016). The Project proposes to construct large industrial buildings, warehouses, engineered containers and tanks, solar PV facilities, a permanent clear-span bridge over the Canal, new paved

roadways to provide access to the site, parking areas, and an elevated 230-kilovolt (kV) transmission line. These Project components would be constructed in several phases over a span of 10 years. Routine weed abatement and landscape maintenance would occur as needed.

At this time, detailed plans, building elevations and other details regarding the characteristics of these Project components are not yet available. Therefore, a more detailed evaluation of the Project's potential to degrade the existing rural and undeveloped character of the site is required, and this potentially significant impact will be analyzed further in the EIR.

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Finding: Potentially Significant Impact

The Project site is currently undeveloped and does not contain any sources of light or glare. Implementation of the proposed Project would introduce new sources of illumination which could adversely affect nighttime views in the Project area. New buildings and warehouses would have lighting, and the Project would include illumination for safety around access points, parking areas and other areas throughout the site. Project components, including solar PV and other metallic features may be considered new sources of glare. In addition, during Project construction and operation, vehicles and trucks travelling to and from the Project site would be considered new sources of illumination due to their headlights, as well as potentially creating new sources of glare. Therefore, an evaluation of the Project's potential to create a new source of substantial light or glare is required, and this potentially significant impact will be analyzed further in the EIR.

3.3 AGRICULTURAL AND FORESTRY RESOURCES

AGRICULTURAL AND FORESTRY RESOURCES Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☒	☐	☐	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☒	☐	☐	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☒	☐	☐	☐

3.3.1 Environmental Setting

Agriculture has been the single most important economic activity of the County throughout the 1900s and is expected to play a major economic role in the foreseeable future. The gross annual value of agricultural production in the County has hovered around $1 billion for the last several years, making it the County's largest source of income and employment. The County's agriculture industry is a major producer and supplier of high-quality plant and animal foods and non-food products. According to the Imperial County Agricultural Commissioner (ICAC), in 2016, agriculture contributed a total of $4.50 billion to the county economy. Vegetable and melon crops were the single largest production category by dollar value ($1.01 billion), comprising 48.8 percent of the County total. At 22.7 percent, livestock represented the second largest category ($468.2 million) and consisted mostly of feedlot cattle ($400.6 million). Field crops ranked third with $381.2 million and 18.5 percent. Together, these three categories accounted for 89.9 percent of the County's direct farm production values (ICAC 2017).

3.3.2 Environmental Impact Analysis

a) Would the project Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

Finding: Potentially Significant Impact

The majority of the proposed Project site is comprised of fallow agricultural lands, which have not been actively farmed and nor irrigated for over 15 years. The proposed Project site is landlocked but would be developed adjacent to other agricultural uses. Much of the land base in the vicinity of the Project area is considered productive farmland where irrigation water is available. Farming operations in this area generally consist of medium to large-scale crop production with related operational facilities. Crops generally cultivated in the area may include alfalfa, barley, and/or Bermuda grass in any given year. Row and vegetable crops, such as corn, melons and wheat, are also prominent in the area. Land of importance to the local agricultural economy is determined by each County's board of supervisors and a local advisory committee. According to the Important Farmland maps (California DOC 2016a), the Project site contains land which is mapped as Farmland of Local Importance.

A Land Evaluation and Site Assessment (LESA) Analysis was prepared for the Project, by RECON Environmental, Inc., in July 2019. The LESA model is intended to provide a quantitative evaluation of potential impacts to agricultural lands using a point-based evaluation using six different factors which are rated on a 100-point scale (RECON 2019b). A final LESA score between 40 to 59 points is considered significant if both the Land Evaluation (LE) and Site Assessment (SA) scores are greater than or equal to 20 points. Based on the Project specific LESA analysis, the final LESA score is 57.2, with an LE score of 27.2 and a SA score of 30.0. Therefore, the Project is considered to have a potentially significant impact on agricultural resources, and this impact will be analyzed further in the EIR.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

Finding: Potentially Significant Impact

The proposed Project site is not located within or adjacent to a Williamson Act contract site (DOC 2016). However, the Project is proposing a General Plan Amendment and Rezone to change the land use designation and zoning for the Project site from Agriculture (A-3) to Industrial, with the Industrial zoning limited to Energy Production/Use. Therefore, although the Project would not conflict with a Williamson Act contract, the Project would conflict with existing zoning for an agricultural use. This potentially significant impact will be analyzed further in the EIR.

c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code

section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

Finding: No Impact

The proposed Project site is currently zoned as Agriculture (A-3), and there is no existing zoning designation for forest land, timberland, or timberland production within the proposed Project area. Therefore, there would be no impact to this significant threshold, and no further analysis is required in the EIR.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

Finding: No Impact

There is no forest land within the proposed Project area. Therefore, there would be no impact to this significant threshold, and no further analysis of is required in the EIR.

e) Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

Finding: Potentially Significant Impact

As discussed above, the Project does not contain any forest land which would be converted to a non-forest use. However, the proposed Project would involve the conversion of farmland to a non-agricultural use. Although, the Project site has had 15-plus years of agricultural inactivity, based on the LESA evaluation, the impact to agricultural resources is considered significant. Therefore, a more detailed evaluation of the Project's potential to impact the conversion of Farmland to non-agricultural use is required, and this potentially significant will be further analyzed in the EIR.

3.4 AIR QUALITY

AIR QUALITY Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?	☒	☐	☐	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☒	☐	☐	☐

3.4.1 Environmental Setting

Imperial County Air Pollution Control District (APCD) maintains five air quality monitoring stations located throughout the County. Air pollutant concentrations and meteorological information are continuously recorded at these stations and transmitted back to the APCD. The nearest active APCD monitoring station to the proposed Project is the El Centro Monitoring Station located approximately 9.6 miles northeast of the proposed Project site. The El Centro Monitoring Station measures ozone (O_3), Nitrogen dioxide (NO_2), and Particulate matter less than 10 and 2.5 micrometers (PM_{10} and $PM_{2.5}$).

3.4.2 Environmental Impact Analysis

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

Finding: Potentially Significant Impact

The proposed Project would generate emissions primarily during the construction of the proposed Project. The Imperial APCD is the Air District responsible for the Project area. Some of the applicable air quality plans include the 2009 State Implementation Plan for Particulate Matter Less than 10 Microns in Aerodynamic Diameter, the 2013 State Implementation Plan for the 2006 24-Hour $PM_{2.5}$ Moderate Non-Attainment Area, and the 2017 State Implementation Plan for the 2008 8-hour Ozone Standard.

The construction of these facilities has the potential to cause significant environmental effects through conflict or obstruction of the applicable air quality plans. Therefore, these impacts will be analyzed further in the EIR.

b) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable Federal or State ambient air quality standard?

Finding: Potentially Significant Impact

The proposed Project site is located in a non-attainment area for National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) for O_3 and PM. The majority of PM_{10} and $PM_{2.5}$ in the region is generated by windblown dust, vehicle traffic across unpaved roads, and other off-highway vehicle usage. The proposed Project has the potential to increase windblown dust and vehicle traffic during construction. Therefore, the construction of these facilities has the potential to cause significant environmental effects through a potential cumulatively considerable net increase of particulate matter during construction. Therefore, this potentially significant impact will be further analyzed in the EIR.

c) Would the project expose sensitive receptors to substantial pollutant concentrations?

Finding: Potentially Significant Impact

While there are no sensitive receptors are located in the vicinity of the proposed Project, there is the low potential for pollutants to become mobilized due to thermal runaway events, as detailed below in Section 3.10, Hazards and Hazardous Emissions. While it is unlikely that sensitive receptors could be exposed to substantial pollutant concentrations, due to construction or operation of the proposed Project, there is the potential to cause significant environmental effects if such exposure (via an unforeseen thermal runaway) were to occur. As such, this potentially significant impact will be further analyzed in the EIR.

d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Finding: Potentially Significant Impact

While there is not a substantial number of people located in the vicinity of the proposed Project, there is the low potential for other emissions to become mobilized due to thermal runaway events, as detailed below in Section 3.10, Hazards and Hazardous Emissions. While it is unlikely that substantial numbers of people could be exposed to other emissions (such as odors) due to construction or operation of the proposed Project, there is the potential to cause significant environmental effects if such exposure (via an unforeseen thermal runaway) were to occur. Therefore, these potentially significant impacts will be further analyzed in the EIR.

3.5 BIOLOGICAL RESOURCES

BIOLOGICAL RESOURCES Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or regulated by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☒	☐	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☒	☐	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☒	☐	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☒	☐	☐	☐

3.5.1 Environmental Setting

As part of the pre-application materials prepared by the Applicant, a Biological Resources Technical Report (BRTR) was prepared for the proposed Project footprint by Recon Environmental, Inc., on July 19, 2019. This BRTR used biological resource data obtained from a combination of literature review, a general biological survey, and focused biological surveys. Focused surveys were conducted for burrowing owl (*Athene cunicularia)*, jurisdictional waters/wetlands, and rare plants.

According to the BRTR, focused burrowing owl and rare plant surveys were conducted at appropriate times of the year to detect presence/absence of target species, and the combined biological surveys covered all four seasons (RECON 2019a). Therefore, the likelihood of detection of migrants and seasonal visitors was high. Surveys were limited by temporal factors, as all surveys were conducted during the day or dusk. As a result, some nocturnal animals were observed directly as dusk turned to night following burrowing owl

surveys, and others were detected by signs such as tracks, scat, and/or burrows; however, a full suite of nocturnal animals would have required full night-time surveys or trapping.

Routine weed abatement and landscape maintenance would occur as needed. The Project site is bounded by roads, agricultural uses, and solar generation facilities. As the Project is not adjacent to natural lands, landscaping maintenance for maintaining a fire-clearing zone would be minimal and would result in less than measurable emissions.

3.5.2 Environmental Impact Analysis

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies, or regulations, or regulated by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Finding: Potentially Significant Impact

The proposed Project site has the potential to support native habitats and/or sensitive species. Burrowing owls and burrows are commonly found along canals and drains. The Westside Main Canal is located within the Project site. Flat-tailed horned lizard, Loggerhead shrike, Black-tailed gnatcatcher, Abert's towhee, American badger, Colorado Desert fringe-toed lizard, and Yuma hispid cotton rat may also have the potential to occur on the Project site.

Additionally, the proposed Project site appears to have the potential to support rare or sensitive plant species includeing Utah vine milkweed (*Funastrum utahense)*, mud nama *(Nama stenocarpa)*, or California satintail *(Imperata brevifolia).* Additionally, the site appears to support sensitive communities including arrow weed thickets, quailbush scrub, common reed marshes, cattail marsh, and tamarisk thickets.

As such, a potentially significant impact is identified for this issue area. In addition, routine weed abatement and landscape maintenance would occur as needed. A biological resources technical study that will address the proposed Project's potential impacts on biological resources will be prepared and will be further analyzed in the EIR.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Finding: Potentially Significant Impact

The proposed Project, and the general surrounding region, has the potential to support rare and sensitive plant species, as well as sensitive natural communities. These rare and sensitive species could potentially include Utah vine milkweed (*Funastrum utahense)*, mud nama *(Nama stenocarpa)*, or California satintail *(Imperata brevifolia).* Additionally, the site appears to support sensitive communities including arrow weed thickets, quailbush scrub, common reed marshes, cattail marsh, and tamarisk thickets.

Therefore, a potentially significant impact is identified for this issue area. A biological resources technical study that will address the proposed Project's potential impacts on biological resources will be prepared and will be further analyzed in the EIR.

c) Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Finding: Potentially Significant Impact

The Project site contains areas of hydrophytic vegetation and contains potentially jurisdictional wetlands and non-wetland waters of the United States. Thus, a potentially significant impact is identified for this area. A jurisdictional delineation that will address the proposed Project's potential impacts on biological resources will be prepared, and this issue will be further analyzed in the EIR.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Finding: Potentially Significant Impact

Refer to Response 3.5.2 a). above. This impact is considered potentially significant and will be analyzed further in the EIR.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Finding: Potentially Significant Impact

Refer to Response 3.5.2 a). above. This impact is considered potentially significant and will be analyzed further in the EIR.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Finding: Potentially Significant Impact

Refer to Response 3.5.2 a). above. This impact is considered potentially significant and will be analyzed further in the EIR.

3.6 CULTURAL RESOURCES

CULTURAL and TRIBAL RESOURCES Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☐	☐	☒
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

3.6.1 Environmental Setting

The County is rich in cultural resources. Archaeological work in the County can be separated into two distinct sections: prehistoric and historic. All prehistoric archaeology deals with aboriginal culture and systems which existed prior to Spanish colonization in 1769. Historical archaeology deals with uncovering facts that no known historical documentation has provided. Thousands of prehistoric (aboriginal culture and systems existing prior to 1769) and hundreds of historic (uncovered facts containing no known historical documentation) are found throughout the County. Prehistoric evidence in the form of trails, rock art, geoglyphs, fish traps, and resource procurement and manufacturing locations are found in the regions surrounding the fertile valley portion of the County. From a historical standpoint, the intensive use of Imperial Valley for irrigation agriculture since the beginning of this century has impacted any resources that may have existed on land that is now farmland or under the Salton Sea. Historic resource sites date back to 1540, when the Hernando de Alcaron Expedition discovered Alta California from near the intersection of I-8 and Highway 186. The next major historical event occurred in 1775, when Juan Bautista de Anza first passed through the area. The Anza Trail itself constitutes a significant cultural resource in the Yuha Desert, as does the later Sonoran/Southern Emigrant Trail which served as a major route to and from coastal California from 1825 to 1865. Although very few structures or artifacts may remain from the use of these trails, the routes themselves are of historical significance. Various other structures, such as missions (Spanish period 1769-1821) and a fort (Mexican period 1821-1848) are still evident in regions throughout the County.

RECON Environmental, Inc., prepared a Cultural Resource Survey on July 18, 2019 for the proposed Project. The purpose of their study was to determine the potential effects of the Project on significant cultural resources (RECON 2019b). For this effort, a records search and an archaeological resources survey were conducted. The records search was requested from the California Historical Resources Information System, South Coastal Information Center at San Diego State University (SCIC). The files at SCIC showed three cultural resources mapped within or adjacent to the proposed Project site. The on-foot archaeological resources survey was conducted between September 14 through 16, 2018, and a second site visit was completed, on February 4, 2019.The records search obtained from the SCIC identified 116 cultural resources within a one-mile radius of the Project site. Three of these resources were mapped within or adjacent to the current Project site. The following were found on-site: lithic and ceramic scatter, a section

of the Canal, and the Fern Check Dam. The latter two are segments of the Canal and drain system. A small temporary camp in 1979 consisted of ceramic sherds and lithics. The site was expanded in 2012 to include two deposits consisting of 18 calcined bones. A west north west-trending dirt segment of the Canal intersects the northern segment of the Project property.

The Canal is approximately 80 feet wide. It is banked by earthen levees of vegetation and is unlined. Dirt access roads run along the levees on both sides of the Canal for maintenance and dredging access. Smaller interior Canal sections occur within the Project site, which delivered water to crops. The Fern Check Dam, a circa 1947 concrete and metal check structure that controls and measures the flow of water in the Canal entering the Fern Side Main Heading and into the Fern Side Main, runs parallel to the Canal. No historic addresses are listed on, adjacent to, or within one mile of the Project site. Forty-five reports have been recorded at the SCIC occurring within one mile of the Project site. Seven of these occur within portions of the Project site. A letter was sent to the Native American Heritage Commission (NAHC) in Sacramento on August 27, 2018 requesting a search of their Sacred Lands File. The NAHC replied on August 27, 2018, indicating that they had no record of Native American cultural resources in the immediate area of the Project.

3.6.2 Environmental Impact Analysis

a) Would the project cause a substantial adverse change in the significance of a historical resource as identified in Section 15064.5?

Finding: No Impact

To be considered historically significant, a resource must meet one of four criteria for listing outlined in the California Register of Historical Resources (CRHR) (CEQA Guidelines 15064.3(a)(3)). In addition to meeting one of the criteria outlined in the CRHR, a resource must retain enough intact and undisturbed deposits to make a meaningful data contribution to regional research issues (CCR Title 14, Chapter 11.5 Section 4852 [c]). Further, based on CEQA Guidelines Section 15064.5(b), substantial adverse change would include physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource is materially impaired. This can occur when a project:

- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources, National Register of Historic Resources, a local register or historic resources.
- Demolishes or materially alters in an adverse manner those physical characteristics that account for its identification in an historical resources survey meeting the requirements of PRC § 5024.1 (g), unless the public agency establishes by a preponderance of the evidence that the resource is not historically or culturally significant.

Literature review and subsequent cultural resources pedestrian survey of the portion of the study area located within the Project site indicates that twelve previously unrecorded archaeological resources were

identified during the survey. The cultural resources consist of three prehistoric sites and nine prehistoric isolates. It was determined that these newly recorded prehistoric sites and isolates do not meet any of the criteria for listing on the California Register of Historic Places. Therefore, no significant historical resources sites have been identified within the Project study area as such, no impact is anticipated.

In addition, a section of the Canal is eligible for the National Register of Historic Places (NRHP) and CRHR on the local and state levels under Criterion A/1 for its significance in association with development of the Imperial Valley. This resource would be impacted by the construction of a proposed bridge. However, the proposed bridge will not affect the qualities or values that qualify the resource for listing in the NRHP or CRHR and would not result in a significant impact under CEQA. Therefore, the Project would have no impact to the significance of a historical resource as identified in Section 15064.5, and no further analysis is required in the EIR.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Finding: No Impact

A substantial adverse change is defined as the physical demolition, destruction, relocation, or alteration of the resource of its immediate surroundings such that the significance of a historical resource would be materially impaired. Avoidance of the historic property/historical resource through project redesign is the preferred mitigation measure. If redesign is not feasible, minimizing impacts by limiting the degree of impacts or reducing the impact through a data recovery excavation and/or construction monitoring are mitigation options.

The Project will not result in impacts to historical resources since these resources have been recommended not eligible for listing on the NRHP or the CRHR. The Westside Main Canal is eligible for the NRHP and CRHR would be impacted by the Project due to the construction of a proposed bridge across the canal to provide vehicular access from Liebert Road. The proposed bridge would not result in physically destroying or altering that canal but would result in a visual impact to the Westside Main Canal. Because there are other visual impacts along the Westside Main Canal including other bridges and impacts from maintenance improvements such as dredging and concrete lining, the proposed bridge will not affect the qualities or values that qualify the resource for listing in the NRHP or CRHR and would not result in a significant impact under CEQA. Therefore, the Project would have no adverse effect.

The Canal will still maintain its association with the development of agriculture in Imperial Valley. The potential for intact subsurface prehistoric or historic historical resources to be present on the Project property is considered very low due to extensive disturbance owed to agricultural activities. Therefore, no impacts to the significance of an archaeological resource pursuant to Section 15064.5, and no further analysis is required in the EIR.

c) Would the project disturb any human remains, including those interred outside of formal cemeteries?

Finding: Less Than Significant Impact

Subsurface human remains could be impacted during construction of the proposed Project. The proposed Project site has been historically disturbed by past agricultural practices. The Project site is currently vacant land. Although the potential for encountering subsurface human remains within the Project footprint is unlikely, there remains a possibility that human remains could be present beneath the ground surface, and that such remains could be exposed during Project construction. Therefore, potential to encounter subsurface human remains is considered a potentially significant impact unless mitigation is incorporated during construction. No subsurface disturbance will occur during Project operation. Therefore, no impacts to subsurface human remains are anticipated during operation. Decommissioning activities will involve the removal of the Battery Energy Storage System (BESS) facility structure, associated wiring, and battery cells. Earth-moving activities similar to those occurring during Project construction will occur during the decommissioning phase of the Project. The ground disturbance that would occur as a result of decommissioning would be in the same locations of disturbance that occurred during construction of the Project. Therefore, additional ground disturbances outside of those during construction are not anticipated. As such, no further disturbance of potential human remains is anticipated to occur, therefore no further analysis in the EIR is required.

In the event that evidence of human remains are discovered, construction activities within 50 feet of the discovery shall be halted or diverted, and the County Coroner will be notified (Section 7050.5 of the Health and Safety Code). If the Coroner determines that the remains are Native American, the Coroner will notify the NAHC which will designate a Most Likely Descendant (MLD) for the Project (Section 5097.98 of the Public Resources Code). The designated MLD then has 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains (AB 2641). If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (Section 5097.94 of the Public Resources Code). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (Section 5097.98 of the Public Resources Code). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a document with the county in which the property is located (AB 2641).

3.7 ENERGY RESOURCES

ENERGY RESOURCES Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

3.7.1 Environmental Setting

IID is the electrical service provider for unincorporated County areas, including the proposed Project site. IID maintains a number of distribution and substation facilities in the County. As discussed above, the proposed Project would include the construction and operation of a 230-kV loop-in substation to connect the Project to the Campo Verde 230 kV Radial transmission line. IID is required by the California Energy Commission (CEC) to publish a power content label (IID 2018) that describes the percentage mix of IID's energy sources

In 2018, IID obtained power from the following sources:

- Renewable: 29 percent
- Large Hydroelectric 4 percent
- Natural Gas: 27 percent
- Nuclear: 3 percent

Unspecified sources of power: 37 percent IID's renewable energy sources are further broke down as follows:

- Biomass & Biowaste: 2 percent
- Geothermal: 5 percent
- Eligible Hydroelectric: 2 percent
- Solar: 11 percent
- Wind: 11 percent

There are several other renewable energy generation facilities in the vicinity of the proposed Project. The proposed Project would operate as a wholesale power storage facility, storing renewable power when demand is lower and releasing power to the grid during times of increased demand. The power would be exported to IID via the new loop-in substation that would be constructed as part of the proposed Project. As discussed above, the proposed Project would have a full build-out storage capacity of approximately 2,000 MW.

3.7.2 Environmental Impact Analysis

a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation?

Finding: Less than Significant Impact

Resources that would be consumed as a result of the proposed Project include water, electricity, and fossil fuels during construction and O&M. Construction would require the manufacture of new materials, some of which may not be recyclable at the end of the proposed Project's lifetime. The energy required for the production of these materials would also result in an irretrievable commitment of natural resources. The anticipated equipment, vehicles, and materials required for construction of the proposed Project are described above in Chapter 2; however, the amount and rate of consumption of these resources would not result in significant environmental impacts or the unnecessary, inefficient, or wasteful use of resources. Compliance with all applicable building codes, State of California, and County policies would ensure that all-natural resources are conserved to the maximum extent possible.

Construction, operation, and decommissioning of the proposed Project would result in a net increase in energy resources available for use. During operation, depending on the phase, the proposed Project would make available up to approximately 400 MW per phase of efficient, clean, renewable energy at times when demand is highest. This energy resource could be used to create other goods or more efficiently power regional services, thus ensuring that no wasteful or inefficient consumption of energy resources would occur and offsetting demand which would be met by less efficient methods of energy generation; therefore, there would be a less than significant impact to energy resources and no further analysis is required in the EIR.

Furthermore, to meet air quality requirements and save materials and fuel for economic gain, the Applicant has committed to implementing energy efficiency and fuel use reduction measures for all on-site equipment, and wherever possible during construction.

b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Finding: No Impact

The proposed Project would be compliant with all state and local plans for renewable energy or energy efficiency because it would develop a demand responsive renewable source of power, helping to offset the use of nonrenewable resources and contribute to an overall reduction of nonrenewable resources currently used to generate electricity. Additionally, the Project would increase the effectiveness of other regional renewable projects by increasing the available storage capacity; therefore, the Project would have no impact on a state or local energy plan, and no further analysis is required in the EIR.

3.8 GEOLOGY AND SOILS

GEOLOGY AND SOILS Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
a) Directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on strata or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☒	☐	☐	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☒	☐	☐	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☒	☐	☐	☐
f) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☒	☐	☐	☐

3.8.1 Environmental Setting

The Project site is located in the southern portion of the Salton Trough, a structural depression within the Colorado Desert geomorphic province. This province is generally a low-lying barren desert basin (in part about 230 feet below mean sea level) dominated by the Salton Sea. The province is a depressed block between active branches of the San Andreas fault system. The fault branches are buried by recent alluvial deposits. The dominant structural features related to the San Andreas fault system consist of northwest-trending faults and fault zones. The major northwest trending fault zones include the San Jacinto fault, Imperial fault, the Superstition Hills fault, the Elsinore fault and the San Andreas fault. The Salton Trough has been inundated during the Quaternary by an ancient freshwater lake (Lake Cahuilla) which resulted in

a sequence of lacustrine (lake) deposits consisting of interbedded sand silt and clay. Remnants of the ancient shorelines of the extinct Lake Cahuilla remain prevalent in the Salton Trough (NV5_2018).

3.8.2 Environmental Impact Analysis

a) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

Finding: Less Than Significant Impact

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

The Project site is not located within an Earthquake Fault Zone delineated by the State of California for the hazard of fault surface rupture. The surface traces of known active or potentially active faults are not known to pass directly through the site. The Alquist-Priolo (AP) mapped Route 247 fault zone is located approximately 1.3 miles to the west but does not trend towards the Project site. The AP-mapped Northern Centinela fault zone is located approximately 3.3 miles to the south and trends towards the Project site. It should be noted that ground surface rupture due to a seismic event may occur in areas where no evidence of ground rupture had been previously noted. However, based on the distance to the mapped trace of the faults and the distance to other faults in the vicinity of the Project site, the potential for damage due to surface rupture due to faulting at the Project site is considered low. Therefore, impacts would be less than significant, and no further analysis is required in the EIR.

ii. Strong seismic ground shaking?

The Project site is located in Southern California, which is considered a seismically active area, and as such, the seismic hazard most likely to impact the site is ground shaking resulting from an earthquake along one of the known active faults in the region. The seismic design of the Project may be performed using seismic design recommendations in accordance with the 2016 California Building Code (CBC). Preliminary seismic parameters were developed for the Project site based on the 2016 CBC) and American Society of Civil Engineers (ASCE) 7-10 guidance document. Using the United States Geological Survey (USGS) Ground Motion Parameter Online Calculator based on the following site coordinates: Latitude = 32.729506 degrees, and Longitude = -115.715528 degrees. The earthquake hazard level of the Maximum Considered Earthquake (MCE) is defined in ASCE 7-10 as the ground motion having a probability of exceedance of 2 percent in 50 years. Therefore, the Project would have less than significant impacts with regard to strong seismic ground shaking, and no further analysis is required in the EIR.

iii. Seismic-related ground failure, including liquefaction?

Liquefaction and dynamic settlement of soils can be caused by ground shaking during earthquakes. Dynamic settlement due to earthquake shaking can occur in both dry or unsaturated and saturated sands. Research and historical data indicate that loose, relatively clean granular soils are susceptible to liquefaction and dynamic settlement, whereas the stability of the majority of clayey silts, silty clays and clays

is not adversely affected by ground shaking. Liquefaction is generally known to occur in saturated loose cohesionless soils at depths shallower than approximately 50 feet. The potential for liquefaction under the same conditions of ground shaking intensity and duration will decrease for sands that are more well-graded, irregular, gritty, coarser and denser. Also, a pronounced decrease in liquefaction potential will occur with the increase in fine-grained (i.e., silt and clay) content and plasticity of the soil. Idriss and Boulanger (2008) have suggested that soils with plasticity index of greater than 7 may be considered non-liquefiable. The potential consequences of liquefaction to engineered structures include loss of bearing capacity, buoyancy forces on underground structures (including pipelines), increased lateral earth pressures on retaining walls, and lateral spreading.

The Project site is underlain by poorly to moderately consolidated alluvial materials. The subsurface exploration program encountered poorly to moderately consolidated alluvial silt, clay and silty sand, along with a relatively shallow ground water table. A simplified liquefaction analysis was performed using the liquefaction triggering analysis procedure proposed by Boulanger and Idriss (2014) and the California Geological Survey (CGS) Special Publication (SP)-117 procedures using the Standard Penetration Test (SPT) data from Project site borings and historical high groundwater level of 5 feet below ground surface. A peak ground acceleration (PGA) of 0.5g for geometric-mean and earthquake moment magnitude of 6.5 based on the results of deaggregation analysis using the USGS online tools were used in liquefaction analysis. The analyses indicated that minor liquefaction effects are expected at the Project site due to presence of few isolated saturated medium dense sand layers present between depths of 15 and 50 feet below ground surface. The total seismic settlement expected at the Project site is on the order of ¼ inch which concludes that the Project is not susceptible to liquefaction. Therefore, impacts would be less than significant, and no further analysis is required in the EIR.

iv. Landslides?

There are no high or steep natural slopes on or in close proximity to the Project site. Based on the Project's Geotechnical Report, there are no indications of landslides or deep-seated instability at the Project site. Therefore, the potential damage to the proposed Project facilities due to land sliding or slope instability is considered low and potential impacts would be less than significant. No further analysis is required in the EIR.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Finding: Less Than Significant Impact

Disturbance associated with site preparation activities leaves soils vulnerable to detachment by wind, resulting in net loss, or displacement. Construction soil erosion impacts are considered potentially significant short-term impacts under CEQA. Erosion is the detachment and movement of soil materials through natural processes (primarily wind or water) or human activities. Rates of erosion can generally vary according to the soil resource's capacity to drain water, slope angle and length, extent of groundcover, and human influence. Grading and excavation would be required at the Project site to create a foundation for the proposed Project facility and other required Project components. Electrical conduits and electrical wiring

would be installed and buried in designated areas throughout the Project site. However, since the existing site was previously an agricultural use and heavily farmed, only minor grading would be needed.

In compliance with federal Clean Water Act and regulations of the State Water Resource Control Board, the proposed Project would require implementation of a construction Stormwater Pollution Prevention Plan (SWPPP), including site-specific BMPs for erosion and sediment control. The SWPPP would require BMPs be adopted for the specific conditions at the Project site and would minimize any risk for substantial erosion during construction. In addition, County standards would include preparation, review and approval of a grading plan by the County Engineer and implementation of a Dust Control Plan (Rule 801) (discussed further in Section 4.1, Air Quality). A National Pollutant Discharge Elimination System (NPDES) Construction General Permit will be required for the Project because more than one acre would be disturbed. Given the relatively flat nature of the Project area and low precipitation in the area, it is unlikely that soil erosion from runoff would occur; however, with implementation of the BMPs contained in the required SWPPP, impacts would be less than significant, and no further analysis is required in the EIR.

c) Would the project be located on geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Finding: Potentially Significant Impact

Construction of the proposed Project could present new loading for near surface soils that might eventually cause damage to Project facilities from subsidence over time. However, the proposed improvements would be required to adhere to all applicable California Building Standards Code and would help to mitigate any potential impacts associated with subsidence or any other potentially hazardous condition associated with the ability of underlying materials to adequately support the proposed improvements. Subsidence or collapse can also occur through the rapid removal of fluids such as groundwater or petroleum from the subsurface. The proposed Project does not include the extraction of any groundwater or petroleum.

The Project site is within a topographically flat area and soils predominately consist of clays with imbedded silts and sandy silts. The native surface clays within the agricultural lands exhibit high to very high swell potential when tested according to the Uniform Building Code Standard 18-2 methods. The clay is expansive when wetted and can shrink with moisture loss (drying). Causes for soil saturation include landscape irrigation, broken utility lines, or capillary rise in moisture upon sealing the ground surface to evaporation. Moisture losses can occur with lack of landscape watering, lose proximity of structures to downslopes and root system moisture extraction from deep rooted shrubs and trees placed near the foundations. The Project site could be subject to direct impacts resulting from potential swelling forces and reduction in soil strength resulting from saturation.

Therefore, mitigation measures to replace expansive soils or condition soils to minimize expansion would be required during Project construction to reduce direct impacts associated with expansive soils. Further, adherence to applicable building code requirements and industry standard geotechnical site preparations would be required to reduce the potential impact from unstable soils. Therefore, a potentially significant

impact is identified for this issue area. A project-specific Geotechnical Study that will address the proposed Project's potential impacts on geology and soil resources, which will be further analyzed in the EIR

d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Finding: Potentially Significant Impact

Improvements including foundations and slabs in contact with earth materials with a high potential for expansion can be expected to be subject to distress based on the potential for volume change associated with highly expansive soil. Soils such as these should not be relied upon for foundation bearing. The Project site is underlain predominantly by poorly to moderately consolidated alluvial materials consisting of sandy silt to clay, silty sand and poorly graded sand with silts. Three tested samples of the near-surface silt and clay soils indicated medium to high expansion potential with an Expansion Index (EI) of 54 to 106. These materials are generally considered unsuitable for use as backfill for structure foundations, retaining walls or pipe bedding. Since site grading will redistribute on-site soils, potential expansive soil properties should be verified at the completion of rough grading for the proposed Project. Therefore, the proposed Project could be subject to potential impacts resulting from potential swelling forces and reduction in soil strength resulting from saturation. However, mitigation measures to replace expansive soils or condition soils to minimize expansion would need to be implemented during Project construction to reduce direct impacts associated with expansive soils. Thus, a potentially significant impact is identified for this issue area. A Geotechnical Study that will address the proposed Project's potential impacts on geology and soil resources will be prepared and will be further analyzed in the EIR.

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

Finding: Potentially Significant Impact

The Project proposes the construction of an on-site septic systems. Therefore, a potentially significant impact is identified for this issue area. A Geotechnical Study that will address the proposed Project's potential impacts on geology and soil resources will be further analyzed in the EIR.

f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?

Finding: Potentially Significant Impact

Construction activities on the Project site would occur on a previously heavily farmed agricultural field. Deposits near the ground surface (approximately five feet in depth) were subject to disking, tilling, and planting for years, effectively compromising any fossil deposits that may have once been present. No direct impacts to paleontological resources are anticipated in association with operation and maintenance of the Project. Indirect impacts to paleontological resources during operation and maintenance would be low because no major ground disturbing activities or excavations would be anticipated as part of routine

maintenance. When the proposed Project reaches the end of its operational life, Project components would be decommissioned and deconstructed. Concrete foundations would be removed to a depth of at least four feet below ground level and demolished; driven piles would be removed from the ground. Other concrete foundations, such as those for buildings, would be demolished and removed or used on-site for fill as needed. Excavation areas (e.g., foundation removal) would be backfilled and restored to an appropriate contour. Areas subject to decommissioning would have been disturbed during construction. Mitigation measures could be needed to address construction-related impacts to paleontological resources, as direct and indirect impacts to paleontological resources during construction, operation and decommissioning of the proposed Project could be potentially significant. A Geotechnical Study that will address the proposed Project's potential impacts on geology and soil will be prepared, and this issue will be further analyzed in the EIR.

3.9 GREENHOUSE GASES

GREENHOUSE GAS EMISSIONS Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☒	☐	☐	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☒	☐	☐	☐

3.9.1 Environmental Setting

Greenhouse gas (GHG) and climate change are a cumulative global issue, therefore its analysis is cumulative in nature. The United States Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) regulate GHG emissions within the United States and California respectively. CARB has primary regulatory responsibility within California for GHG emissions. However local agencies can also adopt policies for GHG emission reduction. The proposed Project is located in the local jurisdiction of the Imperial County APCD. The principal GHGs resulting from human activity that enter and accumulate in the atmosphere are listed below:

- **Carbon Dioxide:** CO_2 enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and chemical reactions (e.g., the manufacture of cement). CO_2 is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.

- **Fluorinated Gases:** Hydrofluorocarbons (HFCs), perfluorinated chemicals (PFCs), and Sulfur hexafluoride (SF_6) are synthetic, powerful climate-change gases that are emitted from a variety of industrial processes. Fluorinated gases are often used as substitutes for O_3-depleting substances (i.e., chlorofluorocarbons, hydrochlorofluorocarbons, and halons). These gases are typically emitted in smaller quantities, but because they are potent climate-change gases, they are sometimes referred to as high global warming potential (GWP) gases.

- **Methane:** CH_4 is emitted during the production and transport of coal, natural gas, and oil. CH_4 emissions also result from livestock and agricultural practices and the decay of organic waste in municipal solid waste landfills.

- **Nitrous Oxide:** N_2O is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.

According to Assembly Bill (AB) 32, California's Global Warming Solutions Act, GHGs of concern include the following gases: CO_2, CH_4, N_2O, PFCs, SF_6, and HFCs. The primary GHGs that would be generated by the proposed Project would include CO_2, CH_4, and N_2O. As a method of simplifying reporting, GHG

emissions are discussed in terms of metric tons of carbon dioxide equivalents (CO_2e), which accounts for the relative warming capacity (i.e., GWP) of each gas.

3.9.2 Environmental Impact Analysis

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Finding: Potentially Significant Impact

The proposed Project would generate GHG emissions during both construction and operation. These emissions would be generated from multiple sources, including mobile equipment and other combustion engines such as water pumps. Therefore, the construction of these facilities has the potential to cause significant environmental effects through the generation of greenhouse gas emissions which may have a significant impact on the environment. These impacts will be analyzed further in the EIR.

b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Finding: Potentially Significant Impact

The proposed Project would generate greenhouse gas emissions primarily during the construction of the proposed Project. There are a number of applicable plans, policies, and regulations adopted for the purposes of reducing the emissions of greenhouse gases. These include executive orders, senate bills, assembly bills, and other state agency specific planning documents.

The construction of these facilities has the potential to cause significant environmental effects through conflict with an applicable plan, policy, or regulation due to the greenhouse gases generated during construction and operation of the Project. Therefore, these impacts will be analyzed further in the EIR.

3.10 HAZARDS AND HAZARDOUS MATERIALS

HAZARDS AND HAZARDOUS MATERIALS Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☒	☐	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☒	☐	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

3.10.1 Environmental Setting

As discussed above in Chapter 2, the Project site is approximately one-third mile north of the IV Substation and directly south of the intersection of Liebert Road and the IID Canal. The Project site is bounded by the Westside Main Canal to the north, BLM lands to the south and west, and vacant private land to the east. The Campo Verde solar generation facility is located north of the Project site, across the Canal.

Fire protection systems for battery systems would be designed in accordance with California Fire Code 2016 and would take into consideration the recommendations of NFPA 855. Depending on the battery technology used in a phase, fire suppression agents such as Novec 1230 or FM 200, or water may be used as a suppressant, depending on what is most effective. In addition, fire prevention methods would be implemented to reduce potential fire risk, including voltage, current and temperature alarms. Energy storage equipment would comply with UL-9540 and would account for the results of UL-9540A. As discussed above in Chapter 2, the proposed Project has the potential to utilizing either lithium-ion batteries and/or flow batteries. Flow batteries are generally not flammable and do not require fire suppression

systems. In locations where equipment is located within buildings, automated fire sprinkler systems will be designed in accordance with California Fire Code Section 903. A fire loop system and fire hydrants will be located throughout the site for general fire suppression. Buildings and containers for both lithium-ion and flow batteries will be unoccupied enclosures. These buildings will also have automatic sprinkler systems designed in accordance with California Fire Code Section 903.

3.10.2 Environmental Impact Analysis

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Finding: Potentially Significant Impact

The proposed Project would routinely transport and use hazardous materials, including battery storage components and fuels such as gasoline would be necessary to support construction and operational activities. Disposal of battery components could contain potentially hazardous materials. Implementation of industry standards would serve to reduce the potential for a hazard resulting from the use of these materials. Therefore, a more detailed evaluation of the potential significant impacts associated with routine hazardous material transport, use, and disposal is required, and this potentially significant impact will be further analyzed in the EIR.

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Finding: Potentially Significant Impact

The proposed Project would result in the installation and operation of a battery storage facility. Should an upset or accidental condition occur, such as a thermal runaway event, hazardous materials from the battery storage facility could be potentially released into the environment. Therefore, a more detailed evaluation of the potential significant impacts associated with reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment is required, and this potentially significant impact will be further analyzed in the EIR.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Finding: No Impact

As discussed above in Chapter 2, the proposed Project site is located in a remote area of the County and is not located within one-quarter mile of an existing or proposed school. The nearest school to the proposed Project is the Westside Elementary School, which was closed in 2013, is located approximately 2.1 miles north of the Project site. While the school is currently closed, it could be reopened in the future. The nearest active school to the proposed Project is Seeley Elementary School, located approximately 4.6 miles north of the Project. A review was conducted of existing publicly available information from the County Office of

Education and the Seeley Union School District to determine if any proposed schools would be located within one-quarter mile of the proposed Project site. No proposed schools were identified. Therefore, the Project is not located within one-quarter mile of an existing or proposed school, and no impact would occur. No further analysis is required in the EIR.

d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Finding: No Impact

The proposed Project is not located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, as outlined on the Geotracker and Envirostor databases (DTSC 2020, SWRCB 2020). As a result, the proposed Project would not create a significant hazard to the public or environment, and no impact would occur. No further analysis is required in the EIR.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public or private airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

Finding: No Impact

The proposed Project site is not located within the bounds of any airport land use plans, as outlined in the County of Imperial Airport Land Use Compatibility Plan (Imperial 1996). Therefore, the proposed Project would not result in a safety hazard or excessive noise for people residing or working in the Project area, and no impact would occur. No further evaluation is required in the EIR.

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Finding: No Impact

The proposed Project would be required to comply with all applicable emergency response plans and emergency evacuation plans as a condition of proposed Project approvals, as discussed above in Table 2, and in accordance with state and local regulations (Health and Safety Code, §25500-25520 and Cal. Code Reg., tit. 19, § 2720 et seq.).

The proposed Project does not include construction of residences or facilities that would require significant evacuation. During Project operation, up to twenty employees would be present. This number of employees would be accommodated under existing emergency response plans and emergency evacuation plans. The proposed Project would not remove roadways or regional access points and would increase local access via the new bridge. As such, the proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Therefore, there would be no impact to adopted emergency plans, and no further evaluation is required in the EIR.

g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Finding: No Impact

Discussed in further detail below in Section 3.20, Wildfire, the proposed Project is not located in an area mapped as a Very High Fire Hazard Severity Zone (VHFHSZ), nor is it in an area where nearby wildlands are present. Therefore, there would no impact to people or structures, and no further evaluation is required in the EIR.

3.11 HYDROLOGY AND WATER QUALITY

HYDROLOGY AND WATER QUALITY Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
a) Violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☒	☐	☐	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i. Result in substantial erosion or siltation on- or off-site; ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or iv. Impede or redirect flood flows.	☒	☐	☐	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

3.11.1 Environmental Setting

The proposed Project site is located within the Salton Sea Transboundary Watershed within the Colorado River Basin Region (Biotech report citation). The site is bifurcated by the Westside Main Canal, a man-made, natural bottomed canal used by IID to convey water from the All-American Canal to the greater Imperial Valley area, primarily for irrigation and agricultural usages. The Westside Main Canal starts in the northern portion of the Project site and flows from east to west. In the nearby vicinity to the Project site, the Fern Check drop structure helps regulate water levels within the canal. Additionally, manufactured drainage ditches, both concrete lined and natural bottomed, occur along berms that define the boundaries of the abandoned agricultural fields which make up the Project site, but these ditches are non-functional. According to the Department of Water Resources (DWR 2020), the proposed Project overlies the Coyote Wells Valley groundwater basin.

Throughout the site, the elevation ranges from approximately sea level on the southwest portion to approximately 24 feet below sea level in the northeast corner. Delineated on Flood Insurance Rate Map

panel 06025C2050C, the proposed Project lies within the Federal Emergency Management Agency (FEMA) Special Flood Hazard Area Zone X. Areas mapped as Zone X are areas of moderate to minimal flood hazard, having an average annual average change of less than 0.2 percent.

Given the phased nature of the proposed Project, it is assumed that the total amount of impervious surfaces is potentially speculative. Therefore, for the purpose of this analysis, it is conservatively assumed that the entire Project site would be covered with impervious surfaces, with the exception of the proposed drainage basins. This additional potential impervious surface area represents approximately 154.84 acres.

3.11.2 Environmental Impact Analysis

d) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Finding: Potentially Significant Impact

The proposed Project would result in the installation of a battery energy storage facility including a loop-in substation, a solar PV facility, a new bridge across the Westside Canal, and other associated pieces of infrastructure such as new drainage basins. Construction of the Project would require 210 AF of water for dust suppression and other construction activities (such as concrete preparation). Water used for dust suppression would not contain contaminants. The accidental release or mobilization of contaminants during construction or operation of the proposed Project could potentially result in water quality degradation within the Coyote Wells Valley Groundwater Basin. Potentially hazardous materials may include diesel fuel, gasoline, lubricant oils, hydraulic fluid, antifreeze, transmission fluid, lubricant grease, and other fluids required for the operation of construction vehicles. Motorized equipment used at the proposed Project site during the construction or operation could leak potentially hazardous materials due to unnoticed or unrepaired damage, improper fueling, or operator error. This type of leak could occur either on the proposed Project site or on the vehicle and equipment routes between the off-site origin point and the proposed Project site. Any activities that require the use of motorized equipment may result in the accidental spill or release of potentially hazardous materials.

Direct contact with potentially hazardous materials could result from a leak or spill that occurs directly above or within the bed and banks of a flowing stream or waterbody. Additionally, the low risk of a thermal runaway event does present the potential for toxics to mobilize into the surrounding environment and throughout the regional water system via the Westside Canal. As a potentially significant impact could occur, this issue will be analyzed further in the EIR.

b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Finding: Less Than Significant Impact

As discussed above, the proposed Project would result in approximately 154.84 acres of new impervious surfaces. The water for Project construction and operation would be sourced via a new connection to the

Westside Main Canal, and a Will Serve letter from the local water purveyor (IID) was requested by the Applicant from the IID Water Manager, in February 2020. Water would not be sourced from the local groundwater basin.

The rate and amount of recharge and surface runoff is determined by multiple factors, including amount and intensity of precipitation, amount of other imported water that enters a watershed, and amount of precipitation and imported water that infiltrates to the groundwater. Infiltration is determined by several factors, including soil type, antecedent soil moisture, rainfall intensity, the number of impervious surfaces within a watershed, and topography. The rate of surface runoff is largely determined by topography and the intensity of rainfall over a given period of time. Changes in groundwater recharge alter the quantity of groundwater available to the environment, existing users, and other proposed projects. Projects that grade the land surface, remove vegetation, alter the conveyance and control of runoff, or cover the land with impervious surfaces alter the relationships between rainfall, runoff, infiltration and evapotranspiration. Total Project acreage is an indicator of the magnitude of the land surface disturbance and potential to alter runoff, infiltration and transpiration. The Coyote Wells Valley Groundwater Basin is approximately 64,000 acres in size (California's Groundwater Bulletin, 2004). Therefore, the proposed Project would conservatively represent an increase of approximately 0.2 percent, with the actual amount of impervious surfaces constructed anticipated to be less than the approximately 154.84 acres indicated above. Additionally, as described above in Chapter 2, the proposed Project would include the construction and operation of detention basins to preserve infiltration capacity for all stormwater and rainfall that were to enter the site.

Given the small percentage of the overall groundwater basin that would be rendered impervious by the proposed Project, the presence of the detention basis, and the lack of groundwater required for the proposed Project, a less than significant impact would occur. No further analysis of this issue is required in the EIR.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would;

i. Result in substantial erosion or siltation on- or off-site;

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

iv. Impede or redirect flood flows.

Finding: Potentially Significant Impact

As discussed above, due to the phased nature of the proposed Project, there is the potential that the entire Project site (with the exception of the infiltration basins) would be rendered impervious. Therefore, a potentially significant impact could occur, and this impact will be analyzed further in the EIR.

d) Would the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Finding: No Impact

The proposed Project is located within the Mt. Signal area of Imperial County, which is not located within a tsunami or seiche zone. People or structures would not be exposed to hazards associated with seiche, tsunami, or mudflow since no large bodies of water exist near the proposed Project site. The Pacific Ocean is approximately 83.1 miles from the proposed Project site and separated by the barrier of the Peninsular Mountain Ranges. No water bodies capable of producing a seiche are located near the proposed Project site. The nearest large water body is the Salton Sea, located approximately 25.1 miles north of the Project, and is not directly connected to the Westside Canal, the nearest hydrologic feature to the Project.

Discussed above, portions of the proposed Project site fall within FEMA Flood Hazard Zone X. These areas reflect hazard zones that have a minimal to moderate risk of a 0.2 percent annual chance (100-year) flood each year. This flooding hazard reflects a baseline condition that exists prior to the construction of the proposed Project, and construction of the proposed Project would not alter the existing flood hazard. Therefore, as the proposed Project is not located in a flood hazard, tsunami, or seiche zone, and no impact from inundation would occur. As such, no further analysis is required in the EIR.

e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Finding: No Impact

The proposed Project would be constructed and operated in accordance with all applicable regulations and plans, including regional water quality control plans and sustainable groundwater management plans. As such, the proposed Project would not conflict with or obstruct the implementation of these plans, and no impact would occur. A such, no further evaluation is required in the EIR.

3.12 LAND USE AND PLANNING

LAND USE AND PLANNING Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☒	☐	☐	☐

3.12.1 Environmental Setting

The proposed Project site and surrounding parcels to the north and east have a land use designation of Agricultural (A-3), according to the County General Plan land use designations. Areas to the west and southwest are lands designated as open space/recreation areas. Lands southwest of the proposed Project site are BLM lands and are not subjected to County zoning designations (Imperial 2020).

According to the Imperial County Municipal Code, Section 90509.01 Permitted Uses in the A-3 Zone, the proposed Project component conflicts with the allowable uses in the A-3 Zone. Therefore, the Project proposes a General Plan Amendment and Zone Change to change the land use designation and zoning for the Project site from Agriculture (A-3) to Medium Industrial (M-2), specifically limited to Energy Production/Use.

3.12.2 Environmental Impact Analysis

a) Would the project physically divide an established community?

Finding: No Impact

The proposed Project would not physically divide any established community. The Project site is located in a portion of the County with similar industrial solar generation projects. The rest of the area is predominately agricultural, with a scattering of residences. The Project does not vacate any roads used by residents to connect with an established community. Temporary construction activities would access the Project site from the south side of the Canal, off SR-98, and/or from the north side of the Canal, from I-8. Construction activities would occur Monday through Friday between the hours of 7:00 a.m. and 7:00 p.m. Temporary access would be used until the construction of the permanent bridge is completed. Upon Project completion, approximately 60 feet of frontage road along the north Project fence line, south of the IID maintenance road, and a Caltrans specified bridge over the Canal, will provide public access to and from the Project site. Therefore, no impact would occur, and no further analysis of this topic is required in the EIR.

b) Would the project cause a significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Finding: Potentially Significant Impact

The proposed Project site is currently zoned Agriculture (A-3), and the Project is proposing a General Plan Amendment and Zone Change to change the land use designation and zoning for the Project site to Medium Industrial (M-2), with the Industrial use zoning limited to Energy Production/Use. As such, the potential impact of this zone change will be analyzed further in the EIR.

3.13 MINERAL RESOURCES

MINERAL RESOURCES Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

3.13.1 Environmental Setting

According to the Imperial County General Plan Conservation & Open Space Element (Imperial 2016), there are a number of mineral extraction operations currently operating within the County, including extraction of precious minerals, such as gold, Construction and building materials such as clay, gravel, gypsum, lime, limestone, sand, stone, tuff, and other raw materials such as kyanite, manganese, micas, and potash. In Figure 8 of the Conservation and Open Space Element, existing mineral resources within the County are depicted, none of which are located in or near the proposed Project site. Additionally, mapping by the California Department of Conservation indicates that there are no mapped mineral resource zones (MRZ) in or near the proposed Project site (DOC 2015).

3.13.2 Environmental Impact Analysis

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

Finding: No Impact

As discussed above, the proposed Project would not be located on or near known mineral resources classified as MRZ-2 by the State Geologist. No MRZ's are located in or near the proposed Project site. Therefore, no impact would occur, and no further evaluation is required in the EIR.

b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

Finding: No Impact

As discussed above, the proposed Project would not be located in or near known mineral resources, or mineral resources delineated on a local general plan, specific plan, or other land use plan (including the County of Imperial General Plan). Therefore, no impact would occur, and no further evaluation is required in the EIR.

3.14 NOISE

NOISE Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels.	☐	☐	☒	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan, or where such a plan has not been adopted within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

3.14.1 Environmental Setting

As discussed above in Chapter 2, the proposed Project would include a General Plan Amendment and Zone change to change the land use designation and zoning for the Project site from Agriculture (A3) to Industrial. The construction of the access road and the bridge over the Westside Main Canal would last for eight to nine months. The Project would then grade/disturb the entire site and construction would last for approximately 32 months.

The County's General Plan Noise Element establishes construction time of day restrictions and noise level limits. Construction activities may only occur Monday through Friday between the hours of 7:00 a.m. and 7:00 p.m. or Saturday between the hours of 9:00 a.m. and 5:00 p.m., excluding holidays. Additionally, construction noise may not exceed 75 A-weighted decibel [dB(A)] 8-hour equivalent noise level [Leq (8h)] at the nearest sensitive receptor (Imperial 2015).

Imperial County Noise Abatement and Control. County Code of Ordinances Title 9, Division 7: Noise Abatement and Control, specifies noise level limits. Noise level limits are summarized in the table below. Noise level limits do not apply to construction equipment.

Table 5: Imperial County Property Line Noise Limits

Zone	Time	One-Hour Average Sound Level [dB(A) Leq]
Low Density Residential Zones	7:00 a.m. to 10:00 p.m.	50
	10:00 p.m. to 7:00 a.m.	45
Medium to High-Density Residential Zones	7:00 a.m. to 10:00 p.m.	55
	10:00 p.m. to 7:00 a.m.	50
Commercial Zones	7:00 a.m. to 10:00 p.m.	60
	10:00 p.m. to 7:00 a.m.	55
Manufacturing / Light Industrial / Industrial Park Zones including agriculture	(anytime)	70
General Industrial Zones	(anytime)	75

Source: Imperial County Board of Supervisors 2017

3.14.2 Environmental Impact Analysis

a) Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Finding: Less Than Significant Impact

Noise associated with construction and operation of the proposed Project would potentially result in short-term impacts to the surrounding properties; however, there are no nearby residences which would be affected by the noise associated with either the construction or operation of the proposed Project. As modeled in the Noise Technical Report, the maximum construction noise levels would be well below 75 dB(A) $L_{eq(8h)}$ at the nearest residential properties. As discussed above, the County General Plan Noise Element establishes the construction time of day restrictions and noise level limits. Construction activities would only occur between Monday through Friday, between the hours of 7:00 am and 7:00 pm, or Saturday between the hours of 9:00 am and 5:00 pm, excluding holidays. Therefore, construction of the Project would not result in a generation of a substantial temporary increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance.

Operational sources of noise associated with the Project would include air cooling units, inverters, transformers, the substation, and the transmission gen-tie in lines. The O&M Building and the battery storage modules would also include HVAC units. As modeled in the Noise Technical Report, the noise associated with the Project operation would attenuate to less than 60 dB(a) $L_{eq(8h)}$ within the Project boundary. Noise levels would not exceed the applicable property line noise level limit of 70 dB(A) at the nearby adjacent properties. Therefore, the Project would not result in a generation of substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards, and impacts would be less than significant. No further evaluation is required in the EIR.

b) Would the project exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?

Finding: Less Than Significant Impact

The nearest sensitive receptor to the proposed Project is a residence located approximately 0.85 mile from the Project's property line. The table below summarizes the general estimation of ground vibration from typical construction equipment at several distance,s based on methods specified in the Federal Transit Administration's Transit Noise and Vibration Impact Assessment (FTA 2006).

Table 6: Vibration from Construction Equipment

Equipment	PPV at 25 Feet	PPV at 50 Feet	PPV at 75 Feet	PPV at 100 Feet	PPV at 175 Feet
Pile driver (sonic/vibratory)	0.734	0.2595	0.1413	0.0918	0.0396
Large bulldozer	0.089	0.0315	0.0171	0.0111	0.0048
Loaded trucks	0.076	0.0269	0.0146	0.0095	0.0041
Jackhammer	0.035	0.0124	0.0067	0.0044	0.0019
Small bulldozer	0.003	0.0011	0.0006	0.0004	0.0002

Note:
PPV = peak particle velocity
Source: FTA 2006

The main vibratory sources from the proposed Project would be generated during construction activities and would be temporary and of short duration. The County of Imperial General Plan or Noise Ordinance do not contain any specific performance standards for vibration. Therefore, a vibration analysis exceeding 0.1 PPV would be considered the threshold of concern. At this level, the vibration would be somewhere between barely perceptible and distinctly perceptible by humans, with a doubling of vibration level still required to potentially generate damage to structures. As demonstrated above, typical construction equipment would not exceed 0.1 PPV outside of the Project site, and the nearest residence to the Project is approximately 4,448 feet from the Project. Therefore, vibration generated by the proposed Project would not be excessive, and impacts would be less than significant. No further evaluation is required in the EIR.

c) For a project located within the vicinity of a private airstrip or an airport land use plan, or where such a plan has not been adopted within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Finding: No Impact

As discussed above in Section 3.10, the proposed Project site is not located within the bounds of any airport land use plans, as outlined in the County of Imperial Airport Land Use Compatibility Plan (Imperial, 1996). Therefore, the proposed Project would not result in a safety hazard or excessive noise for people residing or working in the Project area, and no impact would occur. No further evaluation is required in the EIR.

3.15 POPULATION AND HOUSING

POPULATION AND HOUSING Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

3.15.1 Environmental Setting

As discussed above in Section 2 (Project Description), the proposed Project is located within the unincorporated Mount Signal area of the County of Imperial, approximately 8 miles southwest of the City of El Centro, and approximately 5.3 miles north of the U.S. – Mexico Border.

Within the unincorporated areas of Imperial County, there are 10 townsites which serve as population centers and where future population growth is being directed. These are Bombay Beach, Desert Shores, Heber, Niland, Ocotillo/Nomirage, Palo Verde, Salton City/Vista Del Mar, Salton Sea Beach, Seeley, and Winterhaven. Mount Signal is not a designated townsite. The closest townsite to the Project is Seeley, located approximately 4.56 miles to the north, followed by Heber, approximately 10.8 miles to the east.

According to the County of Imperial Housing Element (Imperial 2013), the total population of the County was 174,528 in 2010. Table 7, Imperial County Population Trends, illustrates the populations trends in the vicinity of the Project. As discussed above in Section 2, the Project would require approximately 200 workers during peak construction, and 20 employees during operation.

Table 7: Imperial County Population Trends

Area	2000	2010	Change	
			Number	Percentage
Bombay Beach	395	295	-100	-25%
Desert Shores	805	1,104	299	37%
Heber	3,007	4,275	1,268	42%
Niland	1,205	1,006	-199	-17%
Ocotillo	312	266	-46	-15%
Palo Verde	279	171	-108	-39%
Salton City	944	3,762	2,819	299%
Salton Sea Beach	440	422	-18	-4%
Seeley	1,576	1,739	163	10%
Winterhaven	522	394	-128	-25%
Total Townsites	**9,485**	**13,435**	**3,950**	**42%**
Remaining Unincorporated	23,380	24,343	963	4%
Total Unincorporated County	**32,865**	**37,778**	**4,913**	**15%**
Total County	**142,361**	**174,528**	**32,167**	**23%**

*The remaining area of the County not covered by the designated townsites or incorporated cities.
Source: (Imperial 2013)

Additionally, the Imperial County General Plan contains information on the housing supply within the County. According to the 2010 US Census, there was a vacancy rate of approximately 27 percent within the unincorporated County and a 12 percent vacancy rate in the county as a whole, potentially indicating that demand is lower than supply (Imperial 2013). Approximately half of the vacancies within the unincorporated County are available for seasonal or recreational use (Imperial 2013). Table 8, Housing Tenure and Vacancy, below, outlines the tenure and vacancy rates for housing within the County.

Table 8: Housing Tenure and Vacancy

Tenure and Vacancy Status	Unincorporated County		Total County	
	Number	Percentage	Number	Percentage
Occupied	10,436	73%	49,126	88%
Owner-Occupied	6,708	64%	27,465	56%
Renter-Occupied	3,728	36%	21,661	44%
Vacant	3,899	27%	6,941	12%
For Rent	356	9%	1,762	19%
For Sale	275	7%	1,019	12%
Rented or sold, not occupied	137	4%	381	7%
Seasonal or Recreational Use	1,805	46%	2,046	32%
Migrant worker housing	14	<1%	14	<1%
Other	1,312	34%	1,719	30%
Total housing Units	**14,335**	**100%**	**56,067**	**100%**

According to the County of Imperial General Plan Housing Element (Imperial 2013), the County had a quantified objective of 1,455 new units, and a Regional Housing needs Allocation of 13,427 for the planning period. However, the County was able to issue permits for 337 new homes between 2008 and 2012. This reflects an excess capacity for planned population growth in the Project area that was not utilized.

3.15.2 Environmental Impact Analysis

a) Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Finding: Less Than Significant Impact

As discussed above, the proposed Project would require up to 200 employees during peak construction activities and would employ approximately 20 staff during operations and maintenance activities. Construction activities are expected to take approximately 10 years to complete. Therefore, it is assumed that the construction workers would be likely to settle or relocate near the proposed Project site.

According to the United States Census, (Census, 2018b) Seeley (the closest townsite to the proposed Project) has approximately 595 total housing units, with 139 vacant housing units, a 23.4% vacancy rate. The same survey (Census, 2018a) determined that Heber, the second closest townsite, has approximately 1,317 total housing units, with 188 vacant housing units, a 14.3% vacancy rate. Additionally, as shown above, the greater unincorporated County of Imperial has approximately 3,899 vacant housing units, a 27% vacancy rate.

Therefore, there are approximately 327 vacant housing units in the nearby vicinity of the proposed Project, and approximately ten times that available in the unincorporated County. Additionally, it is assumed that some portion of the Project's construction workforce would be existing nearby residents to the proposed Project, further reducing the Projects potential effect on local population growth. If the entire construction workforce was drawn from outside the area or the County, it could be easily accommodated with the existing vacant housing unit supply and would not require the construction of new housing units to accommodate the Project. Additionally, the Project area has an excess of planned housing and population growth in the area, with a goal of 1,455 new units during the most recent General Plan cycle, and only 335 new units constructed. Even if new housing was constructed for Project staff, it would not exceed the regional planned limits.

The Project would install new roads and improve existing infrastructure to improve access to the Site. However, access would be only to the site, and would not include access improvements to the surrounding area which would stimulate population growth. Therefore, the Project would have a less than significant impact on local population growth, and no further analysis of this topic is required in the EIR.

b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

Finding: No Impact

The proposed Project site contains no housing units of any kind. No portion of the proposed Project would remove any available housing units or displace any numbers of existing people or housing. Therefore, no construction of replacement housing elsewhere would be required, and no impact would occur. No further analysis is required in the EIR.

3.16 PUBLIC SERVICES

PUBLIC SERVICES Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
i) Fire protection?	☐	☐	☒	☐
ii) Police protection?	☐	☐	☒	☐
iii) Schools?	☐	☐	☒	☐
iv) Parks?	☐	☐	☒	☐
v) Other Public Facilities?	☐	☐	☒	☐

3.16.1 Environmental Setting

Fire Protection

Imperial County Fire Department and Office of Emergency Services (ICFD/OES) provides fire protection service to the Project site. There are eight stations in the County manned with firefighters located in the communities of Heber, Seeley, Ocotillo, Palo Verde, Niland, Winterhaven, and the Cities of El Centro and Imperial. The closest fire station to the Project site is Station 2, located at 1078 Dogwood Road, in Heber, which is approximately 12 miles east of the Project site.

The proposed Project is located within the Federal Responsibility Area (FRA) according to the Department of Forest and Fire Protection (CALFIRE) State Responsibility Area (SRA) Map (CalFire 2007). Fire protection, medical emergency services, technical rescue, hazardous material incident responses, and aircraft rescue firefighting services are provided by the Imperial County Fire Department/Office of Emergency Services (ICFD/OES) to the unincorporated areas and townships of the County (ICFD/OES 2020).

Police Protection

The Imperial County Sheriff's Office (ICSO) provides police services to the unincorporated areas of the County (ICSO 2020a). ICSO patrol is divided between the North County, South County, and Palo Verde Patrols (ICSO 2020b). South County division patrols the area of the proposed Project site, operating out of Sheriff's Office at 328 Applestill Road, in El Centro, approximately 12 miles east of the Project site.

Schools

The Imperial County Office of Education (ICOE) provides all educational services to the County. The County has twenty-one different school districts. The nearest school to the proposed Project is Seeley Elementary School, located approximately 4.7 miles to the northeast.

Parks

The proposed Project would utilize a small portion of BLM land approximately 0.35 mile to the southwest of the Project site (Imperial 2020). This land is not a part of the Jacumba Wilderness area and is designated as a recreational use (BLM 2020), which is located over 25 miles west of the Project site. The nearest recreational use area for public use is the Rio Bend RV and Golf Resort, which is located approximately 2.95 miles to the northwest of the proposed Project.

Other Public Facilities – Libraries

The proposed Project could utilize library resources in the local community. The closest library to the Project site is the Imperial County Free Library, located at 1132 Heber Avenue, in Heber, which is over 12 miles east of the Project site.

3.16.2 Environmental Impact Analysis

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

i. Fire Protection?

Finding: Less than Significant Impact

Fire protection service to the Project site is provided by Imperial County Fire Department, and the closest station is Station 2, located in Heber, approximately 12 miles east of the Project site. The station is staffed with a Captain, Firefighter and Reserve Firefighter and also has office space for the Office of Emergency Services and for other shared County services, including the Sheriff and the Emergency Operations Center (ICFD/OES 2012). Every station as a Type I fire engine as its primary apparatus, but the Station 2 is also equipped with a ladder truck, a Type III engine and has a Hazardous Materials unit. For unincorporated County areas, including rural zones, emergency response times averaged 17 minutes (ICFD/OES 2012). The County forecasts for increased demand in fire and emergency medical services is commensurate with population and business growth trends, and the anticipated increase in demand is considered modest through 2035 (ICFD/OES 2012).

Increased demand in fire protection and emergency services are usually tied to an increase in residential population. As there are no residential uses proposed as part of the Project, fire and emergency service demand is anticipated to be relatively modest. During Project construction, a maximum of 200 employees

may be working on the Project site at one time, with the need for approximately 20 employees anticipated on-site during Project operation and maintenance after Project buildout. This relatively small number of permanent employees would not result in a significant increase in the need for fire protection and emergency services, based on County forecasts. The proposed Project would include a fire protection system for all battery systems on site. The fire protection system will be design in accordance with California Fire Code 2016 and will take into consideration the recommendations of NFPA 855. Fire prevention methods would also be used to reduce potential risks, including voltage, current, and temperature alarms. In areas where equipment is located within buildings, automated fire sprinklers systems would be installed in accordance with California Fire Code. On the Project site, a fire loop system and fire hydrants will be accessible for general fire suppression. The unoccupied enclosures to contain both lithium-ion and flow batteries will have automated sprinkler systems design to California Fire Code Section 903 standards.

Separate methods of failure detection will be implemented such as alarms from the Battery Management System (BMS) including voltage, current, and temperature. Other preventative methods for fire protection include off gas detection, ventilation, overcurrent protection, battery controls with designated parameters, smoke detection, and maintenance in accordance with manufacturer guidelines. Remote alarms will be installed for operations personnel as well as emergency response teams. An Incidence Response Plan will be implemented in accordance with the technology (Lithium-ion or flow battery) installed during each phase. An additional fire protection and prevention plan proposed for the Project is the purchase or proportionate share to purchase a Type 1 Fire Engine meeting all NFPA standards for structural firefighting for the Imperial County Fire Department. Should an accident or fire occur requiring fire protection services beyond the proposed fire protection and prevention methods, the County Fire Department would be able to provide emergency services. Furthermore, the County requires the payment of impact fees for all new development projects, and Fire Impact Fees would be imposed pursuant to County Ordinance 1418, Section 2 (2006). Fees for non-residential uses would be assessed based on the project size and demand for services. With the payment of required fees and incorporation of on-site fire protection measures, the proposed Project would not substantially increase the need for fire protection, and this impact would be less than significant impact. No further analysis of this topic is required in the EIR.

ii. Police Services?

Finding: Less than Significant

The proposed Project does not include a residential element. Therefore, it would not result in a substantial addition of population to the ICSO area and would not require new or altered police facilities. Based on the large size of the patrol area, emergency response times can vary in the County, with rural locations taking a longer time to access. Nevertheless, there would be a modest increase in demand for police services over existing conditions. The proposed Project would employ the following staff: one plant manager, one O&M manager, a facility manager, and staff technicians with at least one additional technician for every 250 MW generation. In total, approximately 20 employees would be required to operate the proposed Project. An eight-foot barbed wired-topped fence would be installed on the outside perimeter of the proposed Project site. The substations proposed on the Project site would also have fences surrounding the perimeters. At the front gate, a camera-equipped call button would be monitored from the Project O&M building. At various points throughout the site, security cameras would be installed to monitor all areas of

the Project site. During the construction of each phase, an on-site security guard would be present between dusk and dawn and during the hours of non-active construction.

New development projects in the County would be required to pay an impact fee, which is imposed to County Ordinance 1418 Section 2 (2006). Similar to fire protection services, development fees for non-residential uses would be assessed based on the project size and demand for services. With the payment of fees and on-site security features, the proposed Project would not cause a substantial increase in the demand for police protection services. Therefore, impacts would be less than significant, and no further analysis of this topic is required in the EIR.

iii. Schools?

Finding: Less Than Significant Impact

The proposed Project is limited to a utility-scale battery energy storage complex that does not include a population element that would increase the demand for school facilities. Permanent employees (approximately 20) at the Project site would most likely come from the surrounding communities with children already attending neighborhood schools. Furthermore, 20 employees would not generate a significant amount of school aged children. The proposed Project would not result in a significant enrollment demand to surrounding schools. Therefore, the proposed Project would have a less than significant impact to schools, and no further analysis of this topic is required in the EIR.

iv. Parks?

Finding: Less Than Significant Impact

The proposed Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, such as parks. There would be no increase in residential population size; however, Project employees and visitors may elect to use recreational facilities and outdoor areas on the Project vicinity. Considering the relatively small number of employees that would be employed by the Project, the increase in demand for parks as a result of the proposed Project would be minimal. Therefore, impacts to parks would be less than significant, and no further analysis of this topic is required in the EIR.

v. Other Public Facilities – Libraries?

Finding: Less Than Significant Impact

The proposed Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, such as libraries. An increase in demand for library use is mostly associated with an increase in residential population, and the Project does not include any residential uses. Project employees and visitors may elect to visit a public library, and they go to the County Free Library in Heber without significantly impacting its ability to serve the community. Therefore, impacts to libraries would be less than significant, and no further analysis of this topic is required in the EIR.

3.17 RECREATION

RECREATION Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

3.17.1 Environmental Setting

The multitude of geographical features and characteristics of the Imperial County allows for an abundancy of a variety of recreational opportunities. Parks within the unincorporated of the County, such as Mount Signal, are classified by the following park types: Limited Facility Park, Neighborhood Park, Community Park, Regional Park, and State and Federal Parks.

Limited Facility Parks have minimal amenities. These parks serve one primary function with some possible accessory uses. This type of park may be of any size and is usually located in the open desert areas of the County. Including marinas, boat launching areas, and trailheads, the County has three Limited Facility Parks. These parks are the Palo Verde Park, Osborne Park, and Niland Marina (Imperial 2008b). Neighborhood Parks are usually small and located with within the boundaries of an unincorporated community. Usually within walking distance, Neighborhood Parks are within residential district and easily accessible by pedestrians (Imperial 2008b). Also referred to as Pocket Parks, Neighborhood Parks typically consist of playground or other active uses, landscaped areas for passive uses, and areas for leisure use such as walking and sitting. Within the unincorporated areas of the County, two privately maintained, Neighborhood Parks are located in Heber and one located in Salton City, Martin Flora Park (Imperial 2008b). Community Parks are larger than Neighborhood Parks and are shared by the entire community. Distinguished by its major active recreational use, Community Parks often have a variety of athletic fields or courts. Numerous on-site facilities are present including, but not limited to; on-site parking facilities, large picnic areas, baseball fields, and basketball courts (Imperial 2008b). Community Parks are accessible by pedestrians or by vehicles. The County has four Community Parks: one in Ocotillo, one in Heber, Salton City Park, and Desert Shores Park (Imperial 2008b).

Regional Parks are found outside or inside a community. Access is typically provided by a main road and is shared by the entire population of the County. Like Community Parks, Regional Parks include sports fields and leisure areas, however they are distinguished by the presence of a water feature such as a lake or pond. Regional Parks are typically accessed by vehicle, but pedestrian access is available as well. The County has five Regional Parks: Sunbeam Lake, Wiest Lake, Heber Dunes, Red Hill Marina, and Pioneer's County Park (Imperial 2008b).

The final park types as set forth in the Parks and Recreation Element of the County's General Plan is state and federal Parks. These parks are maintained by the state or federal government. Typically, on large pieces of land (>100 acres), these parks have designated wildlife preserves and areas for human use (Imperial 2008b). State and federal parks welcome visitors inside and outside the County. Designated humans use of state and federal parks include hiking trails, camping areas, and off highway vehicle (OHV) areas. Access to these areas is typically provided by vehicle. The following is a list of state and federal parks in the County:

- Salton Sea State Recreation Area, located on the northeastern shore of the Salton Sea off SR-111,
- Pichaco State Recreation Area, located along the Colorado River north of Winterhaven,
- Anza Borrego Desert State Park and Ocotillo State Vehicular Recreation Area, adjoining parks located in the western open desert area of the County,
- Imperial Sand Dunes Recreation and Wilderness Area, located in about 40 miles of the open desert in the eastern portion of the County

The proposed Project would utilize a small portion of BLM land approximately 0.35 mile to the southwest of the Project site. This land is not a part of the Jacumba Wilderness area and is designated as recreational use (BLM 2020). The nearest recreational area for public use is the Rio Bend RV and Golf Resort, which is located approximately 2.95 miles to the northwest of the proposed Project.

3.17.2 Environmental Impact Analysis

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Finding: Less than Significant Impact

The proposed Project would utilize a population of approximately 270 construction personnel to complete the required tasks. The proposed Project is limited to a battery energy storage facility and does not include a component that would result in population growth of increased demand for recreational facilities. The proposed Project is not anticipated to increase the use of existing neighborhood, community, regional, state or federal parks and facilities nor would substantial deterioration of the parks or facilities be accelerated. Therefore, a less than significant impact would occur, and no further analysis of this topic is required in the EIR.

b) Would the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Finding: No Impact

The proposed Project is limited to a battery energy storage facility and does not include recreational facilities or require the construction or expansion of recreational facilities. Therefore, no impacts would occur, and no further analysis of this topic is required in the EIR.

3.18 TRANSPORTATION

TRANSPORTATION Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
a) Conflict with a program plan, ordinance, or policy addressing the circulation systems, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b) Conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersection(s) or incompatible uses (e.g. farm equipment))?	☐	☐	☐	☒
d) Result in inadequate emergency access?	☐	☐	☒	☐

3.18.1 Environmental Setting

The network of highways and transportation circulation is planned to accommodate a pattern of concentrated and coordinated growth, providing both regional and local interconnection systems between communities and their neighboring areas. The County has established the following policies to aid guidance for future county plans:

- Coordinate the transportation and circulation with planned land uses;
- Promote the safe and efficient transport of goods and the safe and effective movement of all segments of the population;
- Make efficient use of existing transportation, transmission, and other infrastructure facilities, and
- Protect environmental quality and promote the wise and equitable use of economic and natural resources (Imperial 2008a).

The Imperial County Roadway Classification system classifies roadways using a functional classification process which entails the grouping of roads and highways into classes or systems according to the type of service they are intended to provide. Having a road classification system is necessary in order to determine how different travel can be channelized within the County in an organized system (Imperial 2008a). The different, classified roadway systems in the County include Expressway, Prime Arterial, Minor Arterial, Major Collector, Minor/Local Collector, Residential Street, Major Industrial Collector, and Industrial Local Street. Table 9 describes the Level of Service (LOS) for the previously mentioned roadway classifications.

Table 9: Imperial County Standard Street Classification Average Daily Vehicle Trips

Road	Level of Service (LOS)				
Class	**A**	**B**	**C**	**D**	**E**
Expressway	30,000	42,000	60,000	70,000	80,000
Prime Arterial	22,200	37,000	44,600	50,000	57,000
Minor Arterial	14,800	24,700	29,600	33,400	37,000
Major Collector	13,700	22,800	27,400	30,800	34,200
Minor Collector	1,900	4,100	7,100	10,900	16,200
Local County	*	*	<1,500	*	*
Major Industrial	5,000	10,000	14,000	17,000	20,000
Industrial Local	2,500	5,000	7,000	8,500	10,000

Source: Imperial 2008a

* Levels of Service are not applied to the residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of Service normally apply to roads carrying through traffic between major trip generators and attractors.

Materials and construction personnel will utilize various routes of transportation to and from the Project site. As described in Section 2.0, Project Description, to access the southern portion of the Project site, travel would have to occur along SR-98, and then proceeding 5.2 miles north to the Project site. To access the northern portion of the Project site, travel would occur along I-8 and the proceeding 4.6 miles to the south. SR-98 is classified as an expressway while Drew Road is classified as Minor Collector roadway and Wixom Road is unclassified (Imperial 2008a).

As a part of the pre-application material prepared by the Applicant, a Transportation Impact Analysis (TIA) was prepared for the proposed Project by Linscott, Law & Greenspan, Engineers on July 22, 2019. THe TIA was conducted in accordance of Objective 1.2 of the Circulation and Scenic Highway Element of the County's General Plan (Imperial 2008a). This analysis used a LOS range from A to F, with LOS A representing the best and LOS F representing the worst operating conditions, to denote the different operating conditions which occur on the given roadway segments under various traffic volume loads. In March 2019, traffic counts were conducted during peak hours of 7:00 AM to 9:00 AM and 4:00PM to 6:00 PM.

The proposed Project would generate traffic during the initial construction period and during the utility-scale energy storage facility. During the initial construction period which would consist of the of the construction of the access road and the bridge across the Westside Main Canal, a total of approximately 8 workers per day would require travel to the Project site. During the secondary construction phase, it is approximated a maximum of 200 workers and 30 trucks per day will require travel to the Project site. With the addition of

Project-related travel, the average daily trips (ADT) for Drew Road increase from existing operations at LOS A and 541 ADT, to LOS B and 1,113 ADT. For Wixom Road, existing operations increase from LOS A and 89 ADT, to LOS A and 643 ADT. The TIA concluded, based on the significance criteria of the County and Caltrans, that both roadway segments are calculated to operate as LOS B or better (Linscott et. al 2019).

3.18.2 Environmental Impact Analysis

a) Would the project conflict with a program plan, ordinance, or policy addressing the circulation systems, including transit, roadway, bicycle and pedestrian facilities?

Finding: Less than Significant

As described above, a TIA was prepared in accordance with Objective 1.2 of the County's Circulation and Scenic Highways Element of the General Plan. Traffic in the areas of Wixom Road and Drew Road are expected to increase by with the addition of construction-related traffic during the proposed Project time frame. Although an increase is expected, the increase in Project-related traffic is still considered lower than the County's thresholds of significance as operating at LOS B or better. Therefore, a less than significant impact would occur, and no further analysis of this topic is required in the EIR.

b) Would the project conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

Finding: Less Than Significant Impact

During the construction phase, at peak construction (battery installation and connection phase), the proposed Project is anticipated to generate a total of 30 trip ends per day. It is estimated that the impacts of this operational traffic would be very small (up to 20 employees). The Project is not expected to create significant impacts at study intersections or study segments. All study intersections and segments were found to operate at LOS B or better for all the traffic scenarios analyzed. Therefore, impacts would be less than significant, and no further analysis of this topic is required in the EIR.

c) Would the project substantially increase hazards to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Finding: No Impact

Based on the proposed Project's location in a rural portion of the County with low traffic volumes, the Project would not increase hazards due to a geometric design or an incompatible use with surrounding agricultural land. Therefore, no impact would occur in association with hazards due to a design feature or incompatible uses, and no further analysis of this topic is required in the EIR.

d) Would the project result in inadequate emergency access?

Finding: Less than Significant Impact

The proposed Project is the construction of a utility-scale battery storage facility. Prior to Project operation, vehicular access would need to be established. A proposed bridge over the Westside Main Canal would provide access to the Project site from the north. Access roads are to be paved on the north and south sides of the Canal providing access. Approximately 60 feet of frontage road on the north Project fence and south of the IID maintenance road would be used for public access to the site. However, until the bridge construction is complete, temporary access is proposed from south of the Project site at SR-98 to Drew Road, or from north of the Project site at I-8 to Wixom Road. Temporary and permanent access ensures that adequate access will consistently be provided during construction and operation of the proposed Project. Therefore, impacts are considered less than significant, and no further analysis of this topic is required in the EIR.

3.19 TRIBAL CULTURAL RESOURCES

TRIBAL CULTURAL RESOURCES Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
a) Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☒	☐	☐	☐
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	☒	☐	☐	☐

3.19.1 Environmental Setting

The County will use the CEQA process to conserve tribal cultural resources and conform to Senate Bill 18 "Consultation with Tribal Governments" and Assembly Bill (AB) 52 "Consultation with Tribal Governments." Public awareness of cultural heritage will be stressed. All information and artifacts recovered in this process will be stored in an appropriate institution and made available for public exhibit and scientific review.

3.19.2 Environmental Impact Analysis

a) Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i. Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

Finding: Potentially Significant Impact

The County, as the CEQA Lead Agency, will consult with appropriate tribes with the potential for interest in the region. Based on this consultation, it will be identified if the proposed Project site is located in an area having the potential for tribal cultural resources. Senate Bill 18 states: "*Prior to the adoption or any amendment of a general plan or specific plan, a local government must notify the appropriate tribes (on the contact list maintained by the NAHC) of the opportunity to conduct consultations for the purpose of preserving, or mitigating impacts to, cultural places located on land within the local government's jurisdiction that is affected by the proposed plan adoption or amendment. Tribes have 90 days from the date on which they receive notification to request consultation, unless a shorter timeframe has been agreed to by the tribe*."

The County will conduct outreach to Native American Tribes and receive requests for consultation through its AB 52 and SB 19 Native American outreach efforts. Therefore, until this process is initiated, the proposed Project may have potentially significant impacts. The results of the consultation effort will be described in the EIR. As a result, this environmental resource area will be further analyzed in the EIR.

3.20 UTILITIES AND SERVICE SYSTEMS

UTILITIES AND SERVICE SYSTEMS Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☒	☐	☐	☐
b) Have sufficient water supply available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☒	☐	☐	☐
c) Result in a determination by the wastewater treatment provider which serves tor may serve the project that is has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

3.20.1 Environmental Setting

3.20.1.1 Wastewater

Wastewater service to the proposed Project is currently not available. Capacity for the Project would be provided via a new septic leach field located near the O&M building.

3.20.1.2 Electric Power

IID is also the electric power service provider to the proposed Project. As discussed above in Section 2.5, the Project would interconnect with the IID Campo Verde 230 kV transmission line via a new collector substation to be installed as part of the Project. The Project's effects on energy resources is discussed further in Section 3.7, Energy. If energy services to the Project were disrupted, backup power facilities (on-site solar and backup diesel generation) would be used to maintain the battery's safe operating temperatures.

3.20.1.3 Solid Waste

Solid waste disposal service to the proposed Project is provided by the Imperial County Department of Public Works (ICDPW). ICDPW operates nine separate landfills located throughout the County, as listed in

Table 10, Solid Waste Service. The closest landfill to the proposed Project site is Imperial Landfill, which is expected to service the proposed Project.

Table 10: Solid Waste Service

Landfill	Address	Distance	Units	Remaining Capacity	Remaining Capacity Date	Maximum Capacity
Imperial	1705 W Worthington Rd Imperial CA, 92251	8.04 miles	1	180,000 Cubic Yards	10/1/2012	1,936,000 cubic yards
Calexico	133 W Hwy 98 Calexico, CA 92231	10.6 miles	1	180,000 Cubic Yards	10/1/2012	1,936,000 cubic yards
Ocotillo*	1802 Shell Canyon Rd Ocotillo, CA 92259	16.75 miles	1	Closed	01/31/2004	--
Holtville*	2678 Whitlock Road Holtville, CA 92250	28.41 miles	1	Closed	04/01/2007	--
Niland	8450 Cuff Road Niland, CA 92257	37.74 miles	1	296,702 Cubic Yards	9/18/2017	318,637
Hot Spa	10466 Spa Road Niland, CA 92257	46.02 miles	1	55,767 Cubic Yards	2/11/2016	233,150
Salton City	935 W Highway 86 Salton City, CA 92275	51.94 miles	1	1,264,170 Cubic Yards	9/30/2018	65,100,000 Cubic Yards
Picacho*	1409 Picacho Road Bard, CA 92222	64.14 miles	1	Closed	11/30/2011	--
Palo Verde*	589 Stallard Road Palo Verde CA, 92266	72.02 miles	1	Closed	10/1/2006	--

*Closed and no longer receiving waste

Source: ICDPW 2020

3.20.1.4 Water

Potable water service to the Project site would be provided by the IID. IID manages over 3,000 miles of canals and drains, serving over one million acres within the County. IID services as a raw water wholesaler, selling untreated Colorado River Water to seven cities and two special districts, who then threat it and

distribute it to their users. As the IID water is untreated, the Project would include the installation and operation of an on-site water treatment plant to ensure that water was of sufficient quality for operations and personnel safety.

Water service to the proposed Project site would be provided via a new connection to the Canal. The Applicant requested a formal Will Serve letter from the IID Water Manager, in February 2020. The Applicant has requested a Water Supply Assessment, pursuant to SB 610, to identify the water supply and water quality needs for the proposed Project.

3.20.1.5 Stormwater Drainage

As discussed above in Chapter 2, the proposed Project would include the installation of stormwater retention basins at strategic locations throughout the site. The retention basins would be sized in accordance with the County's Design Guidelines. This requires the basins to be able to retain at least 3 inches of rainfall across the entire Project site. The current basin design has a maximum depth of 5 feet with 4:1 side slopes and provides a retention volume of approximately 40.8 AF. The basins will be excavated out of and constructed using native soil. Retention basins may be added with each phase, such that the site might have different drainage areas contributing to each basin.

3.20.1.6 Natural Gas Facilities

Southern California Gas Company (SoCalGas) provides natural gas service to the County. There is no natural gas connection to the site, and none would be required for the Project. The proposed Project would not utilize any natural gas, and as a result, no new or expanded natural as facilities or infrastructure are needed to serve the Project.

3.20.1.7 Telecommunications Facilities

The proposed Project would install fiber optic telecommunications cables to connect the proposed substation to the IV Substation, utilizing existing transmission lines. The length of this proposed fiber optic telecommunications cable route is approximately one-third of a mile.

3.20.2 Environmental Impact Analysis

a) Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage, electrical power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Finding: Potentially Significant

The proposed Project would require and result in the relocation and construction of new and expanded water, wastewater, stormwater drainage, telecommunications, and electrical power facilities. The Project would not require the use of natural gas. The construction of these facilities has the potential to cause significant environmental effects; therefore, these impacts will be analyzed further in the EIR

b) Would the project have sufficient water supply available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Finding: Potentially Significant Impact

During construction, the Project proposes at least two temporary connections to the Canal for construction. Permanent water to serve the Project's water/fire suppression will come from the Canal. Following construction, service water will be supplied either by an on-site water treatment system drawing water from the Westside Main Canal or from deliveries from water suppliers. This service water is to be used for operations using on-site aboveground storage. The proposed Project has the potential to not have a sufficient water supply; therefore, these impacts will be analyzed further in the EIR.

c) Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that is has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Finding: No Impact

Wastewater generated during construction would be limited to that generated by construction personnel and would be accommodated by temporary portable toilets brought to staging areas for construction crews. These portable toilets would be maintained by a licensed sanitation contractor. The licensed contractor would dispose of the waste at an off-site location and in compliance with standards established by the Regional Water Quality Control Board. The wastewater disposal would utilize existing disposal facilities and infrastructure with available processing capacity.

Long-term O&M would not generate substantial amounts of wastewater. As discussed above in Chapter 2, the proposed Project does not have or require a connection to a wastewater treatment provider. The Project would install a septic leach field located near the O&M building and would seek the appropriate ministerial permits from the Countyl for its construction. Therefore, the Project would not generate wastewater that could otherwise occupy capacity in addition to the providers existing commitments, and the Project's projected demand would be met via project design features. Therefore, no impact would occur, and no further analysis of this topic is required in the EIR.

d) Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Finding: Less Than Significant Impact

Construction of the proposed Project would result in the temporary generation of various waste materials, including wood, metal, soil, and vegetation. Sanitation waste (i.e., human-generated waste) would be disposed of in accordance with sanitation waste management practices. Any soil excavated could be distributed at construction areas, used to backfill excavations, or used for access roads near or within the rights-of-way for the gen-tie and communication lines. Any excess soil would be disposed of off-site at an appropriately licensed facility, such as the Imperial Landfill. Although waste from construction activities

would be sent to one or more landfills in the area, the amount is not anticipated to be enough to affect the permitted capacity of a landfill. The Imperial Landfill would be the closest disposal facility to the site, and currently, the remaining capacity of the landfill is approximately 91 percent (CalRecycle 2020d).

O&M activities would consist of routine maintenance and emergency work at the Project site. These activities would not generate solid waste in an amount that would significantly affect the permitted capacity of landfills in the area. Since local landfills are capable of serving Project construction, they would be able to accommodate the Project's solid waste disposal needs during operation. It is anticipated that during decommissioning, the proposed Project would either be recycled or be served by a landfill with sufficient permitted capacity to accommodate the proposed Project's solid waste disposal needs. Therefore, impacts would be less than significant, and no further analysis of this topic is required in the EIR.

e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Finding: Less Than Significant Impact

The Integrated Waste Management Act of 1989 (AB 939) requires all local and county governments to adopt a Source Reduction and Recycling Element to identify means of reducing the amount of solid waste sent to landfills. The County of Imperial has established recycling and resource recovery programs in accordance with the requirements of AB 939. During construction, soil from drilling or excavation would be screened and separated for use as backfill to the maximum extent possible. Other waste, such as packing crates, spare bolts, and other construction debris, would be hauled off-site for recycling when possible.

O&M activities associated with the proposed Project would not generate a significant amount of solid waste and would not affect the permitted capacity of landfills in the area. Impacts during decommissioning would be the same as impacts described during construction. The proposed Project would comply with federal, state, and local statutes and regulations related to solid waste. Therefore, impacts would be less than significant, and no further analysis of this topic is required in the EIR.

3.21 WILDFIRE

WILDFIRE Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones;				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

3.21.1 Environmental Setting

The proposed Project is located within the unincorporated Imperial County in an area mapped as a Local Responsibility Area (LRA) by CAL FIRE (Cal Fire, 2007a; 2007b). The lands adjacent to and surrounding the proposed Project are also mapped as LRAs or Federal Responsibility Areas (FRA's). Additionally, the proposed Project is not located in lands mapped as VHFHSZ. The nearest location mapped VHFHSZ is approximately 16.5 miles to the west of the proposed Project (CAL FIRE 2007b).

3.21.2 Environmental Impact Analysis

a) Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

b) Would the project due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

c) Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

d) Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

a-d) Finding: No Impact

In response to items 3.21.2 a) through d), the proposed Project does not meet the criteria for impact analysis under the above significance criteria.

Projects are subject to wildfire analysis when one of four conditions are fulfilled:

1. The Project is located in a State Responsibility Area.
2. The Project is located near a State Responsibility Area
3. The Project is located on lands classified as Very High Fire Hazard Severity Zones (VHFHSZ).
4. The Project is located near lands classified as VHFHSZ.

The proposed Project does not fulfil any of these four conditions. As discussed above, and illustrated in CalFire 2007a and 2007b, the proposed Project site is located within areas mapped either as LRA or FRA, with the nearest SRA lands located approximately 16.5 miles to the west of the Project. Additionally, the Project is not located on or near any lands classified as VHFHSZ. Therefore, under these significance thresholds, the proposed Project would not result in an impact adopted emergency response or evacuation plans, exacerbate wildfire risks, or expose people or structures to significant risks as a result of runoff, instability, or drainage changes. Therefore, no impact would occur, and no further analysis is required in the EIR.

3.22 MANDATORY FINDINGS OF SIGNIFICANCE

MANDATORY FINDINGS OF SIGNIFICANCE Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐
b) Have impacts that are individually limited, but cumulative considerable? ("Cumulative considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects)?	☒	☐	☐	☐
c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

3.22.1 Environmental Impact Analysis

a) Would the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Finding: Potentially Significant Impact

As discussed above, the Project is not anticipated to significantly impact cultural resources, and therefore, it would not eliminate any important examples of the major periods of California history or prehistory. However, the proposed Project has the potential to significantly impact biological resources, including fish and wildlife species habitats, as well as plant and animal communities. As impacts to biological resources are potentially significant, this topic will be analyzed further in the EIR.

b) Would the project have impacts that are individually limited, but cumulative considerable? ("Cumulative considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects)?

Finding: Potentially Significant Impact

The proposed Project, in conjunction with other past, present, and reasonably foreseeable future related projects, has the potential to result in significant cumulative impacts when the independent impacts of the proposed Project and the impacts of related projects combine to create impacts greater than those of the proposed Project alone.

A list of the related projects or growth projections will be developed for the EIR. The potential for the proposed Project in conjunction with the related projects and their cumulative contributions to environmental impacts will be evaluated in the EIR.

The cumulative impacts addressed in the EIR will be the same as the individual resource areas which will be evaluated in the EIR, which will include the following:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology
- Land Use
- Tribal Cultural Resources
- Utilities and Service Systems

The extent and significance of potential cumulative impacts resulting from the combined effects of the proposed Project plus other past, present and reasonably foreseeable future projects will be evaluated in the EIR.

The proposed Project would not result in a cumulatively considerable contribution or result in a less than cumulatively considerable contribution to the environmental resource areas to the following topics, which will not be further evaluated in the EIR:

- Cultural Resources
- Energy
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation
- Wildfire

c) Would the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Finding: Potentially Significant Impact

Potentially significant impacts to the following resources may have the potential to cause substantial adverse effects on human beings:

- Aesthetics
- Air Quality
- Biological Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Agriculture and Forestry Resources
- Hydrology
- Land Use
- Tribal Cultural Resources
- Utilities and Service Systems

Potential impacts to each of these resources will be analyzed further in the EIR.

4.0 REPORT PREPARATION

4.1 LIST OF PREPARERS

Preparers	
Kevin Kohan	Senior Environmental Planner
Patrick Meddaugh	Associate Environmental Scientist, CEP-IT
Christine Abraham	Principal Environmental Planner
Lindsay McDonough	Environmental Planner
Emily Medler	Environmental Scientist
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Crystal Guan	Engineer

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APPENDIX A – INITIAL STUDY

A.2. Initial Study Comment Letters

May 14, 2020

Mr. David Black
Planner IV
Planning & Development Services Department
County of Imperial
801 Main Street
El Centro, CA 92243

SUBJECT: CED Westside Canal Energy Storage Project; NOP of a Draft EIR, GPA19-0003, ZC19-0004 and CUP19-0015

Dear Mr. Black:

On April 13, 2020, the Imperial Irrigation District received from the Imperial County Planning & Development Services Dept. a request for agency comments on the Notice of Preparation of a Draft Environmental Impact Report, General Plan Amendment no. 19-0003, Zone Change no. 19-0004 and Conditional Use Permit no. 19-0015 for the CED Westside Canal Energy Storage Project. The applicant, CED Westside Canal Energy Storage, LLC; proposes to develop in phases, over a 10-year period, a battery storage facility with up to 2,000 MW of capacity in the Mount Signal area in unincorporated Imperial County, approximately 8 miles southwest of the city of El Centro, CA and approximately 5.3 miles north of the United States and Mexico border. The proposed project includes a 230kV loop-in substation and permanent vehicular access over a proposed bridge spanning the West Side Main Canal. The proposed loop-in substation would connect the project to the existing IID Campo Verde-Imperial Valley 230kV radial gen-tie line, which ultimately connects to Imperial Valley Substation. The 168-acre project site is composed of 148 acres owned by the applicant with the remainder owned by the BLM, IID and a private landowner.

The Imperial Irrigation District has reviewed the information and has the following comments:

General Comments

1. For temporary and/or permanent electrical distribution-rated service for the project, the applicant should be advised to contact Ernie Benitez, IID Customer Project Development Planner, at (760) 482-3405 or e-mail Mr. Benitez at eibenitez@IID.com to initiate the customer service application process. In addition to submitting a formal application (available for download at the IID website http://www.iid.com/home/showdocument?id=12923), the applicant will be required

to submit a complete set of approved plans (including CAD files), project construction schedule, estimated in-service date, electrical one-line diagram of facility, electrical loads, panel sizes and locations, and all the applicable fees, permits, easements and environmental compliance documentation pertaining to the provision of electrical service to the project. The applicant shall be responsible for all costs and mitigation measures related to providing electrical service to the project.

2. Please note that electrical capacity is limited in the project area. A distribution-rated circuit study will be required. Any improvements identified in the circuit study to serve the project's electrical loads shall be the financial responsibility of the applicant. Project may require a transmission backfeed agreement.

3. IID water facilities that may be impacted include Westside Main Canal, Fern Side Main Canal, Fern Canal, Dixie Drain No. 3, Dixie Drain No. 3A, and the Fig Drain.

4. IID drains will be impacted with project and site runoff flows and proposed storm water detention facilities drainage. To mitigate impacts, the project will require a comprehensive IID hydraulic drainage system analysis. IID's hydraulic drainage system analysis includes an associated drain impact fee.

5. IID's canal or drain banks may not be used to access the project site. Any abandonment of easements or facilities shall be approved by IID based on systems (irrigation, drainage, power, etc.) needs.

6. To insure there are no impacts to IID water facilities, the applicant should submit the project's plans (including but not limited to grading and drainage and fencing plans as well as the project's Storm Water Pollution Prevention Plan) to IID Water Department Engineering Services Section prior to final design. The IID WDES Section can be contacted at (760) 339-9265 for additional information.

7. To obtain water for construction, applicant should contact IID South End Division at (760) 482-9800.

8. New long-term non-agricultural water supply requests are processed under the district's Temporary Land Conversion Fallowing Policy (available at the IID website www.iid.com/TLCFP). For additional information regarding water supply policies, contact Ms. Justina Gamboa-Arce at (760) 339-9085.

9. Per State of California Water Resources Control Board Division of Drinking Water, the battery storage project will need to have a contract with an approved provider to deliver the drinking water to the site.

10. Any construction or operation on IID property or within its existing and proposed right of way or easements including but not limited to: surface improvements such as proposed new streets, driveways, parking lots, landscape; and all water, sewer, storm water, or any other above ground or underground utilities; will require an encroachment permit, or encroachment agreement (depending on the circumstances). A copy of the IID encroachment permit application and instructions are available at the IID website http://www.iid.com/departments/real-estate. The IID Real Estate Section should be contacted at (760) 339-9239 for additional information regarding encroachment permits or agreements.

11. An IID encroachment permit is required to utilize existing surface-water drainpipe connections to drains, and receive drainage service form IID. Surface-water drainpipe connections are to be modified in accordance with IID Standards. A construction storm-water permit from the California Regional Water Quality Control Board is required before commencing construction. IID will require copies of this permit and of the project's Storm Water Pollution Prevention Plan.

12. In addition to IID's recorded easements, IID claims, at a minimum, a prescriptive right of way to the toe of slope of all existing canals and drains. Where space is limited and depending upon the specifics of adjacent modifications, the IID may claim additional secondary easements/prescriptive rights of ways to ensure operation and maintenance of IID's facilities can be maintained and are not impacted and if impacted mitigated. Thus, IID should be consulted prior to the installation of any facilities adjacent to IID's facilities. Certain conditions may be placed on adjacent facilities to mitigate or avoid impacts to IID's facilities

13. Any new, relocated, modified or reconstructed IID facilities required for and by the project (which can include but is not limited to electrical utility substations, electrical transmission and distribution lines, etc.) need to be included as part of the project's CEQA and/or NEPA documentation, environmental impact analysis and mitigation. Failure to do so will result in postponement of any construction and/or modification of IID facilities until such time as the environmental documentation is amended and environmental impacts are fully analyzed. **Any and all mitigation necessary as a result of the construction, relocation and/or upgrade of IID facilities is the responsibility of the project proponent**.

14. Dividing a project into two or more pieces and evaluating each piece in a separate environmental document (Piecemealing or Segmenting), rather than evaluating the whole of the project in one environmental document, is explicitly forbidden by CEQA, because dividing a project into a number of pieces would allow a Lead Agency to minimize the apparent environmental impacts of a project by evaluating individual pieces separately, each of which may have a less-than-significant impact on the environment, but which together may result in a significant impact. Segmenting a project may also hinder developing comprehensive mitigation

strategies. In general, if an activity or facility is necessary for the operation of a project, or necessary to achieve the project objectives, or a reasonably foreseeable consequence of approving the project, then it should be considered an integral project component that should be analyzed within the environmental analysis. The project description should include all project components, including those that will have to be approved by responsible agencies. The State CEQA Guidelines define a project under CEQA as "the whole of the action" that may result either directly or indirectly in physical changes to the environment. This broad definition is intended to provide the maximum protection of the environment. CEQA case law has established general principles on project segmentation for different project types. For a project requiring construction of offsite infrastructure, the offsite infrastructure must be included in the project description. *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App. 4th 713.

Specific Comments

15. Figure 2 of the NOP and Figure 3 of the Initial Study show a conceptual site plan that is identified as subject to change. IID therefore clarifies that any proposed improvements and facilities in IID rights of way are also subject to IID review, permitting and approvals. Additionally, any proposed improvements outside IID right of way will be further reviewed for the purpose of safeguarding that any improvements such as roads, drainage basins, fencing, driveways, etc., do not pose an impact to IID's ability to operate and maintain district facilities.

16. Figure 2 of the IS depicts a project site aerial photo as being the project boundary. However, elsewhere in the document, reference is made to potential temporary site access using Westside Main Canal bank from State Hwy. 98 to the north, along the south canal bank. Shouldn't this potential temporary site access proposal need to be included in the environmental analysis?

17. Table 2, titled *Agency Permits and Environmental Review Requirements,* lists IID for a Generator Interconnection Agreement. Please be advised that the IID will also need to review the proposed detailed construction-level plans to determine impacts and will include review of electrical service, water service, drainage, and any encroachments within IID right of way. Encroachment permits and likely a formal Encroachment Agreement will be required. The agreement typically will document the permit items, any required project mitigations and associated fees. The table needs to add at a minimum, "Various Encroachment Permits".

18. Section 2.3 of the IS, titled *Project Components*, indicate 3 to 5 phases for full buildout. Construction of Phase 1 is mentioned to begin in 2021 and would include roads, a bridge and other facilities. IID is concerned with the roads, bridge and onsite development as well as any temporary access that could impact the Westside Main Canal. Between now and January 2021 is a very short period and

IID, as of yet, has not been provided any construction-level plans for review. Applicant should be advised of this predicament as well as the quandary that district staff will be in when any substantial submittals are received for review and IID is expected to complete a review in a short amount of time.

19. Section 2.3.2 of the IS, titled *Common Components*, references both retention and detention basins as being provided. Detention basins presume there is a location to meter out the storm water. Is the project entertaining both types of basins? Please advise where the basins will outlet to, and if an IID drain is intended to be the recipient of any storm water discharge. Any basins should be located and constructed so that they do not impact the integrity of the Westside Main Canal and its bank.

20. Section 2.3.2.1 of the IS, titled *Operations and Maintenance Facilities*, indicate a septic leach field will be located near the O&M building. IID would look to Imperial County Environmental Health Department to ensure the buffer distance from the Westside Main Canal is adequate to minimize any potential of effluent transmission to the Westside Main Canal.

21. Section 2.3.2.2 of the IS, titled *Water Connections*, indicate that both temporary construction water and permanent water will be needed from the IID's Westside Main Canal. Westside Main Canal Delivery 6 has historically serviced the southern project parcel. However, if this service gate is not adequate, then the project will need to apply for a new service. This section also indicates that a connection to the Westside Main Canal would be constructed by a horizontal directional drilled underground boring, which isn't the case. IID will not allow applicant's contractor to perform this work in IID right of way. The CED Westside Canal Energy Storage Project is considered by IID a customer service project, where CED Westside Canal Energy Storage, LLC, as customer, would need to complete an application and pay the cost of the design and construction of the new water service, if the existing Westside Main Canal Delivery 6 is not adequate.

    Additional Clarification:

    - Temporary construction water can be obtained with a pump set up, an IID encroachment permit and an application to IID South End Division.
    - Permanent water will also require IID encroachment permit and application to IID South End Division. However, it will also require an IID water supply agreement, a formal request for a new water delivery and payment for a new water delivery. IID will then design and construct the delivery in the Westside Main Canal along with pipe to the Westside Main Canal right of way line. At that point, the applicant can connect to the underground pipe.

- Any connection to IID's facility for water can only be performed by IID as the system is live 24/7 and the connection can only be scheduled with a low water level in the Westside Main Canal. It is suggested that the applicant start the process sooner than later.
- For both temporary and permanent water delivery/service, metering is required by IID.

22. Section 2.3.2.3 of the IS, titled *Stormwater Retention*, mentions that storm water retention basins will be constructed. Are these retention basins or detention basins as described in Section 2.3.2, titled *Common Components*?

    Additional Clarification:

    - If the project is entertaining a detention basin, then the basin would need to discharge to an existing drain. New drains crossing the Westside Main Canal will not be considered by IID.
    - It is stated that at least 3 inches of rainfall across the entire site would be retained. IID is concerned that the basins will retain and not have an outlet. IID is requesting that the basins be designed for 5 inches (for a storm track) and not the 3 inches of precipitation over the site (for an individual storm). The concept of the 5-inch storm track was promoted for many years by the County of Imperial as a result of the late 1970s tropical storms Kathleen and Doreen that inundated Imperial County. Additionally, the hydrology study for the site should consider any other contributing area such as desert washes that may impinge on the project to assure there is no offsite drainage being routed onto the project site; otherwise, the site may need to consider additional retention volumes.

23. Section 2.3.2.4 of the IS, titled *Permanent Vehicle Access – Public Access Roads*, mentions that the applicant is proposing to construct public access roads on both the north and south side of the Westside Main Canal along with a clear-span bridge off the Westside Main Canal. Reference is made to Figures 4 and 5 of the IS, which show layout of access roads, bridge and an elevation profile of the bridge.

    Additional Clarification:

    - The depictions in both Figure 4 and 5 and the actual layout and elevation profiles have not been approved or reviewed by IID.
    - More detail and clarity needs to be provided relative to the temporary access options. It is not clear if these include both south and north side of the Westside Main Canal banks, or rights of way.
    - IID requires a cross section of the proposed public road access improvements in relation to the Westside Main Canal banks, with elevations

and dimensions, to carefully review and ensure there are no conflicts with the district's O&M operations. IID typically claims a minimum of either prescriptive or deeded right of way, whichever is greater to assure its ability to clean the canal as regular maintenance.

- IID suggests that the County of Imperial and the applicant review the need for a public road versus a private one for landowner access and public emergency access as opposed to full public use. This would also include the bridge crossing.
- Applicant will need to apply for encroachments for the bridge, construction access and for the public access road. Applicant should be advised that IID requires an encroachment permit and/or agreement for any encroachment across, over, under and/or parallel to district facilities.
- The bridge is clearly one of the major impacts to IID facilities. It is of the utmost importance for the applicant to start the formal plan submittal and permitting process with IID as soon as possible. Potential impacts to IID facilities requires a formal review by the district, otherwise, it will cause delays to the project's proposed schedule.
- IID typically claims prescriptive or deeded right of way, whichever covers more distance. Additionally, per the California Water Code, IID also claims additional right of way beyond the prescriptive/deeded, in order to conduct adequate maintenance of district facilities. This must be considered in the project's construction plan development.
- Due to the importance of the Westside Main Canal and concerns outlined herein, IID would look at a sufficient area between the Westside Main Canal and the access road so that the maintenance operations of one does not impact the other. Whether the access road is public or private, these O&M impacts to each other must be considered in the design process.

24. Section 2.3.2.7 of the IS titled *Fire Protection/Fire Suppression*.

Additional Clarification:

- Project site grading should address fire suppression flows and insure the integrity of the Westside Main Canal. The observation that water for fire suppression will be obtained by tapping into the Westside Main Canal shows a lack of understanding of how water can be obtained from IID. No "tapping" of the Westside Main Canal shall be permitted. Nevertheless, water can be obtained in accordance with IID policies. See item no. 21 for additional clarification.
- An explanation is needed on whether open storage basins for fire suppression water will be used or if all water storage is proposed with enclosed storage tanks. If open basins are used, such basin capacity shall include maximum amount of water for fire suppression plus a contingency

(20% suggested) for freeboard. Because of the regional importance of the Westside Main Canal and as a worst-case scenario, this is in addition to calculated storm water flows. These additional amounts are considered necessary in the event that the basin is full but the water is not easily accessible and/or sufficient to use for fire suppression.

25. Section 2.6 of the IS, titled *Existing and Proposed Utility Easements*. It bears repeating that applicant should be advised that any new facilities placed over/under and/or parallel to IID facilities will need to be reviewed and approved as part of the IID planning review and encroachment permitting process. For example, typically, there are minimum height clearances over the canal banks to any overhead power/cable lines. This is to ensure no impact to IID's ability to maintain its water and/or drain infrastructure.

    Additional Clarification:

    - If applicant is entertaining the upgrade of existing IID electrical facilities (S Line & Circuit L76) for interconnection purposes or to provide service to the project, then the electrical upgrade drawings need to be forwarded to IID's Water Department as well as the district's Energy Department to review for compliance with the departments' standards/requirements.

26. Section 2.10 of the IS, titled *Discretionary Actions*, calls for an IID Water Supply Assessment. However, there is no mention of an IID encroachment permit, and likely an encroachment agreement for any work to be placed in, over or under IID Water Department facilities, including any impact mitigations. Mitigations may not be environmental, but due to impacts determined after a detailed review of the construction-level plans to be provided for the IID's planning review, when such plans are available from the Applicant.

27. Section 3.8.2 of the IS, titled *Geology and* Soils - Environmental Impact Analysis. The project site's high potential for expansive soils, unsuitable for backfill for structure foundations, retaining walls or pipe bedding along with reference to IS figures 4 & 5 (retaining wall), is of concern to IID. Work on the Westside Main Canal bank is restricted and typically not allowed to outside entities. A water outage is not possible. Any work on the Westside Main Canal bank would imply strict requirements, conditions and supervision. The structural integrity of the Westside Main Canal is of utmost concern to IID.

28. Section 3.11 of the IS, titled *Hydrology and Water Quality*, indicates that subsections a) and c) are both "Potentially Significant Impact". It is requested that the comments provided herein related to storm drainage and retention basins be considered in the EIR document when it is prepared. The key issues of concern are whether the onsite storm water basins are retaining or detaining, if and where

they discharge to, capacity sufficient to meet a 5-inch storm track as opposed to a 3-inch precipitation event and location of basins to not impact the integrity of the Westside Main Canal or canal bank. Furthermore, section should indicate that project grading shall be sloped away from the Westside Main Canal.

29. Section 3.18 of the IS, titled *Transportation*, indicates all four categories as either "Less than Significant" or "No Impact". The IID takes no exception to this if the transportation being discussed and reviewed in the document is for public traffic using existing public roads. The issue that IID does take exception to is if the document is also referencing traffic on the Westside Main Canal bank as a means of temporary access for construction. If this is the case, then IID would suggest the finding under "c) Would the project substantially increase hazards to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?" and d) Would the project result in inadequate emergency access?" both be marked as "Less than Significant Impact with Mitigation Incorporation". The mitigation could be that the applicant will apply for an IID encroachment permit and comply with the conditions of the permit. The concerns by IID of construction and public traffic include the conditions of the canal bank soils, structural strength, nearness to the water, traffic speed, traffic safety, traffic control, coexistence with IID O&M activities and potential conflicts, adequate bank width and all weather surfacing (or lack thereof), dust and erosion control. If there are several alternatives for temporary access, they should all be clearly indicated in the IS, not only in this section, but also in the project description.

30. Section 3.20 of the IS, titled *Utilities and Service Systems*, indicates the following: Potable water service to the project site would be provided by the IID". This is not correct. IID only provides raw canal water, not potable water. Please also see IID comments under item no. 21. In addition, water provided from IID facilities for project construction is restricted to metered pump(s). On the matter of stormwater drainage, please see IID comments under item no. 22.

As with any other development project, IID will need to perform a comprehensive planning review of the project to determine detailed impacts as soon as construction-level plans are available. The above comments however should clarify IID's concerns. It is important that County of Imperial, prior to approving any grading plans or improvement plans for construction, communicate and collaborate with IID in the plan checking process to ensure that the applicant/developer understands that both agencies have a responsibility and accountability in the final approval of the construction documents and before construction begins so that any unnecessary delays can be prevented.

Should you have any questions, please do not hesitate to contact me at 760-482-3609 or at dvargas@iid.com. Thank you for the opportunity to comment on this matter.

Respectfully,

Donald Vargas
Compliance Administrator II

Enrique B. Martinez – General Manager
Mike Pacheco – Manager, Water Dept.
Marilyn Del Bosque Gilbert – Manager, Energy Dept.
Sandra Blain – Deputy Manager, Energy Dept., Project Management & Customer Project Development
Enrique De Leon – Asst. Mgr., Energy Dept., Distr., Planning, Eng. & Customer Service
Vance Taylor – Asst. General Counsel
Jamie Asbury – Asst. General Counsel
Robert Laurie – Outside General Counsel
Michael P. Kemp – Superintendent, Regulatory & Environmental Compliance
Laura Cervantes. – Supervisor, Real Estate
Jessica Humes – Environmental Project Mgr. Sr., Water Dept.

DEPARTMENT OF TRANSPORTATION
DISTRICT 11
4050 TAYLOR STREET, MS-240
SAN DIEGO, CA 92110
PHONE (619) 688-3137
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TTY 711
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Making Conservation a California Way of Life.

May 18, 2020

11-IMP-8
PM 29.93
11-IMP-98
PM 16.34
Westside Canal Storage Battery Project
NOP/IS SCH #2020040122

Mr. David Black, Planner
County of Imperial Planning and Development Services
801 Main Street
El Centro, CA 92243

Dear Mr. Black:

Thank you for including the California Department of Transportation (Caltrans) in the Notice of Preparation / Initial Study (NOP/IS) (SCH #2020040122) review process for the Westside Canal Storage Battery project located near Interstate 8 (I-8) and State Route 98 (SR-98). The mission of Caltrans is to provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability. The Local Development-Intergovernmental Review (LD-IGR) Program reviews land use projects and plans to ensure consistency with our mission and state planning priorities.

Caltrans has the following comments:

Traffic Control Plan/Hauling

The California Department of Transportation (Caltrans) has discretionary authority with respect to highways under its jurisdiction and may, upon application and if good cause appears, issue a special permit to operate or move a vehicle or combination of vehicles or special mobile equipment of a size or weight of vehicle or load exceeding the maximum limitations specified in the California Vehicle Code. The Caltrans Transportation Permits Issuance Branch is responsible for the issuance of these special transportation permits for oversize/overweight vehicles on the State Highway System. Additional information is provided online at:
http://www.dot.ca.gov/trafficops/permits/index.html

A Traffic Control Plan is to be submitted to Caltrans District 11, including the interchange at I-8/ Westside Road, at least 30 days prior to the start of any construction. Traffic shall not be unreasonably delayed. The plan shall also outline suggested detours to use during closures, including routes and signage.

Potential impacts to the highway facilities (I-8 and SR-98) and traveling public from the detour, demolition and other construction activities should be discussed and addressed before work begins.

If you have any questions, please contact Mark McCumsey, of the Caltrans Development Review Branch, at (619) 688-6802 or by e-mail sent to mark.mccumsey@dot.ca.gov.

Sincerely,

electronically signed by

MAURICE EATON, Branch Chief
Local Development and Intergovernmental Review

150 SOUTH NINTH STREET
EL CENTRO, CA 92243-2850

TELEPHONE: (442) 265-1800
FAX: (442) 265-1799

AIR POLLUTION CONTROL DISTRICT

May 19, 2020

Jim Minnick, Director
Imperial County Planning & Development Services
801 Main Street
El Centro, CA 92243

SUBJECT: Initial Study for General Plan Amendment 19-0003, Zone Change 19-0004, Conditional Use Permit 19-0015

Dear Mr. Minnick:

The Imperial County Air Pollution Control District ("Air District") would like to thank you for the opportunity to review and comment on the Initial Study (IS) for General Plan Amendment (GPA), Zone Change (ZC) 19-0004, and Conditional Use Permit (CUP) 19-0015 regarding the proposed Westside Canal Battery Storage Project ("Project") submitted by Consolidated Edison Development (CED; aka "Applicant"). The proposed Project will be located in the general vicinity of Mandrapa Road and Liebert Road, also identified as Assessor Parcel Numbers (APNs) 051-350-009, -010, -011, -018, and -019.

Upon review, the Air District understands that the IS has determined that the proposed Project will result in potentially significant environmental impacts, and an Environmental Impact Report (EIR) has been deemed appropriate to evaluate the proposed Project. Therefore, the Air District would like to reserve comments until it reviews the EIR. Solar projects can create significant cumulative emissions of PM_{10} both during construction and operation. To gain insight on what the Air District expects from an Air Quality Analysis and general air quality mitigation measures, the applicant can review the Imperial County California Environmental Quality Act (CEQA) Handbook (ed. 2017). Section 6—Air Quality Analysis describes essential components of a sound Air Quality Analysis. Section 7—Mitigation Measures discusses Regulation VIII fugitive dust (PM_{10}) which governs standard mitigation measures for the control of fugitive dust. As construction

activities can generate significant emissions of NO_x from equipment, the Air District recommends that a CalEEMod (California Emissions Estimator Model) be used to determine the threshold of NO_x emissions from construction equipment. Section 5.1—Motor Vehicle Emissions discusses its use to model various emissions of vehicle emissions associated with land use projects.

The Air District looks forward to reviewing the Air Quality Analysis as part of the EIR. If the applicant has any questions please call our office at (442) 265-1800.

Sincerely,

Curtis Blondell

Curtis Blondell
Environmental Coordinator

Reviewed by,
Monica Soucier
APC Division Manager

From:	David Black
To:	Kohan, Kevin
Subject:	FW: CED Westside Canal Battery Storage
Date:	Monday, May 18, 2020 10:01:35 AM

From: Monica Soucier <MonicaSoucier@co.imperial.ca.us>
Sent: Friday, May 15, 2020 7:05 AM
To: David Black <DavidBlack@co.imperial.ca.us>
Cc: Curtis Blondell <CurtisBlondell@co.imperial.ca.us>; Curt Blondell <curtblondell@yahoo.com>
Subject: CED Westside Canal Battery Storage

Hey David good morning

Just wanted to request a one day extension for the submittal of comments for the GPA 19-0003, ZC 19-0004, CUP 19-0015. My review of Curtis' letter took longer than I anticipated. Sorry of the delay

You o.k. with us submitting on the 19th?

IMPERIAL COUNTY
AIR POLLUTION CONTROL DISTRICT

Monica N. Soucier
APC Division Manager
Planning and Monitoring
150 S 9th Street
El Centro, CA 92243
P. 442.265.1800
F. 442.265.1799

Gabriela Robb

From: Andrew Loper
Sent: Friday, May 15, 2020 1:33 PM
To: Gabriela Robb
Cc: Rosa Soto; Carina Gomez; Maria Scoville; John Robb; Kimberly Noriega; Valerie Grijalva; David Black; Michael Abraham; Robert Malek; Alfredo Estrada Jr
Subject: RE: Request for Comments GPA19-0003

Good Afternoon
Imperial County Fire Department would like to request some additional time to provide comments for this project due to the Covid-19 situation. ICFD would like to be able to be able to fully review the submitted information with department chief staff. Again ICFD is requesting further time for review and comments and is greatly appreciated if possible.

Thank You
Andrew Loper
Imperial County Fire Department
Lieutenant/Fire Prevention Specialist
2514 La Brucherie Road, Imperial CA 92251
Office: 442-265-3021
Cell: 760-604-1828

From: Gabriela Robb <GabrielaRobb@co.imperial.ca.us>
Sent: Monday, April 13, 2020 10:43 AM
To: Esperanza Colio <EsperanzaColio@co.imperial.ca.us>; Alfredo Estrada Jr <AlfredoEstradaJr@co.imperial.ca.us>; Andrew Loper <AndrewLoper@co.imperial.ca.us>; Jeff Lamoure <JeffLamoure@co.imperial.ca.us>; John Gay <JohnGay@co.imperial.ca.us>; Carlos Yee <CarlosYee@co.imperial.ca.us>; Carlos Ortiz <CarlosOrtiz@co.imperial.ca.us>; Sandra Mendivil <SandraMendivil@co.imperial.ca.us>; Matt Dessert <MattDessert@co.imperial.ca.us>; Monica Soucier <MonicaSoucier@co.imperial.ca.us>; rbenavidez@icso.org; Donald Vargas - IID <DVargas@IID.com>; vdoyle@iid.com; chamilton@chp.ca.gov; beth.landrum@dot.ca.gov; magdalena.rodriguez@wildlife.ca.gov; csahagun@blm.gov; dir.j.saar@cbp.dhs.gov; Brent.Alfonzo@navy.mil; Mary Beth Dreusike <marybeth.dreusike@navy.mil>; ilaurain@adamsbroadwell.com; Komalpreet Toor <komal@lozeaudrury.com>; Richard Drury - Lozeau Drury <richard@lozeaudrury.com>; Stephen C. Volker - Volker Law Firm <svolker@volkerlaw.com>; Sheila M, Sannadan <ssannadan@adamsbroadwell.com>; john.valdez@sce.com; jfreeman@semprautilities.com; byronfrontier@yahoo.com
Cc: Rosa Soto <RosaSoto@co.imperial.ca.us>; Carina Gomez <CarinaGomez@co.imperial.ca.us>; Maria Scoville <mariascoville@co.imperial.ca.us>; John Robb <JohnRobb@co.imperial.ca.us>; Kimberly Noriega <KimberlyNoriega@co.imperial.ca.us>; Valerie Grijalva <ValerieGrijalva@co.imperial.ca.us>; David Black <DavidBlack@co.imperial.ca.us>; Michael Abraham <MichaelAbraham@co.imperial.ca.us>
Subject: Request for Comments GPA19-0003

Good Morning,

Please see attached Request for Comments Packet for **GPA19-0003**. Comments are due by **May 18, 2020 at 5:00 PM.**

In an effort to increase the efficiency at which information is distributed and reduce paper usage, the Request for Comments Packet is being sent to you via this email.

Gabriela Robb

From: Krug, Robert@DTSC <Robert.Krug@dtsc.ca.gov>
Sent: Friday, May 15, 2020 3:27 PM
To: Gabriela Robb
Subject: RE: 05 28 20 EEC Meeting

Hi Gabriela,
Please forward my comments to David Black, Planner IV on these two projects:

Assessment #19-0018: Applicant: (CED) Con Edison Clean Energy Businesses
We request that prior to the start of business operations that the facility informs the DTSC Imperial CUPA of their operations and whether they will have hazardous materials, hazardous waste, underground storage tanks, aboveground storage tanks, or be a CalARP facility. If so, they are not allowed to operate without a permit.

Assessment # 19-0020: Applicant: Second Imperial Geothermal
We require the facility to update their CERS account information with the modifications made at their facility. This must be done within 30 days of the modification.

Robert Krug
Supervisor / Senior Environmental Scientist
DTSC Imperial CUPA
627 Wake Avenue
El Centro, CA 92243
Robert.Krug@dtsc.ca.gov
(760) 336-8919 Work
(760) 457-7376 Cell

Subject: 05 28 20 EEC Meeting

Good morning,

Please see attached agenda for the May 28, 2020 EEC meeting.
In an effort to increase the efficiency at which information is distributed and reduce paper usage, the EEC Hearing Package is available by clicking on the following link:
http://www.icpds.com/?pid=7530

Thank you,

APPENDIX B – AESTHETIC AND VISUAL RESOURCES

APPENDIX B – AESTHETIC AND VISUAL RESOURCES

B.1. Visual Resources Impact Assessment

VISUAL RESOURCE IMPACT ASSESSMENT

Westside Canal Battery Storage Project

Imperial County, California

PROJECT APPLICANT:

Consolidated Edison Development, Inc.

PREPARED FOR:

THE COUNTY OF IMPERIAL
940 W. Main Street
El Centro, CA 92243

PREPARER:

DEVELOPMENT DESIGN SERVICES
& GRAPHICACCESS, INC.
2583 Via Merano
Del Mar, CA 92014
858.793.5450

Draft: July 2020

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Executive Summary

This Visual Resources Impact Assessment evaluates potential impacts associated with the Westside Canal Battery Storage Project (project) per the applicable California Environmental Quality Act thresholds. A summary of the results is presented below.

1. **The project would not have a substantial adverse effect on a scenic vista.** The composition of views from areas and roadways surrounding the project would change as a result of the project however, no designated scenic vistas are identified in the Imperial County General Plan for the area, so **this Guideline is not applicable.**

2. **The project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within a state scenic highway.** The project site is not visible from a designated Scenic Highway, nor from a route considered eligible for designation, so **this Guideline is not applicable.**

3. **The project would not substantially degrade the existing visual character or quality of the site and its surroundings.** The project would convert existing agricultural lands to a battery energy storage complex by replacing vegetation, and disturbed land with man-made elements including lithium-ion battery and/or flow battery energy storage facilities, a behind-the-meter solar energy facility to serve auxiliary power needs, a new on-site 230 kilovolt (kV) loop-in switching station, a 34.5 kV to 230 kV substation, underground electrical cables and other support equipment and structures, and permanent vehicular access to and from the site over a proposed bridge spanning Imperial Irrigation District's (IID's) Westside Main Canal. As viewed from surrounding areas and roadways, the project would largely be consistent with the existing visual character of the area, relating to similar elements in view. As a result, changes to the visual environment would not substantially degrade the existing visual character or quality of the site and its surroundings and the **visual impacts would therefore be insignificant. Short term construction related impacts would be less than significant.**

4. **Light and glare impacts associated with the project are not considered to be significant.** For the behind-the-meter solar facility, the Project proposes to use non-reflective photovoltaic (PV) panels, roof top and/or ground-mounted, which are not anticipated to be a significant source of glare. In addition, the project's lighting system will be designed to provide the minimum illumination required for security and operations. It is therefore anticipated that no

substantial sources of light and glare will be created so **light and glare impacts would** be **less than significant.**

5. **The project would be consistent with applicable policies and planning documents**. The project has been designed to be consistent with zoning and General Plan policies related to renewable energy and transmission. **Upon approval of a General Plan Amendment and Rezone, the project will be consistent with applicable policies and planning documents.**

7. **The composition of the project viewshed would not be adversely affected by physical changes introduced by cumulative projects**. The project in conjunction with cumulatively considerable projects would be largely consistent with the existing visual character and quality of the area which currently supports heavy agriculture, large scale solar facilities, and other green energy projects. Therefore, **visual impacts associated with cumulatively considerable projects would be less than significant.**

1.0 Introduction

The following Visual Resources Impact Assessment was prepared for the proposed Westside Canal Battery Storage Project (project).

1.1 Purpose

This report evaluates visual resource impacts associated with the project, to determine their significance under the California Environmental Quality Act (CEQA).

1.2 Key Issues

Key issues to be examined are identified in State CEQA Guidelines, Appendix G, for determining significance. The issues are whether the proposed project would have a substantial adverse effect on a scenic vista, substantially damage scenic resources within a state scenic highway, substantially degrade the existing visual character or quality of the site and its surroundings, and/or create a new source of substantial light or glare.

1.3 Principal Viewpoints to be Covered

This study analyzes changes in the visual environment that will occur as a result of project implementation from the following locations: Interstate 8 (I-8), Drew Road (County Highway 29), local roadways, surrounding residences including the Rio Bend RV Park and Golf Course, and the Westside Elementary School.

1.3 Definitions and Terminology

The following terms and concepts are used in the discussion below to describe and assess the visual environment and anticipated impacts from the proposed project.

Key Observation Point (KOP): A point along a travel route or at a use area where the proposed project would be most visible.

Scenic Vista: An area that is designated, signed, and accessible to the public for the express purposes of viewing and sightseeing as designated by a federal, state, or local agency.

Scenic Highway: A section of public roadway that is designated as a scenic corridor by a federal, state, or local agency.

Scenic Corridors: Scenic corridors refer to any designated freeway, highway, road, street, boulevard, or other vehicular right-of-way that traverses an area of unusual scenic quality.

Sensitive Viewpoints: Views from a public park, recreational trails, and/or culturally important sites are considered to have a high visual sensitivity and are considered examples of sensitive viewpoints.

Sensitive Receptors: Areas subject to high visibility by many people are considered to be sensitive receptors. Residential viewers typically have extended viewing periods and are therefore generally considered to have high visual sensitivity.

Viewshed: The landscape that can be viewed free of obstruction under favorable atmospheric conditions from a viewpoint or along a transportation corridor.

Visual Compatibility: The degree to which development with specific visual characteristics is similar in character to its setting.

Visual Character: Formed by the order of the patterns composing it: the visual elements of these patterns are the form, line, color, and texture of the landscape's components: Their interrelationships can be described in terms of dominance, scale, diversity, and continuity.

Visual Impact: The degree of change in visual resources and viewer response to those resources caused by a development project.

Visual Quality: Visual quality is dependent upon the visual environment's brilliance, distinction, and/or excellence. The two most commonly used criteria to define visual quality are vividness and intactness/unity. A visual resource with a high degree of vividness and intactness/unity will typically have a high level of visual quality.

Viewers' Response: An individual's perception of a view and his/her enjoyment of a view.

2.0 Project Description

Consolidated Edison Development, Inc. (CED) is proposing to develop, design, construct, own, operate, and maintain the CED Westside Canal Battery Storage Project (project), a utility-scale energy storage complex with a capacity of up to 2,000 megawatts (MW). The project would store energy generation from the electrical grid, and optimally discharge that energy back into the grid as firm, reliable generation and/or grid services.

The project would be comprised of lithium-ion battery and/or flow battery energy storage facilities, a behind-the-meter solar energy facility, a new on-site 230 kilovolt (kV) loop-in switching station, a 34.5 kV to 230 kV substation, underground electrical cables, and permanent vehicular access to and from the site over a proposed bridge spanning IID's Westside Main Canal. The proposed loop-in switching station would connect the project to the existing IID Campo Verde-Imperial Valley 230 kV radial gen-tie line, which connects to the Imperial Valley Substation (IV Substation) and the California Independent System Operator (CAISO), approximately one-third mile south of the project site. CED has submitted the necessary Interconnection Request Applications to the CAISO and IID.

The project would complement both the existing operational renewable energy facilities, as well as those planned for future development in Imperial County (County), and would support the broader southern California bulk electric transmission system by serving as a firm, dispatchable resource.

The project is pursuing the following objectives:

- To receive grid energy during beneficial market and operational periods and store that energy for dispatch when the customer (i.e., a load-serving entity) deems it to be more valuable.

- To be a valuable resource in allowing the customer and system operators to manage the effect of intermittent renewable generation on the grid and create reliable, dispatchable generation upon demand.

- To utilize available land that has not been used for agricultural production for more than 15 years, and enhance the site location by providing for permanent vehicular access.

2.1 Project Location

The project would be located in the unincorporated Mount Signal area of the County, approximately 8.0 miles southwest of the city of El Centro and approximately 5.3 miles north of the U.S.-Mexico border (see Regional Location Map, Figure 1). The project site is comprised of two parcels owned by CED, Assessor Parcel Number (APN) 051-350-010 and APN 051-350-011, totaling approximately 148 acres. These parcels have limited access corridors for vehicular traffic and are considered less desirable for agricultural production, as reflected by the last 15 years during which no farming activity has occurred.

The project site is approximately one-third mile north of the IV Substation and directly south of the intersection of Liebert Road and the IID's Westside Main Canal. The project site is bounded by the Westside Main Canal to the north, BLM lands to the south and west, and vacant private land to the east. The Campo Verde solar generation facility is located north of the project site, across the Westside Main Canal. The Vicinity Map, provided as Figure 2**,** shows an aerial view of the project site, the above-mentioned nearby facilities, and the key observation point locations.

The two project parcels are proposed for development as a utility-scale energy storage complex. The project would also utilize portions of two parcels located north of the Westside Main Canal (APN 051-350-019 owned by IID and APN 051-350-018 owned by a private landowner) for site access and as a temporary construction staging area. The project would also access a small portion of APN 051-350-009 within an IID easement for connection to the existing IID Campo Verde-Imperial Valley 230 kV radial gen-tie line during the construction of a switching station on the project site. The total proposed project development footprint, encompassing both temporary and permanent impacts, would be 163.32 acres.

2.2 Project Components

The Site Plan, provided as Figure 3, shows the conceptual plan for the project with a representation of the various energy storage technologies, behind-the-meter ground- and roof-mounted solar, common facilities within the project site, and permanent vehicular access to the project site. The actual configuration of the project would depend on the size of individual phases and the type of battery technology deployed. Specific project components are described below.

2.2.1 PHASING AND SCHEDULE

The project would be constructed in three to five phases over a 10-year period, with each phase ranging from approximately 25 MW up to 400 MW per phase. Depending on the size of the battery system for a given phase, construction and commissioning (approval to operate) is anticipated to take approximately 6 to 12 months. For the purposes of this analysis, the applicant has assumed that construction activities would last for approximately 32 months to complete the full project build-out.

Construction of the 100- to 200- MW first phase would include roads, a permanent clear-span bridge across the Westside Main Canal, the Operations and Maintenance (O&M) facilities, water connections and water-mains, storm water retention, switching station and project substation, legal permanent vehicle access, as well as the first energy storage facility. To access the project site, construction workers would travel along Interstate 8 (I-8) and head 4.6 miles south to the project site, and would utilize the IID Fern Check Bridge as a temporary pedestrian bridge until the permanent bridge is constructed. During peak construction activities, approximately 200 workers and approximately 30 daily deliveries would be required. If approved, it is anticipated that construction of the first phase would begin in 2021.

It is anticipated that each subsequent phase would be constructed within one to two years of each other, with the timing and size of each phase dependent on market conditions and the applicant's ability to secure commercial contracts with prospective customers. With the project being built in phases, the necessary infrastructure, such as water mains, retention ponds, and access roads, would be built out to serve the project phases from west to east and expanded over time to serve each phase. These subsequent phases would require improvements such as additional substation equipment, water main and site road extension, but would not require construction of additional common facilities which would be completed during the first phase. The total nameplate (or rated capacity) capacity of the project at full build-out (all phases completed) would be approximately 2,000 MW.

Construction activities during all project phases would only occur Monday through Friday, between the hours of 7:00 a.m. and 7:00 p.m. or Saturday between the hours of 9:00 a.m. and 5:00 p.m., excluding holidays, per County Ordinance.

2.2.2 COMMON COMPONENTS

As shown on the site plan (Figure 3), the northwest area of the project serves as the location for the common facilities, which include the switching station and project substation and the O&M facilities. With the project being built in phases, the necessary infrastructure, such as water mains, retention ponds and access roads, would be built out to serve the project phases from west to east and expanded over time to serve each phase.

A summary of the common facilities is presented below:

- 230 kV loop-in switching station
  - Connection to Campo Verde Imperial Valley 230 kV radial transmission line
  - Located on applicant property
- Project substation
- O&M facilities
- Project parking
- Storm water retention basins
- Fencing and gates
- Interior access roads

Industrial buildings, warehouses, engineered containers, and/or electrolyte storage tanks would be the primary structures needed to house the main project components. Other components to be located on the project site and adjacent to the proposed buildings, warehouses, containers, and tanks include the following:

- Inverters, transformers, power distribution panels
- Underground water-main loop for project operation and fire prevention
- Underground cable to connect to project substation
- Project site access roads (unpaved/crushed rock)
- Fire water storage tanks
- Above ground water storage tanks
- Heating, Ventilation, and Air Conditioning (HVAC) units
- Ground-mounted or roof-mounted photovoltaic (PV) arrays
- Emergency backup generator(s)

2.2.2.1 O&M Facilities

The O&M facilities are expected to be the only manned facility on the site. It would include up to approximately 20 full-time employees depending upon the number of phases and type of energy storage facility constructed. O&M employees would work typical weekday

hours but may work extended hours, including weekends and 24 hours a day, depending upon the operations and maintenance needs. No offices or staffed control centers would be located within the storage-specific warehouses/buildings. For sanitary waste, the project would include a septic leach field to be located near the O&M facilities. The proposed O&M facilities would also require an HVAC unit.

2.2.2.2 Permanent Vehicle Access

There are no circulation element roadways in the immediate vicinity of the project site. The nearest freeways are I-8, located 4.6 miles north of the project site, and State Route 98 (SR-98), located 5.2 miles south of the project site. Drew Road, a two-lane collector, is located 1.3 miles east of the project site. All other roadways in the immediate vicinity of the project site are rural roadways. All roadways that would be used to access the project site from I-8 are currently paved, except for the portion of Liebert Road south of Wixom Road. However, this segment would be paved or graveled prior to project operation.

The project is surrounded by private landowners to the east, BLM land to the south and west, and IID maintenance roads and Westside Main Canal to the north. Due to the project site having no direct vehicular access routes, the applicant is proposing to construct roads on both the north and south sides of the Westside Main Canal on private land, and a new clear-span Imperial County-specified bridge over the Westside Main Canal.

The permanent new clear-span County-specified bridge would span the Westside Main Canal to connect to a proposed access road easement on the north side of the Westside Main Canal. The north side proposed access road would ultimately connect the project to county road (CR) Liebert Road.

Construction of the permanent clear-span bridge spanning the IID's Westside Main Canal requires CED to have access to both the north side and the south of the Canal to perform the necessary construction activities. In addition to being necessary to facilitate construction of the new permanent clear-span bridge, access from the south side of the Canal would allow CED to commence construction on the first phase of the project simultaneously, thereby shortening the duration of construction and potentially minimizing the associated impacts. CED is evaluating various options for temporary construction access, including accessing the project site from the south side of the Westside Main Canal off SR-98, as well as options involving access from the north side of the Westside Main Canal from I-8.

Option 1 would use the existing SDG&E maintenance road off Highway 98, which extends approximately 4.4 miles to the IV Substation. Option 1 would then continue along an existing 1.2-mile-long dirt access road that leads north, then east, outside the western and northern boundaries of the substation. Option 1 then continues northwest along an existing

dirt access road that parallels two power lines until the access road connects with the western edge of the project. The existing dirt road was constructed for the construction and maintenance of the existing Campo Verde – Imperial Valley gen-tie line. Option 2 would use the existing IID Westside Mail Canal access road. The selected temporary access option would be used until construction of the permanent bridge is completed. Both temporary construction access routes are presented in Figure 4.

2.2.3 BATTERY STORAGE COMPONENTS

The first phase of site construction would consist of either a lithium-ion battery storage facility or a flow battery storage facility. This first phase would be dependent on the first commercial contract awarded to the applicant by a customer. Large industrial buildings, warehouses, and/or containers to house the storage equipment, including battery cells, modules, racks, and controls for lithium-ion technologies, would be needed. For flow battery technologies, cell stack modules, pumps, and controls may be installed inside industrial buildings or pre-engineered outdoor enclosures. Electrolyte storage tanks and associated piping may be located indoors or outdoors, depending on the technology.

2.2.3.1 Battery Modules Technology

Energy Storage

Energy storage is the capture of energy produced at one time for use at a later time. A device that stores energy is generally called an accumulator or battery. Energy storage involves converting energy from forms that are difficult to store to more conveniently or economically storable forms. For the purpose of grid connected energy storage, electrical energy will be stored in the form of chemical energy in lithium-ion and/or flow batteries Energy storage technology may be centralized or may be distributed throughout the plant. Due to requirements for energy storage, the project components such as the switching station, substation, transformers, and inverters will energize at all times with the potential to charge or discharge.

Lithium-Ion Battery

A lithium-ion battery is also a type of rechargeable battery. In the batteries, lithium ions move from the negative electrode through an electrolyte to the positive electrode during discharge, and back when charging. Lithium-ion batteries use an intercalated lithium compound as the material at the positive electrode and typically graphite at the negative electrode. The batteries have a high energy density, no memory effect and low self-discharge.

Flow Battery

A flow battery is a rechargeable fuel cell in which an electrolyte containing one or more dissolved electroactive elements flows through an electrochemical cell that reversibly converts chemical energy directly to electricity. Additional electrolyte is stored externally, generally in tanks, and is usually pumped through the cell (or cells) of the reactor, although gravity feed systems are also known to be used. Flow batteries can be rapidly "recharged" by replacing the electrolyte liquid while simultaneously recovering the spent material for re-energization. Many flow batteries use carbon felt electrodes due to its low cost and adequate electrical conductivity.

2.2.3.2 Backup Generators

The project would include emergency backup generator(s) to supply auxiliary power to the facility during rare events in which the entire facility or portions of the facility are disconnected from the electrical grid system. The generators would be sized to accommodate control systems and HVAC loads for equipment protection. The purpose of the generators would be to provide system safety for events in which the transmission interconnection and the on-site solar generation system are not available, by supplying the battery HVAC system to maintain battery safety and warranty temperature parameters.

These generators may be either installed in a central location near the common facilities or distributed among individual buildings or containers. They may be diesel, natural gas, or propane fueled. The generators would be periodically tested each year to maintain backup capability in the event of a grid emergency. All generators would be subject to Imperial County Air Pollution Control District review and permitting requirements.

Table 1 is a generalized depiction of installed emergency generator capacity based on 1,000 MW of lithium-ion batteries and 1,000 MW of flow batteries, including their safety and warranty temperature parameters. Size and quantity will scale with the MW proposed in each phase. Detailed design is required to accurately calculate the generator load, which will be included with each design phase based on the final battery technology selection.

Table 1
Approximate Generator Size

Technology	Project Size (MW)	Backup Generator Size (kW)	Backup Generator Quantity	Total Backup Generator Size (kW)
Lithium-ion	1,000	1,750	20	35,000
Flow	1,000	1,000	20	20,000
Total	2,000	--	--	55,000

2.2.4 SOLAR FACILITY COMPONENTS

Photovoltaic solar cells, also called PV cells, convert sunlight directly into electricity. PV gets its name from the process of converting light (photons) to electricity (voltage), which is called the PV effect. The panels are mounted at a fixed angle facing south, or they can be mounted on a tracking device that follows the sun, allowing them to capture the most sunlight. Many solar panels combined together to create one system is called a solar array. On-site PV solar generation would serve as station auxiliary power and be deployed throughout the project site.

2.3 Site Security

A six-foot-tall fence (e.g., chain-link) topped with one-foot-tall barbed wire would be installed around the entire project site for safety and in order to control access. The switching station and each substation proposed on the site plan would also have fences installed around its perimeter. A camera-equipped call button would be installed at the front entry gate to the site which would be monitored from the project's O&M facilities. Throughout the site at various points, security cameras may be installed to monitor other areas of the project site. During the construction of each project phase, the applicant would have on-site security personnel between dusk and dawn and during hours of non-active construction.

2.4 Interconnection Options

The proposed point of interconnection for the project is the IV Substation 230 kilovolt (kV) bus. As reflected in the conceptual site plan, to achieve this, the applicant plans to build a new loop-in switching station on the project site and connect to the existing IID Campo Verde - Imperial Valley 230 kV radial gen-tie line. This existing gen-tie line ultimately connects to the IV Substation one-third mile south of the project site. This location would serve as the project's point of interconnection to the CAISO grid. The applicant submitted the necessary Interconnection Request Applications to the CAISO and IID in 2017 and 2018, and approval is pending.

2.5 Existing and Proposed Utility Easements

2.5.1 EXISTING EASEMENTS

The project site (APNs 051-350-10 and 051-350-011) has three major easements lying across the site. The first is for overhead collector transmission circuits and utility facilities, as well as access. This is for the IID Campo Verde - Imperial Valley 230 kV transmission line easement, which lies inside and along the west property line and runs north/south.

The second major easement is a prescriptive easement for an overhead transmission circuit and a utility distribution line that runs north and south and lies directly in the center of the project site. The IID transmission line within this prescriptive easement is known as

the S-Transmission line (S-Line). The third major easement lies along the north property line. This easement was granted to IID for the purposes of the existing Westside Main Canal and operation and maintenance roads adjacent to the Westside Main Canal.

2.5.2 PROPOSED EASEMENTS

The applicant and IID are in the process of determining the width of this S-Line easement to create a non-exclusive easement. This easement would also include the existing distribution line that lies within the easement. Until this new easement agreement is in place, the applicant has planned for a 300-foot temporary corridor on the project site plan (centerline of 300-foot corridor is the S-Line) to allow the IID energy engineering team to design and implement an appropriate new easement. Once the width and location of the new easement is determined, all other areas not part of the new S-Line easement lying within the 300-foot corridor will become part of the project site.

2.6 Project Operation

Operation of the project would require routine maintenance and security. It is anticipated that the project would employ a plant manager and an O&M manager, as well as the addition of a facility manager once the complex deploys approximately 500 MW of generation. The complex will also employ staff technicians, with at least one additional technician for every approximately 250 MW of capacity.

Operation of the project at full build-out would require up to approximately 20 full-time employees depending upon the number of phases and type of energy storage facility constructed. The project may require fewer full-time equivalent employees, but 20 was assumed to provide a conservative estimate. O&M employees would work typical weekday hours but may work extended hours, including weekends and 24 hours a day, depending upon the operations and maintenance needs. Assuming two one-way trips per employee, the project would be anticipated to generate up to 40 trips per day from all maintenance and security personnel.

Figure 3 shows the conceptual site plan for the project with a representation of lithium-ion buildings and containers as well as flow buildings and containers. The components that make up the energy storage systems and common facilities require various preventative maintenance and at times corrective maintenance. The O&M staff would maintain the project in accordance with manufacturer and industry best practice maintenance schedules and requirements. Depending on the technology selected for the energy storage component, the substation and transmission lines as well as the behind-the-meter solar inverters and transformers would be energized at all times.

2.7 Land Use and Zoning

The project site is currently zoned A-3 (Heavy Agriculture). Agricultural zoned land lies to the north, south, east, and west of the project site. The project proposes a General Plan Amendment and Rezone to change the land use designation and zoning for the project site from Agriculture (A-3) to Industrial. The Industrial zoning would be limited to Energy Production/Use.

2.8 Regulatory Framework

2.8.1 STATE

2.8.1.1 Southern California Association of Governments

The Southern California Association of Governments (SCAG) is responsible for fulfilling certain state requirements related to the California Environmental Quality Act (CEQA). Pursuant to CEQA, SCAG is responsible, through their Intergovernmental Review section, for reviewing regionally significant local plans, projects, and programs for consistency with SCAG's adopted regional plans.

Analysis

The IRG section does not include any relevant policies that address aesthetics, light or glare, so therefore the project cannot be reviewed for consistency with IRG policies.

2.8.2 LOCAL

2.8.2.1 Imperial County General Plan

The Imperial County General Plan is a broad-based planning document that contains text, maps, and diagrams explaining the County's long-range growth and development goals and policies. The adopted General Plan contains the Renewable Energy and Transmission Element which contains policies related to visual resources.

Renewable Energy and Transmission Element

This Element addresses the potential impacts associated with renewable energy to existing visual character and quality, including scenic vistas, natural environment and existing landscape, general built environment and historic buildings, and scenic highways. In addition, the Element identifies the potential for Renewable energy facilities to create new sources of substantial light or glare which would adversely affect day or nighttime views in the area.

E. Implementation Standards

3. Environmental

The design, siting, and operation of renewable energy facilities shall give adequate consideration to potential direct and indirect environmental impacts pursuant to the California Environmental Quality Act related to aesthetics.

2.8.2.2 Zoning Ordinance

The Imperial County Zoning Ordinance provides detailed regulatory provisions for development of all lands within the county. County zoning is used to implement the goals and objectives of the adopted General Plan in accordance with state law, which requires that the General Plan and corresponding zoning be consistent with one another. The project site is currently zoned A-3 (Heavy Agriculture). The project proposes a General Plan Amendment and Rezone to change the land use designation and zoning for the project site from Agriculture (A3) to Industrial.

3.0 Visual Environment of the Project

The visual environment of the project is generally defined by the desert region within which it's located, where elevations range from below sea level to over 3,000-feet above mean sea level (AMSL) and the terrain includes a mountain backdrop, alluvial fans and desert floor. Views are expansive and characterized by dramatic landforms, native desert habitat, and low desert valleys where the form, line, color, and texture, of the natural setting is comingled with utility transmission towers, substations, industrial solar photovoltaic installations, intensive agriculture, and residential and commercial development.

3.1 Project Setting

The site is generally flat, having been graded to support agriculture, its current use, and is approximately 6' below AMLS at its high and 22' below AMLS at its low.

Several residences, the Westside Elementary School, IID Campo Verde Solar facility, and a residential community are located to the north. Drew Road, several residential structures, agricultural fields, and open space are located to the east, and BLM land managed mainly as open desert, to the south and west of the project. The Imperial Valley Substation, with its numerous tall transmission towers, and other equipment, is located on BLM land south of the project.

Character views depicting the project setting are provided as Figures 5a and 5b, Existing Conditions.

Very little light and glare is generated in this area of the County. The primary source of light and glare in the area is from motor vehicles traveling on surrounding roadways. Glare is generated during daytime hours from the sun's reflection off cars and paved roadway surfaces. Likewise, at night, vehicle headlights on surrounding roadways generate light and glare. Warning lighting is also located on the existing transmission lines to alert aircraft of potential flight path hazards. Lighting associated with the Imperial Valley Substation and IID Campo Verde Solar facility is also present.

3.2 Project Viewshed

A “viewshed” is an analytical tool used to aid in the identification of views that could be affected by a potential project. The viewshed is defined as the surrounding geographic area from which the project is likely to be seen.

The project viewshed, provided as Figure 6, Generalized Viewshed, was determined through an analysis of aerial photographs, and topographic data produced and distributed by the USGS. This data is based on the National Elevation Dataset (NED) and uses 1/3 arc second data (approximate 10-meter accuracy). The viewshed does not account for intervening structures and vegetation that obstruct views toward the site but provides us with a generalized presentation of areas from which views of the site are available. Viewshed analysis was prepared using Global Mapper and evaluated the visibility of a 60’ transmitter to a receiver located 5’ above ground elevation.

Due to the relatively flat topography of the project site and surrounding area, views of the project are available from Interstate 8 to the north and northwest, Drew Road (County Highway 29) to the east, and local roadways to the north, and east.

4.0 Existing Visual Resources and Viewer Response

4.1 Existing Visual Resources

4.1.1 VISUAL CHARACTER

Our understanding or cognition of the visual environment is based on the visual character of objects and the relationships between them. Descriptions of visual character can distinguish at least two levels of attributes: pattern elements and pattern character.

Visual pattern elements include an object’s form, line, color, and texture. Our awareness of these pattern elements varies with distance, for example individual details are lost and colors are muted as distances increase.

Pattern character refers to the visual relationships between these elements. Differences in visual character are generally traced to four aspects of pattern character: dominance, scale, diversity, and continuity. For example, there is a great difference between the visual character of country road and I-8, although both may exhibit similar line, color, and texture.

The four aspects of pattern character are defined as follows:

- Dominance: Specific components in a landscape may be visually dominant because of position, extent, or contrast of basic pattern elements.

- Scale is the apparent size relationship between a landscape component and its surroundings; an object can be made to look smaller or larger in scale by manipulating its visual pattern elements.

- Visual diversity is a function of the number, variety, and intermixing of visual pattern elements.

- Continuity is the uninterrupted flow of pattern elements in a landscape and the maintenance of visual relationships between immediately connected or related landscape components.

The project and project setting are assessed according to these attributes (see Visual Inventory/Character Evaluation, and Visual Quality Evaluation, provided as Figure 7 and Figures 8a and 8b) and if their visual character is similar, the visual compatibility of the project will be high. If the visual character of the project contrasts strongly with the visual character of its setting, its visual compatibility will generally be low. As noted on these assessment forms, evaluations are based on both photo simulations and through extrapolation.

4.1.2 VISUAL QUALITY

Aesthetics is not only concerned with the character of the visual experience, but also with its quality. The perception of quality is based upon a viewer's response to vividness, intactness, and unity occurring within the visual environment. These factors affect perceptual quality and are defined as follows:

- Vividness is the visual power or memorability of landscape components as they combine in striking and distinctive visual patterns.

- Intactness is the visual integrity of the natural and man-built landscape and its freedom from encroaching elements.

- Unity is the visual coherence and compositional harmony of the landscape considered as a whole.

Areas with high visual quality are those where all three of these factors are high. Areas with Moderate Visual Quality are those where one of these factors is low. Areas with low visual quality are those where two or more of these factors are low.

While many elements of the project's visual environment are considered memorable and distinct, both natural and man-made, they are not intact, free from visual encroachments, nor do they join to form coherent, harmonious, visual patterns associated with high quality visual environments. The area is therefore considered to have a low to medium visual quality rating.

4.2 Viewer Response

Viewer response is composed of two elements: viewer sensitivity and viewer exposure. These elements combine to form a method of predicting how the viewers might react to visual changes brought about by a project.

4.2.1 VIEWER SENSITIVITY

Viewer sensitivity is both the viewers' concern for scenic quality and the viewers' response to change in the visual resources that make up the view.

4.2.2 VIEWER GROUPS

Primary viewer groups exposed to the project consist of motorists, and surrounding residents, residential community golf course users, and school attendees.

4.2.3 VIEWER EXPOSURE

The number of viewers and the duration of view are also important to analyzing impacts.

The number of viewers in nearby residences (stationary view), and the duration of their view of a project would be very different than the number of people who see a project from a highway or roadway (moving view). Whether the viewers on the highway are residents of the local community or visitors may also affect their responses to a viewshed.

Viewer exposure is typically assessed by measuring the number of viewers exposed to the resource change, type of viewer activity, duration of their view, speed at which the viewer moves, and position of the viewer. Viewer exposure is described in greater detail in Chapter 5, Visual Impact Assessment.

4.2.4 VIEWER AWARENESS

A viewer's response is also affected by the degree to which he/she is receptive to the visual details, character, and quality of the surround landscape. A viewer's ability to perceive the landscape is affected by his/her activity. A viewer on vacation would probably take pleasure in looking at the landscape, and an individual may be strongly attached to the view from his/her home, but a local County resident commuting to work may not "register" those same visual resources on a daily basis. Viewer exposure is described in greater detail in Chapter 5, Visual Impact Assessment.

4.2.5 SENSITIVITY TO CHANGE

Visual sensitivity is based on an area's ability to absorb changes in character and quality. Areas with a high sensitivity to change are those that are visually prominent, distinctive, contain a dominant visual character element, and have high visual quality. These are areas that would contrast to a great degree with a proposed improvement.

An area with moderate sensitivity to change would contain a several visual character elements that vary in form, line, color, and texture, and that is of moderate visual quality. An area with low sensitivity to change are those that have many visual character elements that vary in form, line, color and texture, and is of low visual quality.

5.0 Visual Impact Assessment

This section describes the potential impacts related to aesthetics for the project. It describes the guidelines used to determine significance and identifies potential mitigation measures to reduce impacts below levels of significance.

5.1 Guidelines for Determining Significance

The project will result in a significant impact if it would:

5.1.1 Visual Resources

Guideline No. 1: Have a substantial adverse effect on a scenic vista

Guideline No. 2: Substantially damage scenic resources, including, but limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.

Guideline No. 3: Substantially degrade the existing visual character or quality of the site and its surroundings.

5.1.2 Light and Glare

Guideline No. 4: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

5.1.3 Consistency with Policy & Planning documents

Guideline No. 5: The project would not comply with applicable state or local goals, policies, or requirements related to visual resources including but not limited to the California Scenic Highway Program, Imperial County General Plan & Zoning Ordinance, as applicable.

5.2 Guideline Sources

Guideline Nos. 1 and 2 are derived from the CEQA Guidelines, Appendix G, Environmental Checklist Form and are intended to support definition of whether the proposed project will have a significant impact on visual character and quality. Due to this circumstance, these two significance guidelines are based on established principles from the most widely used and accepted visual resource assessment methodologies, including the U.S. Department of Transportation, *Federal Highway Administration's Visual Impact Assessment for Highway Projects*; the U.S. Department of Agriculture, Forest Service Visual Management System; and the U.S. Department of Interior, Bureau of Land Management (BLM) modified Visual Management System. The concepts contained in these assessment approaches provide accepted practices for evaluating visual resources both objectively (visual character) and subjectively (visual quality). This is accomplished by comparing the existing visual environment to the construction and post-construction visual environment; and subsequently, determining whether the project will result in

physical changes that are deemed to be incompatible with visual character or degrade visual quality, as outlined in Guideline Nos. 1 and 2.

Guideline No. 3 is based in part on the principles discussed above as well as those contained in County's General Plan related to preservation of visual resources.

Guidelines Nos. 4 and 5 rely on policies contained in the Imperial County General Plan related to preservation of visual resources and aesthetics. Furthermore, the plan recognizes that renewable energy facilities may also create new sources of substantial light or glare which would adversely affect day or nighttime views in the area. Because of the proximity of several military installations in the area, future substantial sources of light and glare which would adversely affect day or nighttime views in the area would be considered significant as would projects that don't comply with applicable policies related to visual resources.

In compliance with the thresholds of significance and analysis methodologies determined for the project, this analysis includes the following elements and considerations:

- A map of the viewshed and a discussion of communities and roads from which it may be viewed as a prominent feature.
- A discussion of the compatibility of the scale and mass of the proposed project with the surrounding area.
- A discussion of the architectural style of the structures and their site utilization related to the manner in which surrounding properties have developed.
- Photo simulations and analysis comparing project to existing setting.

5.3 Analysis of Project Effects and Determination of Significance

5.3.1 HAVE A SUBSTANTIAL ADVERSE EFFECT ON A SCENIC VISTA (GUIDELINE 1)

The composition of views from areas and roadways surrounding the project would change as a result of project implementation, however, no designated scenic vistas are identified in the Imperial County General Plan for the area, so the impact is therefore considered **less than significant.**

5.3.2 DAMAGE SCENIC RESOURCES WITHIN A STATE SCENIC HIGHWAY (GUIDELINE 2)

The project site is not visible from a designated Scenic Highway, nor from a route considered eligible for designation, so therefore this Guideline is not applicable.

5.3.3 DEGRADE THE EXISTING VISUAL CHARACTER OR QUALITY OF THE SITE AND ITS SURROUNDINGS (GUIDELINE 3)

The proposed project would convert existing agricultural lands) to a battery energy storage complex by replacing vegetation, and disturbed land with man-made elements including lithium-ion battery and/or flow battery energy storage facilities, a behind-the-meter solar energy facility to serve auxiliary power needs, a new on-site 230 kilovolt (kV) loop-in switching station, a 34.5 kV to 230 kV substation, underground electrical cables and other support equipment and structures, and permanent vehicular access to and from the site over a proposed bridge spanning Imperial Irrigation District's (IID's) Westside Main Canal. The project would occupy approximately 163.3 acres and would consist of industrial buildings, 30'-60' in height and approximately 140'-400' in length, that would house lithium-ion and/or flow battery storage technologies. In addition, there would be ground and/or roof-mounted solar PV for auxiliary power needs, storage tanks up to 50' in height, a battery storage system enclosed in 8' tall containers stacked up to 4 high, with a maximum anticipated height of 40'. A proposed loop-in switching station, project substation, retention ponds, operations and maintenance building, bridge crossing and circulation improvements are also planned for the project (see Site Plan & Site Plan Elements, Figure 3 and Figures 9 and 10).

Short Term Visual Affects

The project would be built in three to five phases over 10-year period, with each phase ranging from approximately 25 MW up to 400 MW per phase. During that time, short term impacts associated with project construction would occur as heavy equipment, materials, and vehicular traffic (see Figure 4, Temporary Construction Access Routes), are added to the site. This would impact nearby residences and users of area roadways, including I-8 and Drew Road. Lighting from construction activities and daytime glare from equipment and vehicles would be increased during construction periods. As phases of the project are completed, equipment would be removed and/or relocated elsewhere on the site, thereby potentially reducing the impact. While construction impacts are potentially significant, due to their short duration they are anticipated to be **less than significant.**

Long Term Visual Affects

The proposed project would alter the visual environment of an area that is transitioning from intense agriculture to energy production by introducing a new battery storage facility, a new bridge crossing the Westside Main Canal, large industrial buildings housing lithium-ion and/or flow battery storage technologies, stacked containerized battery storage systems, a loop-in switching station, project substation, connection to the IID Campo Verde – Imperial Valley transmission gen-tie line, operations & maintenance building, project parking, ground and/or roof mounted solar PV arrays, water storage tanks, security lighting, and other equipment and support facilities.

The entire site would be surrounding by a 6-foot chain link security fence topped with barbed wire and posts spaced 8-10' on center. The fence would provide minimal screening and most of the site would be visible from surrounding areas where view blocking vegetation, structures, and landforms do not exist.

Key Observation Points

Key Observation Points (KOPs), selected and described below, represent typical views experienced by primary viewer groups.

Existing views of the project are available from areas surrounding the site, specifically from I-8, Drew Road, and local roadways (Wixom, Vaughn, and Liebert Road). Additionally, views of the project are available from the Westside Elementary School, Rio Bend RV and Golf Resort, and nearby residences.

To evaluate visual impacts, 12 KOPs were selected (see Figure 2, Vicinity Map & Key Observation Point Locations). The KOPs identified are described below:

View from Interstate-8

Views of the project are available from Interstate 8 (see KOP 1) which is located approximately 5.1 miles west of the site. From this location views are expansive and distant and include, memorable mountain landforms, desert floor with native habitat, overhead utilities and tower structures, development, intensive agriculture, and industrial scaled solar installations. From locations along I-8, project features such as the buildings, utility connections, and substation, will be visible and viewed in conjunction with the other elements described above. This will reduce project contrast such that it will appear as an extension of the elements that surround it, i.e., the structures, overhead utilities and transmission towers, substation, and tree groupings. Given the setting's lack of intactness and unity, existing views are assigned a low to medium visual quality rating. And while the project is visible in the background over an approximate distance of 0.5 mile, or several seconds traveling at 65 mph, it's contrast would be minimized due to its distance away from visual receptors and visual relationship to existing man-made elements in view. It is therefore anticipated that **visual impacts associated with the project along this corridor will be less than significant**.

View near the Westview Elementary School looking southeast.

Views from the Westview Elementary School encompass a foreground of agricultural fields, dirt roads, irrigation canals lined by view blocking vegetation and earthen berms, a middle ground containing the Campo Verde Solar facility, overhead utilities, the Imperial Valley Substation, and mountain backdrop (see KOP 2, Figure 11). This area is given a low visual quality rating based on its lack of vividness, intactness, and unity.

The project, as viewed from this location (see Photo Simulation KOP 2, Figure 12), will be visible behind photovoltaic arrays, substation, operations buildings, and overhead utilities associated with the Campo Verde facility, and will be seen in front of and amongst

structures associated with the Imperial Valley Substation and utility corridors. Buildings and structures will relate architecturally in terms of form, material, and color with other structures in the viewshed. Foreground view blocking vegetation and earthen berms will substantially screen the lower portions of the project from view, but overhead utilities and upper portions of buildings will be visible. As such, visible project components will relate to that which exists such that contrast is reduced between the project and existing visual environment. While the project will introduce a scale of structure not currently present in this viewshed, it will appear less dominant from this location than many of the existing elements in view. Furthermore, project buildings will be non-reflective and painted in light, earth-tone colors which will further reduce project contrast by relating to other colors in view, both man-made and natural. It is therefore anticipated that **changes to the visual environment, as a result of the project, will be less than significant.**

Nearby Residential Communities

KOP 3 represents a view looking south from the southern end of the Rio Bend RV Resort and Golf Course Community. Views from this KOP encompass the verdant landscape associated with the Rio Bend development, agricultural fields and outbuildings, natural vegetation, solar facilities, and memorable mountain landforms in the background (see Figure 13).

This view has been assigned a low-med visual quality rating based on its vividness, intactness, and unity and is representative of what residents and guests will see looking south toward the project.

As viewed from this location (see Photo Simulation KOP 3, Figure 14), the project will be partially visible behind a foreground of view blocking vegetation, landforms, and structures. It will be viewed amongst equipment and structures associated with Campo Verde facility and Imperial Valley Substation. As such, project components will relate to existing elements in view, such as the transmission towers and overhead utilities, buildings, and photovoltaic arrays, which will reduce contrast between the project and existing visual environment. While the buildings will introduce a scale of structure not present in this viewshed, they will be lower than the other existing man-made elements that lie nearby, will be partially screened by view-blocking vegetation and berms associated with the adjacent canal, and will be painted in light earth tone colors, thereby relating to other elements in view, both man-made and natural. As such, it is anticipated that contrast will be reduced and the **change to the visual environment as a result of the project will be less than significant.**

Views from Neighboring Residences & Local Roadways

Key Observation Points 4, 6, and 8, represent views of the project from surrounding residences and local roadways (Liebert, Wixom, and Vogel Roads).

Views from these locations encompass intensive agriculture, the Campo Verde Solar facility, overhead utilities, and mountain backdrop (see Figure 15).

This area is assigned a low visual quality rating based on lack of vividness, intactness, and unity and is representative of what residences and travelers along local roadways will experience when viewing the project.

The project as viewed from these areas (see Photo Simulation KOP 6, Figure 16) will appear amongst equipment and structures associated with Campo Verde facility and Imperial Valley Substation, partially screened by view-blocking vegetation and berms that line the adjacent canal. As such, project components will relate to a large degree to the existing elements in view, both man-made and natural. Project components will relate to existing overhead utilities, buildings, photovoltaic arrays, and vertical vegetative groupings. While the buildings will introduce a scale of structure not currently present in this viewshed, they will appear lower than the other man-made elements that surround them, will relate architecturally to surrounding structures and buildings, and will be painted in light, earth-tone colors to relate to other elements in view, both man-made and natural. Dominant mountain landforms will remain visible and foreground vegetation and canal berms will screen lower portions of the project from view. It is therefore anticipated that contrast will be reduced such that the **change in visual environment as a result of this project will be less than significant from these locations.**

Views from Roadways Adjacent to Project

Views from roadways adjacent to the project, KOPs 5, 11, & 12, depict views from Mandrapa and Liebert Roads looking south and east toward the project. Views from these areas encompass a variety of elements including dirt roadways, fallow fields, agriculture, desert vegetation, dominant patterns of overhead utilities, the Westside Canal and associated earthen berms, the Campo Verde facility, and a background consisting of mountains and dominant landforms (see Figure 17).

These are close-proximity views and represent areas most affected by the project. They are also areas that receive the least amount of traffic, as they are corridors used primarily for canal maintenance, access to the Campo Verde facility and project access.

As viewed from these areas, the project will appear rising behind the earthen berms behind a foreground of vegetation and structures. As with the other views, it will relate to a large degree to the existing man-made elements in view, appearing as an extension to that which exists, relate in form, line, color and texture, to the existing overhead utilities, outbuildings, photovoltaic arrays, and operations center of the neighboring Campo Verde facility and equipment of the Imperial Valley Substation.

While the industrial buildings will introduce a scale of structure not currently present in this viewshed, they will appear lower than some of the other man-made elements that surround them and will be painted in light, earth-tone colors, thereby relating to other elements in view, both man-made and natural. Dominant mountain landforms will remain visible and foreground vegetation and canal berms will screen and buffer the lower portions of the project from view.

It is therefore anticipated that the **change in visual environment as a result of the project will be less than significant.**

Views from Local Highways

The Drew Road Corridor (S29) offers views of the project to north and southbound travelers (KOPs 7, 9, & 10). Views from this corridor encompass a foreground of agricultural fields, dirt roads, irrigation canals, a middle ground containing the Campo Verde Solar facility, overhead utilities, the Imperial Valley Substation, tall vegetation, and mountain backdrop (see figures 18 and 19). This area is assigned a low visual quality rating based on its lack of vividness, intactness, and unity.

Given the design speeds along this corridor (55 mph+/-), views of the project will be of short duration. Where visible between view-blocking foreground vegetation, and structures (Photo Simulation KOP 10, Figure 20) the project will be visible on the horizon, backed by dominant landforms, and will relate to existing transmission towers and man-made structures within the viewshed. This will serve to reduce the contrast between the project and existing visual environment.

It is therefore anticipated that, from views from local highways, **the change in visual environment as a result of the project will be less than significant.**

5.3.4 CREATE A NEW SOURCE OF SUBSTANTIAL LIGHT OR GLARE (GUIDELINE 4)

The project proposes to use security and operation lighting and non-reflective photovoltaic (PV) panels, roof top and ground-mounted, which are not anticipated to create substantial adverse light and glare impacts to surrounding areas. While there exists some potential for low angle reflection from PV panels directed south during the summer solstice, as well as some indirect reflection, adverse impacts to the built environment associated with either are not anticipated to be significant, according to the Campo Verde's Solar Glare Analysis. In addition, the project's lighting system will be designed to provide minimum illumination for security and safety. Therefore, impacts associated with substantial light and glare are considered **less than significant**.

Construction:

During construction, short -term sources of lighting and glare will occur as part of the site's staging, storage, security areas, and from vehicles accessing the site. Construction related lighting will be directed on-site. Short term sources of glare from vehicle windshields or metallic surfaces of PV panels and support structures may occur but It is anticipated that construction related lighting and glare impacts would be **less than significant.**

Operation:

Project lighting would be the minimum needed to illuminate service and security areas. Lighting would be directed on-site and utilize shielding as necessary to minimize light

intrusion into dark skies and onto neighboring properties. While new sources of nighttime lighting will be introduced into the area, it is not anticipated to be substantial.

As described in further detail below, PV panels are designed to absorb light and not reflect it. Building materials, as well, will be non-reflective. While some glare impacts will occur as a result of project construction, they are not anticipated to be substantial.

While new sources of light and glare will not occur as a result of this project, they are anticipated to be **less than significant.**

Reflectivity of Flat-plate Photovoltaic Solar Panels

As discussed in the Solar Glare Analysis prepared by the Good Company for several photovoltaic ground-mounted array installations in Imperial County (citations noted), flat-plate photovoltaic solar panels are designed to absorb sunlight in order to convert it into electricity[1]. Monocrystalline silicon wafers, the basic building block of most photovoltaic solar modules, absorb up to seventy percent of the sun's solar radiation in the visible light spectrum[2]. Solar cells are typically encased in a transparent material referred to as an encapsulant and covered with a transparent cover film, commonly glass. The addition of these protective layers further reduces the amount of visible light reflected from photovoltaic modules. Photovoltaic panels are using the absorbed energy in two ways; 1) the panels generate electricity, and 2) the mass of the panels heat up.

To maximize the efficiency of electricity production, the study states, photovoltaic manufacturers design their panels to minimize the amount of reflected sunlight. The most common methods to accomplish this are the application of anti-reflective coatings and surface texturing of solar cells. Combined, these techniques can reduce reflection losses to a few percent.[3] Most solar panels are now designed with at least one anti-reflective layer and some panels have multiple layers.

Comparison of the Reflectivity of Solar Panel to the Surrounding Environment

One measure of reflectivity of solar panels to the surrounding environment described is albedo – the ratio of solar radiation across the visible and invisible light spectrum reflected by a surface. Albedo varies between 0, a surface that reflects no light, and 1, a mirror-like surface that reflects all incoming light. Solar panels with a single anti-reflective coating have a reflectivity of around 0.10. [4] By comparison, sand has an albedo between 0.15

[1] Good Company. 2011. Solar Glare Analysis of Proposed Calipatria Solar Farm I & II

[2] Luque and Hegedus. 2003. Handbook of Photovoltaic Science and Engineering. Wiley and Sons, New Jersey

[3] Ibid.

[4] Lanier and Ang. 1990. Photovoltaic Engineering Handbook. New York: Taylor & Francis.

and 0.45 and agricultural vegetation has an albedo between 0.18 and 0.25. [5] **In other words, solar panels have a lower reflectivity than the area's prevailing ground cover, sand and agricultural crops as the Good Company study states.**

Visibility of a Direct Reflection of Sunlight for South Facing Fixed Mount Panels

The Good Company study describes the impact of south facing PV panels as follows:

To maximize electricity production, solar panels must be oriented toward the sun as much as possible. For the purpose of this analysis it is anticipated that the panels will face polar south at a tilt of 25 degrees above horizontal. The position of the sun relative to the solar panels will vary by the time of day and time of year. As a result, the angle of direct reflection from the panels will also vary accordingly. The greatest likelihood of a low angle of direct reflection that might impact the built environment occurs midday on the summer solstice when the sun is at its highest point in the sky and the angle of reflection is lowest. The potential impact at that moment is the best proxy for maximum impact overall. During summer solstice at the proposed project's latitude, the sun's solar elevation is approximately 80 degrees[6]. With the sun at this height, the resulting angle of direct reflection is approximately 50 degrees above the horizon. It is unlikely that any objects in the built environment near the project site would be adversely affected by a direct reflection of sunlight from this angle, including vehicles traveling on nearby roads or houses south of the project site.

During the winter months, when the sun travels across the sky at lower angles relative to the horizon, the angle of reflection and the resulting height of the reflected sunlight are higher. At midday on the winter solstice at the proposed project's latitude, the sun's solar elevation is approximately 34 degrees. At this angle of elevation, the resulting angle of reflection is 96 degrees. At this angle of reflection, the height of the reflected sunlight would exceed 190 feet in elevation at a distance of only 20 feet away and the further away from the array the greater the height of the reflected sunlight.

While the discussion above discusses direct reflection, the Good Company's study also addresses indirect reflections, which is the visibility of diffused sunlight on the surface of panels. As is the case with direct reflections, indirect reflections are not considered a significant concern since they are significantly less intense and as the study notes, moving just 30 degrees off a direct reflection lowers light intensity by nearly 80%.[7] And while at

[5] Budikova, Dagmar. 2010. "Albedo." Encyclopedia of Earth. Washington, D.C.: Environmental Information Coalition, National

[6] Based on sun chart produced by University of Oregon Solar Radiation Monitoring Laboratory's Sun Chart software

[7] Glare Analysis (Calipatria I, Midway I, and Midway II), 2011.

certain times of the day an observer would have a view of an indirect reflection, the relative intensity of the reflection would not be significant or a concern.[8]

Comparison of Fixed Mount and Single-Axis Tracking Mount Panels

At midday on the summer solstice solar panels, either fixed mount or single-axis tracking mounts, will be facing the same direction and likely to produce their lowest angle reflection of the year. At other times of the year, as the Good Company study states, the angles of reflection would be higher and as such the height of direct reflection would increase as compared to the summer solstice.

Additionally, the project developer has proposed to construct a 8-foot chain link fence around the perimeter of the project, which will somewhat soften the peripheral view of the project (and any indirect reflection) for drivers traveling past the project.

In summary, direct or indirect glare impacts from either ground mounted fixed tilt or single axis tracking mounted panels are **not anticipated to be significant to viewers at ground level. Lighting for service and security areas is not anticipated to be a substantial source of light or glare.**

5.3.5 CONSISTENCY WITH APPLICABLE POLICIES & PLANNING DOCUMENTS (GUIDELINE 5)

5.3.5.1 Imperial County General Plan

The Imperial County General Plan is a broad-based planning document that contains text, maps, and diagrams explaining the County's long-range growth and development goals and policies. The adopted General Plan contains the Renewable Energy and Transmission Element which contains policies related to visual resources.

Renewable Energy and Transmission Element

This Element addresses the potential impacts associated with renewable energy to existing visual character and quality, including scenic vistas, natural environment and existing landscape, general built environment and historic buildings, and scenic highways. In addition, the Element identifies the potential for Renewable energy facilities to create new sources of substantial light or glare which would adversely affect day or nighttime views in the area.

E. Implementation Standards

3. Environmental

[8] Ibid.

The design, siting, and operation of renewable energy facilities shall give adequate consideration to potential direct and indirect environmental impacts pursuant to the California Environmental Quality Act related to aesthetics.

Analysis:

The project, as proposed, ties into existing transmission lines located within a designated utility corridor and will contains improvements substantially similar to those that exist in the immediate vicinity, with regard to site coverage, architecture and design. While industrial buildings 30'-60' in height, and storage tanks to 50' in height, are proposed, these structures will be partially screened by the berms and vegetation lining the Westside Main Canal, other surrounding vegetation and structures, and will be viewed in relative to the large scale, visually dominant overhead utilities that exist in the immediate area. As such, improvements will appear consistent and a part of those that currently exist, minimizing adverse aesthetic impacts by relating to existing man-made improvements in view. While changes to the visual environment will occur as a result of project implementation, contrast will be reduced, and views toward major landforms preserved, and impacts to existing visual character and quality minimized. New sources of light and glare are not anticipated to adversely affect the day or nighttime views in the area. **The project will therefore be consistent with General Plan policies related to renewable energy and transmission.**

5.3.5.2 Zoning Ordinance

The Imperial County Zoning Ordinance provides detailed regulatory provisions for development of all lands within the county. County zoning is used to implement the goals and objectives of the adopted General Plan in accordance with state law, which requires that the General Plan and corresponding zoning be consistent with one another. The project site is currently zoned A-3 (Heavy Agriculture). The project proposes a General Plan Amendment and Rezone to change the land use designation and zoning for the project site from Heavy Agriculture (A3) to Industrial. **The project will be in compliance with underlying Zoning upon approval of a General Plan Amendment and Rezone.**

5.4 Cumulative Visual Impacts

Cumulative impacts are those resulting from the combination of two or more individual effects; either (1) within a single project or (2) from a combination of multiple projects. Projects contributing to cumulative visual effects (including the proposed project) include those within the project viewshed. The viewshed encompasses the area within which the viewer is most likely to observe both the project and surrounding community uses.

Cumulatively considerable projects include those shown on the most current Imperial County Solar Farm Projects – South End Projects Map, provided as Figure 21. It includes the following projects presented in Table 2:

TABLE 2
CUMULATIVE PROJECT LIST

	Project Name	Description
1	Imperial Solar West	1,130 Acres – Under Construction
2	Ocotillo Sol	100 Acres – Approved, not built
3	Centinella Solar	422 Acres – Approved, not built
4	Wisteria Ranch Solar Energy Center	2,330 Acres – Phase 1 built; Phase 2 approved, not built
5	Drew Solar, LLC	762 Acres – Pending Entitlement
6	Vega SES	574 Acres – Pending Entitlement
7	Big Rock Cluster (Big Rock Solar)	1,380 Acres - Approved, not built

These projects, within the project viewshed, will combine with the proposed project and change the composition of the visual environment as the area transitions from agriculture to one that includes a greater number of green energy projects. This will result in physical changes that would affect the viewshed, but it is not anticipated that these changes will be significant.

The project, therefore, in conjunction with cumulatively considerable projects, **would not significantly alter the composition of the visual environment and would therefore not result in cumulatively significant adverse visual impacts.**

6.0 Visual Mitigation and Design Considerations

While impacts would be less than significant, and no mitigation is required, this conclusion assumes the project would be utilizing non-reflective, light, earth-toned colors and materials. This will enable the project to relate to, and minimize contrast with, the surrounding natural and man-made visual environment.

7.0 References

1. Federal Highways Administration, (n.d.) Visual Impact Assessments for Highway Projects.

2. Imperial County General Plan, Approved November 9, 1993, Amended October 6, 2015.

3. Southern California Association of Governments, Draft 2008 Regional Transportation PEIR, January 2008, Section 3.1 Aesthetics and Views.

4. U.S. Bureau of Land Management. 6/20/2012. Visual Resource Management System.

5. The California Desert Conservation Area (CDCA) Plan, September 2016

6. Campo Verde Solar Project Draft EIR, May 2012

7. Calipatria Solar Farm I & II EIR, 2011

8.0 List of Preparers

This report was prepared by:

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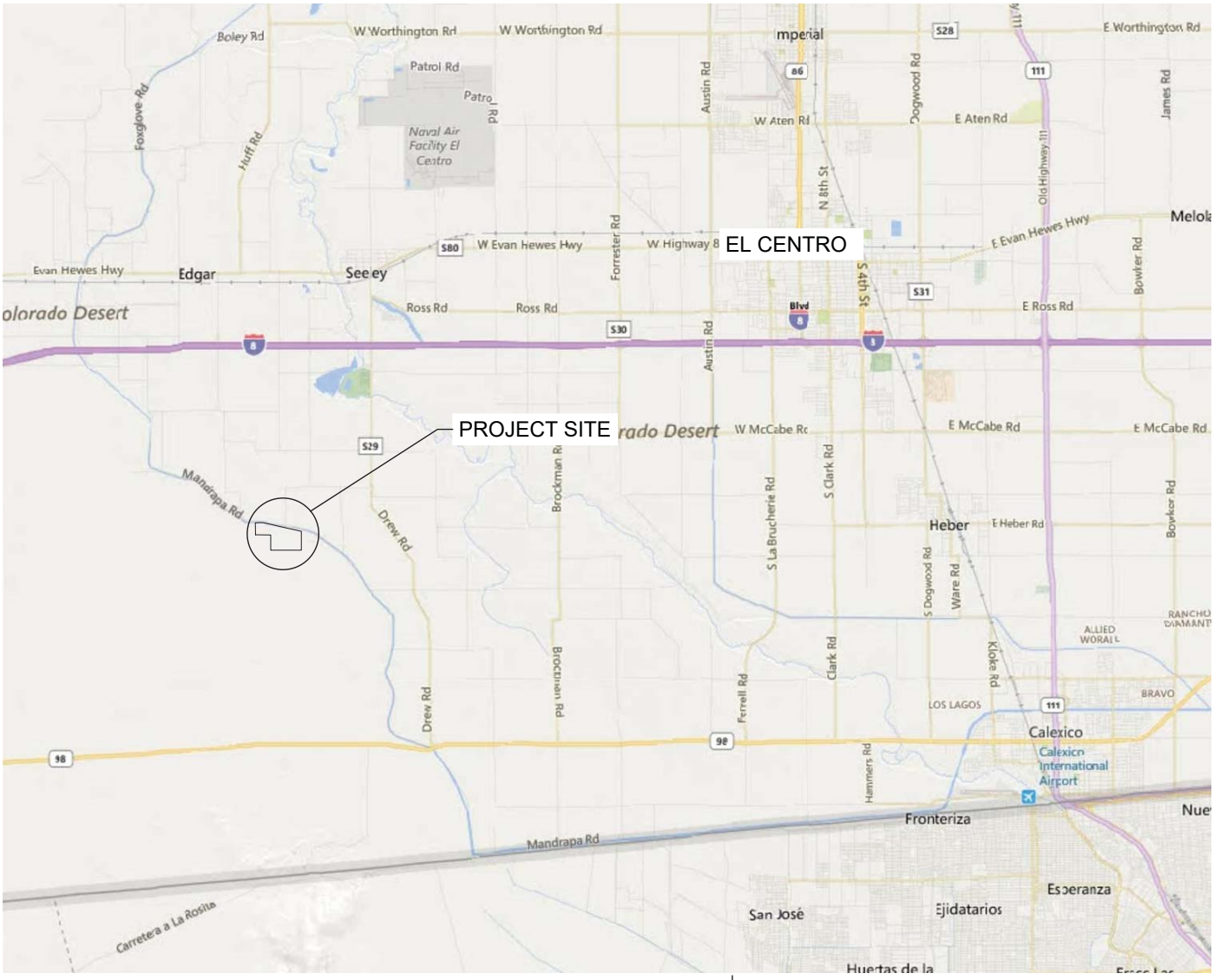
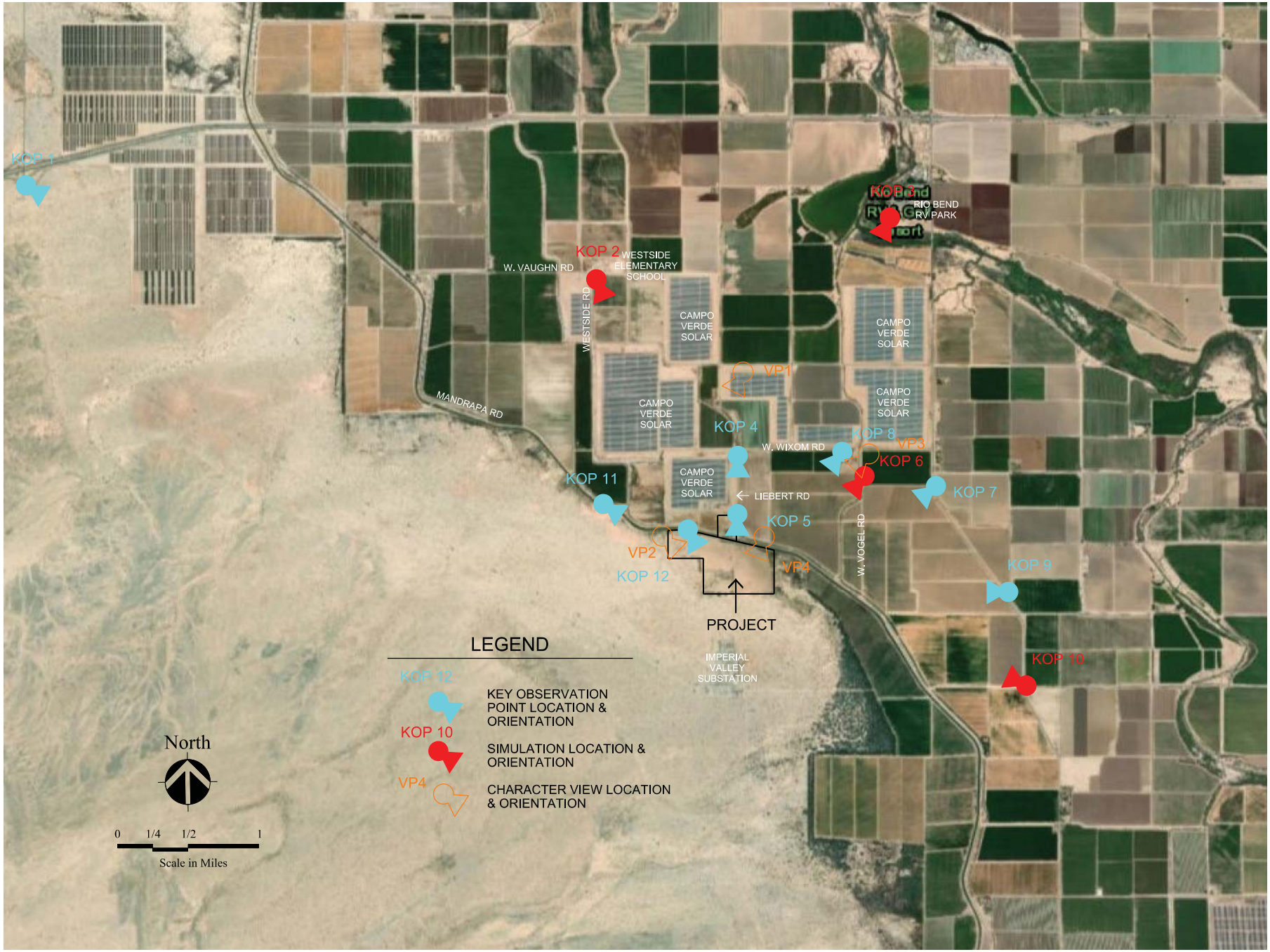


VICINITY MAP
NOT TO SCALE

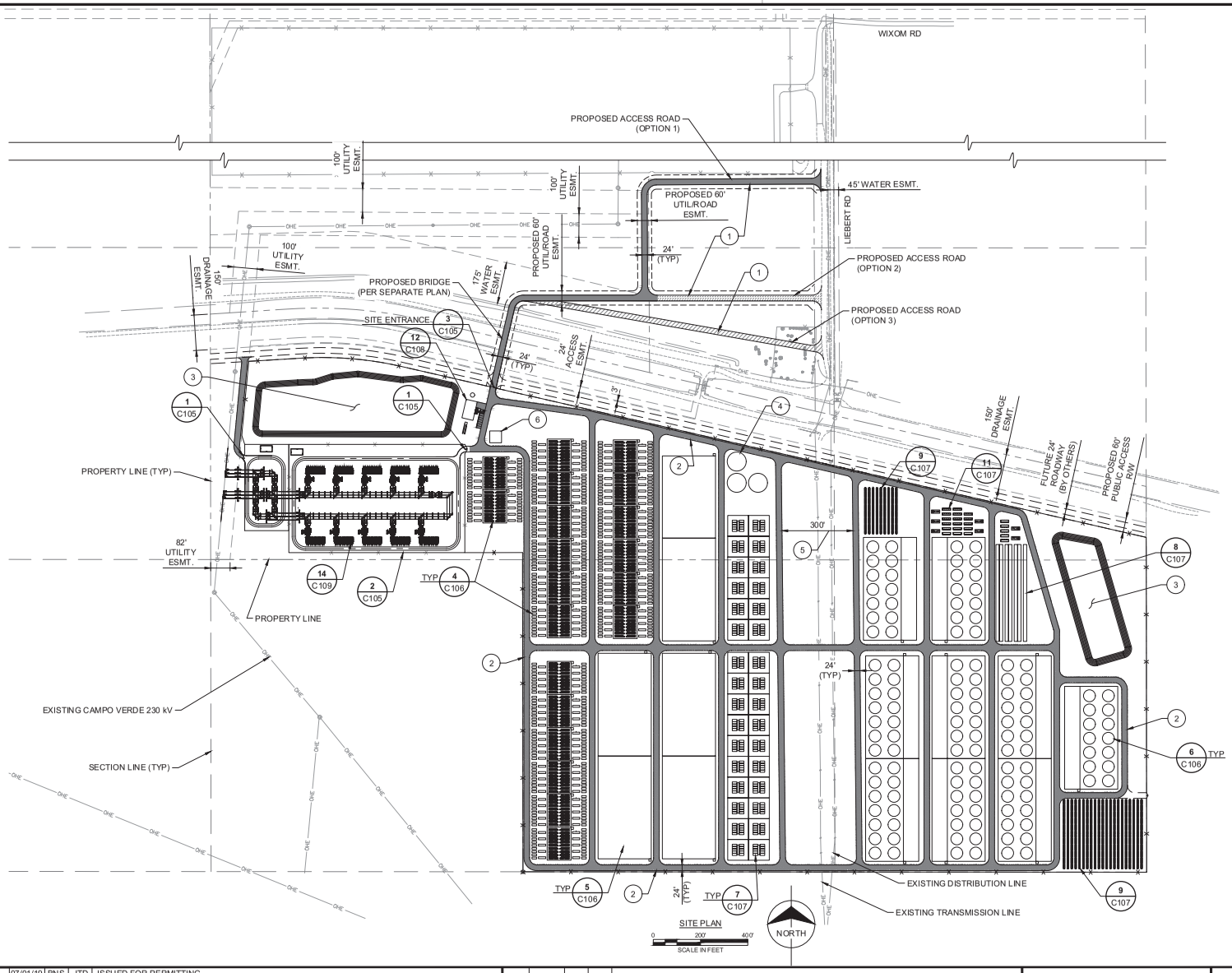
N

REGIONAL LOCATION MAP



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/ Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, April 8, 2020

VICINITY MAP & KEY OBSERVATION POINT (KOP) LOCATIONS



KEY NOTES:

1. SITE ACCESS ROAD (GRAVEL).
2. PROPOSED GRAVEL ROADWAY.
3. STORMWATER RETENTION AREA (TYP). SEE NOTE 2.
4. PROPOSED WATER STORAGE TANK. SEE UTILITY PLAN C102.
5. TEMPORARY 300' CORRIDOR. DEFINED EASEMENT TO BE DETERMINED WITH IMPERIAL IRRIGATION DISTRICT FOR S-TRANSMISSION LINE
6. CENTRALIZED LOCATION FOR EMERGENCY GENERATORS.

NOTES:

1. THIS LAYOUT IS CONCEPTUAL IN NATURE AND IS SUBJECT TO CHANGE DURING DETAILED DESIGN.
2. STORMWATER BASINS WILL BE DESIGNED IN ACCORDANCE WITH IMPERIAL COUNTY REGULATIONS. FINAL LOCATION AND SIZE OF STORMWATER FACILITIES AND BEST MANAGEMENT PRACTICES TO BE DETERMINED AT FINAL DESIGN.
3. ALL COMPONENTS INTERCHANGEABLE TO ANY LOCATION WITHIN THE SITE BOUNDARY.

no.	date	by	ckd	description
E	07/01/19	BNS	JTD	ISSUED FOR PERMITTING
D	06/21/19	BNS	JTD	ISSUED FOR REVIEW
C	06/14/19	BNS	JTD	ISSUED FOR REVIEW
B	05/24/19	BNS	JTD	ISSUED FOR REVIEW
A	04/26/19	BNS	JTD	ISSUED FOR REVIEW
F	07/16/19	BNS	JTD	ISSUED FOR PERMITTING

BURNS McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MO 64114
816-333-9400
FIRM LICENSE NO. 11523

designed: T. DOWELL | detailed: B. SVOR

conEdison Development
IMPERIAL COUNTY, CA

WESTSIDE CANAL BATTERY STORAGE COMPLEX
CONDITIONAL USE PERMIT
SITE PLAN

project 110578 | contract -
drawing C101 | rev. F
sheet - of - sheets
file 110578C101.dwg

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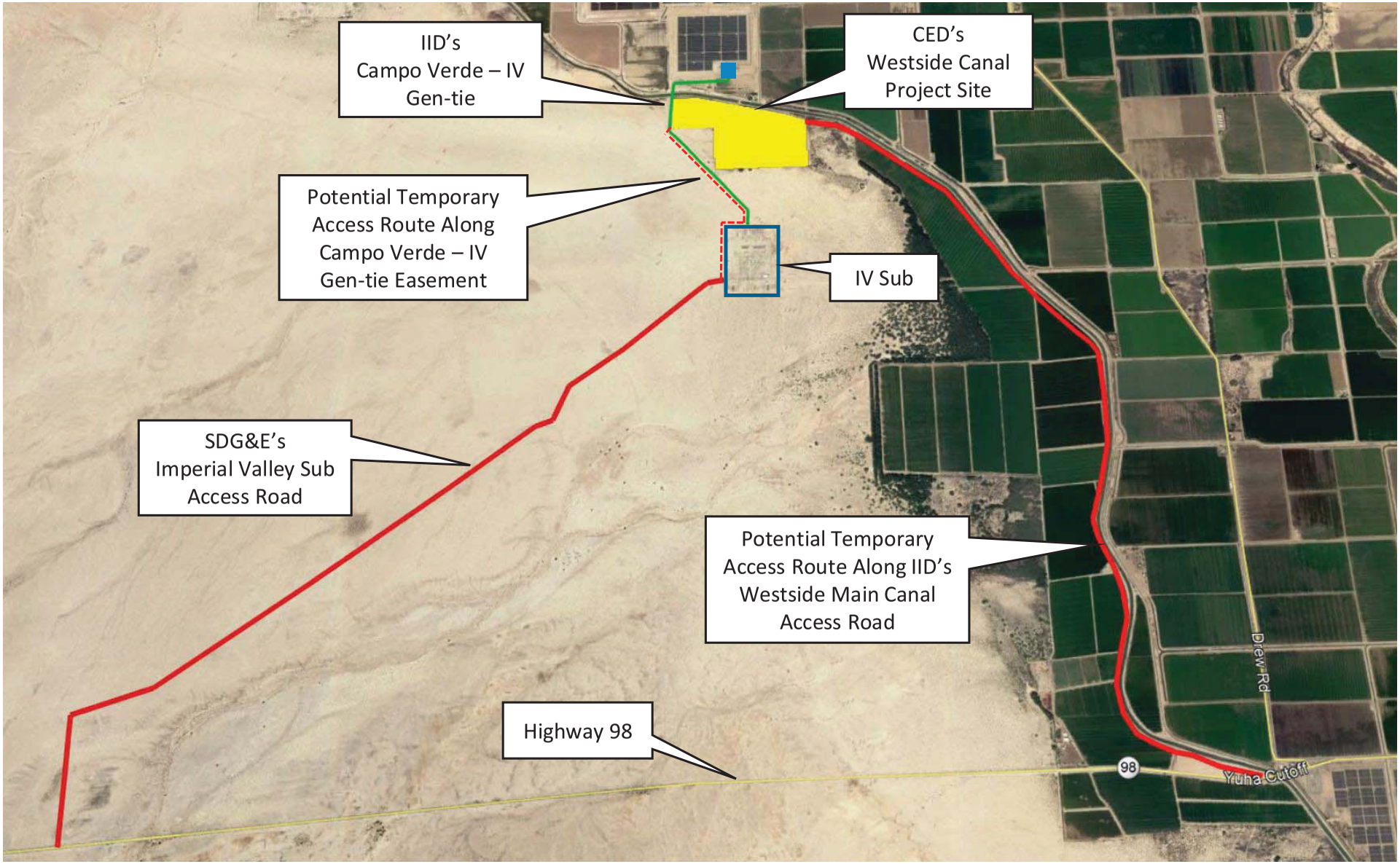
SITE PLAN

County of Imperial
July 2020

Westside Canal Solar Facility
FIGURE 3



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TEMPORARY CONSTRUCTION ACCESS ROUTES

County of Imperial
July 2020

Westside Canal Solar Facility
FIGURE 4

VP1 - View looking southwest toward the IID Campo Verde solar generation facility

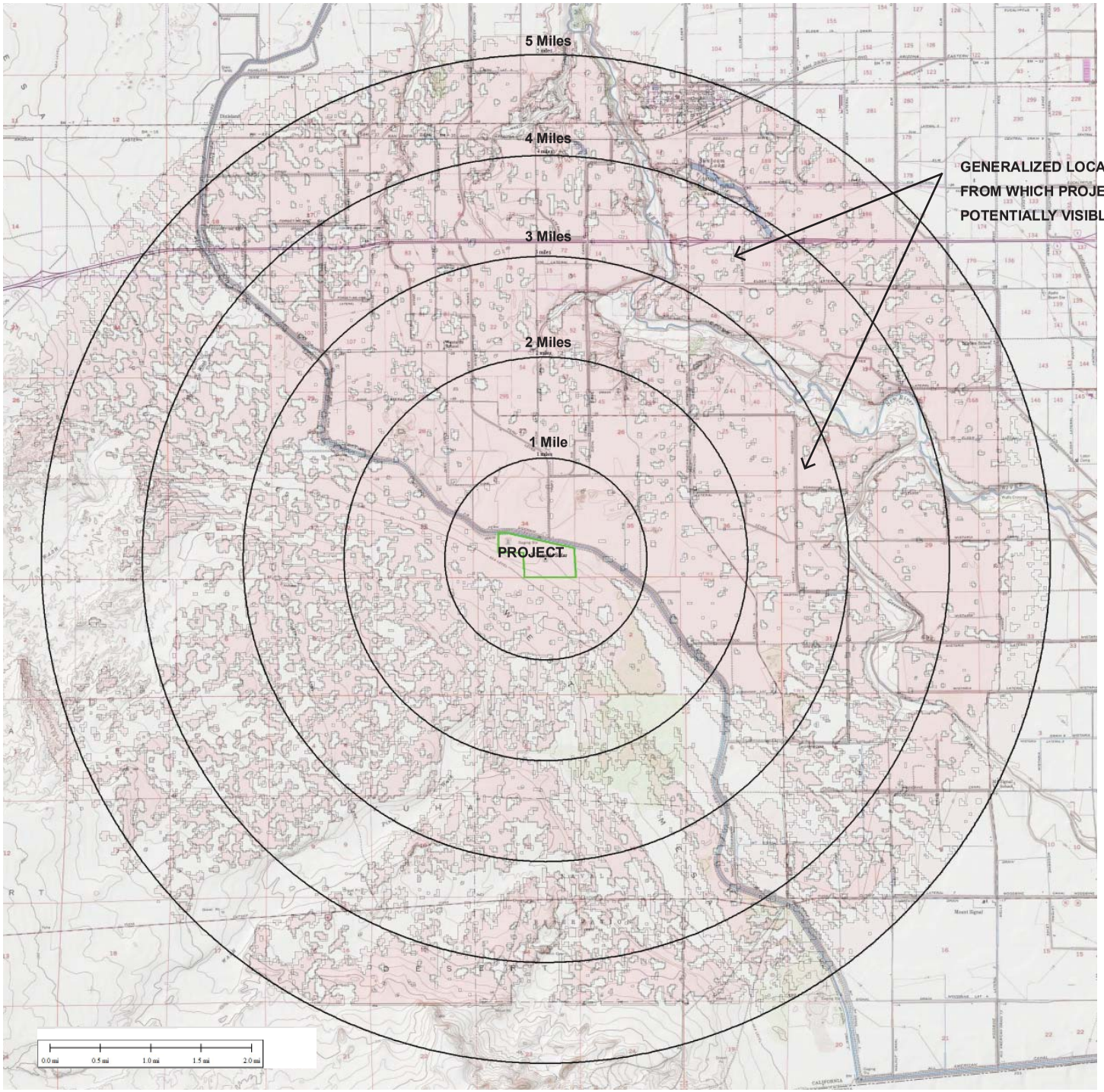
VP2 - View looking northeast toward project site, the Imperial Valley Substation, Centinella Peak, and the Yahu Desert

EXISTING CONDITIONS

VP3 - View southwest toward residential structures located on W. Wixom

VP4 - View southeast toward Project, with the Westside Canal in the foreground and Centinella Peak in the background.

EXISTING CONDITIONS



NOTES:

1. Analysis excludes view blocking foreground vegetation, & structures, and is based on digital base data accurate to within 10 meters.
2. This exhibit evaluates visibilty of a 60-foot structure to a visual receptor located 5' above existing ground elevation.

Source: Global Mapper, USGS

GENERALIZED VIEWSHED

VISUAL INVENTORY / CHARACTER EVALUATION

Visual Inventory / Character Evaluation				
Project: WESTSIDE CANAL			Evaluator: AGEVANTHOR	
Assessment Unit: DESERT/AGRICULTURE			Date: 5/10/19	
			Weather: CLOUDY	
	PATTERN ELEMENTS			
Visual Information	**PATTERN ELEMENTS**	LANDFORM/WATER	VEGETATION	STRUCTURES/DEVELOPMENT
INTENSIVE AG INTERSPERSED WITH SOLAR ENERGY FACILITIES, PANEL ARRAYS, SUBSTATIONS, UTIL. TOWERS, EDGED BY YUHA DESERT ALDNS BROKEY BY OVERHEAD UTILS (SU NRISE POWERLINK).	Form	1 2 3 4	1 2 3 4	1 2 3 4
	Line	1 2 3 4	1 2 3 4	1 2 3 4
MTN. BAKDROP FRONTED BY MORE DRAMATIC LANDFORMS. SPARSE DESERT LANDSCAPE, CANALS, EARTHEN BERMS	Color	1 2 3 4	1 2 3 4	1 2 3 4
	Texture	1 2 3 4	1 2 3 4	1 2 3 4
	PATTERN CHARACTER			
IMG 130-CAMPO VERDE, IMG 109-PROP CORNER LOOKING N/E, IMG 137 - VIEW S/W TOWARD NB RESIDENCES, IMG 98 - VIEW S/E	**PATTERN CHARACTER**	LANDFORM/WATER	VEGETATION	STRUCTURES/DEVELOPMENT
	Dominance	1 2 3 4	1 2 3 4	1 2 3 4
	Scale	1 2 3 4	1 2 3 4	1 2 3 4
	Visual Diversity	1 2 3 4	1 2 3 4	1 2 3 4
	Continuity	1 2 3 4	1 2 3 4	1 2 3 4
	Evaluation Scale:			
	3=High Prominance			
	2=Moderate Prominance			
	1=Present			

Visual Quality Evaluation

Project: Westside Canal
Assessment Unit:
Desert/Ag/Solar
Camera: Sony RX100

Evaluator: Agevanthor
Date: 5/10/19
Weather: Cloudy

Evaluation Scale:
1=Very Low
4=Medium
7=Very High

Observer Position
S=Superior
N=Normal
I=Inferior

Project Distance
F=Foregro to 1/4 miles
M=Middle 1/4 to 3 miles
B=Backgro beyond 3 miles

Observer Viewpo	VIEW				General Visual Quality	VISUAL QUALITY							IMPACT			
	Proposed/Existin	SETTING					Vividness		Intactness		Unity	(V+I+U) /3				
		Land Use	Observer Positio	Project Distance		Overall Vividness	Memorability of landscape components as they combine in striking and distinctive visual patterns. FEATURES	General Intactne	The integrity of visual pattern. The extent to which the landscape is free from visual encroachments. ENCROACHMENT	Overall Unity	The degree to which visual elements of the landscape join to form a coherent, harmonious visual pattern ELEMENTS		Visual Quality Differn	Positive Difference	Negative Difference	Image No.
	E	OS	N	B	3	3	OPEN DESERT	3	BROKEN UP BY MM UTILS	2	LACKS UNITY	2.67				156
KOP1	P					3	OVERHEAD UTIL. MTN BKDROP	3	AGRICULTURE	2		2.67	0			
	E	AG	N	M	2	3	AG/SOLAR FAC/BKGD MNTS	3	BROKEN UP BY MM UTILS	2	LACKS UNITY	2.67				192
KOP2*	P					3		3	AGRICULTURE	2		2.67	0			
	E	SSU	N	M	3	4	GOLF COURSE, OS, AG LAND	3	DESERT LANDSCAPE BROKEN	3	SOMEWHAT UNIFIED	3.3				149
KOP3*	P					4	DISTINCTIVE PEAKS, M.G. UTILS	3	BY MM ELEMENTS	3		3.3	0			
	E	AG	N	M	2	3	BKGD LANDFORMS	2	NONE	2		2.3				129
KOP4	P					3	DOMINANT UTIL PATTERNS	2		2		2.3	0			130
	E	I	N	M	2	3	MTN PEAKS, MEMORABLE	2	BROKEN UP BY MM UTILS	2	LACKS UNITY	2.33				124
KOP5	P					3	DESERT, AG	2	AGRICULTURE, ROADS	2		2.3	0		0.33	
	E	AG	N	F	2	3	MTN PEAKS, MEMORABLE	2	BROKEN UP BY MM UTILS	2	LACKS UNITY	2.33				140
KOP6*	P					3	DESERT, AG	2	AGRICULTURE, ROADS	2		2.33	0			
	E	AG	N	M	2	3	MTN PEAKS, MEMORABLE	2	BROKEN UP BY MM UTILS	2		2.33				142
KOP7	P					3	DESERT, AG	2	AGRICULTURE, ROADS	2		2.33	0			
	E	AG	N	F	2	3	MTN BKDROP	2	WORKING/INTENSIVE	2		2.33				135
KOP8	P					3		2	AGRICULTURE	2		2.33	0			
	E	AG	I	M	2	3	MTN BKDROP	2	WORKING/INTENSIVE	2		2.33				146
KOP9	P					3		2	AGRICULTURE	2		2.33	0			

* Evaluated with aid of photo simulation. Analysis for other views extrapolated.

VISUAL QUALITY EVALUATION

Visual Quality Evaluation

Project: Westside Canal
Assessment Unit:
Desert/Ag/Solar
Camera: Sony RX100

Evaluator: Agevanthor
Date: 5/10/19
Weather: Cloudy

Evaluation Scale:
1=Very Low
4=Medium
7=Very High

Observer Position
S=Superior
N=Normal
I=Inferior

Project Distance
F=Foregro to 1/4 miles
M=Middle 1/4 to 3 miles
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Observer Viewpo	VIEW				General Visual Quality	VISUAL QUALITY								IMPACT			
	Proposed/Existin	SETTING					Vividness		Intactness		Unity						
		Land Use	Observer Positio	Project Distance		Overall Vividness	Memorability of landscape components as they combine in striking and distinctive visual patterns. FEATURES	General Intactne	The integrity of visual pattern. The extent to which the landscape is free from visual encroachments. ENCROACHMENT	Overall Unity	The degree to which visual elements of the landscape join to form a coherent, harmonious visual pattern ELEMENTS	(V+I+U) /3		Visual Quality Differn	Positive Impact	Negative Impact	Image No.
	E	AG	N	M	2	2	UNREMARKABLE OPEN DESERT	2	BROKEN UP BY MM UTILS	2	LACKS UNITY	2.0					148
KOP10*	P					2	OVERHEAD UTIL. MTN BKDROP	2	AGRICULTURE	2		2.0		0.0			
	E	AG	N	F	3	3	AG/SOLAR FAC/BKGD MNTS	3	BROKEN UP BY MM UTILS	3	SOMEWHAT UNIFIED	3.0					96
KOP11	P					2		2	AGRICULTURE	2		2.0		1.0		1.0	
	E	AG	N	I	3	3	OS, AG LAND,UTILS	3	DESERT LANDSCAPE BROKEN	3	SOMEWHAT UNIFIED	3.0					112
KOP12	P					2		2	BY MM ELEMENTS	2		2.0		1.0		1.0	
	E																
	P																
	E																
	P																
	E																
	P																
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	E																
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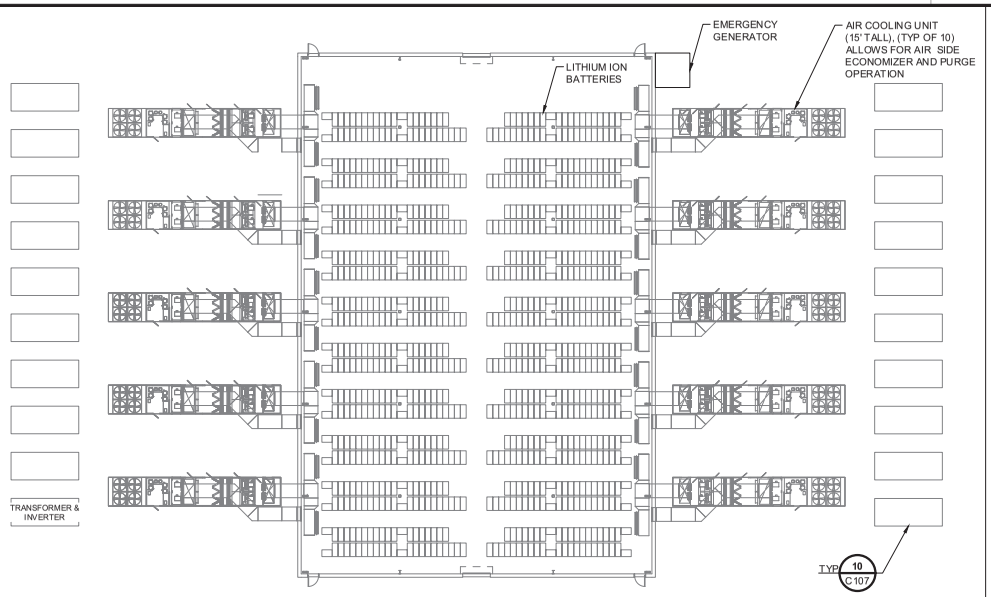
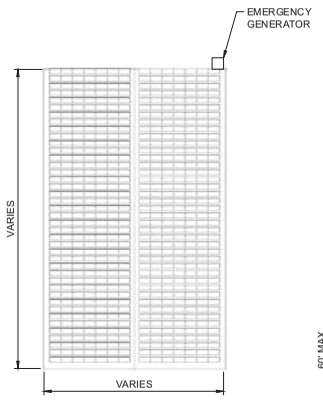
* Evaluated with aid of photo simulation. Analysis for other views extrapolated.

VISUAL QUALITY EVALUATION

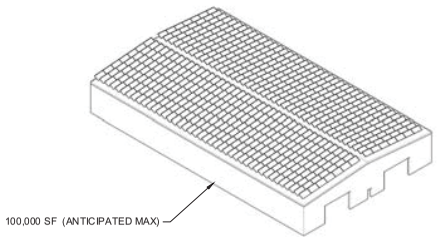
Westside Canal Solar Facility
FIGURE 8b



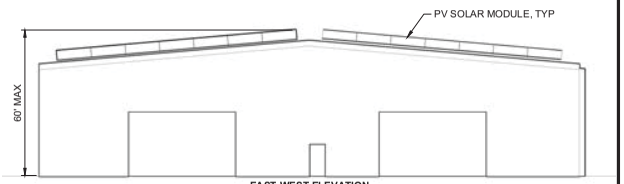
GENERAL ARRANGEMENT



GENERAL ARRANGEMENT



ISOMETRIC VIEW

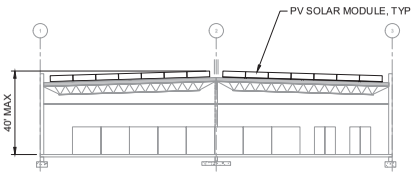


EAST-WEST ELEVATION

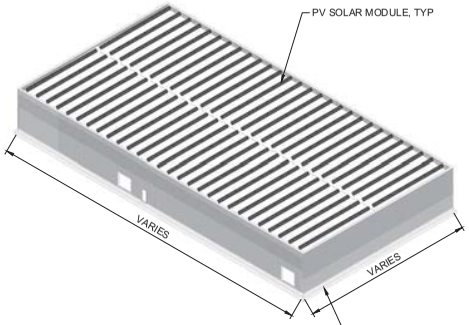
NOTES:

1. SOLAR AND TANK LAYOUT AND ARRANGEMENT ARE PRELIMINARY AND SUBJECT TO REVISION.
2. BUILDING FOOTPRINT IS CONCEPTUAL AND WILL VARY DEPENDING ON TYPE AND QUANTITY OF BATTERY THAT IS SELECTED.
3. BUILDINGS MAY BE CONSTRUCTED TO SHARE A COMMON WALL.

FLOW BATTERY ENCLOSURE BUILDING
NOT TO SCALE
5 C101



EAST-WEST ELEVATION

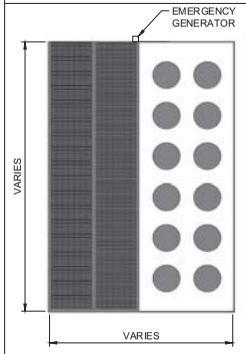


ISOMETRIC VIEW

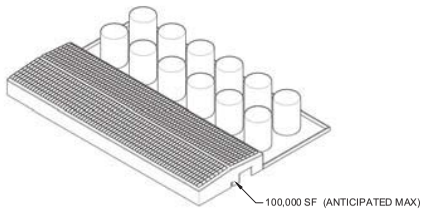
NOTES:

1. SOLAR LAYOUT AND ARRANGEMENT ARE PRELIMINARY AND SUBJECT TO REVISION.
2. BUILDING FOOTPRINT IS CONCEPTUAL AND WILL VARY DEPENDING ON TYPE AND QUANTITY OF BATTERY THAT IS SELECTED.
3. BUILDINGS MAY BE CONSTRUCTED TO SHARE A COMMON WALL.

BATTERY ENCLOSURE BUILDING
NOT TO SCALE
4 C101



GENERAL ARRANGEMENT



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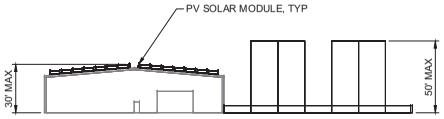

EAST-WEST ELEVATION

NOTES:

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2. BUILDING FOOTPRINT IS CONCEPTUAL AND WILL VARY DEPENDING ON TYPE AND QUANTITY OF BATTERY THAT IS SELECTED.
3. BUILDINGS MAY BE CONSTRUCTED TO SHARE A COMMON WALL.

FLOW BATTERY ENCLOSURE BUILDING W/ EXTERIOR TANKS
NOT TO SCALE
6 C101

no.	date	by	ckd	description
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D	06/21/19	BNS	JTD	ISSUED FOR REVIEW
C	06/14/19	BNS	JTD	ISSUED FOR REVIEW
B	05/24/19	BNS	JTD	ISSUED FOR REVIEW
A	04/26/19	BNS	JTD	ISSUED FOR REVIEW

BURNS McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MO 64114
816-333-9400
FIRM LICENSE NO. 11523

designed: T. DOWELL | detailed: B. SVOR

conEdison Development
IMPERIAL COUNTY, CA

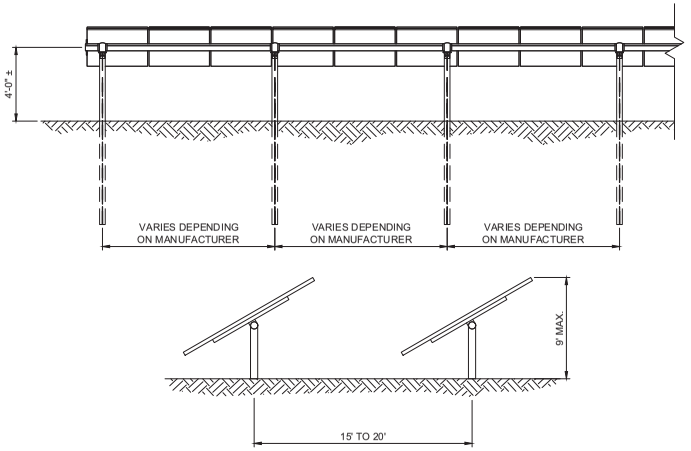
WESTSIDE CANAL BATTERY STORAGE COMPLEX
CONDITIONAL USE PERMIT
SITE DETAILS

project 110578 | contract -
drawing C106 | rev. E
sheet - of - sheets
file 110578C106.dwg

SITE PLAN ELEMENTS

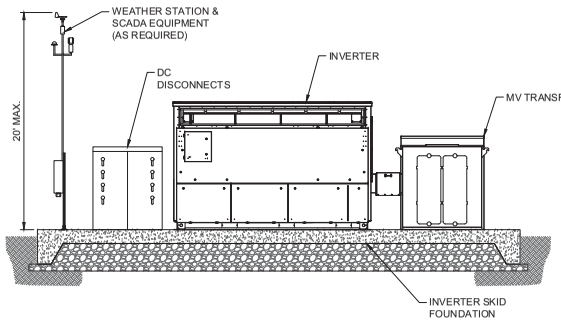
FLOW BATTERY STACKABLE CONTAINERS (40' MAX HEIGHT)
MANUFACTURER'S REPRESENTATION, TYP OR EQUAL (7 / C101)
NOT TO SCALE

FLOW BATTERY CONTAINER (10' MAX HEIGHT)
MANUFACTURER'S REPRESENTATION, TYP OR EQUAL (8 / C101)
NOT TO SCALE

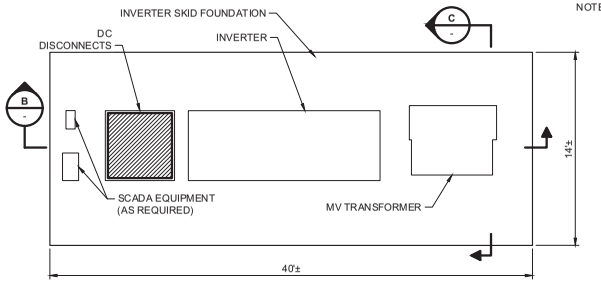


NOTE:
1. DETAILS ON THIS DRAWING ARE CONCEPTUAL ONLY.
2. FOUNDATION AND EQUIPMENT CONFIGURATION SUBJECT TO CHANGE DURING DETAILED DESIGN.

SOLAR TRACKER DETAIL (9 / C101)
NOT TO SCALE



SECTION (B / -)



TYPICAL INVERTER SKID (10 / C106)
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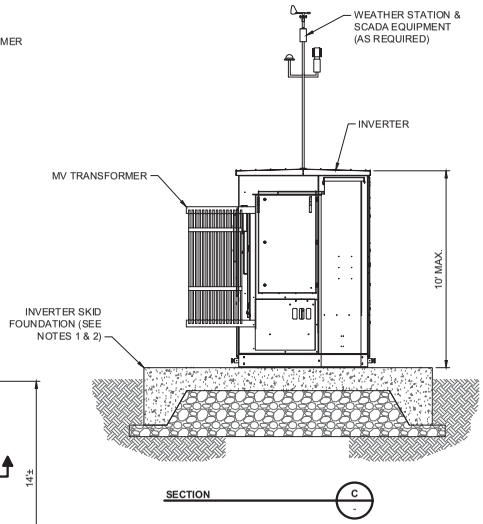

SECTION (C / -)

NOTE:
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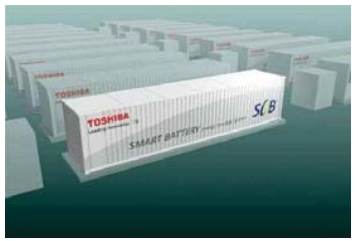
2. FOUNDATION AND EQUIPMENT CONFIGURATION SUBJECT TO CHANGE DURING DETAILED DESIGN.



LITHIUM ION BATTERY CONTAINER (10' MAX HEIGHT)
MANUFACTURER'S REPRESENTATION, TYP OR EQUAL (11 / C101)
NOT TO SCALE

no.	date	by	ckd	description
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C	06/14/19	BNS	JTD	ISSUED FOR REVIEW
B	05/24/19	BNS	JTD	ISSUED FOR REVIEW
A	04/26/19	BNS	JTD	ISSUED FOR REVIEW

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WESTSIDE CANAL BATTERY STORAGE COMPLEX
CONDITIONAL USE PERMIT
SITE DETAILS
project 110578 | contract -
drawing C107 | rev. D
sheet - of - sheets
file 110578C107.dwg

SITE PLAN ELEMENTS

KOP #1 - View from Interstate-8 and Dunaway Rd looking southeast, approximately 5 miles from project.

KOP #2 - View near the Westview Elementary School looking southeast, approximately 1.8 miles from project.

KEY OBSERVATION POINTS (KOPs)

KOP #2 - View near the Westview Elementary School looking southeast.

PHOTO SIMULATION KOP #2

KOP #3 - View south from southern end of Rio Bend RV Resort and Golf Course, approx. 2.5 miles from project.

KOP #4 - View south from southern edge of residence located north of West Wixom/Liebert Roads, approx. .6 miles from site.

KEY OBSERVATION POINTS (KOPs)

KOP #3 - View looking south from the southern end of the Rio Bend RV Resort and Golf Course Community.

PHOTO SIMULATION KOP #3

KOP #5 - View south toward project from Liebert Rd near southern edge of the Campo Verde Solar Project, approx. .2 miles from site.

KOP #6 - View southwest from Vogel Rd., south of existing residence at intersection of Vogel /W. Wixom Rd, .8 miles from site.

KEY OBSERVATION POINTS (KOPs)

KOP #6 - View looking southwest from a location on Vogel Rd., south of an existing residence located at the intersection of Vogel Rd and W. Wixom Rd

PHOTO SIMULATION KOP #6

KOP #11 - View from Mandrapa Rd. looking southeast approximately .49 miles from project.

KOP #12 - View south of canal approximately 236' from project entry.

KEY OBSERVATION POINTS (KOPs)

KOP #7 - Looking southwest from Drew Rd, south of existing residence at intersection of Drew/W. Grahm Rd., approx. 1.2 miles from site..

KOP #8 - View southwest from residence located at 1995 W. Wixom Rd., approx. .84 miles from project.

KEY OBSERVATION POINTS (KOPs)

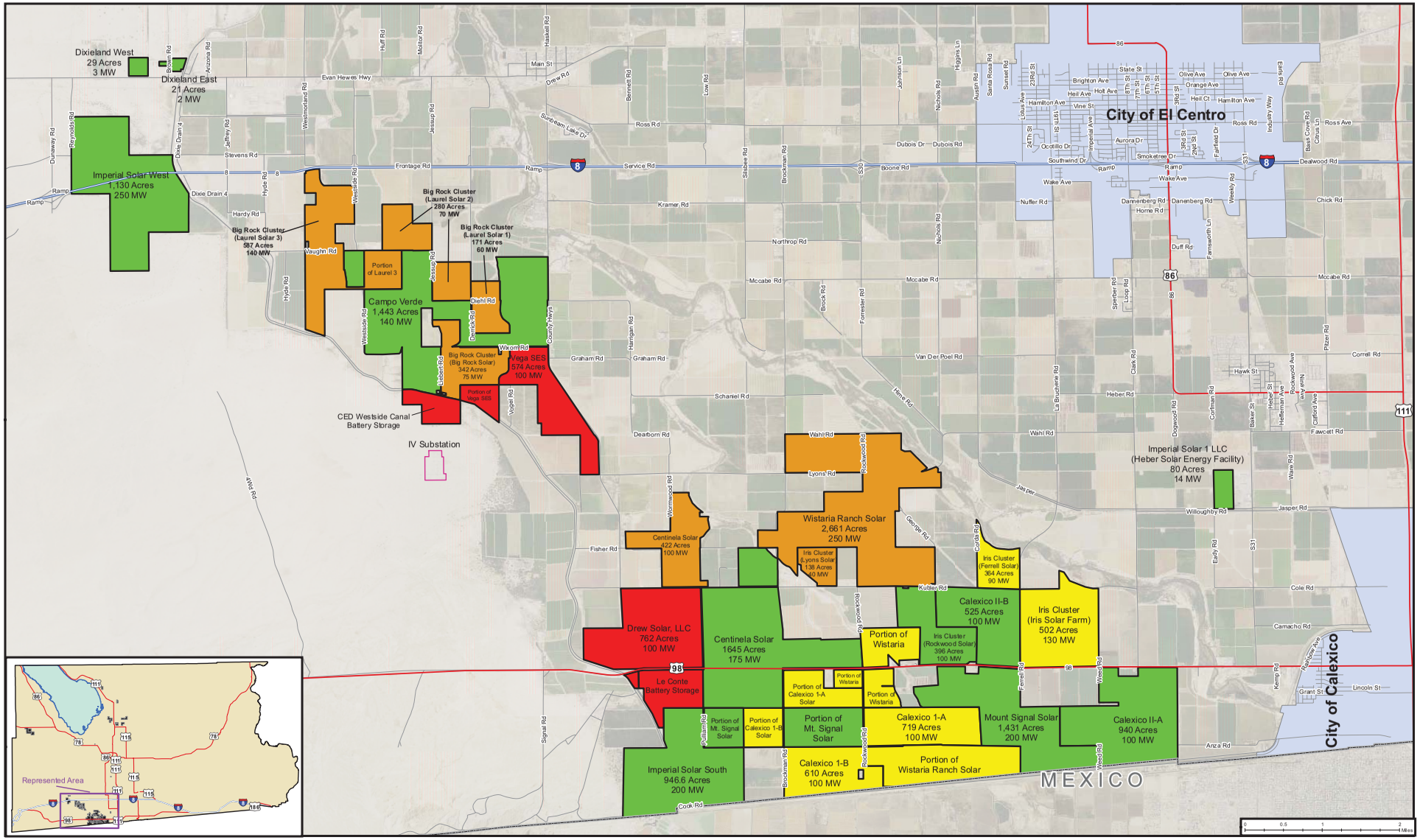
KOP #9 - View looking west toward project from Drew Rd., approx. 1.7 miles from project.

KOP #10 - View looking northwest from Drew Rd. and Lyons, approximately 1.9 miles from project.

KEY OBSERVATION POINTS (KOPs)

KOP #10 - View looking northwest from Drew Rd. and Lyons

PHOTO SIMULATION KOP #10



Imperial County Solar Farm Projects
South End Projects

Sources: IC Assessors, IC Planning Dept., Aerial: NAIP 2014, created by Derek Newland

UPDATED: September 09, 2019

Imperial County Solar Farm Projects – South End Projects Map

APPENDIX B – AESTHETIC AND VISUAL RESOURCES

B.2. Solar Glare Hazard Analysis

Solar Glare Hazard Analysis: Westside Canal Battery Storage Project

To: RECON Environmental, Inc.: Michael Page and Nick Larkin
Date: May 2020
From: Good Company: Justin Overdevest and Joshua Proudfoot

KEY FINDINGS

- **Short windows of glare:** Glare could occur from March through October for short periods of time (approximately 5-20 minutes) during morning and evening hours with most sites experiencing low or no glare. The intensity of the glare is low to moderate, never extensive or dangerous.
- **Assessed multiple observation points:** Strategically placed Key Observation Points (KOPs) were analyzed surrounding the site, with only five of the 18 points showing potential for glare.
- **No dwellings or commercials structures are affected:** Only auxiliary gravel roads, agricultural areas, and electrical lines indicated potential for glare.
- **Taller building design more of a challenge:** The potential for glare is highest with the 50-foot building height, 25-degree panel tilt roof-mount array option, with generally higher glare anticipated from the 25-degree tilt over 10-degree tilt.
- **No impact on adjacent sensitive sites:** There is no airport/runway glare predicted at Imperial County Airport nor the nearby U.S. Naval Air Facility. There is no glare at either Air Traffic Control Tower (ATCT). There is no glare predicted at the nearby Imperial Valley substation.

PROJECT DESCRIPTION

RECON hired Good Company to evaluate the potential for glare from the proposed Westside Canal Battery Storage (project) located in Imperial County, CA to surrounding ground-level key observation points (KOPs). The KOPs assessed include roads, agricultural areas, utility sites, and surrounding air strips including flight approaches and take offs.

Consolidated Edison Development, Inc. (CED) is proposing to develop, design, construct, own, operate, and maintain the CED Westside Canal Battery Storage Project (project), a utility-scale energy storage complex with a capacity of up to 2,000 megawatts (MW). The project would store energy generation from the electrical grid, and optimally discharge that energy back into the grid as firm, reliable generation and/or grid services.

The project would be comprised of lithium-ion battery and/or flow battery energy storage facilities, a behind-the-meter solar energy facility, a new on-site 230 kilovolt (kV) loop-in switching station, a 34.5kV to 230kV substation, underground electrical cables, and permanent

making sustainability work 65 Centennial Loop, Suite B Eugene, OR 97401 • 541.341.4663 goodcompany.com

vehicular access to and from the site over a proposed bridge spanning Imperial Irrigation District's (IID's) Westside Main Canal. The proposed loop-in switching station would connect the project to the existing IID Campo Verde-Imperial Valley 230 kV radial gen-tie line, which connects to the Imperial Valley Substation (IV Substation) and the California Independent System Operator (CAISO), approximately one-third mile south of the project site. CED has submitted the necessary Interconnection Request Applications to the CAISO and IID.

The project would complement both the existing operational renewable energy facilities, as well as those planned for future development in the County, and would support the broader Southern California bulk electric transmission system by serving as a firm, dispatchable resource.

The project would be constructed in three to five phases over a 10-year period, with each phase ranging from approximately 25 MW up to 400 MW per phase. Depending on the size of the battery system for a given phase, construction and commissioning (approval to operate) is anticipated to take approximately 6 to 12 months. For the purposes of this analysis, the applicant has assumed that construction activities would last for approximately 32 months to complete the full project build-out.

Construction of the 100- to 200- MW first phase would include roads, a permanent clear-span bridge across the Westside Main Canal, the Operations and Maintenance (O&M) facilities, water connections and water-mains, storm water retention, switching station and project substation, legal permanent vehicle access, as well as the first energy storage facility. To access the project site, construction workers would travel along Interstate 8 (I-8) and head 4.6 miles south to the project site, and would utilize the IID Fern Check Bridge as a pedestrian bridge until the permanent bridge is constructed. During peak construction activities, approximately 200 workers and approximately 30 daily deliveries would be required. If approved, it is anticipated that construction of the first phase would begin in 2021.

It is anticipated that each subsequent phase would be constructed within one to two years of each other, with the timing and size of each phase dependent on market conditions and the applicant's ability to secure commercial contracts with prospective customers. With the project being built in phases, the necessary infrastructure, such as water mains, retention ponds, and access roads, would be built out to serve the project phases from west to east and expanded over time to serve each phase. These subsequent phases would require improvements such as additional substation equipment, water main and site road extension, but would not require construction of additional common facilities which would be completed during the first phase. The total nameplate (or rated capacity) capacity of the project at full build-out (all phases completed) would be approximately 2,000 MW.

Construction activities during all project phases would only occur Monday through Friday, between the hours of 7:00 a.m. and 7:00 p.m. or Saturday between the hours of 9:00 a.m. and 5:00 p.m., excluding holidays, per County Ordinance.

On-site photovoltaic (PV) solar generation will serve as station auxiliary power and be deployed throughout the project site, constructed during each phase. Each PV module would be constructed out of a poly-crystalline silicon semiconductor material encapsulated in glass, in which the PV effect would allow the electrons to flow through that material to produce electricity. The PV modules will be organized into electrical groups referred to as an array. Arrays can be mounted on a rooftop, on a motionless ground-mounted steel structure, or a rotating PV tracker. For a fixed ground mount or tracker, each array will encompass 5-8 or more acres of PV panels (producing at least 1 MWAC or more) and include at least one DC to AC inverter. Construction would include installation of mounting posts, module rail assemblies, PV modules, inverters, transformers and buried electrical conductors. Concrete would be required for the footings, foundations and pads for the transformers and substation work. Tracker foundations would be comprised of either driven or vibrated steel posts/pipes, and/or concrete in some places (depending on soil and underground conditions).

Roof mounted arrays will be set approximately 6-24" above the roof surface, and anchored to the building structure with a ballasted assembly, or a bolt and rail system. The size of each array will depend upon the capacity of the associated inverters, which in turn will depend upon the type and size of inverters available for purchase and other related electrical design considerations. Conductors will extend from the PV panels to the inverter(s) via a cable management system either underground or aboveground. The output of the inverter(s) will be connected to a transformer (if needed), to match the voltage at the point of interconnection (480V, 34.5kV, etc.). The interconnection point will be behind the on-site service meter. The transformers will connect to the system auxiliary load with an above ground or underground cable management system, such as overhead power lines, conduit, direct burial cables, etc.

PROJECT LOCATION

The project would be located in the unincorporated Mount Signal area of the County, approximately 8.0 miles southwest of the city of El Centro and approximately 5.3 miles north of the U.S.-Mexico border. The project site is comprised of two parcels owned by CED, Assessor Parcel Number (APN) 051-350-010 and APN 051-350-011, totaling approximately 148 acres. These parcels have limited access corridors for vehicular traffic and are considered less desirable for agricultural production, as reflected by the last 15 years during which no farming activity has occurred.

The project site is approximately one-third mile north of the IV Substation and directly south of the intersection of Liebert Road and the IID's Westside Main Canal. The project site is bounded by the Westside Main Canal to the north, Bureau of Land Management lands to the south and west, and vacant private land to the east. The Campo Verde solar generation facility

is located north of the project site, across the Westside Main Canal. Figure 2 shows the project site on a U.S. Geological Survey Map. Figure 3a shows an aerial photograph of the project site and the above-mentioned nearby facilities.

The two project parcels are proposed for development as a utility-scale energy storage complex. The project would also utilize portions of two parcels located north of the Westside Main Canal (APN 051-350-019 owned by IID and APN 051-350-018 owned by a private land owner) for site access and as a temporary construction staging area. The project would also access a small portion of APN 051-350-009 within an IID easement for connection to the existing IID Campo Verde Imperial Valley 230 kV radial gen-tie line during the construction of a substation on the project site. The total proposed project development footprint, encompassing both temporary and permanent impacts, would be 163.32 acres.

METHODOLOGY

The purpose of a glare analysis is to assess the potential impact of glare from PV modules and other components as a potential hazard or distraction for motorists, nearby residences, commercial and agriculture facilities, airports and approaching airplanes. Glare is a common phenomenon that originates from the reflection of a light source (usually the sun) off any reflective service (e.g., windows, chrome automobile bumpers, water, etc.).

The methodology for the analysis consists of two parts: 1) identifying the observational points of concern ("key observation points," or KOPs) around the project site, and 2) conducting the calculations necessary to determine if the observational points of concern intersect with the angles of light reflection, resulting in glare.

RECON provided the location of the project site and we selected points of concern and KOPs using Google Maps. For the Westside Canal project site, our team identified adjacent road intersections, residential and agricultural structures, and regional air strips. Airport analyses include air traffic control towers and approaching flight paths and pilot visibility.

The calculations in this analysis are based on the Solar Glare Hazard Analysis Tool (SGHAT) methodology and tool, developed by Sandia National Laboratory for the U.S. Department of Energy. This subscription-based online tool is built on a Google Maps platform and allows assessment for potential solar glare hazard based on multiple variables including: panel elevations, observation points, panel tilt, panel orientation, reflectivity, peak direct normal irradiance and ocular measurements. The following points describe the main variables adjusted for this analysis:

- **Panel elevation:** refers to the height of the panels. To account for multiple architectural design options being considered by the development team, models were run at 5 ft., 20 ft., 30 ft., 40 ft., and 50 ft.

- **Panel orientation:** refers to the direction the panel is facing. Orientation is expressed in degrees off of due north. For example, 90° represents due east, whereas 180° is due south and 270° is due west. Models were run for 180°, facing due south.
- **Panel tilt**: angle of the panels. To account for multiple options, models for these fixed-tilt panels were run at 10° and 25° off horizontal.
- **Reflectivity:** refers to the amount of light reflected. This variable can be manually set or variable depending on glass surface texture and the presence of anti-reflective coatings (ARC).
- **Observation Height:** refers to the height of each KOP used for calculating glare. A height of five feet is used to compare to ground level observers either standing or driving vehicles. No multi-story structures are located adjacent to the site.
- **ATCT observation height:** refers to the height of Air Traffic Control Tower. KOPs for ATCTs were set at 100 ft.

The SGHAT tool's output provides a finding of whether or not the potential for glare exists as a result of the angle of reflected light reaching a particular observation point and the related intensity of the glare. The tool calculates the angle reflection for all hours of the day and all days of the year based on the changing azimuth[1] of the sun.

For approaching airplanes to designated runways, SGHAT calculates glare every quarter mile beginning at the threshold (beginning of runway) to two miles out. Flight path heights of each quarter mile point are calculated based on the threshold height above ground, glide slope and threshold elevation.

SGHAT has become the *de facto* option for solar glare hazard analysis due to its ease of use, powerful analytical abilities and design pedigree and acceptance by such organizations as the Federal Aviation Administration (FAA). ***Good Company's analysis is wholly dependent on the information provided by the developer client, RECON and the abilities and limits of the SGHAT tool.***

DEFINING SOLAR GLARE HAZARD

Glare can be described as a continuous source of excessive brightness.[2] Glare, and its effect on vision, is not a simple measurement because the effect of glare depends on a number of

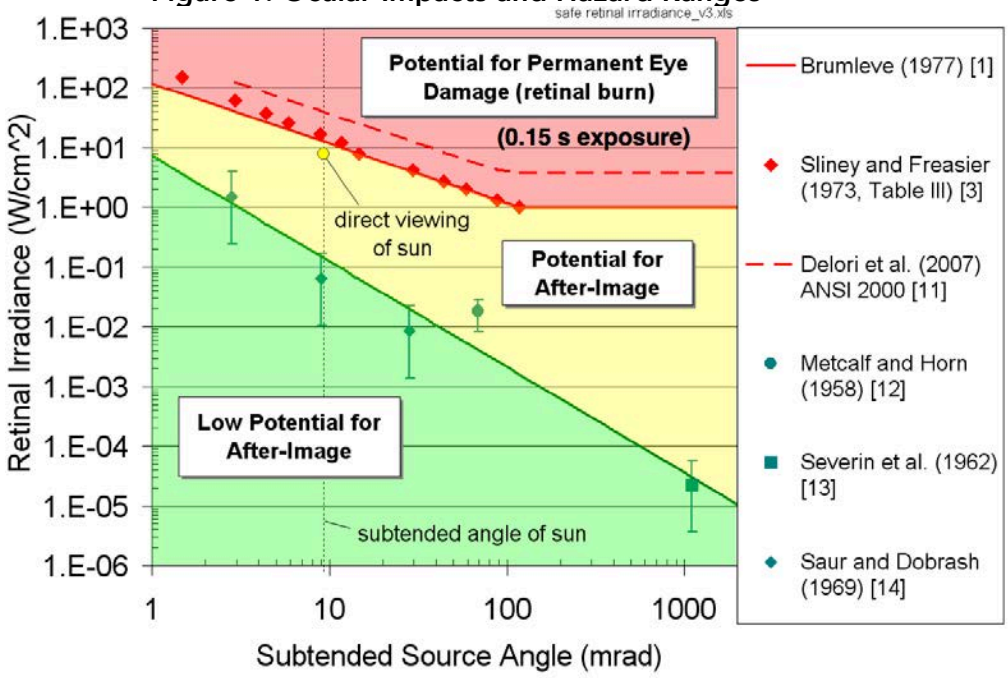
[1] Azimuth is the horizontal direction expressed as the angular distance between the direction of a fixed point (as the observer's heading) and the direction of the object. This word is being used here to describe the arc of the sun in the sky as it changes with the seasons (i.e. higher arc in the summer and lower in winter).

[2] Ho and Khalsa. 2011. *Summary of Impact Analyses of Renewable Energy Technologies on Aviation and Airports.* Sandia National Laboratories. Retrieved October 30, 2013 at https://share.sandia.gov/phlux/static/references/glint-glare/SGHAT_Ho.pdf

factors including the source radiance, source angle, duration of exposure, wavelength, pupil diameter and eye focal length.

Retinal irradiance (W/cm^2 – watts per cm^2) and *subtended source angle* (mrad) are the two main factors used to assess impact on the human eye. Retinal irradiance calculates the total power of the light entering the pupil and the retinal image area. *Subtended source angle* is calculated using the light source size, distance and focal length. These two factors are shown as axes of Figure 1, which maps the potential ocular impacts and thresholds for each of the three bands of potential hazard from available research on the subject.

Figure 1: Ocular Impacts and Hazard Ranges

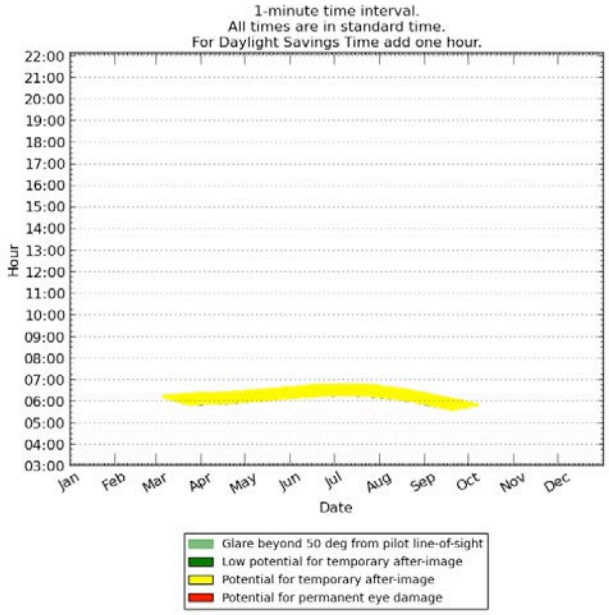


Source: Solar Glare Hazard Analysis Tool (SGHAT, 2018) https://share-ng.sandia.gov/glare-tools/

After-image experiences (green and yellow bands in Figure 1 above) vary broadly and are commonly described as flash blindness, which results from bright sources of light bleaching retinal visual pigments. Commonly, yellow can mean caution, and in some instances potential for after-image can infer caution such as when directly viewing the sun (a point labeled in Figure 1). However, when considering the results of the SGHAT tool, it is important to remember that the yellow band describes a range of effects, not a single point or single effect. Experiencing after-image potential is common. Examples of after-image potential include the eye's reaction to a flash bulb or a light being turned on in a dark room. The red band is not applicable to this analysis, as PV or CPV panels are not capable of creating the conditions that would cause permanent eye damage.

This technical definition of glare is provided to the reader as background information because the SGHAT tool uses calculated values for *retinal irradiance and subtended source angle*, and the same colors used in Figure 1, to describe the intensity of glare in the results. Figure 2 provides an example of the one output from the SGHAT tool. The yellow line shows the timing, duration and intensity of glare (yellow = potential for temporary after image). Data from the tool may also be downloaded as a text file.

Figure 2: Example of SGHAT Results Graphic



Source: Solar Glare Hazard Analysis Tool (SGHAT, 2018) https://share-ng.sandia.gov/glare-tools/
Note: This image is not a result from this study. No pilot line-of-sight glare was found during this analysis.

ANALYSIS

The project analysis consisted of 18 key observation points (KOPs) representing road, utility, and agricultural sites. No commercial or residential sites were present. Two airplane runways were analyzed: Imperial County Airport (11 miles northeast of the site) and U.S. Naval Air Facility El Centro (7 miles north-northeast of the site). The topography gradually slopes upward to the south and west, becoming steeper in the southwest.

Figure 3: Examples of large roof-mounted and ground-mounted solar PV arrays.

This glare analysis was run for flat-plate fixed-axis PV modules (or panels) with a fixed tilt of either 10° or 25° off horizontal facing due south (180°). A fixed-axis solar panel will reflect some light based on the angle of the sun relative to the surface of the panel. Panel reflectivity was assessed with SGHAT tool using an assumed smooth glass panel with anti-reflective coating (ARC) with SGHAT varying the reflectivity based on angle of sun incidence. Generally, smooth glass panels with ARC have a reflectivity of 2%. When the sun is closer to the horizon during sunrise and sunset, it will be reflected in the opposite direction at glancing angles (angles greater than 60%). Because the sun is so low in the sky during these times of the day, it is at these times that the likelihood for glare to be an issue at ground level is the greatest for ground-level observation points. At large glancing angles, reflectivity for PV modules can be 20% or more, even with texturing and anti-glare coatings.[3] Heights of 5 feet, 20 feet, 30 feet, 40 feet, and 50 feet were analyzed to allow for multiple architectural possibilities of both ground-mounted and rooftop arrays, with panel tilts of both 10 degrees and 25 degrees.

The 115-acre site was defined as having a combination of solar PV and battery storage coverage. Total spatial PV coverage was used based on the site boundaries provided by the solar developer client to assess all options.

Roads, structures and agricultural lands that are near the site were selected as KOPs. A substation to the south and an electrical power line were also selected in case of personnel performing work at either location. An observation height of five feet is used and is

[3] Ho, C. April 2013. Relieving a Glaring Problem, Solar Today
https://share.sandia.gov/phlux/static/references/glint-glare/Ho-SolarToday-April13_v2.pdf

representative of sitting near first story windows and car windows. No multi-story buildings appeared to be present based on satellite imagery available from the SGHAT tool.

The airport analysis consists of a KOP at each site representing an air traffic control tower and flight paths of approaching flights out to two miles. The regional airport is 11 miles northeast of the PV site and the flight approaches are from the southeast/northwest (152°/332°) and east/west (90°/270°). The nearby U.S. Naval Facility is seven miles north-northeast of the PV site and the flight approaches are from southeast/northwest (135°/315°) and east/west (90°/270°). The flight path approaches take into account the pilot's line-of-sight.

SITEWIDE RESULTS

All options assumed 180° orientation (due south) and a KOP observation height of five feet. The analysis estimated 5-20 minutes of glare per day during select months – see *Results by KOP* section for details. For reference, there are **525,600 minutes in one year**.

Green blocks represent number of minutes in one year of "low potential to cause temporary after-image" per the SGHAT tool. Yellow blocks represent number of minutes in one year of "potential to cause temporary after-image" per the SGHAT tool. See Individual KOP Results section for details.

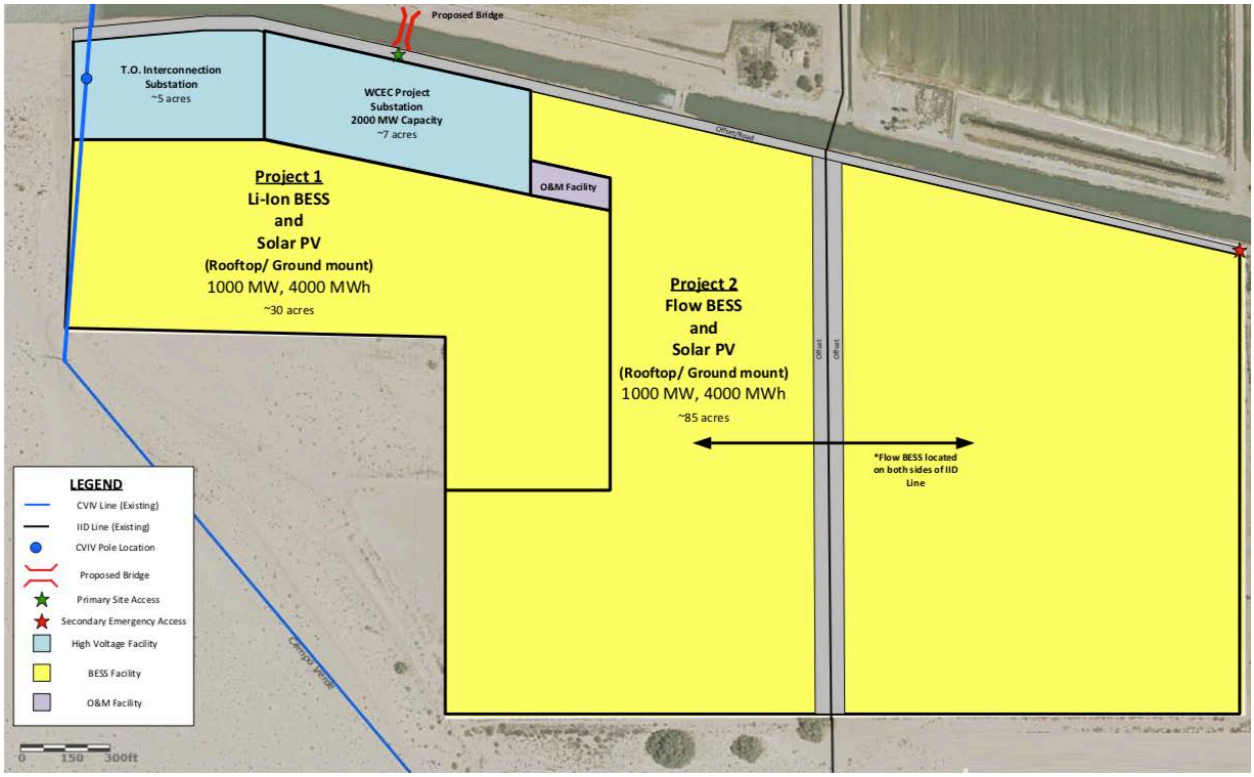
Figure 4: Summary of Glare Results for the Westside Canal Project 1 (minutes per year)

PROJECT 1	10-degree tilt		25-degree tilt	
Ground (5 ft).	263	901	163	1597
20 ft	279	372	249	927
30 ft	267	118	272	444
40 ft	369	406	292	819
50 ft	313	522	293	1216

Figure 5: Summary of Glare Results for the Westside Canal Project 2 (minutes per year)

PROJECT 2	10-degree tilt		25-degree tilt	
Ground (5 ft).	86	4325	-	3863
20 ft	118	1770	4	3018
30 ft	84	2800	2	4300
40 ft	183	2643	3	4823
50 ft	176	3038	6	5261

Figure 6: Conceptual Site Layout of the Westside Canal Battery Storage Complex



Potential for after-image was detected at five of the 18 KOPs representing select roads, agricultural sites, and structures with anticipated human activity (see bold items below). KOP sites are as follows (see Figure 7):

1. Nearby electrical utility facility, north of the site
2. **Nearby built facility on the irrigation canal, north of the site**
    a. Project 1: glare detected at all panel heights
    b. Project 2: glare detected at ground-level and 20ft panel heights
3. **Corner of Mandrapa Road and Fig Drain, east of the site**
    a. Project 1: glare detected at all panel heights
    b. Project 2: glare detected at all panel heights
4. Nearby electrical substation, south of the site
5. Agricultural site/dirt road west of Mandrapa Road and Lyons Road, southeast of the site
6. **Corner of Mandrapa Road and Lyons Road, southeast of the site**
    a. Project 1: glare detected at all panel heights
    b. Project 2: glare detected at all panel heights
7. Agricultural site/dirt road west of Mandrapa Road, southeast of the site
8. Highway 98/Yuha Cutoff – a section of road west of Tom's Hay Farm, south-southeast of the site
9. Highway 98/Yuha Cutoff, south of the site
10. Highway 98/Yuha Cutoff, southwest of the site
11. Highway 98/Yuha Cutoff, southwest of the site
12. A residential structure on the south side of the irrigation canal near Mandrapa Road, northwest of the site
13. Westside Road at the corner of a solar array installation, northwest of the site
14. A residence near Fern Canal south of Diehl Road, north of the site
15. A residence near Liebert Road and Wixom Road, north of the site
16. A residence near Wixom Road and Vogel Road, northeast of the site
17. **A utility pole (no other structures), southwest of the site**
    a. Project 1: glare detected at all panel heights
    b. Project 2: glare detected at all panel heights
18. **A nearby structure (aerial views indicate that the structure may be abandoned or used only for storage), north of the site**
    a. Project 1: glare detected at all panel heights
    b. Project 2: glare detected at 20ft, 30ft, 40ft, and 50ft panel heights

In addition to the 18 regular KOPs, two air facilities, their runway flight paths, and air traffic control towers (ATCT) were analyzed. The ATCTs will be listed as KOPs in the SGHAT reports.

19. US Naval Base El Centro, runway flight path, and ATCT (100 ft), north of the site
20. Imperial County Airport, runway flight path, and ATCT (100 ft), northeast of the site

Figure 7: Map showing site and all KOPs

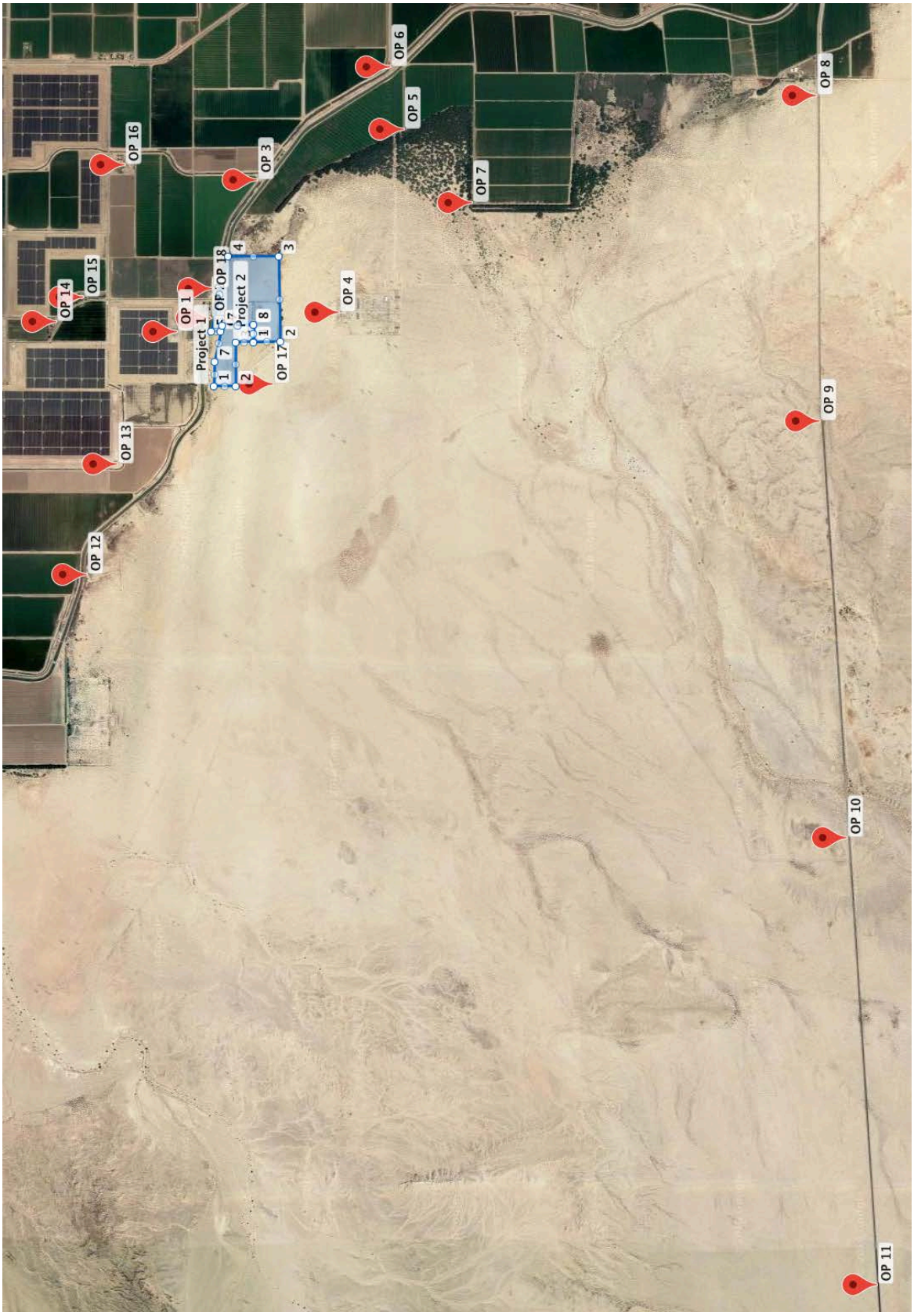
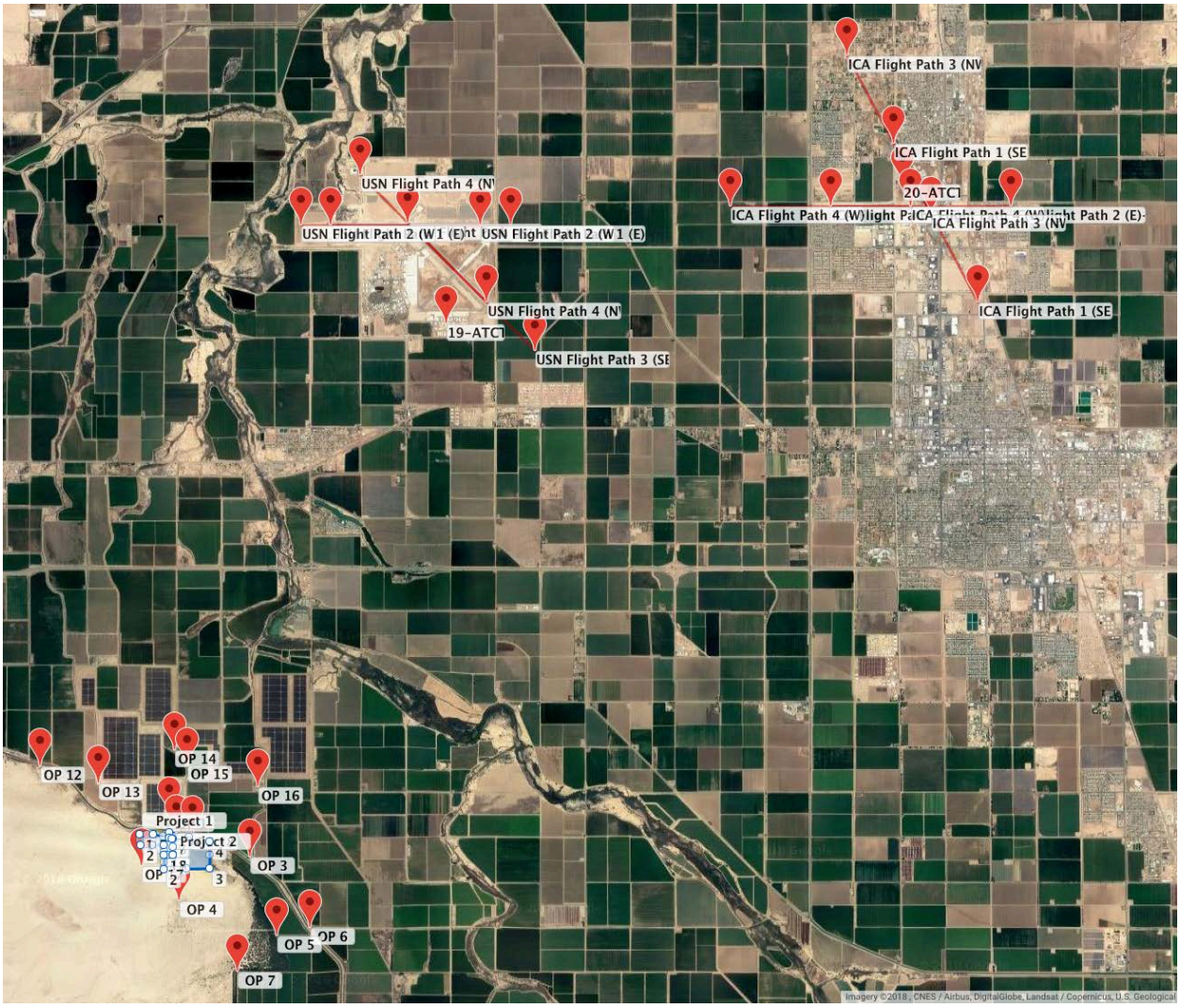


Figure 8: Map showing site, majority of KOPs, and both airport facilities



Potential for glare exists from March to October for all panel heights and tilt angles. The potential for after-image is present only for short periods of time (5 – 20 minutes) in the morning or evening. Details for months of the year and time of day are available in detailed Results by KOP section.

Figure 9: Summary of Glare Results for the Westside Canal Project 1: KOPs with potential for glare in minutes per year.

PROJECT 1		10-degree tilt		25-degree tilt	
Ground (5 ft).	KOP 2:	-	-	-	1
	KOP 3:	269	129	223	497
	KOP 6:	89	-	57	-
	KOP 17:	-	1102	-	1455
	KOP 18:	-	-	2	10
20 ft	KOP 2:	-	-	-	1
	KOP 3:	237	104	194	395
	KOP 6:	42	-	55	-
	KOP 17:	-	261	-	522
	KOP 18:	-	7	-	9
30 ft	KOP 2:	-	-	-	1
	KOP 3:	193	101	208	415
	KOP 6:	73	-	62	-
	KOP 17:	-	10	-	15
	KOP 18:	1	7	2	13
40 ft	KOP 2:	-	1	-	-
	KOP 3:	276	57	219	445
	KOP 6:	93	-	71	-
	KOP 17:	-	347	-	361
	KOP 18:	-	1	2	13
50 ft	KOP 2:	-	-	-	1
	KOP 3:	223	82	228	478
	KOP 6:	89	-	65	-
	KOP 17:	-	436	-	722
	KOP 18:	1	4	-	15

Figure 10: Summary of Glare Results for the Westside Canal Project 2: KOPs with potential for glare in minutes per year.

PROJECT 2		10-degree tilt		25-degree tilt	
Ground (5 ft).	KOP 2:	-	327	-	101
	KOP 3:	7	589	-	1244
	KOP 6:	101	178	-	302
	KOP 17:	-	3034	-	2928
20 ft	KOP 2:	-	-	-	3
	KOP 3:	4	641	4	1428
	KOP 6:	114	222	-	189
	KOP 17:	-	907	-	1393
	KOP 18:	-	-	-	5
30 ft	KOP 3:	3	885	2	1601

	KOP 6:	81	174	-	164
	KOP 17:	-	1740	-	2520
	KOP 18:	-	1	-	15
40 ft	KOP 3:	5	757	3	1740
	KOP 6:	178	184	-	259
	KOP 17:	-	1700	-	2812
	KOP 18:	-	2	-	12
50 ft	KOP 3:	5	963	5	1888
	KOP 6:	171	161	-	321
	KOP 17:	-	1914	1	3048
	KOP 18:	-	-	-	4

Figure 11: A close-up view with the five KOPs with potential for glare: 2, 3, 6, 17, and 18

RESULTS BY KOP

This section provides more detailed information on the potential impacts to affected KOPs. KOPs that have no anticipated glare are not included (other than airports) but can be reviewed in the Appendices.

Assumptions by the SGHAT tool:

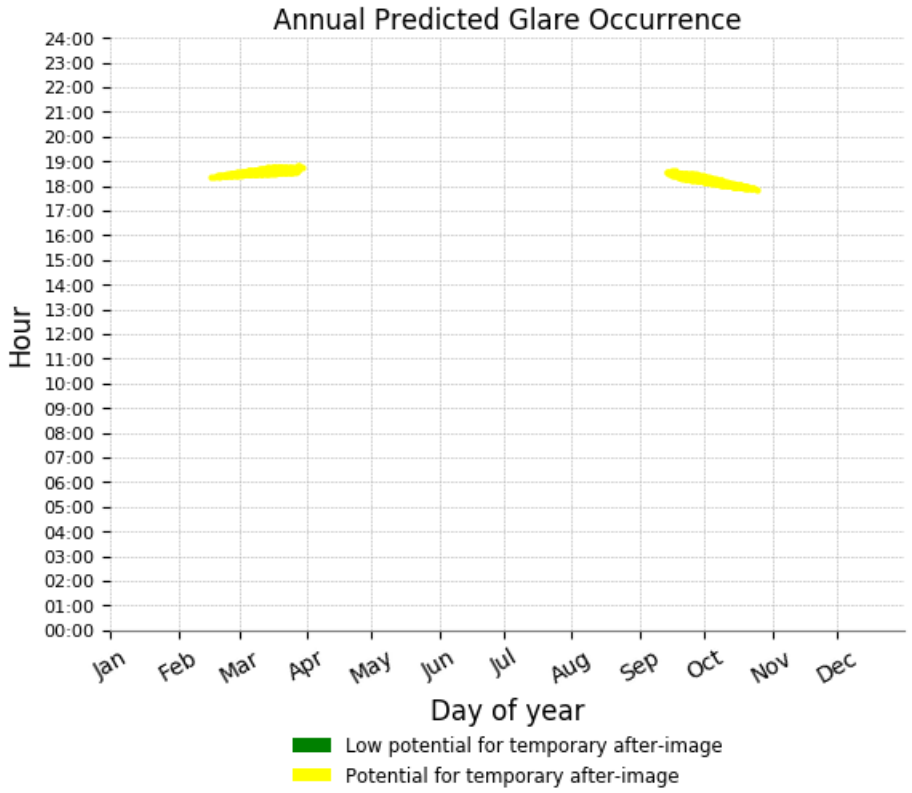
- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- Several calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
- Refer to the User's Manual for assumptions and limitations not listed here.

How to read the results:

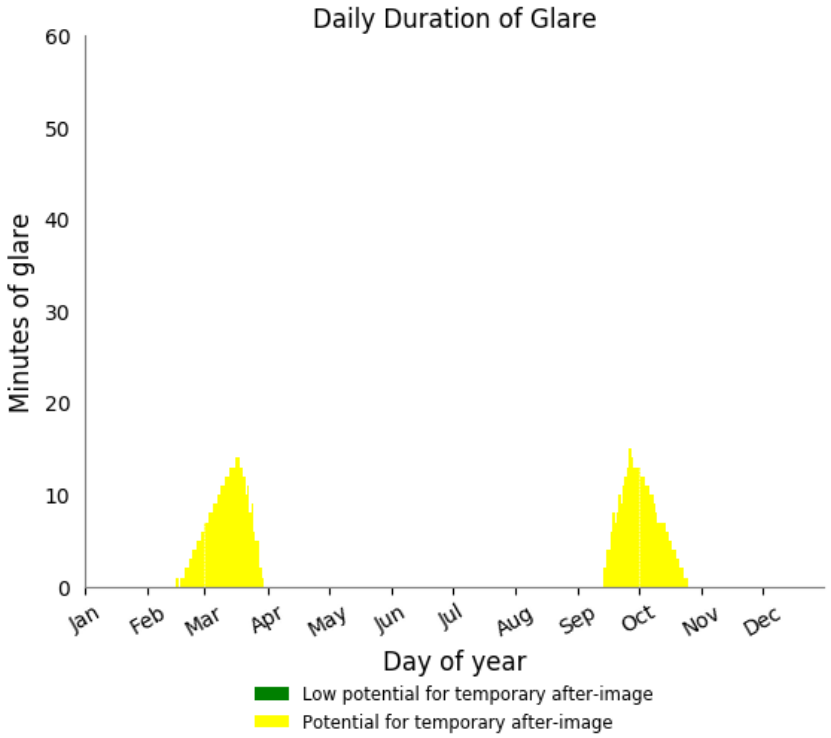
- **Satellite images:** All images courtesy of satellite imagery from the SGHAT tool.
- **Description:** Brief description of the location of the KOP.
- **Table results:** These tables describe analysis results for individual KOP with all scenarios, by project, in minutes per year.
    - Green blocks represent number of minutes in one year of "low potential to cause temporary after-image" per the SGHAT tool.

- Yellow blocks represent number of minutes in one year of "potential to cause temporary after-image" per the SGHAT tool. See individual KOP results for details.

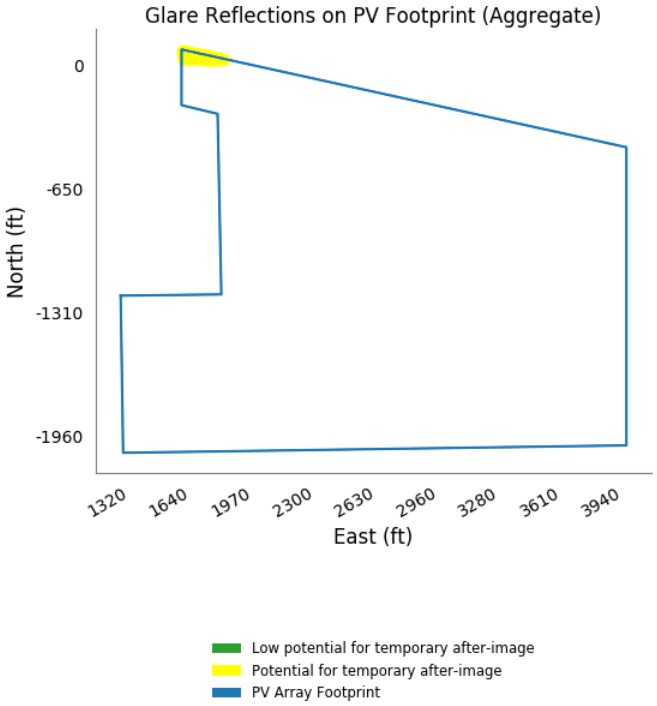
- **Impacts:** Brief description of severity and timing of anticipated glare.
- **Sample details:** Four graphics from the reports were selected for detailed review, including annual predicted glare occurrence, daily duration of glare, glare reflection on PV footprint, and hazard plot. Only the most impactful scenario was selected. All scenarios can be viewed in Appendices. Explanation of how to read the graphics using the sample details from KOP 2:
  - Green colors represent "low potential to cause temporary after-image"
  - Yellow colors represent "potential to cause temporary after-image"
  - **Annual predicted glare occurrence:** This graphic explains what time of year that glare is anticipated, as well as what time of day. The following graphic shows that glare is anticipated to occur approximately between 6pm and 7pm, from mid-February to end of March, and mid-September to end of October. Keep in mind that times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.



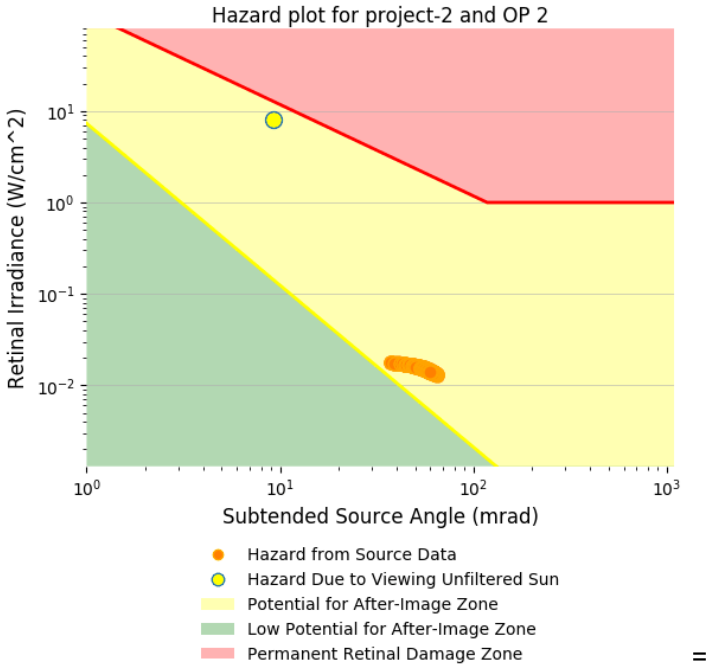
- **Daily duration of glare:** This graphic explains how many minutes per day of glare is expected for a given day of the year. The following graphic shows that glare is anticipated to occur for approximately 1-15 minutes per day, starting in mid-February, peaking at 15 minutes per day in March, and ending at the end of March. Glare is also predicted for 1-15 minutes starting in mid-September, peaking at 15 minutes per day at the end of September, and ending at the end of October.



- **Glare reflection on PV footprint:** This graphic outlines the project site and shows where glare is coming from. The following graphic has glare reflecting only from the far northwest corner of the site. Graphics will show either an outline of Project 1 or Project 2 (not both) depending on which scenario had stronger glare.



- **Hazard plot:** This graphic shows the hazard of the glare to the human eye. Glare from the site is mapped in orange circles, with a mapped yellow and blue circle representing direct viewing of unfiltered sun by comparison. For details explaining the components of this graphic, please see the *Defining Solar Glare* section of the methodology chapter of this report. Note: no scenario yielded permanent retinal damage.



=

Glare results for Key Observation Point 2:

Figure 12: KOP detail and context maps.

Description: KOP 2 is located north and adjacent to the site, on an existing bridge and facility on the water channel. This facility does not appear to be frequently visited.

Figure 13: analysis results for individual KOP with all scenarios, by project, in minutes per year.

PROJECT 1	10-degree tilt		25-degree tilt	
Ground (5 ft).	-	-	-	1
20 ft	-	-	-	1
30 ft	-	-	-	1
40 ft	-	1	-	-
50 ft	-	-	-	1

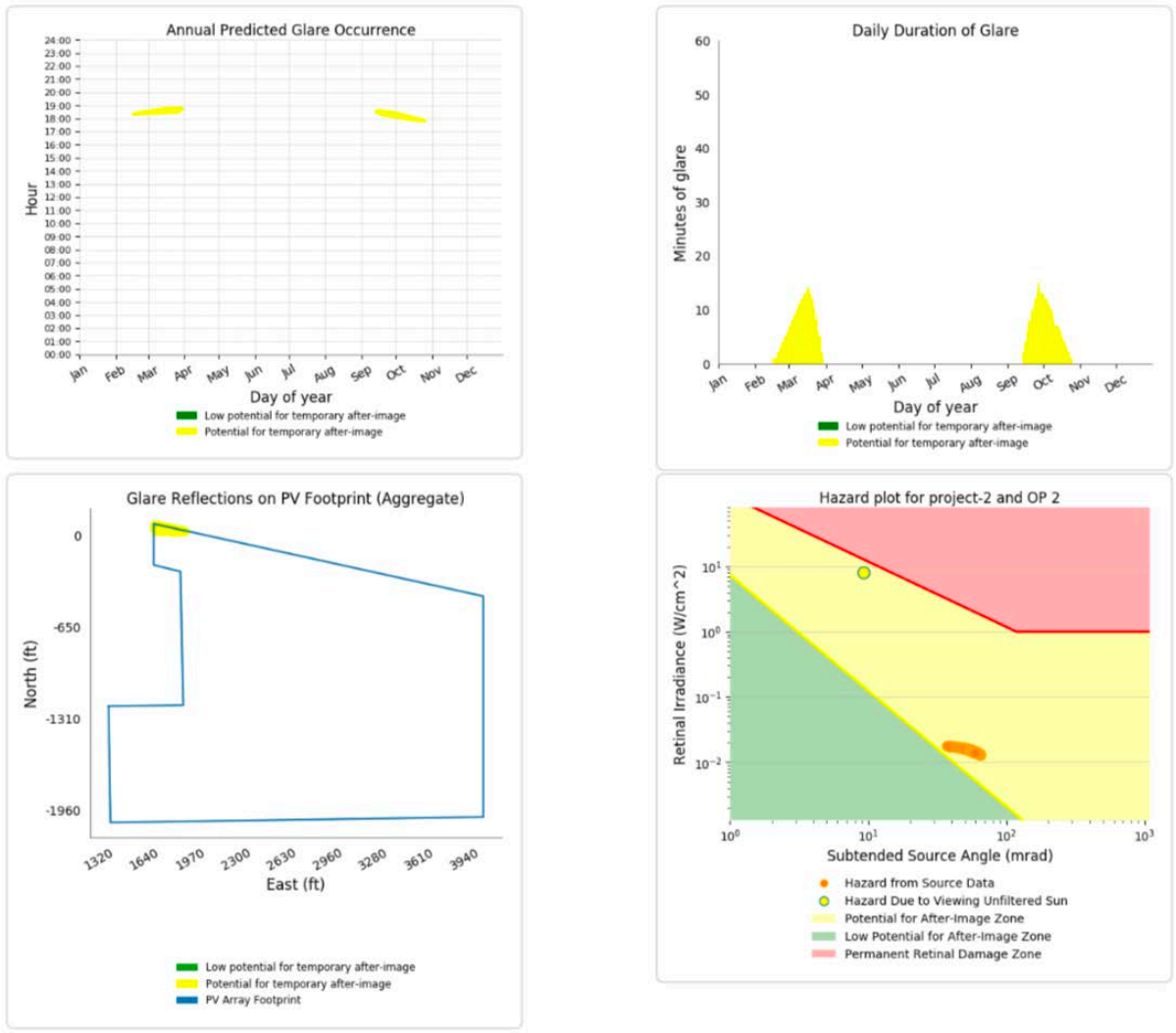
Figure 14: analysis results for individual KOP with all scenarios, by project, in minutes per year.

PROJECT 2	10-degree tilt		25-degree tilt	
Ground (5 ft).	-	327	-	101
20 ft	-	-	-	3
30 ft	-	-	-	-
40 ft	-	-	-	-
50 ft	-	-	-	-

Impacts: Low impact with less than 15 minutes of glare in the evenings during spring and fall months.

Sample details:
Detailed annual predicted glare occurrence, daily duration of glare, glare reflection on PV footprint, and hazard plot from highest glare scenario.

Figure 15: Project 2, Ground-mount at 10-degree tilt



Glare results for Key Observation Point 3:

Figure 16: KOP detail and context maps.

Description: KOP 3 is located east of the site on the intersection of Mandrapa Road and Fig Drain, near agricultural land. No structures nearby.

Figure 17: analysis results for individual KOP with all scenarios, by project, in minutes per year.

PROJECT 1	10-degree tilt		25-degree tilt	
Ground (5 ft).	269	129	223	497
20 ft	237	104	194	395
30 ft	193	101	208	415
40 ft	276	57	219	445
50 ft	223	82	228	478

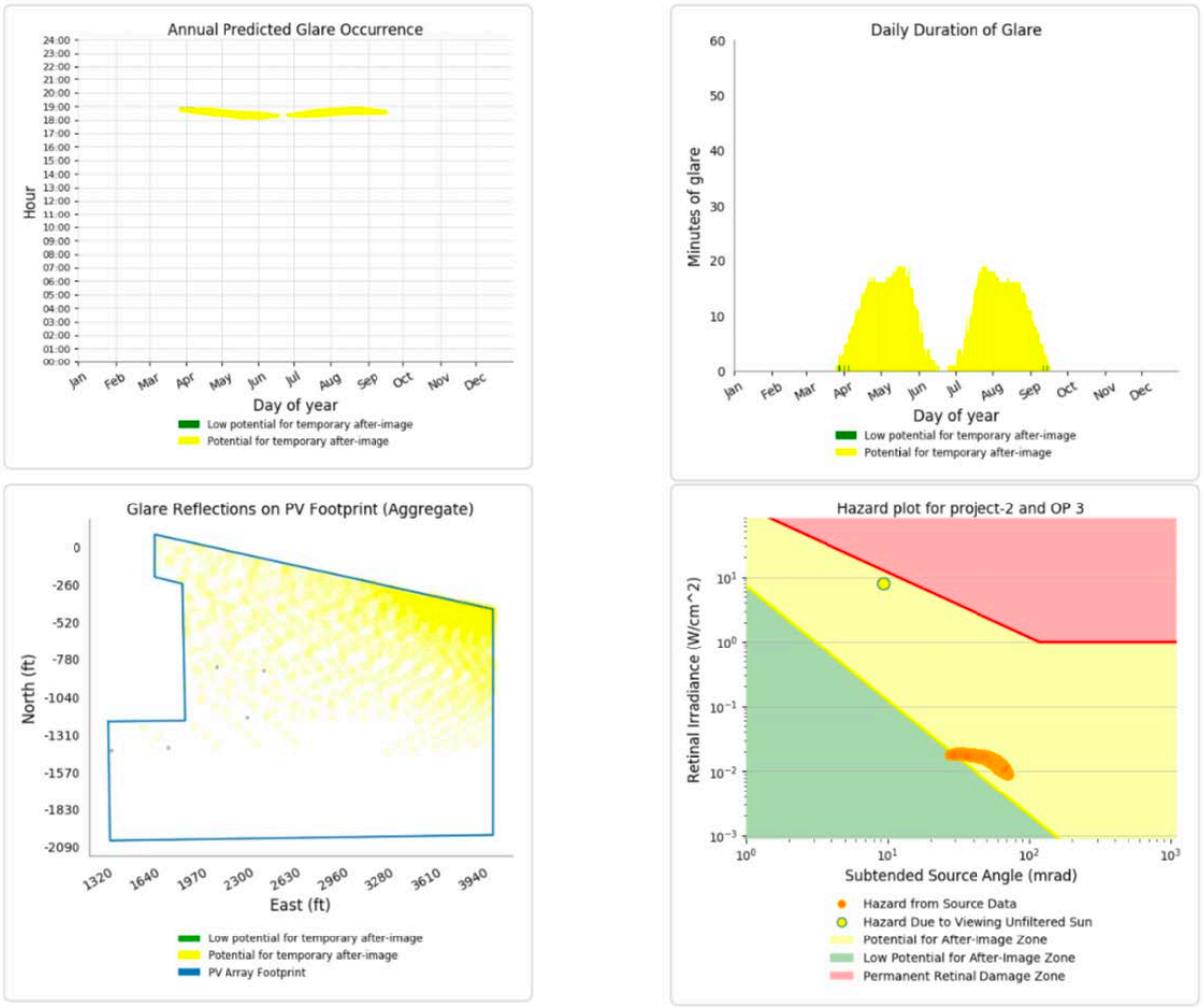
Figure 18: analysis results for individual KOP with all scenarios, by project, in minutes per year.

PROJECT 2	10-degree tilt		25-degree tilt	
Ground (5 ft).	7	589	-	1244
20 ft	4	641	4	1428
30 ft	3	885	2	1601
40 ft	5	757	3	1740
50 ft	5	963	5	1888

Impacts: Moderate impact with less than 20 minutes of glare in the evenings during spring through fall months.

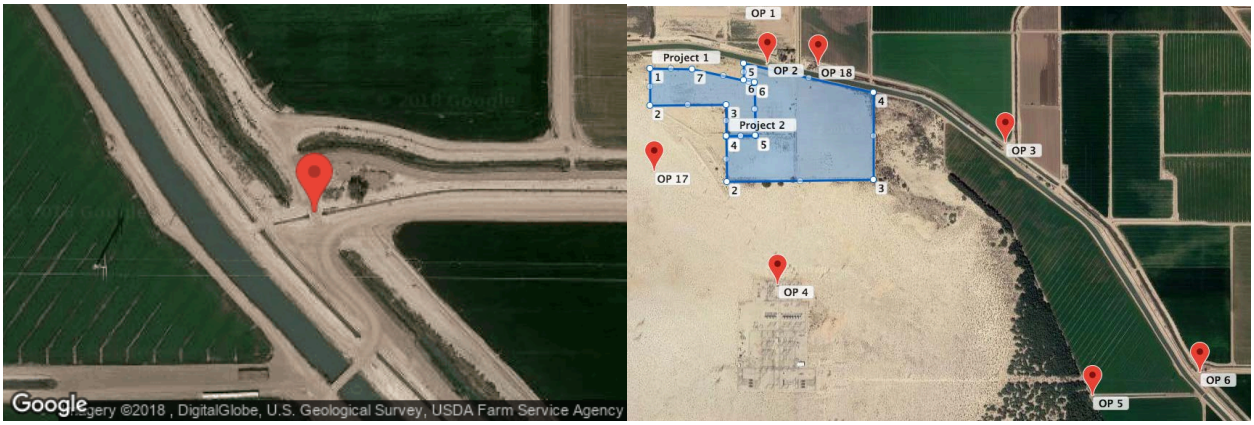
Sample details:
Detailed annual predicted glare occurrence, daily duration of glare, glare reflection on PV footprint, and hazard plot from highest glare scenario.

Figure 19: Project 2, 50-foot roof mount at 25-degree tilt



Glare results for Key Observation Point 6:

Figure 20: KOP detail and context maps.



Description: KOP 6 is located southeast of the site, on the intersection of Mandrapa Road and Lyons Road, near agricultural land. No structures nearby.

Figure 21: analysis results for individual KOP with all scenarios, by project, in minutes per year.

PROJECT 1	10-degree tilt		25-degree tilt	
Ground (5 ft).	89	-	57	-
20 ft	42	-	55	-
30 ft	73	-	62	-
40 ft	93	-	71	-
50 ft	89	-	65	-

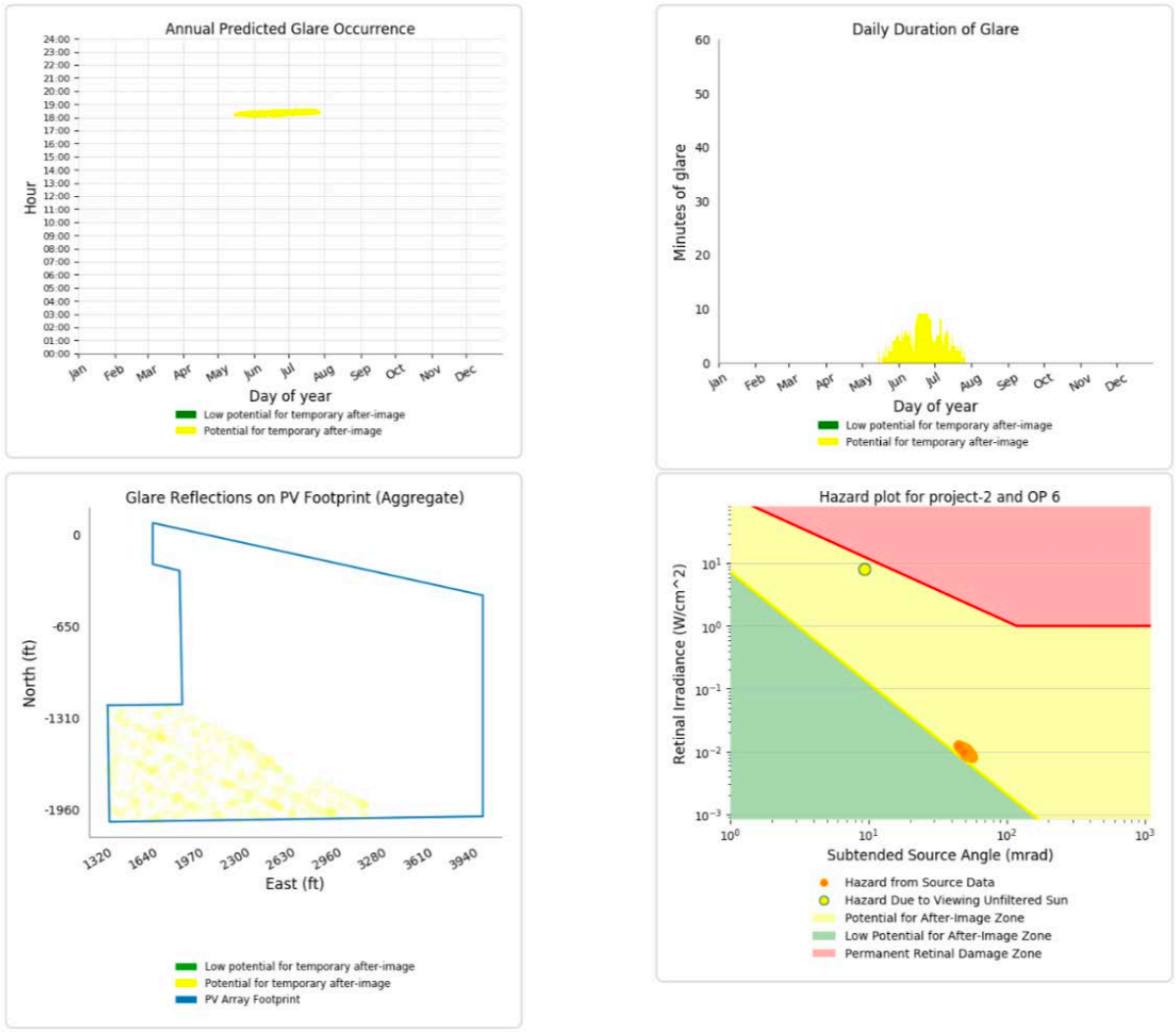
Figure 22: analysis results for individual KOP with all scenarios, by project, in minutes per year.

PROJECT 2	10-degree tilt		25-degree tilt	
Ground (5 ft).	101	178	-	302
20 ft	114	222	-	189
30 ft	81	174	-	164
40 ft	178	184	-	259
50 ft	171	161	-	321

Impacts: Low impact with less than 10 minutes of glare in the evenings during summer months.

Sample details:
Detailed annual predicted glare occurrence, daily duration of glare, glare reflection on PV footprint, and hazard plot from highest glare scenario.

Figure 23: Project 2, 50-foot roof mount at 25-degree tilt



Glare results for Key Observation Point 17:

Figure 24: KOP detail and context maps.

Description: KOP 17 is located south of project 1 and west of project 2. It is located on undeveloped land with large electrical utility lines. No structures are nearby. This area does not appear to be frequently visited, but utility workers may be present in instances of maintenance.

Figure 25: analysis results for individual KOP with all scenarios, by project, in minutes per year.

PROJECT 1	10-degree tilt		25-degree tilt	
Ground (5 ft).	-	1102	-	1455
20 ft	-	261	-	522
30 ft	-	10	-	15
40 ft	-	347	-	361
50 ft	-	436	-	722

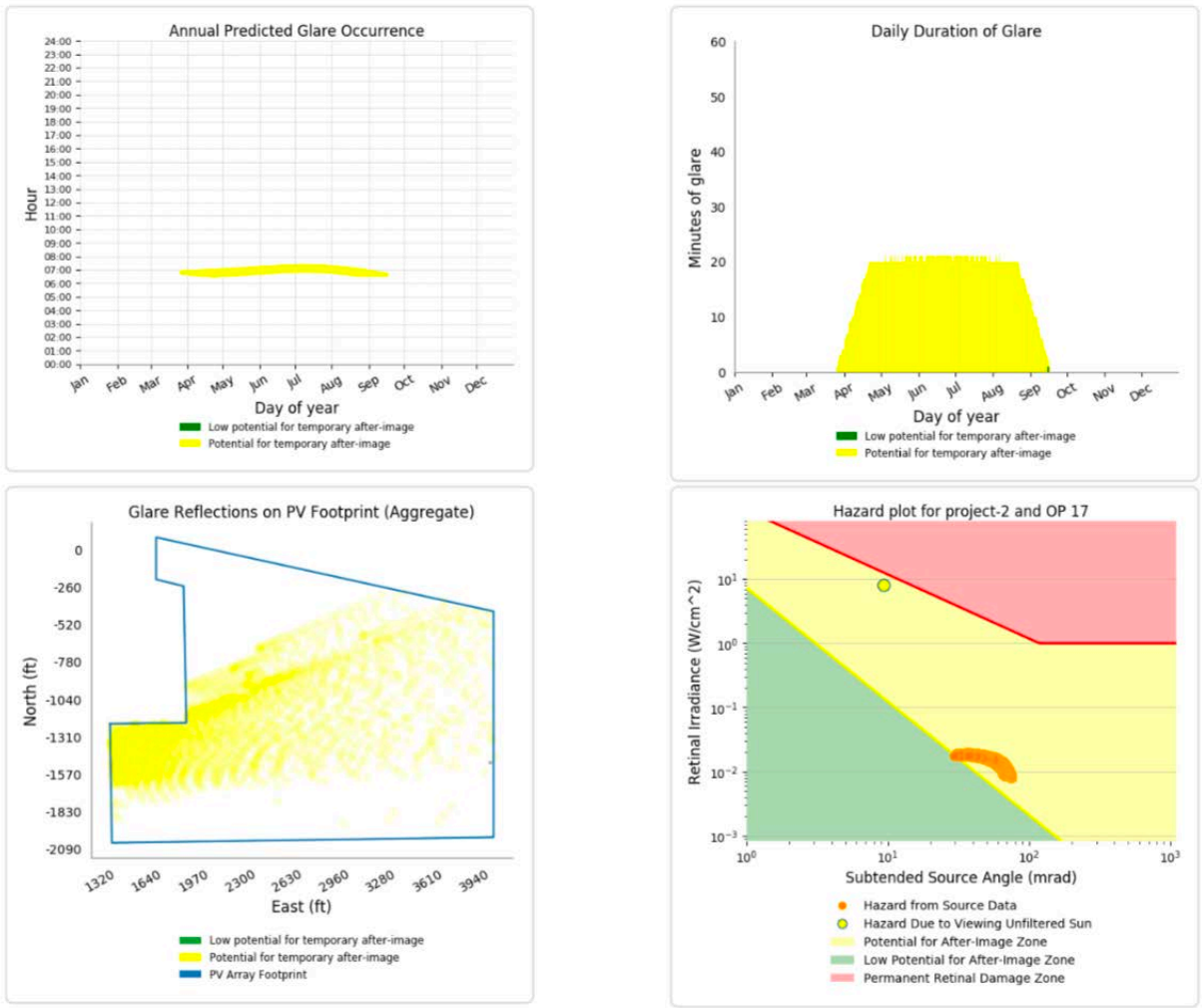
Figure 26: analysis results for individual KOP with all scenarios, by project, in minutes per year.

PROJECT 2	10-degree tilt		25-degree tilt	
Ground (5 ft).	-	3034	-	2928
20 ft	-	907	-	1393
30 ft	-	1740	-	2520
40 ft	-	1700	-	2812
50 ft	-	1914	1	3048

Impacts: Moderate impact with approximately 20 minutes or less of glare in the mornings during spring through fall months.

Sample details:
Detailed annual predicted glare occurrence, daily duration of glare, glare reflection on PV footprint, and hazard plot from highest glare scenario.

Figure 27: Project 2, 50-foot roof mount at 25-degree tilt



Glare results for Key Observation Point 18:

Figure 28: KOP detail and context maps.

Description: KOP 18 is located north and adjacent to project 2, on Mandrapa Road east of Liebert Road, near agricultural land. There is one structure, but aerial views indicate that the structure may be abandoned or used only for storage.

Figure 29: analysis results for individual KOP with all scenarios, by project, in minutes per year.

PROJECT 1	10-degree tilt		25-degree tilt	
Ground (5 ft).	-	-	2	10
20 ft	-	7	-	9
30 ft	1	7	2	13
40 ft	-	1	2	13
50 ft	1	4	-	15

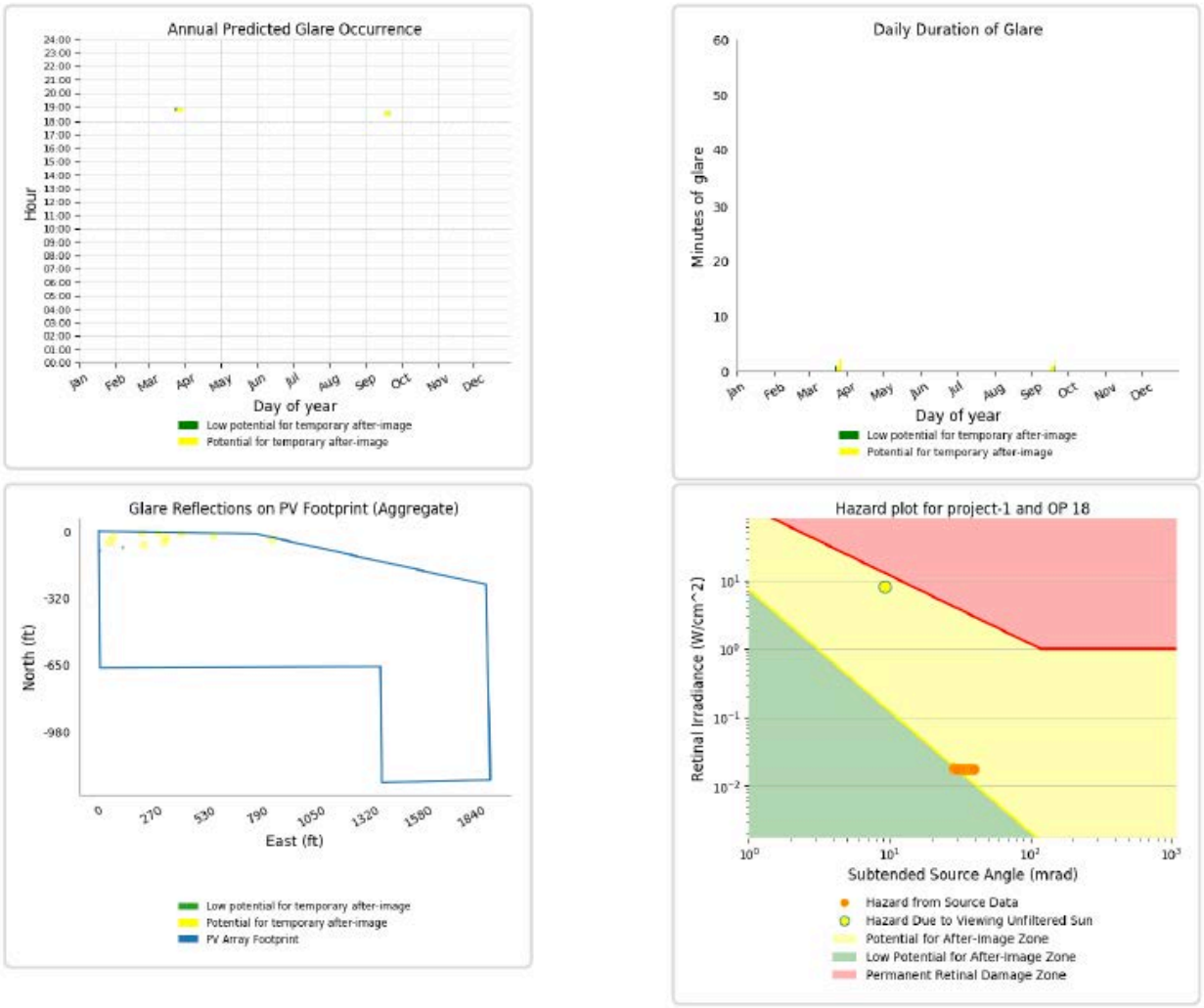
Figure 30: analysis results for individual KOP with all scenarios, by project, in minutes per year.

PROJECT 2	10-degree tilt		25-degree tilt	
Ground (5 ft).	-	-	-	-
20 ft	-	-	-	5
30 ft	-	1	-	15
40 ft	-	2	-	12
50 ft	-	-	-	4

Impacts: Low impact with less than 5 minutes of glare in the evenings during the months of March, September, and October.

Sample details:
Detailed annual predicted glare occurrence, daily duration of glare, glare reflection on PV footprint, and hazard plot from highest glare scenario.

Figure 31: Project 1, ground-mount at 25-degree tilt



U.S. Naval Air Facility El Centro

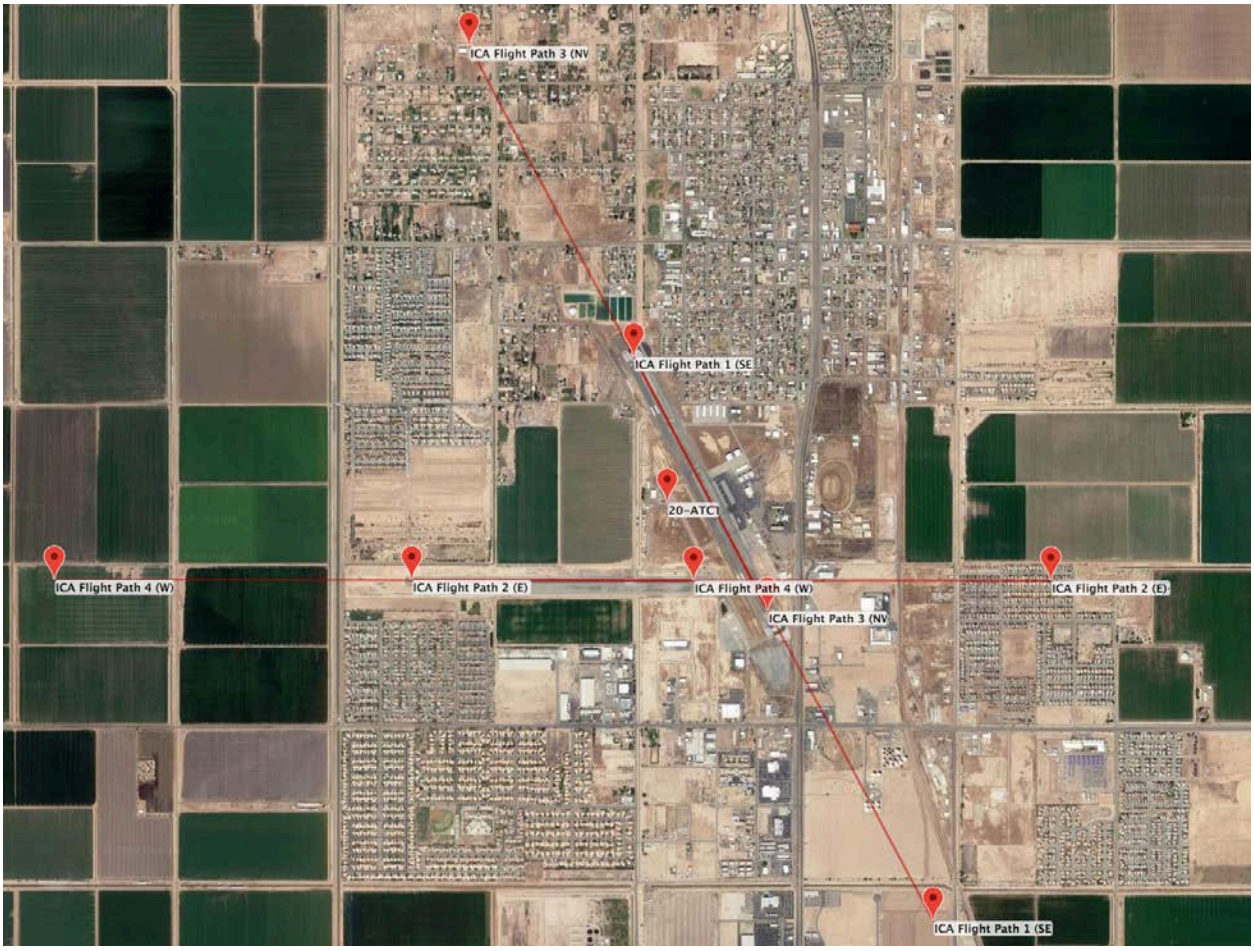
Figure 32: Air facility runway and ATCT map

Description: The nearby US Naval Facility is 7 miles north-northeast of the PV site and the flight approaches are from southeast/northwest (135°/315°) and east/west (90°/270°). The flight path approaches take into account pilot line-of-sight.

Results: No glare found
Flight paths: No glare found
ATCT – KOP 19: No glare found (100 ft.)

Imperial County Airport

Figure 33: Air facility runway and ATCT map



Description: The regional airport is 11 miles northeast of the PV site and the flight approaches are from the southeast/northwest (152°/332°) and east/west (90°/270°). The flight path approaches take into account pilot line-of-sight.

Results: No glare found
Flight paths: No glare found
ATCT – KOP 20: No glare found (100 ft.)

APPENDICES – ALL RESULTS

A. Ground-mount (5 ft.), 10-degree tilt
B. Ground-mount (5 ft.), 25-degree tilt
C. 20-foot building-mount, 10-degree tilt
D. 20-foot building-mount, 25-degree tilt
E. 30-foot building-mount, 10-degree tilt
F. 30-foot building-mount, 25-degree tilt
G. 40-foot building-mount, 10-degree tilt
H. 40-foot building-mount, 25-degree tilt
I. 50-foot building-mount, 10-degree tilt
J. 50-foot building-mount, 25-degree tilt

APPENDIX C – AGRICULTURAL RESOURCES AND FISCAL IMPACT

APPENDIX C – AGRICULTURAL RESOURCES AND FISCAL IMPACT

C.1. Land Evaluation and Site Assessment Analysis (LESA) for the Westside Canal Battery Storage Project

Land Evaluation and Site Assessment Analysis for the Westside Canal Battery Storage Project, Imperial County, California

Prepared for
Con Edison Clean Energy Businesses
101 West Broadway, Suite 1120
San Diego, CA 92101
Contact: Mr. Curtis Kebler

Prepared by
RECON Environmental, Inc.
1927 Fifth Avenue
San Diego, CA 92101
P 619.308.9333

RECON Number 8888.1
January 18, 2021

Nick Larkin, Senior Project Manager

TABLE OF CONTENTS

FIGURES

TABLE

Acronyms and Abbreviations

BLM	Bureau of Land Management
CAISO	California Independent System Operator
CEQA	California Environmental Quality Act
IID	Imperial Irrigation District
IV Substation	Imperial Valley Substation
LCC	Land Capability Classification
LE	Land Evaluation
LESA	Land Evaluation and Site Assessment Analysis
MW	megawatt
MWh	megawatt per hour
NRCS	Natural Resources Conservation Service
O&M	Operations and Maintenance
Project	Westside Canal Battery Storage Project
Project Proponent	Westside Canal Battery Storage, LLC
SA	Site Assessment
USDA	U.S. Department of Agriculture
ZOI	Zone of Influence

1.0 Introduction

As stated in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, the Land Evaluation and Site Assessment (LESA) model is intended to provide lead agencies with an optional methodology to ensure significant effects on the environment of agricultural land conversion are quantitatively and consistently considered in the environmental review process. The model provides an approach for rating the relative quality of land resources using a point-based evaluation composed of six different factors. Land Evaluation factors are based upon measures of soil resource quality including Land Capability Classification (LCC) and Storie Index, while Site Assessment factors are evaluated based on a project's size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. For a given project, each of these factors is rated on a 100-point scale. Each factor has relative weights that are combined into one numeric score. That score is then evaluated against the scoring thresholds provided in the LESA Model instruction manual. The project's LESA model score is used to make a determination of the potential significance of the conversion of agricultural lands (California Department of Conservation 1997).

The following LESA Model was prepared for the proposed Westside Canal Battery Storage Project (Project), and the results are provided below.

2.0 Project Description

Westside Canal Battery Storage, LLC (Project Proponent), a subsidiary of Con Edison Clean Energy Businesses is proposing to develop, design, construct, own, operate, and maintain the Westside Canal Battery Storage Project (Project), a utility-scale energy storage complex with a capacity of up to 2,000 megawatts (MW). The Project would store energy generation from the electrical grid, and optimally discharge that energy back into the grid as firm, reliable generation and/or grid services.

The Project would be comprised of lithium-ion battery and/or flow battery energy storage facilities, a behind-the-meter solar energy facility, a new on-site 230 kilovolt (kV) loop-in switching station, a 34.5 kV to 230 kV substation, underground electrical cables, and permanent vehicular access to and from the site over a proposed bridge spanning Imperial Irrigation District's (IID's) Westside Main Canal. The proposed loop-in switching station would connect the Project to the existing IID Campo Verde-Imperial Valley 230 kV radial gen-tie line, which connects to the Imperial Valley Substation (IV Substation) and the California Independent System Operator (CAISO), approximately one-third mile south of the Project site. The Project Proponent has submitted the necessary Interconnection Request Applications to the CAISO and IID.

The Project would complement both the existing operational renewable energy facilities, as well as those planned for future development in the County, and would support the broader Southern California bulk electric transmission system by serving as a firm, dispatchable resource.

The Project is pursuing the following objectives:

- To receive grid energy during beneficial market and operational periods and store that energy for future dispatch when the customer (i.e., a load-serving entity) deems it to be more valuable.

- To be a valuable resource in allowing the customer and system operators to manage the effect of intermittent renewable generation on the grid and create reliable, dispatchable generation upon demand.

- To utilize available land that has not been used for agricultural production for more than 15 years and enhance the site location by providing for permanent vehicular access.

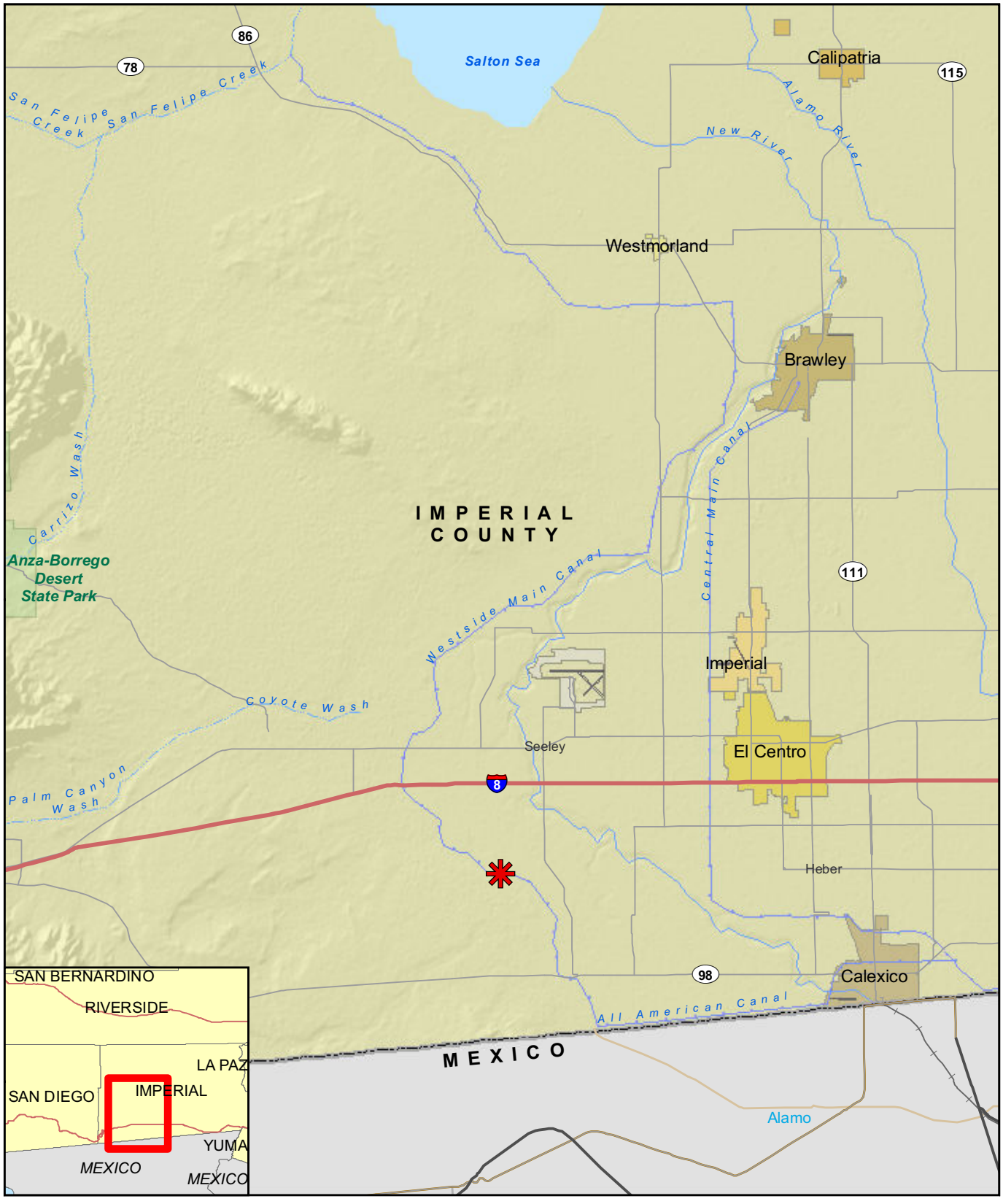
2.1 Environmental Setting

The Project site was previously graded and used as farmland and has been fallow for more than 15 years. The General Plan land use designation and zoning for the Project site and all surrounding parcels to the north and east is Agriculture (A3). The General Plan land use designation for parcels to the south and west are designated open space/recreation areas; zoning does not apply to these Bureau of Land Management (BLM) lands. The Campo Verde solar generation facility is located north of the Project site and agricultural uses are located northeast of the Project site. Parcels farther north of the Project site also include a mix of agricultural uses and solar generation facilities. The parcel immediately east of the Project site is undeveloped. BLM land south and west of the Project site is generally undeveloped, relatively flat, and barren. The IV Substation is located approximately one-third mile south of the southern property line of the site.

2.2 Project Characteristics

2.2.1 Project Location

The Project would be located in the unincorporated Mount Signal area of the County, approximately 8.0 miles southwest of the city of El Centro and approximately 5.3 miles north of the U.S.-Mexico border. Figure 1 shows the regional location of the Project. The Project site is comprised of two parcels owned by the Project Proponent, Assessor Parcel Number (APN) 051-350-010 and APN 051-350-011, totaling approximately 148 acres. These parcels have limited access corridors for vehicular traffic and are considered less desirable for agricultural production, as reflected by the last 15 years during which no farming activity has occurred.



Project Location

FIGURE 1
Regional Location

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The Project site is approximately one-third mile north of the IV Substation and directly south of the intersection of Liebert Road and the IID's Westside Main Canal. The Project site is bounded by the Westside Main Canal to the north, BLM lands to the south and west, and vacant private land to the east. The Campo Verde solar generation facility is located north of the Project site, across the Westside Main Canal. Figure 2 shows the Project site on a U.S. Geological Survey Map. Figure 3a shows an aerial photograph of the Project site and the above-mentioned nearby facilities.

The two Project parcels are proposed for development as a utility-scale energy storage complex. The Project would also utilize portions of two parcels located north of the Westside Main Canal (APN 051-350-019 owned by IID and APN 051-350-018 owned by a private land owner) for site access and as a temporary construction staging area. The Project would also access a small portion of APN 051-350-009 within an IID easement for connection to the existing IID Campo Verde Imperial Valley 230 kV radial gen-tie line during the construction of a substation on the Project site. The total proposed Project development footprint, encompassing both temporary and permanent impacts, would be approximately 163 acres.

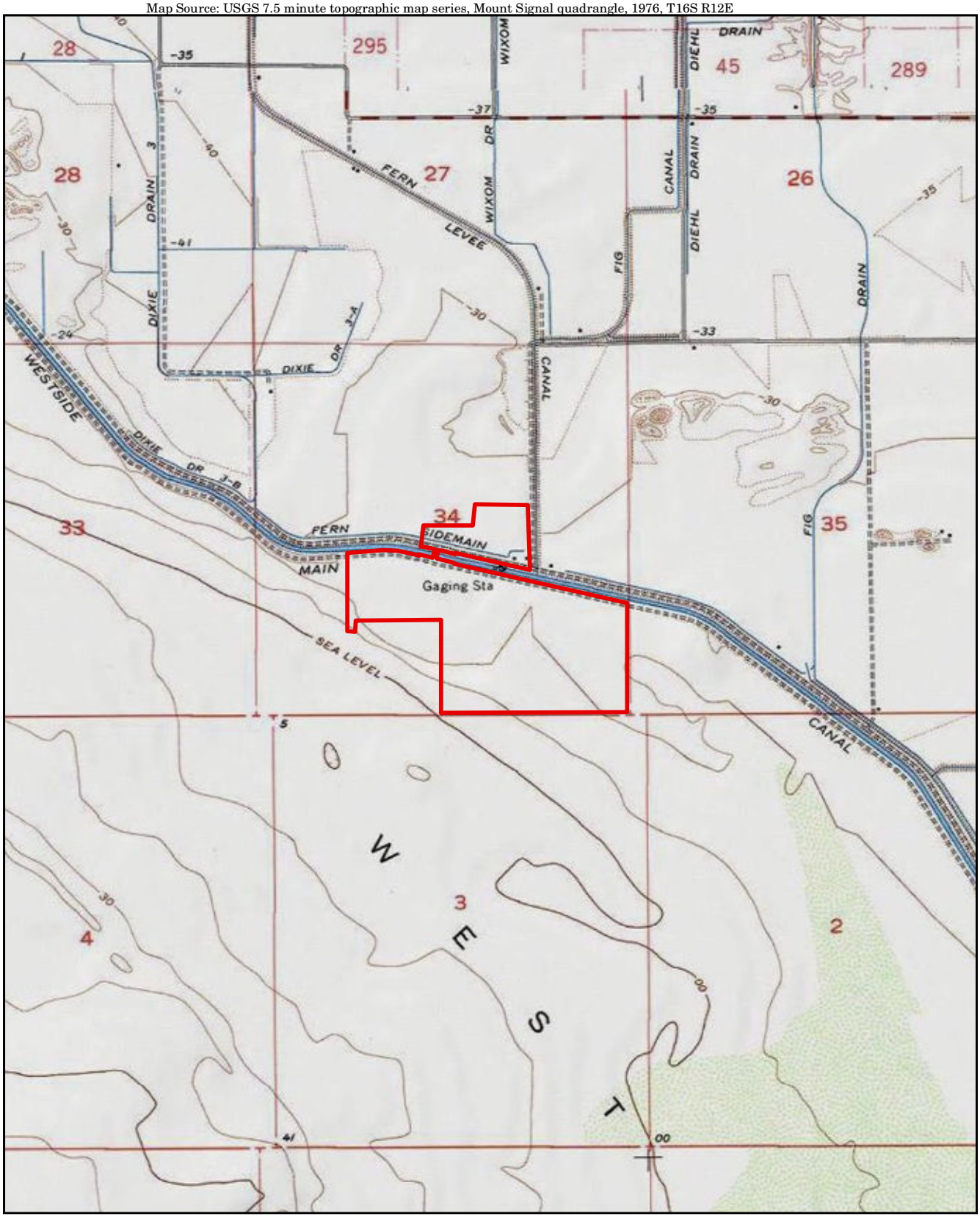
2.2.2 Project Components

The Project would be constructed in three to five phases over a 10-year period, with each phase ranging from approximately 25 MW up to 400 MW per phase. Depending on the size of the battery system for a given phase, construction and commissioning (approval to operate) is anticipated to take approximately 6 to 12 months. For the purposes of this analysis, the applicant has assumed that construction activities would last for approximately 32 months to complete the full Project build-out.

Construction of the 100- to 200- MW first phase would include roads, a permanent clear-span bridge across the Westside Main Canal, Operations and Maintenance (O&M) facilities, water connections and water-mains, storm water retention, switching station and Project substation, legal permanent vehicle access, as well as the first energy storage facility. To access the Project site, construction workers would travel along Interstate 8 (I-8) and head 4.6 miles south to the Project site, and would utilize the IID Fern Check Bridge as a temporary pedestrian bridge until the permanent bridge is constructed. During peak construction activities, approximately 200 workers and approximately 30 daily deliveries would be required. It is anticipated that construction of the first phase would begin in 2021.

It is anticipated that each subsequent phase would be constructed within one to two years of each other, with the timing and size of each phase dependent on market conditions and the applicant's ability to secure commercial contracts with prospective customers. With the Project being built in phases, the necessary infrastructure, such as water mains, retention ponds, and access roads, would be built out to serve the Project phases from west to east and expanded over time to serve each phase. These subsequent phases would require improvements such as additional substation equipment, water main and site road extension, but would not require construction of additional common facilities which would be completed during the first phase. The total nameplate capacity (or rated capacity) of the Project at full build-out (all phases completed) would be approximately 2,000 MW. On-site photovoltaic solar generation would serve as station auxiliary power and be deployed throughout the Project site, constructed during each phase.

Map Source: USGS 7.5 minute topographic map series, Mount Signal quadrangle, 1976, T16S R12E



0 Feet 2,000

Project Boundary

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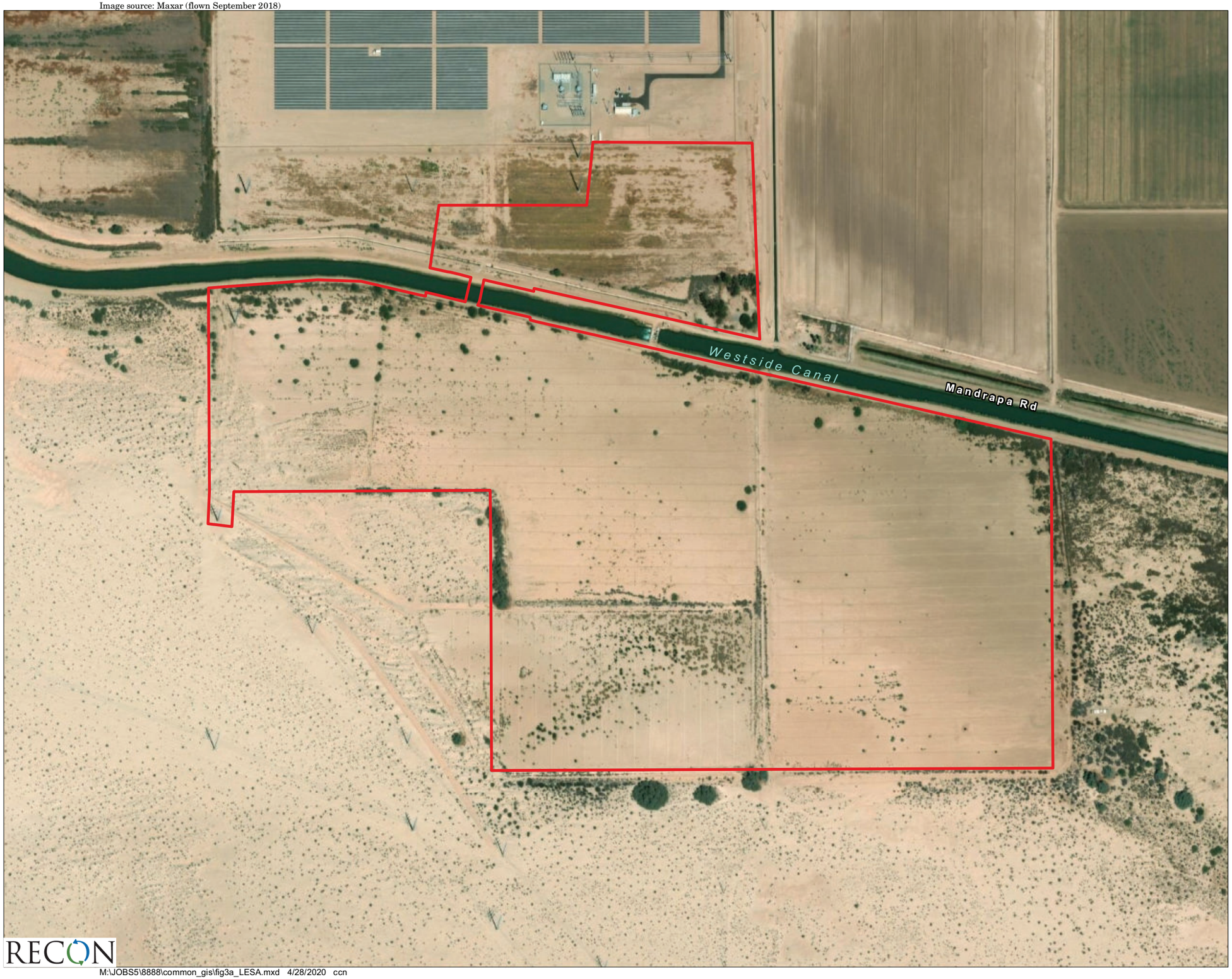
FIGURE 2

Project Location on USGS Map

Image source: Maxar (flown September 2018)



Project Boundary

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FIGURE 3a
Project Location on
Aerial Photograph

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Construction activities during all Project phases would only occur Monday through Friday, between the hours of 7:00 a.m. and 7:00 p.m. or Saturday between the hours of 9:00 a.m. and 5:00 p.m., excluding holidays, per County Ordinance.

Due to the Project site having no direct vehicular access routes, the applicant is proposing to construct roads on both the north and south sides of the Westside Main Canal on private land, and a new clear-span Imperial County/-specified bridge over the Westside Main Canal. The permanent new clear-span County-specified bridge would span the Westside Main Canal to connect to a proposed access road easement on the north side of the Westside Main Canal. The north side proposed access road would ultimately connect the Project to county road (CR) Liebert Road.

Construction of the permanent clear-span bridge spanning the IID's Westside Main Canal requires the Project Proponent to have access to both the north side and the south of the canal to perform the necessary construction activities. In addition to being necessary to facilitate construction of the new permanent clear-span bridge, access from the south side of the canal would allow the Project Proponent to commence construction on the first phase of the Project simultaneously, thereby shortening the duration of construction and potentially minimizing the associated impacts. The Project Proponent is evaluating various options for temporary construction access, including accessing the Project site from the south side of the Westside Main Canal off of State Route 98, as well as options involving access from the north side of the Westside Main Canal from I-8.

Option 1 would use the existing SDG&E maintenance road off Highway 98, which extends approximately 4.4 miles to the IV Substation. Option 1 would then continue along an existing 1.2-mile-long dirt access road that leads north, then east, outside the western and northern boundaries of the substation. Option 1 then continues northwest along an existing dirt access road that parallels two power lines until the access road connects with the western edge of the Project. The existing dirt road was constructed for the construction and maintenance of the existing Centinela gen-tie line. Option 2 would use the existing IID Westside Mail Canal access road. The selected temporary access option would be used until construction of the permanent bridge is completed. Both temporary construction access routes are presented in Figure 3b. Temporary use of these access routes using existing utility roads within existing utility easements would not result in any permanent impacts to land uses or soils. Therefore, an impact analysis of these temporary access routes has not been included in this LESA.

3.0 Land Evaluation and Site Assessment Evaluation

The Project site was evaluated using the 1997 California LESA Model to rate the quality and availability of agricultural resources and to identify whether the Project would meet the threshold criteria as having a significant impact to Agricultural Resources under CEQA Guidelines. The LESA evaluates land use and site assessment factors to identify if the Project would result in a significant agricultural resources impact. Each LESA Model factor is evaluated in the following sections.

Map Source: conEdison Development

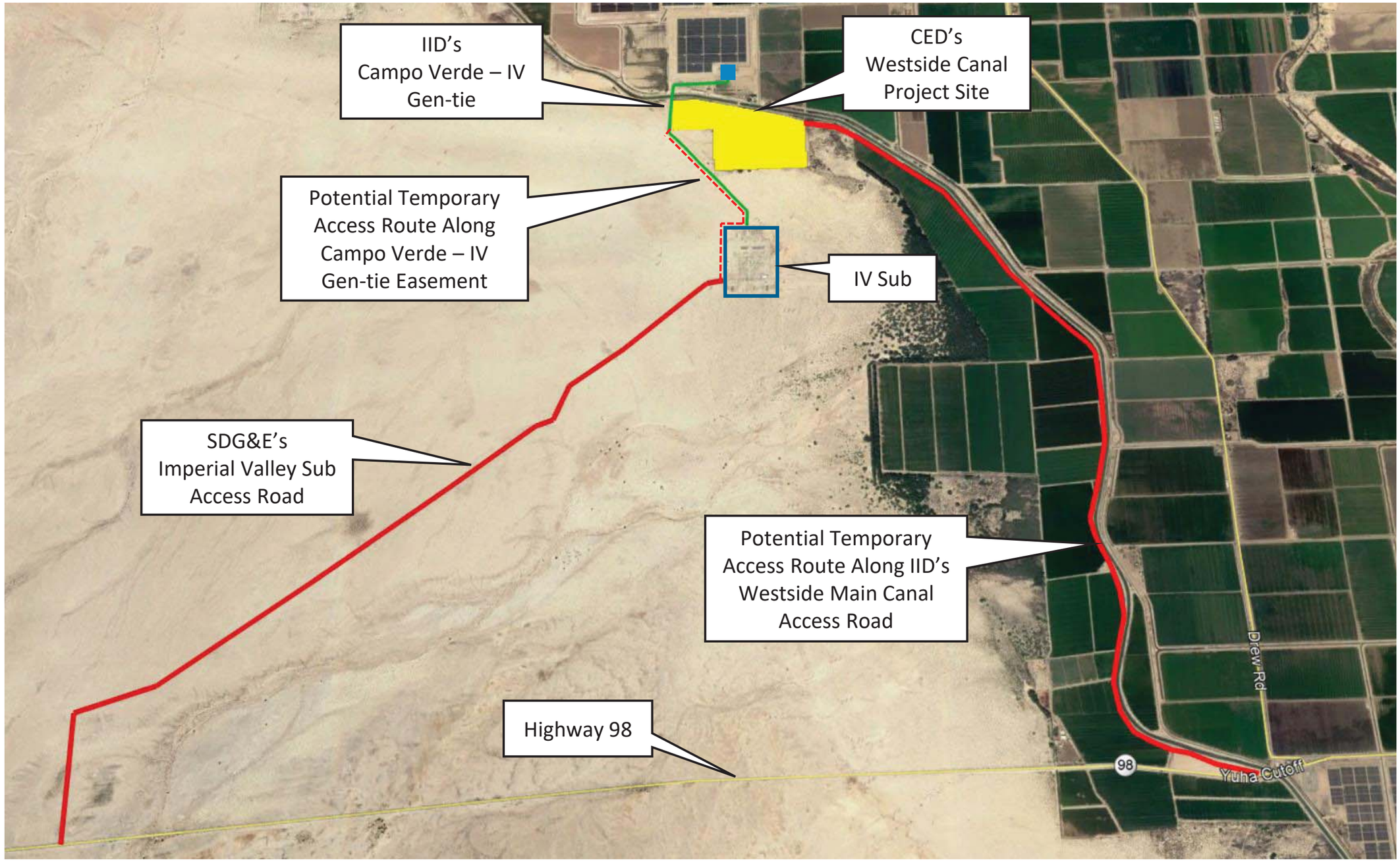

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FIGURE 3b
Temporary Construction Access Routes

3.1 Land Evaluation

The land evaluation portion of the LESA Model focuses on two components of soil quality: the LCC Rating and the Storie Index Rating.

The LCC indicates the suitability of soils for most kinds of crops. Soils are rated from Class I to Class VIII, with soils having the fewest limitations receiving the highest rating. Class I soils have no significant limitation for raising crops. Classes VI through VIII have severe limitations, limiting or precluding their use for agriculture. Capability subclasses are also assigned by adding a small letter to the class designation. Capability subclasses include the letters e, w, s, or c. The letter e shows that the main limitation is risk of erosion. The letter w indicates that water in or on the soil interferes with plant growth or cultivation. The letter s indicates that the soil is limited mainly because it is shallow, droughty, or stony. Finally, the letter c is used only in some parts of the United States where cold or dry climates are a concern. Groupings are made according to the limitation of the soils when used to grow crops and the risk of damage to soils when they are used in agriculture.

The Storie Index provides a numeric rating (based upon a 100 point scale) of the relative degree of suitability or value of a given soil for intensive agriculture use. This rating is based upon soil characteristics only (California Department of Conservation 1997). The Storie Index assesses the productivity of a soil from the following four characteristics: degree of soil profile development; texture of the surface layer; slope; and manageable features, including drainage, microrelief, fertility, acidity, erosion, and salt content. A score ranging from 0 to 100 is determined for each factor, and the scores are multiplied together to derive an index rating. For simplification, Storie Index ratings have been combined into six grade classes as follows: Grade 1 (excellent), 81 to 100; grade 2 (good), 61 to 80; grade 3 (fair), 41 to 60; grade 4 (poor), 21 to 40; grade 5 (very poor), 11 to 20; and grade 6 (nonagricultural), 10 or less (U.S. Department of Agriculture Natural Resources Conservation Service 2017).

Review of the U.S. Department of Agriculture Soil Survey Map Sheet CA683 identified the following eleven soil types on the Project site (U.S. Department of Agriculture Natural Resources Conservation Service 2013).

- Glenbar Complex
- Holtville Silty Clay, Wet
- Indio-Vint Complex
- Meloland Fine Sand
- Meloland Very Fine Sandy Loam, Wet
- Vint And Indio Very Fine Sandy Loams, Wet
- Vint Loamy Very Fine Sand, Wet
- Imperial-Glenbar Silty Clay Loams, Wet, 0-2% Slopes
- Rositas Fine Sand, Wet, 0-2% Slopes
- Rositas Fine Sand, 0-2% Slopes
- Water

Figure 4 presents the distribution of these eleven soil types on the Project site. The LESA Model assigns LCC scores to each soil by multiplying the soils' LCC Rating by the soils' proportion of the Project site. Similarly, the Storie Index score is calculated by multiplying the soils' Storie Index rating by the soils' proportion of the Project site. Table 1 presents the calculations for the Project sites' LCC and Storie Index scores, which together constitute the Project sites' Land Evaluation (LE) scores. The final LE and Site Assessment (SA) scores are entered into the Final LESA Score Sheet presented in Table 7 (see Section 4.0).

Table 1
Land Capability Classification and Storie Index Score

A	B	C	D	E	F	G	H
Soil Map Unit	Acres	Proportion of Project Area	LCC	LCC Rating	LCC Score	Storie Index	Storie Index Score
Glenbar Complex	1.96	1.2%	IIIs	60	0.7	52	0.6
Holtville Silty Clay, Wet	0.15	0.1%	IIw	80	0.1	30	0.0
Indio-Vint Complex	0.13	0.1%	IIe	90	0.1	90	0.1
Meloland Fine Sand	2.00	1.2%	IIIe	70	0.9	47	0.6
Meloland Very Fine Sandy Loam, Wet	18.17	11.1%	IIIw	60	6.7	43	4.8
Vint And Indio Very Fine Sandy Loams, Wet	51.60	31.6%	IIw	80	25.3	60	19.0
Vint Loamy Very Fine Sand, Wet	49.90	30.6%	IIw	80	24.4	57	17.4
Imperial-Glenbar Silty Clay Loams, Wet, 0-2% Slopes	23.66	14.5%	IIIw	60	8.7	34	4.9
Rositas Fine Sand, Wet, 0-2% Slopes	15.48	9.5%	IIIw	60	5.7	36	3.4
Rositas Fine Sand, 0-2% Slopes	0.16	0.1%	IIIe	70	0.1	62	0.0
Water	0.09	0.1%	N/A	0	0.0	0	0.0
Total	163.32	100.0%	--	**LCC Total**	**64.2**	**Storie Index Total**	**44.7**

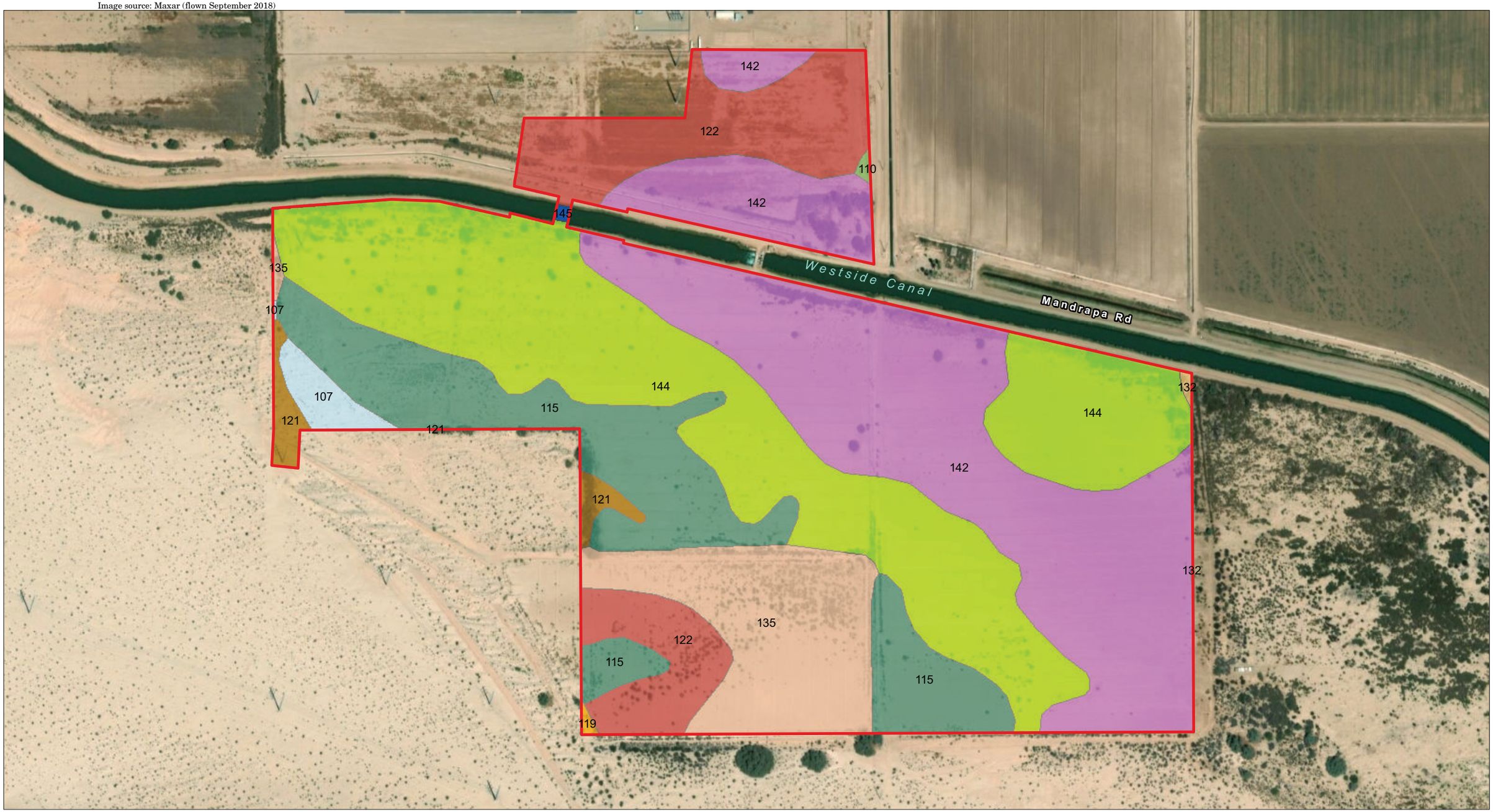
NOTE: Totals may vary due to independent rounding.
LCC = Land Capability Classification

3.2 Site Assessment Factors

The California LESA Model includes four Site Assessment factors that are separately rated and include the following:

- Project Size Rating;
- Water Resources Availability Rating;
- Surrounding Agricultural Land Rating; and
- Surrounding Protected Resource Land Rating (California Department of Conservation 1997).

Image source: Maxar (flown September 2018)



Project Boundary

Soil Classification

107 - Glenbar Complex - 2.0 ac. (1.2%)
110 - Holtville Silty Clay, Wet - 0.2 ac. (0.1%)
115 - Imperial-Glenbar Silty Clay Loams, Wet, 0-2% Slopes - 23.7 ac. (14.5%)
119 - Indio-Vint Complex - 0.1 ac. (0.1%)
121 - Meloland Fine Sand - 2.0 ac. (1.2%)
122 - Meloland Very Fine Sandy Loam, Wet - 18.2 ac. (11.1%)
132 - Rositas Fine Sand, 0-2% Slopes - 0.2 ac. (0.1%)
135 - Rositas Fine Sand, Wet, 0-2% Slopes - 15.5 ac. (9.5%)
142 - Vint Loamy Very Fine Sand, Wet - 49.9 ac. (30.6%)
144 - Vint And Indio Very Fine Sandy Loams, Wet - 51.6 ac. (31.6%)
145 - Water - 0.1 ac. (0.1%)

0 Feet 400

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FIGURE 4

Project Soil Types

3.2.1 Project Size Rating

The Project Size rating is utilized to recognize the role that farm size plays in the viability of commercial agricultural operations. In general, larger farming operations can provide greater flexibility in farm management and marketing decisions, and can benefit from certain economies of scale for equipment and infrastructure. Additionally, larger operations tend to have greater impacts upon the local economy through direct employment, as well as impacts upon supporting industries and food processing industries (California Department of Conservation 1997).

The Project Size rating considers both the total acreage of land and the different quality of land that comprise the operation when evaluating agricultural productivity. Lands with higher quality soils lend themselves to greater management and cropping flexibility and have the potential to provide greater economic return per unit acre. Table 2 shows the Project Size Rating Scores the LESA Model assigns projects based on the acreage and LCC rating of soils within the Project site. As shown in Table 2, the Project Size rating divides the Project into three acreage groupings based upon the LCC ratings that were previously determined in the LE analysis. Under the Project Size rating, relatively fewer acres of high quality soils are required to achieve a maximum Project Size score. Alternatively, a maximum score on lesser quality soils could also achieve a maximum Project Size score (California Department of Conservation 1997). As shown in Table 3, the Project is assigned the maximum Project Size score of 100 because the Project site includes over 80 acres of soils with an LCC rating of IIw and IIe.

Table 2
Project Size Rating Scores

LCC Class I or II soils		LCC Class III soils		LCC Class IV or lower	
Acres	Score	Acres	Score	Acres	Score
80 or Above	100	160 or Above	100	320 or Above	100
60 to 79	90	120 to 159	90	240 to 319	80
40 to 59	80	80 to 119	80	160 to 239	60
20 to 39	50	60 to 79	70	100 to 159	40
10 to 19	30	40 to 59	60	40 to 99	20
Fewer than 10	0	20 to 39	30	Fewer than 40	0
--	--	10 to 19	10	--	--
--	--	Fewer than 10	0	--	--

LCC = Land Capability Classification

Table 3 Project Size Score			
	I	J	K
Soil Type	LCC Class I–II	LCC Class III	LCC Class IV-VIII
Glenbar Complex	--	2.0	--
Holtville Silty Clay, Wet	0.2	--	--
Indio-Vint Complex	0.1	--	--
Meloland Fine Sand	--	2.0	--
Meloland Very Fine Sandy Loam, Wet	--	18.2	--
Vint And Indio Very Fine Sandy Loams, Wet	51.6	--	--
Vint Loamy Very Fine Sand, Wet	49.9	--	--
Imperial-Glenbar Silty Clay Loams, Wet, 0-2% Slopes	--	23.7	--
Rositas Fine Sand, Wet, 0-2% Slopes	--	15.5	--
Rositas Fine Sand, 0-2% Slopes	--	0.2	--
Total Acres	101.8	61.4	0.0
Project Size Scores	100	70	0
Highest Project Size Score		**100**	--
NOTE: Totals may vary due to independent rounding. The Project site consists of 0.1 acre of water associated with the Westside Main Canal, which is included in Table 1 and Figure 4 above. However, water does not have an LCC Class, and therefore is not included in Table 3. LCC = Land Capability Classification			

3.2.2 Water Resources Availability Rating

The Water Resource Availability Rating is based upon identifying the various water sources that may supply a given property, and then determining whether different restrictions in supply are likely to take place in years that are characterized as being periods of drought and non-drought (California Department of Conservation 1997).

Although the Project site has been fallow for more than a decade, the Project site could be irrigated entirely by irrigation water provided by the IID. Due to the high reliability of IID to deliver water during drought and non-drought years, and due to the presence of the Westside Main Canal immediately adjacent to the northern Project boundary, the Project has no physical or economic restrictions that could reduce the availability of water resource supply during either drought or non-drought years. Consequently, the Project site is assigned the maximum Water Resources Availability score of 100 (Table 4).

Table 4 Water Resource Availability Score				
A	B	C	D	E
Project Portion	Water Source	Proportion of Project Area	Water Availability Score	Weighted Availability Score
1	Imperial Irrigation District Irrigation Water	1.0	100	100
			Total Water Resources Score	100

3.2.3 Surrounding Agricultural Land Rating

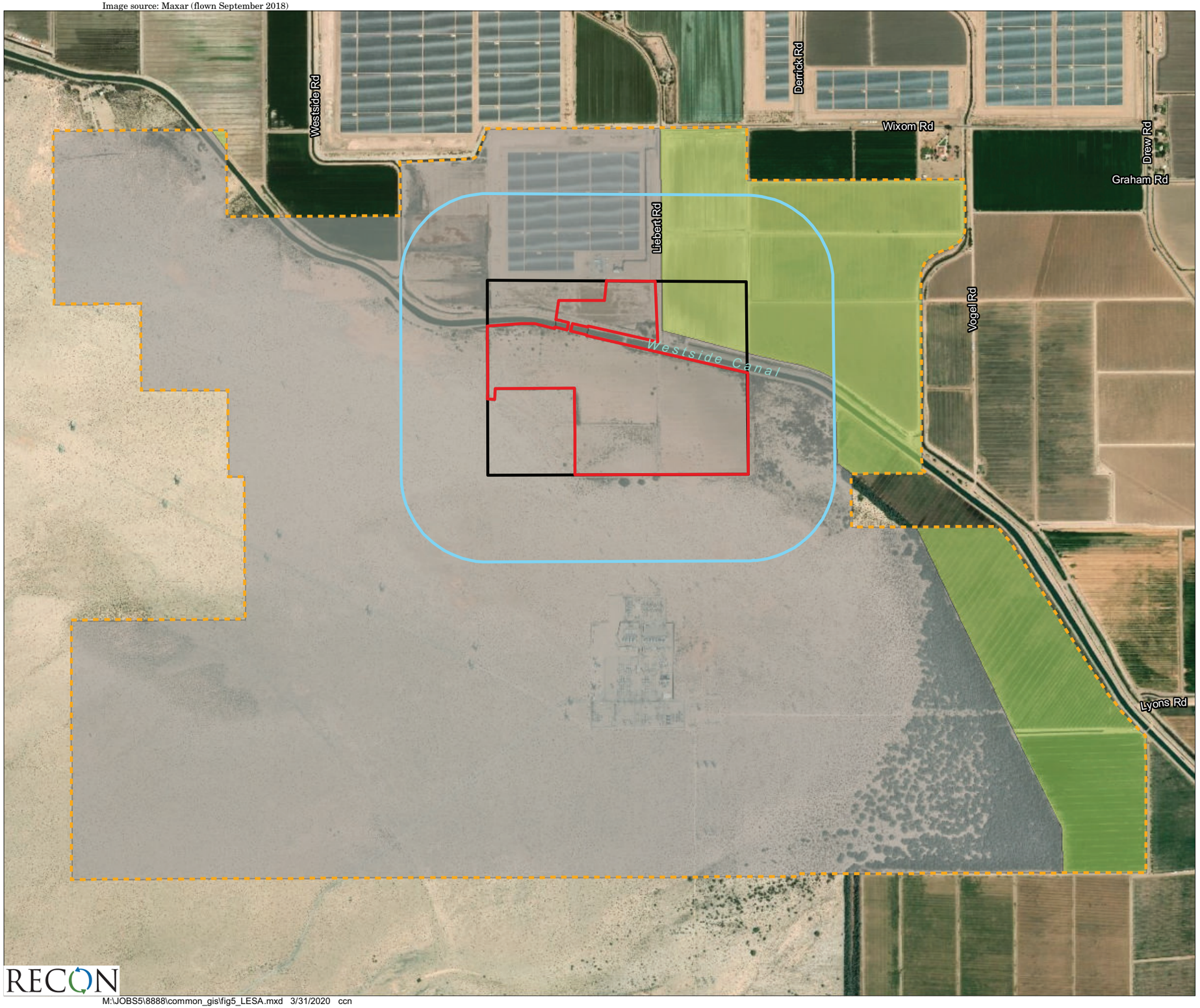
The Surrounding Agricultural Land Rating provides a measurement of how land near a given project, both directly adjoining and within a defined distance away, may both influence and be influenced by the agricultural land use of the subject project site. The Surrounding Agricultural Land Rating is based on identification of a project site's "Zone of Influence" (ZOI), which consists of surrounding parcels located within 0.25 mile from the project boundary. Parcels that are intersected by the 0.25-mile buffer are included in their entirety. The project site is assigned a "Surrounding Agricultural Land" score based upon the percentage of agricultural land in the ZOI. The LESA Model rates the potential significance of the conversion of an agricultural parcel that has a large proportion of surrounding land in agricultural production more highly than one that has a relatively small percentage of surrounding land in agricultural production. Table 5 shows the Surrounding Agricultural Land Rating Scores the LESA Model assigns projects based on the percentage of surrounding land in agricultural production within the ZOI (California Department of Conservation 1997).

Table 5
Surrounding Agricultural Land Rating Scores

Percent of Project's Zone of Influence in Agricultural Use	Surrounding Agricultural Land Score
90 to 100	100
80 to 89	90
75 to 79	80
70 to 74	70
65 to 69	60
60 to 64	50
55 to 59	40
50 to 54	30
45 to 49	20
40 to 44	10
40 <	0

RECON conducted field reconnaissance to identify active farmland within the ZOI. Figure 5 shows that land within the northeastern portion of the ZOI is currently in agricultural production, which constitutes approximately 16 percent of the ZOI. Because land currently in agricultural production constitutes approximately 16 percent of the ZOI, the Project site is assigned a Surrounding Protected Resource Land Rating score of zero.

Image source: Maxar (flown September 2018)



Project Boundary
Envelope
0.25-mile Buffer of Envelope
Zone of Influence - 3,187 ac.
Non-Farmland - 2,664.2 ac. (84% of Total)
Active Farmland - 522.8 ac. (16% of Total)

0 Feet 1,500

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FIGURE 5
Surrounding Agricultural Land

3.2.4 Surrounding Protected Resource Land Rating

The Surrounding Protected Resource Land Rating is essentially an extension of the Surrounding Agricultural Land Rating, and is scored in a similar manner. Protected resource lands are those lands with long-term use restrictions that are compatible with or supportive of agricultural uses of land, including the following:

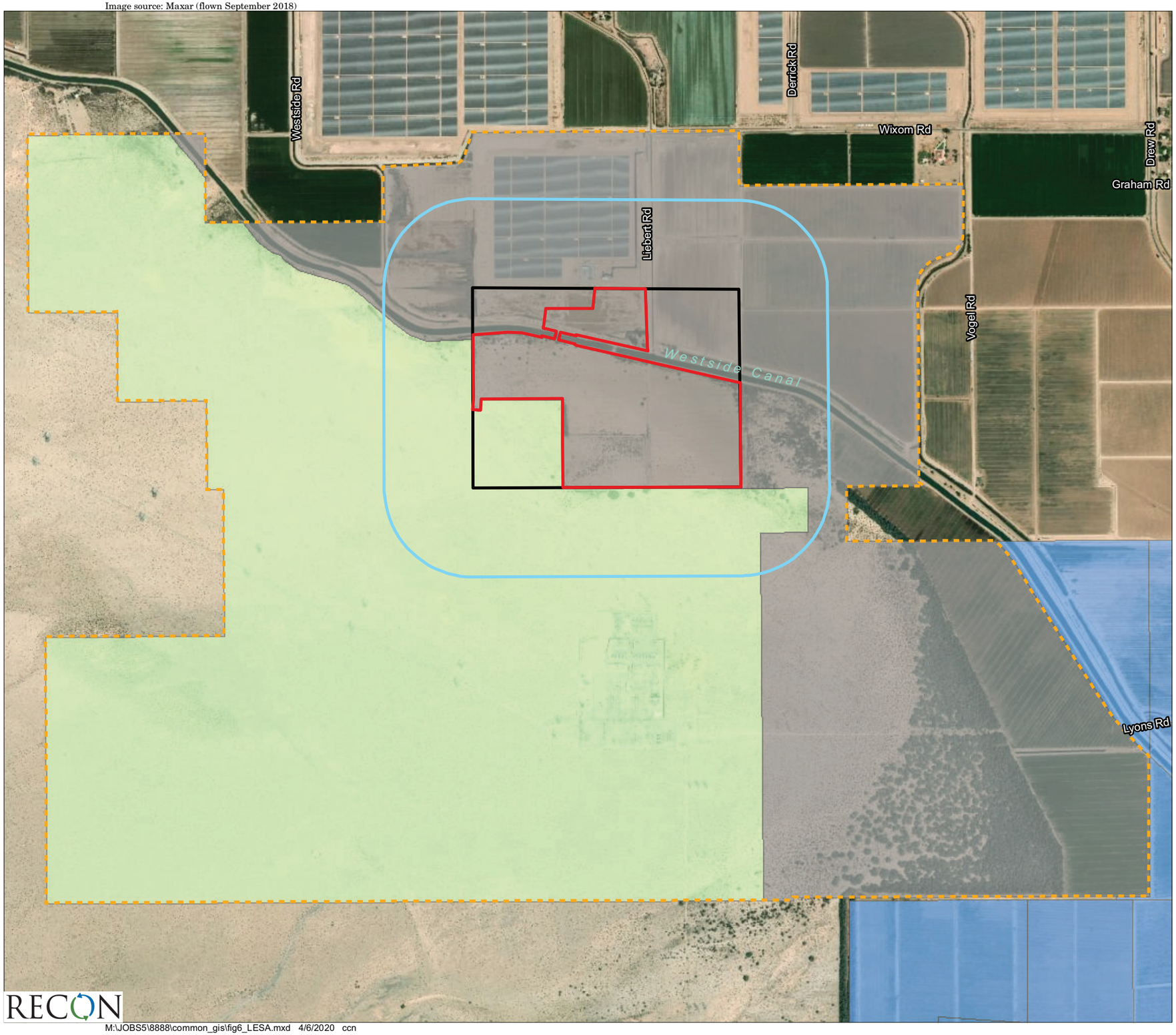
- Williamson Act contracted land;
- Publicly owned lands maintained as park, forest, or watershed resources; and
- Lands with agricultural, wildlife habitat, open space, or other natural resource easements that restrict the conversion of such land to urban or industrial uses (California Department of Conservation 1997).

Table 6 shows the Surrounding Protected Resource Land Rating Scores the LESA Model assigns projects based on the percentage of protected resource lands within the ZOI. Review of California Department of Conservation, Division of Land Resource Protection, Conservation Program Support mapping data determined that there are no parcels protected by Williamson Act Contracts within the ZOI (California Department of Conservation 2017). Review of the U.S. Department of the Interior, BLM mapping data for Areas of Critical Environmental Concern (ACEC) determined that 1,880 acres of the ZOI are within the Yuha Basin ACEC (U.S. Department of the Interior 2017). This land within the Yuha Basin ACEC constitutes 59 percent of the ZOI. Search of available geographic information systems data did not yield any sources identifying easements that restrict conversion of land to urban or industrial uses. Therefore, 1,307 acres of land within the ZOI are considered unprotected (41 percent of the ZOI). The locations of protected resource land surrounding the Project site is presented in Figure 6. Based on the results of the analysis, the Project site is assigned a Surrounding Protected Resource Land Rating score of 40.

Table 6
Surrounding Protected Resource Land Rating Scores

Percent of Project's Zone of Influence Defined as Protected	Surrounding Protected Resource Land Score
90 to 100	100
80 to 89	90
75 to 79	80
70 to 74	70
65 to 69	60
60 to 64	50
55 to 59	40
50 to 54	30
45 to 49	20
40 to 44	10
40 <	0

Image source: Maxar (flown September 2018)



Project Boundary

Envelope

0.25-mile Buffer of Envelope

Zone of Influence - 3,187 ac.

Unprotected Land - 1,307 ac (41% of Total)

Protected Resource Land

BLM Yuha Basin ACEC - 1,880 ac (59% of Total)

Williamson Act Parcels - 0.0 ac (0% of Total)

0 Feet 1,500

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FIGURE 6

Surrounded Protected Resource Land

4.0 Summary

The LESA Model is weighted so that 50 percent of the total LESA score is derived from the LE factors, and 50 percent is derived from the SA factors. Table 7 presents the individual scores and factor weighting used to develop the final LESA score. As shown in Table 7, the LE subscore is 27.2, while the SA subscore is 32.0, resulting in a final LESA score of 59.2. As shown in Table 8, a final LESA score between 40 to 59 points is considered significant if both the LE and SA subscores are greater than or equal to 20 points. Because both subscores (LE and SA) are greater than 20, the Project is considered to have a significant impact on agricultural resources.

Table 7
Final Land Evaluation and Site Assessment Score Sheet

A	B	C	D
Factor Name	Factor Score (0–100 Points)	Factor Weighting (Total = 1.00)	Weighted Factor Score
Land Evaluation			
Land Capability Classification	64.2	0.25	16.1
Storie Index Rating	44.7	0.25	11.2
Land Evaluation Subscore			27.2
Site Assessment			
Project Size	100	0.15	15.0
Water Resource Availability	100	0.15	15.0
Surrounding Agricultural Lands	0	0.15	0
Protected Resource Lands	40	0.05	2.0
Site Assessment Subscore			32.0
Total Land Evaluation and Site Assessment Score			59.2

Table 8
California Land Evaluation and Site Assessment Model Scoring Thresholds

Total Land Evaluation and Site Assessment Score	Scoring Decision
0 to 39 Points	Not Considered Significant
40 to 59 Points	Considered Significant only if Land Evaluation and Site Assessment subscores are each greater than or equal to 20 points
60 to 79 Points	Considered Significant unless either Land Evaluation or Site Assessment subscore is less than 20 points
80 to 100 Points	Considered Significant

5.0 References Cited

California Department of Conservation

1997 California Agricultural Land Evaluation and Site Assessment Model, Instruction Manual.

2017 Division of Land Resource Protection, Conservation Program Support mapping data.

U.S. Department of Agriculture Natural Resources Conservation Service

2013 SSURGO Imperial County, California, Imperial Valley Area (CA683) Version 2, December 19.

2017 Web Soil Survey. Soil Survey Area: Imperial County, California, Imperial Valley Area.

U.S. Department of the Interior

2017 Bureau of Land Management mapping data for Areas of Critical Environmental Concern. April 27.

APPENDIX C – AGRICULTURAL RESOURCES AND FISCAL IMPACT

C.2. Economic, Employment, and Fiscal Impact Analysis

Development Management Group, Inc.
economic development ■ fiscal & economic analysis ■ development management

CED WESTSIDE CANAL STORAGE, LLC

Imperial County, California

Economic Impact Analysis (EIA)
Employment (Jobs) Impact Analysis (JIA)
Fiscal Impact Analysis (FIA)
Statement of Potential for Urban Decay

Completed for:

Final Report of Findings
December 4, 2020

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Development Management Group, Inc.
economic development ■ fiscal & economic analysis ■ development management

December 4, 2020

Jim Minnick, Director of Planning and Development Services
David Black, Planner IV
County of Imperial
801 Main Street
El Centro, CA 92243

RE: FINAL REPORT OF FINDINGS ECONOMIC/EMPLOYMENT (JOBS)/FISCAL IMPACT ANALYSIS AND STATEMENT OF POTENTIAL FOR URBAN DECAY: CED WESTSIDE CANAL BATTERY STORAGE, LLC: IMPERIAL COUNTY, CA

Dear Mr. Minnick and Mr. Black:

On behalf of Development Management Group, Inc., I am honored to provide you with our independent analysis of the economic, employment and fiscal impacts of the proposed CED Westside Canal Battery Storage, LLC project in Imperial County, CA. The purpose of this cover letter is to provide you with a brief explanation of each of the three analyses contained in this report and a summary. By review, the proposed project is a 2,000 MW battery storage facility over approximately 163 acres.

An ***Economic Impact Analysis*** calculates the predicted impact to a community or region as a result of a project or activity. This includes all known direct (and indirect) expenditures as a result of both construction and operation for the projected life of a facility/project. With respect to the CED Westside Canal Battery Storage, LLC project we have calculated that the economic impact to the Imperial County region will be approximately $165.13 million over the thirty (30) year life of the project (inclusive of both project construction and operations but exclusive of governmental taxes and fees).

An ***Employment or Jobs Impact Analysis*** calculates the total amount of construction and operational jobs Specific to the CED Westside Canal Battery Storage, LLC, we have determined that the proposed project will generate the equivalent of 1,549 full-time one-year equivalent construction jobs over the construction period (five-phases in odd years (1-9)) and 20 full-time equivalent permanent jobs, at buildout.

These are all new economic benefits and jobs as the subject site is reported to have not been actively used for agriculture or any other uses for at least fifteen (15) years.

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Finally, a ***Fiscal Impact Analysis*** calculates the amount of revenue a governmental agency is expected to receive and calculates the projected costs they will incur to provide appropriate services to both the project and the additional population/employment generated as a result of such. A comparative model is then produced in order to determine if the project is of economic benefit or cost to the government agency.

Development Management Group, Inc. has calculated that the CED Westside Canal Battery Storage, LLC will generate approximately $81.53 million in net local (county) tax revenue over the thirty (30) year life of the project. This is derived from an estimated $34.77 million in sales tax revenue and $46.77 in net property tax revenue.

It is projected that it will cost the County about $22.46 million to provide appropriate services to the project and related employment thus generating a projected surplus to the County of Imperial of about $59.08 over the thirty (30) year period this report represents (subject to acceptance of the recommendations provided within the report).

Note that this amount is based solely on the tax laws that are currently in place and does not include any amounts that may be received by the County under a Public Benefits Agreement or similar arrangement.

A complete report of findings along with a list of sources and detailed calculations are contained within the report that follows. We are prepared to answer any questions you may have about our work and conclusions. I can be reached at (760) 272-9136 or by email at michael@dmgeconomics.com.

Sincerely,

Michael J. Bracken
Managing Partner

1. Introduction

Development Management Group, Inc. (DMG) has been retained by the County of Imperial to provide an independent Economic Impact Analysis (EIA), Employment/Jobs Impact Analysis (JIA) and Fiscal Impact Analysis (FIA) for a proposed energy battery storage facility to be constructed within the County of Imperial. The project is scheduled to hold a maximum of 2,000 MW of power for a period of one hour. CED Westside Main Battery Storage, LLC is the development company proposing this project. For purposes of this report, the project shall be referred to by its entire name or by ConEd Westside.

This Employment Impact Analysis assumes all calculations in 2020 dollars as a base year with an appropriate adjustment for future years (see notes in exhibits for assumptions). The expected life of the facility is 30 years which is generally in line with the length of entitlements for these types of projects.

2. Contact Information for County of Imperial

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4. Statement of Contents:

5. Statement of Independence

The County of Imperial has provided a joint contractual obligation with Development Management Group, Inc. regarding independence of conclusions contained in this report. Therefore, neither project proponent (applicant) nor the County of Imperial have provided editorial comment or direction regarding the conclusions contained herein.

6. Scope and References of Analysis:

Development Management Group, Inc. hereby discloses that we use information from the following sources in completing this analysis:

1. California Department of Conservation
2. California Department of Industrial Relations
3. California Economic Strategy Panel (RIMS II)
4. California Employment Development Department
5. California Energy Commission
6. California Independent System Operator
7. California Public Utilities Commission
8. California State Board of Equalization
9. California State Department of Finance
10. CED Westside Canal Battery Storage, LLC
11. County of Imperial, California
12. County of Imperial, California
13. County of Kern, California
14. County of Riverside, California
15. County of San Bernardino, California
16. Development Management Group, Inc. (Guidance Memorandum Dated 2/22/12)
17. Environics Analytics
18. Environmental Management Associates
19. Raincross Corporation
20. Regional Analysis & Information Data Sharing (Raidsonline.com)

21. Southern California Edison
22. The Hoyt Report
23. United States Bureau of Economic Analysis
24. United States Census Bureau (American Community Survey)
25. United States Department of Labor

7. Qualifications of Consultant

Development Management Group, Incorporated (DMG, Inc.) specializes in services related to microeconomics and economic development. Such services include site selection and analysis, economic development strategic planning and implementation, development management, market/development feasibility, economic analysis, entitlement/permit processing and project financing. DMG has completed over two hundred (200) Fiscal and Economic Impact Analysis projects for both the private and public sector and serves as a contract economist for the Southern California Association of Governments.

For over fifteen (15) years, DMG, Inc. has assisted over five dozen companies with their site selection and entitlement/permit processing. These companies have created thousands of new construction and permanent jobs and invested tens of millions of dollars within the communities they are located. In addition, DMG, Inc. has assisted several public agencies and economic development corporations with economic impact analysis, strategic planning, marketing and other business recruitment projects creating the administrative and operational infrastructure to enable them to grow their economies.

The company founder, Michael Bracken, brings over 25 years of local, regional, and state government experience in the fields of economic development, redevelopment, housing and sales and use tax administration. Before founding Development Management, Inc., Bracken completed four years as the President and Chief Executive Officer of the Coachella Valley Economic Partnership where he led a regional business recruitment team that generated over $90 million of economic investment for the Palm Springs Region of Southern California.

Bracken holds a Bachelor's Degree in Business Administration and a Master's Degree in Public Administration from The California State University San Bernardino (CSUSB). He co-designed CSUSB's Master's level course titled *Management of Local Economic Development,* which trains economic development professionals in business recruitment and effective use of financial and tax incentives.

He is also a former City Councilman and Vice-Chairman of a Community Redevelopment Agency providing unique and beneficial prospective to local governments.

8. Description of Economic Multipliers

There are two types of multipliers that are generally utilized by economists. These include spending multipliers and job creation multipliers. Simply stated, spending multipliers is the calculation of the number of times a dollar is expected to be spent through the regional economy. Economic multipliers differ based on the origination of that particular dollar. For example, labor multipliers are higher than material multipliers as labor dollars are paid directly to personnel and generally spent more locally. Dollars spent on materials (for example, construction materials) are more likely to leave the regional economy as they are used to pay suppliers located elsewhere.

Economists often provides the example of a gold mining town when describing the concept of economic multipliers. Imagine a gold miner with money paying various persons within the town for a place to sleep, equipment to mine, food and entertainment. The recipients of these dollars then utilize the money they received for their own purchases (including a place to sleep, supplies for their businesses, food and entertainment). Economic multipliers are the basis of understanding how a particular business or use will impact a regional economy.

There is disagreement between individual economists and government authorities regarding appropriate economic multipliers. More aggressive economists often argue for higher economic multipliers stating that dollars continually circulate through an economy. Conservative economists believe that multipliers are lower, and that the circulation has an ending point (and therefore a new beginning point) in the spending cycle. In an effort to provide the greatest amount of accuracy to an analysis of this nature, Development Management Group, Inc. utilizes the RIMS II model (produced by the United States

Bureau of Economic Analysis) , which most economists consider to be a more conservative estimate of economic multipliers.

The RIMS II model is based on work by the United States Bureau of Economic Analysis. DMG, Inc. is utilizing the latest RIMS II Model (dated 2012/2017). Use is also made of the California Economic Strategy Panel 2009. They published a study titled "Using Multipliers to Measure Economic Impacts". This publication looks at 473 industry types. In this report, earnings have an economic multiplier of between 1.40 (industries related to social assistance) and 7.59 (industries involving water transportation). Most economic multipliers are in the 2.00 to 2.50 range.

Employment multipliers help predict the number of additional jobs that are created elsewhere in the economy for each job of a certain type. For example, if a certain type of job (let's say one involving the retail trade which has a multiplier of 1.6312, for each job directly attached to retail, an additional .6312 (or 6/10) of a job is created elsewhere in the economy). DMG, Inc. applies the use of economic multipliers in the following pages to help present potential economic, employment and fiscal impacts.

9. Need for Renewable Energy Generation

As the Renewable Portfolio Standard (RPS) requirements continue to increase, so will investment in the region. California has essentially met the RPS standard of a minimum of 33% (SBX1-2) and is now working toward the implementation of SB350 which increases the RPS standard to 50% by 2030. Most recently (September 2018) California Governor Jerry Brown signed SB 100 into law, which sets the bar for California to generate 100% of energy through renewable sources by the year 2045.

Most forms of renewable energy have limitations for when it is produced. For example, wind energy can only be produced at times when the prevailing wind is sufficient for the wind-turbines to turn. Relative to solar energy, production occurs when the sun is active with photovoltaic panels.

For California to achieve RPS 50 and RPS 100, energy storage will need to occur. This will allow energy to be produced when it is most efficient or possible (again wind and solar), stored and brought to market through transmission and distribution when it is needed. The CED Westside Main Battery Storage, LLC project is meant to provide battery storage for energy production. The proposed project will hold as much as 2,000 MW of power for up to sixty (60) minutes.

10. Host Region, Location and Project Description

The County of Imperial, California (Imperial County) is located in the southeast corner of California. The population of the County is approximately 188,821. The California Employment Development Department (EDD) shows as of August 2020 that the unemployment rate for Imperial County is 22.9% with 69,200 available in the workforce, 53,400 employed and 15,900 currently unemployed.

CED Westside Canal Battery Storage, LLC is proposing to construct a 2,000 MW (phased) energy battery storage facility in the Imperial Valley portion of Southern California The project would comprise the development of approximately 163 acres of land in areas that are generally described as portions of unincorporated Imperial County South of Interstate 8, North of Interstate 98, West of Drew Road and immediately South of and adjacent to the Westside Canal (generally about 9 miles West-North-West of the City of Calexico.

Figure 1: Location Map

By nature, a battery storage facility provides energy stabilization to residents and businesses. As described previously, wind and solar energy is only generated a limited number of hours per day. Energy demand is ongoing (though does vary by the time of day). A 2,000 MW battery storage facility has the ability to store power needed by up to 650,000 homes (at 325 homes per MW) for a period of sixty (60) minutes. At 3.5 persons per household, which is a general estimate in Southern California, the ConEd Westside Battery project could support a community of 2.3 million people with their energy needs for up to sixty minutes (note that the project developer indicates that the energy storage duration could last from one (1) hour to ten (10) hours). The facility is scheduled to be built over a period of about nine (9) years as demand for battery storage dictates growth. Note that while the project developer is seeking an entitlement to construct a maximum of 2,000 MW that the phasing only schedules out the first 1,500 MW (which is what DMG, Inc. has analyzed). If the entire project is eventually constructed, the economic, job and fiscal impacts will be different than what this analysis contains.

The subject parcel numbers are provided below:

051-350-009
051-350-010
051-350-011
051-350-018
051=350-019

Total Acreage: 163 (approximate)

Figure 2: Simulated Rendering of ConEd Westside Battery looking NW from Drew Rd. & Lyons

11. Description of Analyses Contained and Limitations

Development Management Group, Inc. is presenting three types of analysis. These include an Economic Impact Analysis, an Employment or Jobs Impact Analysis and a Fiscal Impact Analysis. Each serves a distinct purpose in evaluating the overall community economics of a project.

An ***Economic Impact Analysis*** is designed to provide calculations regarding the potential overall economic impact of a project for a region. It gives an understanding of the quantity of dollars that will flow through an economy as a result of a project. In the case of an energy battery storage project this includes such items as labor, construction materials, local purchases and operations. Additionally, calculations are presented regarding the amount of money that will be generated for governmental purposes (through taxes and fees). A combination of the two calculations (and associated multipliers) provides a full understanding of the potential economic impact.

An Employment Impact Analysis (or in this case what we term as a ***Jobs Impact Analysis***) provides calculations regarding the number of direct and indirect jobs that are generated as a result of construction and operation of the project. Additionally, it provides a comparison to the direct and indirect jobs that are currently in place if the subject land is in use.

Finally, a ***Fiscal Impact Analysis*** provides a financial picture of what it may cost a governmental authority (such as the County of Imperial) to provide essential goods and services to a community as a result of a specific development project and compares it to the revenue stream that is expected as a result of the same project. The consolidation of the two calculations provides a graphical analysis for which to determine if a project is fiscally viable for a governmental agency.

This report does have certain limitations, which are disclosed below:

1. CED Westside Canal Battery Storage, LLC has stated that their intention is to seek entitlements to build a maximum of 2,000 MW of battery storage. They have scheduled (for phasing/projection purposes) the first 1,500 MW over a nine-year timeframe (the balance would be constructed if there is sufficient market demand):

a. Year 1: 100 MW
b. Year 3: 200 MW
c. Year 5: 300 MW
d. Year 7: 400 MW
e. Year 9: 500 MW

2. The applicant states they are seeking a forty (40) year Conditional Use Permit. DMG, Inc. has completed an Economic/Job/Fiscal Impact Analysis covering the first thirty (30) years of the proposed project's life. Our work is limited to thirty (30) years so that the figures presented are more useful to the County of Imperial in assessing impacts for budgeting purposes. This also recognizes that tax law and allocations are subject to change, based on State Law.
3. DMG, Inc. does not provide an analysis of a highest and best use of the subject property. Our analysis is limited to analyzing the proposed/projected use.
4. DMG, Inc. does not provide civil engineering services or construction cost estimation. We rely on information presented to us from the project developer, though we do compare said information to other similar projects we have analyzed (when applicable).
5. DMG, Inc. endeavors to utilize as much third-party data as possible, but as with any projection, certain assumptions must be made for which to provide appropriate calculations and conclusions.
6. DMG, Inc. recognizes that some of the data provided directly by the project proponent is considered proprietary in nature. This said, it is not completely possible to protect all such information in relation to completing this analysis without utilizing some of the specific numbers and calculations.
7. DMG, Inc. has copyrighted each and every page of this report. The purpose of the Copyright is to protect our analysis and report structure as it is considered intellectual property of DMG, Inc. This said, the County of Imperial does have unlimited use of this report (in Final Report status) for analysis of the project and to submit to the County of Imperial and/or other governmental or permitting authorities which may print/publish for public comment and make public policy decisions, so long as it is not reverse engineered for use to analyze other project(s). Any use by any other person or entity of this analysis and/or system without the express written and/or licensed permission of Development Management Group, Inc. is prohibited.

12. Economic Impact Analysis (Exhibits A thru F)

Construction and Operation

CED Westside Canal Battery Storage's battery storage project is anticipated to cost approximately $1.8 billion (this includes the construction of 1.500 MW of energy storage capacity for a period of sixty (60) minutes. If the entire 2,000 MW were to be constructed (over the same timeframe) the capital expenditures would total in excess of $2.43 billion. The costs are generally split into short term (construction) and long term (operational) impacts.

The construction phase of the project is scheduled to include the following types of expenditures:

1. Site Acquisition
2. Engineering
3. Project Management (including Overhead and Profit to an EPC)
4. Battery Storage Facility (including the equipment and labor)
5. Site Work (clearing & grubbing, grading and fencing)
6. Project Substation (for which to "collect" the energy and prepare it for transmission)
7. Interconnection Facilities (to take the power and "load" it onto power transmission lines)
8. Interior Roads & Landscaping
9. Operations Facilities

In terms of construction, the project is expected to generate about 1,550 full-time equivalent jobs lasting about one (1) year. In total, about $194.2 million is projected in on-site labor construction labor costs (this is exclusive of engineering, overhead, management and other professional hours scheduled through the EPC (EPC is an industry term meaning Engineering, Procurement & Construction)). The economic multiplier for construction labor is 1.1331. This means that for each dollar spent on labor to construct the facility it is anticipated that an additional 13.3 cents are spent within the economy as that dollar circulates. In total, it is projected that the economic impact of construction labor will be about $220.05 million.

Additionally, $1.61 billion in material purchases are anticipated to construct the energy storage (battery) project and support facilities. DMG, Inc. projects only a small portion of the material purchases will come from within the region. Such material may include aggregate, concrete, fencing, landscaping and similar items that would be available at a more cost-efficient basis locally.

Thus, for purposes of calculating the potential impact of the development of the project, we are estimating that 5% of the overall materials purchased may come from within the region. This would equate to about $80.3 million dollars being spent within the region on materials during the construction period. In applying an economic multiplier of 1.1517 for construction material purchases, the overall economic impact of material purchases within the region is anticipated to be about $92.47 million over the same period.

Long term operational impacts will take the form of operational labor, facility security and maintenance. Information from the developer suggests some additional local material purchases to be made as part of the operation of the facility. It is estimated that the local/regional economic impact of material purchases (during the thirty (30) year life) of the facility will have an economic impact of about $30.6 million on the regional economy.

The project is scheduled to be built over five (5) phases. The first phase (100MW) will result in four (4) full-time operation jobs. Build-out (1,500 MW) will generate about 20 full-time jobs. Overall, the project has about 1 full-time operation job per 75MW of power produced. The projected full-time wages are significantly above median wages in the region. In year one, fully burdened salaries (inclusive of salary and benefits) exceed $110,000 annually.

Finally, revenue from the sale of land has recirculate into the economy. At an approximate cost of $1.18 million (DMG, Inc. research estimates), the economic impact of the land sale itself is $1.33 million (note the land was previously purchased and DMG, Inc. is simply reflecting the economic impact of the transaction to the overall economy).

It is calculated that the construction and operation of CED Westside Canal Battery Storage project will have an overall economic impact to the County of Imperial of about $165.13 million over a twenty (30) year period inclusive of construction and operation, but not including governmental revenues (taxes and fees).

Conclusion Regarding Economic Impact to the County of Imperial

Development Management Group, Inc. projects that the CED Westside Canal Battery Storage project will have approximately ***$165.13 million in economic impact to the regional economy*** over a thirty (30) year period not including governmental revenues (taxes and fees).

Governmental Revenues

The CED Westside Canal Battery Storage will provide certain and specific tax revenues to the County of Imperial and other region-based taxing organizations. By way of background, while California Law provides a property tax exemption for qualified solar energy systems, there is no such language exemption that applies to energy battery storage projects. For reference, the solar exemption is found in Section 73 of the California Revenue and Taxation Code.

As stated previously, the proposed project will be built in phases. The build-out is scheduled to occur in Year 9 or Year 10. At that point, (Year 9) the project will generate about $12.56 million in base level (1%) property taxes. That said, the equipment is believed to be on a depreciation schedule that will reduce its value (and therefore property) taxes on an annual basis. There is little information available regarding what an acceptable depreciation schedule will be as there are no other known battery storage facilities of this type/size in Southern California. DMG, Inc. has completed similar analysis for other battery storage projects and what we have used as a depreciation schedule for property tax purposes is what other project developers have stated they are using. That said, it is likely that this will be an item of discussion and potentially contention between various counties and project developers/owners and in no way is the presented depreciation schedule meant presented by or agreed to by either party. If the project developer and County of Imperial agreed to a specific depreciation schedule that is different from the one presented and used in Exhibit C, DMG, Inc. reserves the right to modify this report.

Depreciation Schedule (Year Refers to when Equipment Placed into Service)*

Year 1: 95%
Year 2: 85%
Year 3: 75%
Year 4: 65%
Year 5: 55%
Year 6: 45%
Year 7: 35%
Year 8: 25%
Year 9 (and After): 20%

*Note the Depreciation Schedule presented and utilized has NOT been reviewed nor approved by the County of Imperial. The actual depreciation is within the purview of the County of Imperial and the State of California.

Overall, it is estimated that the ConEd Westside Battery project will generate some $169.8 million in base level (1%) property taxes in the thirty (30) years of scheduled operation. Exhibit C provides the estimated tax revenue (inclusive of Sales & Use Tax and Property Tax) to the County of Imperial. Exhibit D is a breakdown of property tax revenues to the County of Imperial while Exhibit E provides a consolidated list of property tax revenue by taxing entities across Imperial County. The County of Imperial itself is expected to receive about $46.8 million between General Fund (net of ERAF), County Library and County Fire dedicated property taxes. In total, tax benefitting entities across Imperial County will share $193.75 million of property tax revenues over the first thirty (30) of the project. This is inclusive of various voter-approved taxing initiatives benefitting the Imperial Community College District and Imperial Unified School District.

The second revenue stream comes from Sales Taxes. In the State of California sales tax is applicable when construction materials are purchased by a construction contractor. An example would be a contractor that purchases roofing materials from a roofing supply company. At the time the contractor purchases the materials, he or she pays sales tax on the amount purchased. The point of sale is the place where the purchase was "principally negotiated" which is typically the location of the roofing supply business. The point of sale is important because local jurisdictions receive a portion of the sales tax collected.

In the case of an energy battery storage facility that is scheduled to have $1.605 billion in materials purchases during the total construction period (Years 1-9), Sales & Use Tax revenue is significant. The point of sale provides substantial financial benefit to the jurisdiction for which the retailer (supplier) of the materials is located. It is noted that the State of California offers an exemption on the State of California portion of Sales & Use Tax applicable to materials used for battery storage. That said, the local share is still applicable.

The following paragraphs provide guidance regarding the applicability of sales tax on construction equipment and the appropriate structure so that the County of Imperial may maximize its ability to receive financial benefit as the designated point of sale:

There are two (2) documents which are worthy of review and understanding relative to how sales and use tax can and should be handled for the project in Imperial County. The first is Regulation 1521, which governs Construction Contractors and defines Construction Contracts. The second is Publication 28 entitled "Tax Information for City and County Officials" (relative to Sales and Use Tax). Both documents are available through the California State Board of Equalization.

Under Regulation 1521, materials utilized for the construction of the facility are subject to Sales & Use Tax. Further, CED Westside Canal Battery Storage or anyone else that would be installing them on real property would be a Construction Contractor and the "retailer" of the product. This means that CED Westside Canal Battery Storage or their Construction Contractor would be responsible for reporting and paying of sales and use tax to the State of California. A section under Regulation 1521 deals directly with Construction Contractors that are also the manufacturer of the product. Simply stated, there are various methods for which CED Westside Canal Battery Storage to determine the retail price or value of the product. Such methods are described in detail on Page 3 of Regulation 1521 (Measure of Tax: Determining Cost Price).

Sales and Use Tax applies to fixtures utilized in the construction process. The law provides the option for a Construction Contractor to obtain a "Sales Tax Jobsite Sub-Permit" that allows the reporting of sales and use taxes at the jobsite itself (rather than where the fixtures were purchased). Essentially this means that the County of Imperial (under the Jobsite Sub-Permit) would receive the maximum financial benefit of a project such as the one proposed by CED Westside Canal Battery Storage. Publication 28

Exhibits A and B provide greater detail as to both the qualification and application to obtain a "Jobsite Sub-Permit".

Essentially, at such time as construction commences, CED Westside Canal Battery Storage would simply file for a "Sales Tax Jobsite Sub-Permit for Construction Contractors (Exhibit A of Publication 28). Sales Tax will then be reported to the Board of Equalization and paid by CED Westside Canal Battery Storage. Since the Sub-Permit will be specific to the job site, the County of Imperial will receive the maximum amount of sales tax as the local entity.

Sales and Use Tax Designated for the County of Imperial:

In total, the County of Imperial would receive a total of 2.33% of the cost or value of tangible personal property sold within the County. This is comprised of the 1% "Bradley-Burns Uniform Local Tax" base amount, .50% Public Health Allocation (from the State), .50% Public Safety Allocation* and .33% Transportation Tax (the actual tax is .50%, though only .33% of the .50% goes to the County of Imperial specifically, the balance is used regionally and may benefit other municipalities within the region.

*Note: there is uncertainty as to whether the State of California will provide the .50% for Public Health Allocation under this formula. This figure is within the State allocation that the State has chosen to forego for these types of projects.

In terms of application to the CED Westside Canal Battery Storage, if the County of Imperial were to require as part of the Conditions of Approval (or similar project governing document) that the site location be designated as the "Point of Sale" and the County of Imperial will be the beneficiary of $34.8 million in sales tax over the construction period (Years 1-9).

It is projected that the County of Imperial will garner approximately $204.53 million in ***gross*** revenues (sales and property taxes) over the life of the project (Years 1-30). The accepted multiplier for dollars generated (and spent) by local governments is 1.3918 which mean that the overall economic impact of the tax revenue received by the County of Imperial is approximately $284.66 million over the twenty (30) year life of the project.

**Note: The Imperial Irrigation District (incumbent provider of electricity) will likely receive about $1,000,000 per year (at build-out) in revenue to transmit energy on the Campo Verde IV Generation Tie-in Line. As this amount is a) subject to negotiation and b) not revenue received by the County of Imperial itself, it is not scheduled in the predictive analysis.

13. Projected Employment Impacts (Exhibit G)

The next model (Exhibit G) contemplates the payroll and labor (employment) impacts of the proposed use of the subject site for energy battery storage. During construction phases, the project will generate 1,549 full-time equivalent (FTE) jobs. This is based on approximately 3.22 million craft hours of work (the FTE is simply dividing the total craft hours by 2,080, the average amount of hours in a year for a full-time worker). Each construction job carries a jobs multiplier of 1.1859, meaning for each full-time equivalent job created for the construction of the facility another 2/10ths of a job is created elsewhere in the economy. Further for each $1 spent toward construction labor, an additional 13.3 cents are generated elsewhere in the economy (based on a 1.1331 labor multiplier). Overall, this means that the construction of the facility will create a total of 1,837 direct and indirect jobs lasting one year (FTE) and produce about $258.48 million in total economic impact from construction labor.

At build-out, the facility will have twenty (20) permanent on-site full-time employees engaged in a variety of professional and maintenance level tasks. Additionally, the facility may host outside vendors and equipment manufacturers completing various testing and compliance work. Overall, the operation staff will have wages in 2020 dollars that significantly exceed the median wages in Imperial County with positions starting between $75,000 and $100,000 per year (plus benefits) (note that the Median Household Income for Imperial County is estimated at $45,834 per the American Community Survey (2018). Utility jobs have one of the highest job multipliers, it is estimated that the one (1) direct job will generate an additional .45 of a job (1/2 a job) will be generated elsewhere in the economy.

Figure 3

Employment Impacts from Proposed CED Westside Canal Battery Storage, LLC Project

Item	*Battery Storage w/o Construction*	*Battery Storage w/Construction*
Construction FTE*	0	1,549
Projected Direct Jobs (at Buildout)*	20	1,569
Projected Total Jobs */**	29	1,866
Projected 20-Year Employment Impact	$98,250,378	$318,298,398

*Construction FTE is total one-year equivalent

**Projected total jobs include both direct and indirect jobs based on RIMS II Modeling

14. Fiscal Impact to the County of Imperial, California (as a Municipal Corporation) Exhibits H-J

A Fiscal Impact Analysis was completed to determine if the revenues scheduled were sufficient for which to allow the County of Imperial to provide essential goods and services to the project site and the additional population within the City as a result of the construction and/or operation of the energy battery storage facility. It is estimated that the County will receive a net of approximately $81.53 million in tax revenues over the first thirty (30) years of the project ($46.77 million in property tax revenue and $34.77 million in sales tax). This figure is a base figure for which to better understand the aggregate fiscal impacts of the proposed CED Westside Canal Battery Storage project on the County.

There are multiple ways of conducting a Fiscal Impact Analysis. DMG, Inc. has chosen to utilize the following assumptions/methodology:

1. Land in and of itself has little call for service from the County of Imperial.
2. Persons employed (to construct, operate or secure) at the facility do require various general governmental services.
3. For purposes of evaluating the potential demand by persons for services, it is assumed that each full-time equivalent job (construction, operation or security) shall support an average citywide household size of 3.87 persons (meaning the employee and an additional 2.87 persons).

4. There is insufficient data to determine the level of specific police and fire services that may be required to service the site, based on its proposed use. Previous communication with various counties in Southern California by Development Management Group, Inc. (Imperial, Riverside, San Bernardino and Kern) reveal that there is not enough data from those regions for which to predict the level of service a County or City provides in terms of public safety call volume for which to calculate a direct costs. DMG, Inc. therefore utilizes a person-household based cost model.

To generate a Fiscal Impact Analysis, a schedule of costs for County of Imperial General Government Services (General Fund) was generated as Exhibit H. This was extrapolated from County of Imperial budget documents. Exhibit H shows approximately $433.49 million for General Government expenditures by the County of Imperial in Fiscal Year 2019-2020 (this is budgeted amount and not actual spend and does not account for revenue declines because of Covid-19). This equates to approximately $2,295.75 per person (based on a population of 188,821).

Revenue for counties come from a variety of tax sources including Sales & Use Tax, Transient Occupancy Taxes (also known as Hotel Taxes), Property Tax and revenues provided by the State and Federal Government. Revenues from State and Federal sources are not considered protected and therefore cities must always be able to potentially fund services to their residents without the benefit of these funds.

Development Management Group, Inc. recognizes that the revenue climate (at the State and Federal level) is ever changing and in order to provide a conservative analysis, it is expected that new projects into the County provide sufficient revenue for which to support 100% of the costs (without expectation of additional reimbursement from State or Federal sources). Also, local government budgets for FY 20-21 are considered constrained due to economic losses associated with Covid-19. Therefore, the FY 19-20 Budget for the County of Imperial is utilized to determine service costs to residents.

Utilizing project level data, we have generated a schedule that calculates the estimated costs to provide General Government services because of the proposed project. For example, in Year 1, it is estimated that there will be 205.04 full-time equivalent construction workers and four (4) full-time operational employees.

Overall, in Year 1 (construction and operations), DMG, Inc. calculates that the CED Westside Canal Battery Storage project will need to support a total population of 808.98. At a cost of $2,296 per person, it will cost the City about $1,857,227. In Year 2, where there is only operational staff (of four persons), the total population to be supported is 3.87 at a per capita cost of $2,352 for a total cost of $36,408. Over the first thirty (30) years of operation, it is estimated that hosting the CED Westside Canal Battery Storage Project will cost the County of Imperial $22.46 million.

Exhibit J provides a comparison on a year by year basis of the anticipated revenues to the County of Imperial as a result of the project and compares it to the anticipated expense to provide General Government Services to the employees and their families/dependents. The exhibit accounts for the approximately 2.33% of sales tax that is anticipated to be received along with an allocation of (approximately) 27.55% of the overall property taxes paid being available to provide General Government Services. In total, the County of Imperial will receive $81.53 million in total tax revenue because of the CED Westside Canal Battery Storage project.

Analysis of Exhibit J also shows that the CED Westside Canal Battery Storage will produce substantially more money in tax revenue than it will cost the County of Imperial to host the project. In fact, over the first thirty (30), the County of Imperial will receive $59.08 million more in revenue than it will spend to host the facility.

15. Statement Regarding Urban Decay (as a Result of CED Westside Canal Battery Storage Energy Center)

The State CEQA Guidelines discuss and define the parameters for which the consideration of socioeconomic impacts should be included in an environmental evaluation. State CEQA Guidelines Section 15131 states that "economic or social information may be included in an EIR or may be presented in whatever form the agency desires." Section 15131(a) of the Guidelines states that "economic or social effects of a project shall not be treated as significant effects on the environment." An EIR may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes. The intermediate economic or social changes need not be analyzed in any detail greater than necessary to trace the chain of cause and effect. The focus on the analysis shall be on

the physical changes." State CEQA Guidelines Section 15131(b) also state that "economic or social effects of a project may be used to determine the significance of physical changes caused by the project." One example that has been used by others has been the physical division of a community if rail lines were installed thereby bisecting the community. It is possible that the impacts upon the community could be measured.

In recent years, California Courts have generally defined the term "urban decay" to mean the physical changes that a projects potential socioeconomic impacts could bring to other parts in a community. The case that brought the concept of urban decay to light is Bakersfield Citizens for Local Control v. City of Bakersfield (204) 124 Cal.App.4th 1184 in which the court set aside two EIR's for proposed Wal-Mart projects that would have been located less than five (5) miles from each other. This appears to be the first time the courts used the words "urban decay" rather than "blight". In essence, the courts ruled that the two (2) Wal-Mart projects could result in a chain reaction of store-closures and vacancies as a result of new retail growth that may or may not be supported by other changes in market conditions (i.e., the downtowns would become ghost towns because the Wal-Mart(s) moved the retail business away from the urban center).

Based on this case and work that DMG, Inc. (and others) have completed relative to "Urban Decay Analysis"), it appears that the core question to ask (and answer) is the following:

Would the construction of the CED Westside Canal Battery Storage Project at the proposed site result in substantial and adverse physical changes to surrounding areas (i.e., will the project cause such a shift in the marketplace that other portions of the community become visually blighted "urban decay")?

The surrounding area contains a combination of solar energy generation projects and agriculture uses (as well as agriculture infrastructure). The proposed project is in keeping with the users in that corridor and in and of itself will not create a physical change to the physical characteristics of that area. In fact, the proposed project would add significant value to the solar generation in that area as it would create needed storage capacity for energy to be placed onto the grid at peak demand times.

Would the construction of the CED Westside Canal Battery Storage energy battery storage project at the subject site serve as growth-inducing causing a significant addition of other development or population?

As the State of California is working to confirm with its own laws to provide at least 50% of energy to businesses and residents from renewable sources (and 100% in the future), the State must either construct or allow others to construct energy storage facilities as the leading generators of renewable energy (solar and wind) are not able to generate twenty-four (24) hours a day.

The development and operation of the subject facility will create energy stability in times of production shortages and outages and provide energy at times of peak demand (such as early evening hours). The facility is meant to provide this product/service to existing users and is based on overall energy product by other sources. Essentially the energy battery storage facility is part and parcel to energy infrastructure to support existing production facilities. Therefore, this facility will not serve as growth inducing.

We have further determined that the development of the CED Westside Canal Battery Storage ***WILL NOT*** cause physical blight (urban decay) or serve as growth-inducing because the facility exists to support current renewable energy facilities to provide power supply stability.

15. Recommendations Regarding Fiscal Impacts and Mitigation(s)

Development Management Group, Inc. serves as an economist for the County of Imperial. In this capacity, we have been assigned the task of completing a full Economic/Job/Fiscal Impact Analysis as well as general recommendations regarding how the County can best maximize economic benefits and/or minimize fiscal harm to the County of Imperial as a Municipal Corporation and its residents.

A. Development Management Group, Inc. recommends that the County of Imperial consider entering into a formal agreement that requires the project developer to provide certified (and independently audited) payroll records at the conclusion of the project to insure that craft hour estimates (provided by the developer) are accurate and to the extent that the actual craft hours exceeds the estimated craft hours that the County of Imperial is reimbursed for the cost of services needed to support the

construction of the facility. If this is a mitigation measure that the County determines is viable, DMG, Inc. will assist the County in drafting the specific condition of approval appropriate to address this recommendation.

B. Development Management Group, Inc. recommends that the County of Imperial requires the applicant to have a qualified civil or traffic engineer calculate a) the average life of regional and surface streets from Interstate 8 and/or State Route 98 to the project site(s) b) the potential accelerated impact of street resurfacing based on the construction traffic (equipment and employees) over the first five (5) years of the project c) cost to resurface said streets d) calculate the proportional share for which CED Westside Canal Battery Storage, LLC should be responsible for as part of a direct mitigation payment to the County of Imperial prior to commencing construction. This recommendation is in the event that project construction will utilize surface streets outside of Interstate 8 and/or State Route 98.

C. Development Management Group, Inc. recommends that the County of Imperial require CED Westside Canal Battery Storage, LLC to enter into a specific cost reimbursement agreement for direct police and fire protection services whereas for each call made to the project site for such public safety services that the project is responsible for reimbursing the County of Imperial. Such agreement can be created using a "Contract Cities Service Rate" for both police (Sheriff) and fire protection services.

D. Development Management Group, Inc. recommends that the County of Imperial require CED Westside Canal Battery Storage, LLC to enter into a specific cost reimbursement agreement for direct judicial and prosecutory services whereas if a person(s) are tried in a court of law for potential crimes at the project site, that the project itself is required to reimburse the County for such costs.

E. Development Management Group, Inc. recommends that the County of Imperial require CED Westside Canal Battery Storage, LLC or any other landowner associated with the project sites (parcels) to enter into an agreement(s) whereas the assessed land values shall increase by 2% per annum and improvements and their depreciation schedule (not exempt under Section 73 of the State of California Revenue and Taxation Code) be set by mutual agreement prior to project approval. Such agreement should contain a provision which prohibits said property owner(s) from appealing

their assessed value for the duration of the project operation (or 30 years) whichever comes first. Agreement shall be in full compliance with Proposition 13 in all other aspects.

F. Development Management Group, Inc. recommends that the County of Imperial require the project developer through Conditions of Approval, Development Agreement or similar document to designate the project site as the “Point of Sale/Point of Use” in compliance with State Board of Equalization Regulation 1521 and file for a “Sales Tax Jobsite Sub-Permit for Construction Contractors” as outlined in State Board of Equalization Publication 28, Exhibit A.

G. Development Management Group, Inc. recommends that the County of Imperial enter into some type of agreement with the project proponent that recognizes the taxable material cost estimates contained in Exhibit A of this report and provides a formal guarantee (bond or otherwise) in order to provide greater certainty of these figures.

H. Development Management Group, Inc. recommends that the County of Imperial condition the project so that if battery storage or ancillary equipment is replaced with new equipment after the original construction period (most likely for purposes of utilizing newer technology) that the project site again designated as the "Point of Sale/Point of Use" as to create an additional local tax funding source for the County of Imperial. This requirement is similar to Item F but extends said condition in such cases as a substantial portion of the equipment is "upgraded", "replaced" or “repowered”.

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17. Certification

I certify that my engagement to prepare this report was not contingent upon developing or reporting predetermined results. The statements of fact contained herein and the substance of this report are based on public records, data provided by the CED Westside Canal Battery Storage, LLC and other sources as described in the reference section of this report. This report reflects my personal, unbiased professional analyses, opinions and conclusions. If any of the underlying assumptions related to this report change after the date of this report (December 4, 2020), then the undersigned reserves the professional privilege to modify the contents and/or conclusions of this report.

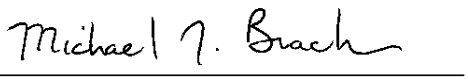

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Exhibit A			
Consumer Price Index Calculation (30-Years) 1990-2019			
	#	**Year**	**CPI %**
	1	1990	5.4
	2	1991	4.2
	3	1992	3
	4	1993	3
	5	1994	2.6
	6	1995	2.8
	7	1996	3
	8	1997	2.3
	9	1998	1.6
	10	1999	2.2
	11	2000	3.4
	12	2001	2.8
	13	2002	1.6
	14	2003	2.3
	15	2004	2.7
	16	2005	3.4
	17	2006	3.2
	18	2007	2.8
	19	2008	3.8
	20	2009	-0.4
	21	2010	1.6
	22	2011	3.2
	23	2012	2.1
	24	2013	1.5
	25	2014	1.6
	26	2015	0.1
	27	2016	1.3
	28	2017	2.1
	29	2018	1.9
	30	2019	2.3
	Gross		73.4
	Average		2.4467
Average Increase in Consumer Prices = 2.4467% annually			

Exhibit B

Construction/Operational Economic Impacts: (Years 1-30)

CED Westside Canal Battery Storage, LLC Imperial County, CA

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Short Term Economic Impacts										
Phase Size (MW)*	100		200		300		400		500	
On-Site Construction Labor	$22,800,000		$24,100,000		$37,025,000		$49,100,000		$61,175,000	
Economic Multiplier Rate	1.1331		1.1331		1.1331		1.1331		1.1331	
Economic Impact of Labor	$25,834,680		$27,307,710		$41,953,028		$55,635,210		$69,317,393	
Construction Materials	$125,200,000		$208,900,000		$319,475,000		$423,900,000		$528,325,000	
Local Purchase Materials (%)	0.05		0.05		0.05		0.05		0.05	
Projected Purchase of Materials Locally	$6,260,000		$10,445,000		$15,973,750		$21,195,000		$26,416,250	
Economic Multiplier Rate	1.1517		1.1517		1.1517		1.1517		1.1517	
Local Impact	$7,209,642		$12,029,507		$18,396,968		$24,410,282		$30,423,595	
Land Purchase	$1,184,000									
Economic Multiplier Rate	1.1239									
Local Impact	$1,330,698									
Long Term Economic Impacts										
Operational Materials (Ongoing)	$534,700	$547,783	$1,683,555	$1,724,747	$3,533,892	$3,620,356	$6,181,559	$6,332,803	$9,731,622	$9,969,726
Local Material Purchase (10%)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Projected Local Purchases of Materials	$53,470	$54,778	$168,356	$172,475	$353,389	$362,036	$618,156	$633,280	$973,162	$996,973
Economic Multiplier Rate	1.1517	1.1517	1.1517	1.1517	1.1517	1.1517	1.1517	1.1517	1.1517	1.1517
Local Impact of Material Purchases	$61,581	$63,088	$64,632	$66,213	$67,833	$69,493	$71,193	$72,935	$74,719	$76,548
Operational Labor	$461,500	$472,792	$1,609,983	$1,649,375	$1,303,097	$1,334,980	$1,953,775	$2,001,578	$2,547,415	$2,609,742
Economic Multiplier Rate	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944
Economic Impact of Labor (Annually)	$551,216	$564,702	$1,922,964	$1,970,014	$1,556,419	$1,594,500	$2,333,589	$2,390,685	$3,042,632	$3,117,076
Aggregate of Impacts (Annual)	$34,987,817	$627,790	$1,987,595	$2,036,227	$1,624,252	$1,663,993	$2,404,782	$2,463,620	$3,117,352	$3,193,623
Cumulative of Impacts (Cumulative)	$34,987,817	$35,615,607	$37,603,202	$39,639,429	$41,263,681	$42,927,674	$45,332,456	$47,796,076	$50,913,428	$54,107,051

	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Long Term Economic Impacts										
Operational Materials (Ongoing)	$10,213,655	$10,463,553	$10,719,565	$10,981,840	$11,250,533	$11,525,800	$11,807,801	$12,096,703	$12,392,673	$12,695,884
Local Material Purchase (10%)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Projected Local Purchases of Materials	$1,021,366	$1,046,355	$1,071,956	$1,098,184	$1,125,053	$1,152,580	$1,180,780	$1,209,670	$1,239,267	$1,269,588
Economic Multiplier Rate	1.1517	1.1517	1.1517	1.1517	1.1517	1.1517	1.1517	1.1517	1.1517	1.1517
Local Impact of Material Purchases	$1,176,307	$1,205,087	$1,234,572	$1,264,779	$1,295,724	$1,327,426	$1,359,904	$1,393,177	$1,427,264	$1,462,185
Operational Labor	$2,673,595	$2,739,009	$2,806,025	$2,874,680	$2,945,015	$3,017,070	$3,090,889	$3,166,514	$3,243,989	$3,323,359
Economic Multiplier Rate	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944
Economic Impact of Labor (Annually)	$3,193,341	$3,271,473	$3,351,516	$3,433,517	$3,517,525	$3,603,589	$3,691,758	$3,782,084	$3,874,620	$3,969,420
Aggregate of Impacts (Annual)	$4,369,648	$4,476,560	$4,586,088	$4,698,296	$4,813,249	$4,931,015	$5,051,662	$5,175,261	$5,301,884	$5,431,605
Cumulative of Impacts (Cumulative)	$58,476,699	$62,953,259	$67,539,348	$72,237,644	$77,050,893	$81,981,908	$87,033,570	$92,208,831	$97,510,715	$102,942,321

	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30
Operational Materials (Ongoing)	$13,006,515	$13,324,745	$13,650,761	$13,984,755	$14,326,920	$14,677,456	$15,036,570	$15,404,469	$15,781,371	$16,167,493
Local Material Purchase (10%)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Projected Local Purchases of Materials	$1,300,651	$1,332,474	$1,365,076	$1,398,475	$1,432,692	$1,467,746	$1,503,657	$1,540,447	$1,578,137	$1,616,749
Economic Multiplier Rate	1.1517	1.1517	1.1517	1.1517	1.1517	1.1517	1.1517	1.1517	1.1517	1.1517
Local Impact of Material Purchases	$1,497,960	$1,534,611	$1,572,158	$1,610,624	$1,650,031	$1,690,403	$1,731,762	$1,774,133	$1,817,540	$1,862,010
Operational Labor	$3,404,672	$3,487,974	$3,573,314	$3,660,743	$3,750,310	$3,842,069	$3,936,073	$4,032,377	$4,131,037	$4,232,111
Economic Multiplier Rate	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944
Economic Impact of Labor (Annually)	$4,066,540	$4,166,036	$4,267,967	$4,372,391	$4,479,370	$4,588,967	$4,701,245	$4,816,271	$4,934,110	$5,054,833
Aggregate of Impacts (Annual)	$5,564,501	$5,700,647	$5,840,125	$5,983,015	$6,129,402	$6,279,370	$6,433,007	$6,590,404	$6,751,651	$6,916,844
Cumulative of Impacts (Cumulative)	$108,506,821	$114,207,469	$120,047,594	$126,030,609	$132,160,010	$138,439,380	$144,872,387	$151,462,791	$158,214,442	**$165,131,285**

Notes:

On-Site Construction Labor based on Prevailing Wage (inclusive) $53.46. Estimated at 1,746 FTE (One-Year) Total Construction Labor or 3,632,622 craft hours

Material Purchases estimated to increase by CPI (1.024467% Per Annum, Adjusted by Facility Size)

Operational Labor estimated to increase by 2.4467% per annum (30-Year CPI)

Multipliers based on RIMS II, Type 1 Categories 6, 7 & 48

Project Size Defined as 2,025 MW of power for 1 hour, though only 1,500 MW is currently scheduled in this analysis (Market will dictate actual project side up to maximum amount)

Land Purchase based on 148 Acres at $8,000 Per Acre

ConEd Indicates Nominal Land Leases that are not part of calculations

Exhibit C

Governmental Revenues: (Years 1-30)

CED Westside Canal Battery Storage, LLC Imperial County, CA

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Construction Phase										
Construction Materials (Total Amount)	$125,200,000		$208,900,000		$319,475,000		$423,900,000		$528,325,000	
Based 1% Local Sales Tax	$1,252,000		$2,089,000		$3,194,750		$4,239,000		$5,283,250	
Public Health Allocation of Sales Tax .50%	$626,000		$1,044,500		$1,597,375		$2,119,500		$2,641,625	
Public Safety Allocation of Sales Tax .50%	$626,000		$1,044,500		$1,597,375		$2,119,500		$2,641,625	
Transportation-Regional Measure D Sales Tax (.50%) 33% to County	$206,580		$344,685		$527,134		$699,435		$871,736	
Total Sales Taxes Collected Benefit of County of Imperial	$2,710,580		$4,522,685		$6,916,634		$9,177,435		$11,438,236	
Property Taxes (During Construction and Operation)										
Projected Assessed Valuation (Land)	$1,184,000	$1,207,680	$1,231,834	$1,256,470	$1,281,600	$1,307,232	$1,333,376	$1,360,044	$1,387,245	$1,414,990
Facility Investment By Phase (Year)	$148,000,000		$233,000,000		$356,500,000		$473,000,000		$589,500,000	
Permanent Building Assessed Value	$5,000,000	$5,100,000	$16,227,000	$16,551,540	$35,115,165	$35,817,468	$63,335,730	$64,602,445	$102,830,880	$104,887,498
Projected Assessed Valuation (Before Depreciation) (Phase 1)	$143,000,000	$143,000,000	$143,000,000	$143,000,000	$143,000,000	$143,000,000	$143,000,000	$143,000,000	$143,000,000	$143,000,000
Depreciation Schedule for Phase 1 Facility Investment	95.00%	85.00%	75.00%	65.00%	55.00%	45.00%	35.00%	25.00%	20.00%	20.00%
Assessed Valuation of Facility for Property Tax Purposes (Phase 1)	$135,850,000	$121,550,000	$107,250,000	$92,950,000	$78,650,000	$64,350,000	$50,050,000	$35,750,000	$28,600,000	$28,600,000
Projected Assessed Valuation (Before Depreciation) (Phase 2)			$221,975,000	$221,975,000	$221,975,000	$221,975,000	$221,975,000	$221,975,000	$221,975,000	$221,975,000
Depreciation Schedule for Phase 2 Facility Investment			95.00%	85.00%	75.00%	65.00%	55.00%	45.00%	35.00%	25.00%
Assessed Valuation of Facility for Property Tax Purposes (Phase 2)			$210,876,250	$188,678,750	$166,481,250	$144,283,750	$122,086,250	$99,888,750	$77,691,250	$55,493,750
Projected Assessed Valuation (Before Depreciation) (Phase 3)					$338,267,406	$338,267,406	$338,267,406	$338,267,406	$338,267,406	$338,267,406
Depreciation Schedule for Phase 3 Facility Investment					95.00%	85.00%	75.00%	65.00%	55.00%	45.00%
Assessed Valuation of Facility for Property Tax Purposes (Phase 3)					$321,354,036	$287,527,295	$253,700,555	$219,873,814	$186,047,073	$152,220,333
Projected Assessed Valuation (Before Depreciation) (Phase 4)							$446,198,087	$446,198,087	$446,198,087	$446,198,087
Depreciation Schedule for Phase 4 Facility Investment							95.00%	85.00%	75.00%	65.00%
Assessed Valuation of Facility for Property Tax Purposes (Phase 4)							$423,888,183	$379,268,374	$334,648,565	$290,028,757
Projected Assessed Valuation (Before Depreciation) (Phase 5)									$552,563,614	$552,563,614
Depreciation Schedule for Phase 5 Facility Investment									95.00%	85.00%
Assessed Valuation of Facility for Property Tax Purposes (Phase 5)									$524,935,433	$469,679,072
Total Assessed Valuation of Facility for Property Tax Purposes	$142,034,000	$127,857,680	$335,585,084	$299,436,760	$602,882,050	$533,285,745	$914,394,093	$800,743,427	$1,256,140,447	$1,102,324,398
Base 1% Property Tax Amount	$1,420,340	$1,278,577	$3,355,851	$2,994,368	$6,028,821	$5,332,857	$9,143,941	$8,007,434	$12,561,404	$11,023,244
	Year 11	**Year 12**	**Year 13**	**Year 14**	**Year 15**	**Year 16**	**Year 17**	**Year 18**	**Year 19**	**Year 20**
Projected Assessed Valuation (Land)	$1,443,289	$1,472,155	$1,501,598	$1,531,630	$1,562,263	$1,593,508	$1,625,378	$1,657,886	$1,691,044	$1,724,864
Facility Investment By Phase (Year)										
Permanent Building Assessed Value	$106,985,248	$109,124,953	$111,307,452	$113,533,601	$115,804,273	$118,120,358	$120,482,765	$122,892,421	$125,350,269	$127,857,274
Projected Assessed Valuation (Before Depreciation) (Phase 1)	$143,000,000	$143,000,000	$143,000,000	$143,000,000	$143,000,000	$143,000,000	$143,000,000	$143,000,000	$143,000,000	$143,000,000
Depreciation Schedule for Phase 1 Facility Investment	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
Assessed Valuation of Facility for Property Tax Purposes (Phase 1)	$28,600,000	$28,600,000	$28,600,000	$28,600,000	$28,600,000	$28,600,000	$28,600,000	$28,600,000	$28,600,000	$28,600,000
Projected Assessed Valuation (Before Depreciation) (Phase 2)	$221,975,000	$221,975,000	$221,975,000	$221,975,000	$221,975,000	$221,975,000	$221,975,000	$221,975,000	$221,975,000	$221,975,000
Depreciation Schedule for Phase 2 Facility Investment	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
Assessed Valuation of Facility for Property Tax Purposes (Phase 2)	$44,395,000	$44,395,000	$44,395,000	$44,395,000	$44,395,000	$44,395,000	$44,395,000	$44,395,000	$44,395,000	$44,395,000
Projected Assessed Valuation (Before Depreciation) (Phase 3)	$338,267,406	$338,267,406	$338,267,406	$338,267,406	$338,267,406	$338,267,406	$338,267,406	$338,267,406	$338,267,406	$338,267,406
Depreciation Schedule for Phase 3 Facility Investment	35.00%	25.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
Assessed Valuation of Facility for Property Tax Purposes (Phase 3)	$118,393,592	$84,566,852	$67,653,481	$67,653,481	$67,653,481	$67,653,481	$67,653,481	$67,653,481	$67,653,481	$67,653,481
Projected Assessed Valuation (Before Depreciation) (Phase 4)	$446,198,087	$446,198,087	$446,198,087	$446,198,087	$446,198,087	$446,198,087	$446,198,087	$446,198,087	$446,198,087	$446,198,087
Depreciation Schedule for Phase 4 Facility Investment	55.00%	45.00%	35.00%	25.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
Assessed Valuation of Facility for Property Tax Purposes (Phase 4)	$245,408,948	$200,789,139	$156,169,330	$111,549,522	$89,239,617	$89,239,617	$89,239,617	$89,239,617	$89,239,617	$89,239,617
Projected Assessed Valuation (Before Depreciation) (Phase 5)	$552,563,614	$552,563,614	$552,563,614	$552,563,614	$552,563,614	$552,563,614	$552,563,614	$552,563,614	$552,563,614	$552,563,614
Depreciation Schedule for Phase 5 Facility Investment	75.00%	65.00%	55.00%	45.00%	35.00%	25.00%	20.00%	20.00%	20.00%	20.00%
Assessed Valuation of Facility for Property Tax Purposes (Phase 5)	$414,422,711	$359,166,349	$303,909,988	$248,653,626	$193,397,265	$138,140,904	$110,512,723	$110,512,723	$110,512,723	$110,512,723
Total Assessed Valuation of Facility for Property Tax Purposes	$959,648,787	$828,114,447	$713,536,849	$615,916,860	$540,651,899	$487,742,868	$462,508,965	$464,951,128	$467,442,134	$469,982,960
Base 1% Property Tax Amount	$9,596,488	$8,281,144	$7,135,368	$6,159,169	$5,406,519	$4,877,429	$4,625,090	$4,649,511	$4,674,421	$4,699,830
	Year 21	**Year 22**	**Year 23**	**Year 24**	**Year 25**	**Year 26**	**Year 27**	**Year 28**	**Year 29**	**Year 30**
Projected Assessed Valuation (Land)	$1,759,362	$1,794,549	$1,830,440	$1,867,049	$1,904,390	$1,942,477	$1,981,327	$2,020,954	$2,061,373	$2,102,600
Facility Investment By Phase (Year)										
Permanent Building Assessed Value	$130,414,420	$133,022,708	$135,683,162	$138,396,826	$141,164,762	$143,988,057	$146,867,818	$149,805,175	$152,801,278	$155,857,304
Projected Assessed Valuation (Before Depreciation) (Phase 1)	$143,000,000	$143,000,000	$143,000,000	$143,000,000	$143,000,000	$143,000,000	$143,000,000	$143,000,000	$143,000,000	$143,000,000
Depreciation Schedule for Phase 1 Facility Investment	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
Assessed Valuation of Facility for Property Tax Purposes (Phase 1)	$28,600,000	$28,600,000	$28,600,000	$28,600,000	$28,600,000	$28,600,000	$28,600,000	$28,600,000	$28,600,000	$28,600,000
Projected Assessed Valuation (Before Depreciation) (Phase 2)	$221,975,000	$221,975,000	$221,975,000	$221,975,000	$221,975,000	$221,975,000	$221,975,000	$221,975,000	$221,975,000	$221,975,000
Depreciation Schedule for Phase 2 Facility Investment	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
Assessed Valuation of Facility for Property Tax Purposes (Phase 2)	$44,395,000	$44,395,000	$44,395,000	$44,395,000	$44,395,000	$44,395,000	$44,395,000	$44,395,000	$44,395,000	$44,395,000
Projected Assessed Valuation (Before Depreciation) (Phase 3)	$338,267,406	$338,267,406	$338,267,406	$338,267,406	$338,267,406	$338,267,406	$338,267,406	$338,267,406	$338,267,406	$338,267,406
Depreciation Schedule for Phase 3 Facility Investment	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
Assessed Valuation of Facility for Property Tax Purposes (Phase 3)	$67,653,481	$67,653,481	$67,653,481	$67,653,481	$67,653,481	$67,653,481	$67,653,481	$67,653,481	$67,653,481	$67,653,481
Projected Assessed Valuation (Before Depreciation) (Phase 4)	$446,198,087	$446,198,087	$446,198,087	$446,198,087	$446,198,087	$446,198,087	$446,198,087	$446,198,087	$446,198,087	$446,198,087
Depreciation Schedule for Phase 4 Facility Investment	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
Assessed Valuation of Facility for Property Tax Purposes (Phase 4)	$89,239,617	$89,239,617	$89,239,617	$89,239,617	$89,239,617	$89,239,617	$89,239,617	$89,239,617	$89,239,617	$89,239,617
Projected Assessed Valuation (Before Depreciation) (Phase 5)	$552,563,614	$552,563,614	$552,563,614	$552,563,614	$552,563,614	$552,563,614	$552,563,614	$552,563,614	$552,563,614	$552,563,614
Depreciation Schedule for Phase 5 Facility Investment	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
Assessed Valuation of Facility for Property Tax Purposes (Phase 5)	$110,512,723	$110,512,723	$110,512,723	$110,512,723	$110,512,723	$110,512,723	$110,512,723	$110,512,723	$110,512,723	$110,512,723
Total Assessed Valuation of Facility for Property Tax Purposes	$472,574,603	$475,218,079	$477,914,424	$480,664,696	$483,469,973	$486,331,356	$489,249,967	$492,226,950	$495,263,472	$498,360,725
Base 1% Property Tax Amount	$4,725,746	$4,752,181	$4,779,144	$4,806,647	$4,834,700	$4,863,314	$4,892,500	$4,922,269	$4,952,635	$4,983,607
Total Projected Sales Taxes to County of Imperial	$34,765,570									
Total Projected Gross Property Taxes to County of Imperial*	$169,764,548									
Total Gross Income to the County of Imperial	$204,530,118									

Notes:

1. Phasing Based on 9 Years, 1,500 MW Total
2. Project Land Size: Approximately 148 Acres (Owned) Additional 15 Acres Leased
3. Land/Improvement Assessed Value scheduled to increase in value 2% per year
4. Permanent Building: 50,000 Sq. Ft. Per 100MW
5. Permanent Building = $100 PSF (Increases by 5% Per Year-Construction Costs)
6. TRA 069-007
7. Depreciation Schedule = Percentage of Valuation Used for Property Tax Purposes
8.* Projected Gross Property Taxes to County is NOT NET Amount to County
9. Depreciation Schedule based on industry information, NOT County information

Exhibit D

County of Imperial Taxing Organization Benefit Chart

CED Westside Canal Battery Storage, LLC Imperial County, CA

Taxing Entity	*Tax Percentage*	*Year 1*	*Year 2*	*Year 3*	*Year 4*	*Year 5*	*Year 6*	*Year 7*	*Year 8*	*Year 9*	*Year 10*	*Total (Years 1-10)*
Standard Tax Allocation Land (1%)		$1,184,000	$1,207,680	$1,231,834	$1,256,470	$1,281,600	$1,307,232	$1,333,376	$1,360,044	$1,387,245	$1,414,990	
Permanent Building Improvements		$5,000,000	$5,100,000	$16,227,000	$16,551,540	$35,115,165	$35,817,468	$63,335,730	$64,602,445	$102,830,880	$104,887,498	
Battery Improvements (Depreciated Value)		$135,850,000	$121,550,000	$318,126,250	$281,628,750	$566,485,286	$496,161,045	$849,724,987	$734,780,938	$1,151,922,322	$996,021,911	
Total		$142,034,000	$127,857,680	$335,585,084	$299,436,760	$602,882,051	$533,285,745	$914,394,093	$800,743,426	$1,256,140,447	$1,102,324,398	
Base Level Property Tax Estimate		$1,420,340	$1,278,577	$3,355,851	$2,994,368	$6,028,821	$5,332,857	$9,143,941	$8,007,434	$12,561,404	$11,023,244	$61,146,837
County of Imperial-General Fund	0.37184102	$528,141	$475,427	$1,247,843	$1,113,429	$2,241,763	$1,982,975	$3,400,092	$2,977,493	$4,670,845	$4,098,894	$22,736,902
County General Fund- Net of ERAF	0.20436825	$290,272	$261,301	$685,829	$611,954	$1,232,099	$1,089,867	$1,868,731	$1,636,465	$2,567,152	$2,252,801	$12,496,472
County Library	0.01403855	$19,940	$17,949	$47,111	$42,037	$84,636	$74,866	$128,368	$112,413	$176,344	$154,750	$858,413
Fire Protection	0.05707841	$81,071	$72,979	$191,547	$170,914	$344,115	$304,391	$521,922	$457,052	$716,985	$629,189	$3,490,164
Total County Property Tax Income (Net)		$391,283	$352,229	$924,487	$824,904	$1,660,851	$1,469,123	$2,519,020	$2,205,930	$3,460,481	$3,036,741	$16,845,049

Taxing Entity	*Tax Percentage*	*Year 11*	*Year 12*	*Year 13*	*Year 14*	*Year 15*	*Year 16*	*Year 17*	*Year 18*	*Year 19*	*Year 20*	*Total (Years 11-20)*
Standard Tax Allocation Land (1%)		$1,443,289	$1,472,155	$1,501,598	$1,531,630	$1,562,263	$1,593,508	$1,625,378	$1,657,886	$1,691,044	$1,724,864	
Permanent Building Improvements		$106,985,248	$109,124,953	$111,307,452	$113,533,601	$115,804,273	$118,120,358	$120,482,765	$122,892,421	$125,350,269	$127,857,274	
Battery Improvements (Depreciated Value)		$851,220,250	$717,517,340	$600,727,799	$500,851,629	$423,285,364	$368,029,002	$340,400,821	$340,400,821	$340,400,821	$340,400,821	
Total		$959,648,787	$828,114,448	$713,536,849	$615,916,860	$540,651,899	$487,742,868	$462,508,964	$464,951,127	$467,442,133	$469,982,960	
Base Level Property Tax Estimate		$9,596,488	$8,281,144	$7,135,368	$6,159,169	$5,406,519	$4,877,429	$4,625,090	$4,649,511	$4,674,421	$4,699,830	$60,104,969
County of Imperial-General Fund	0.37184102	$3,568,368	$3,079,269	$2,653,223	$2,290,232	$2,010,366	$1,813,628	$1,719,798	$1,728,879	$1,738,142	$1,747,589	$22,349,493
County General Fund- Net of ERAF	0.20436825	$1,961,217	$1,692,403	$1,458,243	$1,258,739	$1,104,921	$996,792	$945,221	$950,212	$955,303	$960,496	$12,283,547
County Library	0.01403855	$134,721	$116,255	$100,170	$86,466	$75,900	$68,472	$64,930	$65,272	$65,622	$65,979	$843,787
Fire Protection	0.05707841	$547,752	$472,675	$407,275	$351,556	$308,596	$278,396	$263,993	$265,387	$266,809	$268,259	$3,430,696
Total County Property Tax Income (Net)		$2,643,690	$2,281,333	$1,965,688	$1,696,760	$1,489,416	$1,343,659	$1,274,144	$1,280,872	$1,287,734	$1,294,734	$16,558,030

Taxing Entity	*Tax Percentage*	*Year 21*	*Year 22*	*Year 23*	*Year 24*	*Year 25*	*Year 26*	*Year 27*	*Year 28*	*Year 29*	*Year 30*	*Total (Years 21-30)*
Standard Tax Allocation Land (1%)		$1,759,362	$1,794,549	$1,830,440	$1,867,049	$1,904,390	$1,942,477	$1,981,327	$2,020,954	$2,061,373	$2,102,600	
Permanent Building Improvements		$130,414,420	$133,022,708	$135,683,162	$138,396,826	$141,164,762	$143,988,057	$146,867,818	$149,805,175	$152,801,278	$155,857,304	
Battery Improvements (Depreciated Value)		$340,400,821	$340,400,821	$340,400,821	$340,400,821	$340,400,821	$340,400,821	$340,400,821	$340,400,821	$340,400,821	$340,400,821	
Total		$472,574,603	$475,218,078	$477,914,423	$480,664,695	$483,469,973	$486,331,356	$489,249,967	$492,226,949	$495,263,472	$498,360,725	
Base Level Property Tax Estimate		$4,725,746	$4,752,181	$4,779,144	$4,806,647	$4,834,700	$4,863,314	$4,892,500	$4,922,269	$4,952,635	$4,983,607	$48,512,742
County of Imperial-General Fund	0.37184102	$1,757,226	$1,767,056	$1,777,082	$1,787,309	$1,797,740	$1,808,379	$1,819,232	$1,830,302	$1,841,593	$1,853,110	$18,039,028
County General Fund- Net of ERAF	0.20436825	$965,792	$971,195	$976,705	$982,326	$988,059	$993,907	$999,872	$1,005,956	$1,012,161	$1,018,491	$9,914,464
County Library	0.01403855	$66,343	$66,714	$67,092	$67,478	$67,872	$68,274	$68,684	$69,102	$69,528	$69,963	$681,049
Fire Protection	0.05707841	$269,738	$271,247	$272,786	$274,356	$275,957	$277,590	$279,256	$280,955	$282,689	$284,456	$2,769,030
Total County Property Tax Income (Net)		$1,301,873	$1,309,156	$1,316,584	$1,324,160	$1,331,888	$1,339,771	$1,347,811	$1,356,012	$1,364,378	$1,372,910	$13,364,543

Total Property Taxes (1% Base)	**$169,764,548**
Total Property Taxes to County (Gross)	**$63,125,423**
Total Net Property Tax to County	**$46,767,622**

Notes:

1. Allocations for TRA 69-007
2. Base Figures (Standard Tax Allocation for Land and Non-Solar Improvements) are in Projected Property Tax Generation (rather than Assessed Valuation)
3. ERAF reduces net to County (General Fund) by about 46% (County nets 54%)
4. Land is scheduled to increase by 2% per annum, Depreciation based on Schedule provided by County Assessor's Office in April, 2020
5. Gross Property Taxes to County are inclusive of all 1% Base Level Property Taxes
6. Net to County is post ERAF plus County Library and Fire Share

Exhibit E

County of Imperial Taxing Organization Benefit Chart

Consolidated Property Tax Revenues (by allocation) Years 1-30

CED Westside Canal Battery Storage, LLC Imperial County, CA

Taxing Entity	Est. Total Property Tax Generation	Approximate % to Taxing Entity	Total Property Taxes
County of Imperial-General Fund (Gross)	$169,764,548	0.37184102	$63,125,423
County of Imperial-General Fund (Net)*	$169,764,548	0.20436825	$34,694,484
County Library*	$169,764,548	0.01403855	$2,383,248
Fire Protection*	$169,764,548	0.05707841	$9,689,890
Total Net Property Taxes to County			***$46,767,622***
Notes:			
1. County General Fund Amounts are Reduced by about 46% to Account for ERAF (Education Revenue Augmentation Fund)			
2. Total Property Tax Generation taken from Exhibit B			
3. Tax Rate Area Schedules 69-007			
* Denotes those items that are part of funding available to pay for General County Services			

Exhibit F

Local Taxing Jurisdiction Tax Allocation Estimate

CED Westside Canal Battery Storage, LLC Imperial County, CA

Local Taxing Jurisdiction Tax Allocation Estimate

	TRA 69-007	Percentage	Amount
	Allocated Base Tax Amount (Exhibit D)	100%	$169,764,548
1	County General Fund*	0.37184102	$63,125,423
2	County Library	0.01403855	$2,383,248
3	Fire Protection	0.05707841	$9,689,890
4	Central Valley Cemetary	0.02642244	$4,485,594
5	Imperial Community College	0.09203595	$15,624,441
6	Imperial Unified	0.41642335	$70,693,922
7	Children's Institution Tuition	0.00128791	$218,641
8	Physically Handicapped	0.00681693	$1,157,273
9	Trainable Severely Mentally Retarded	0.00251166	$426,391
10	Juvenile Hall	0.00042532	$72,204
11	Aurally Handicapped	0.00331131	$562,143
12	County Superintendent of Schools	0.00495214	$840,698
13	Development Center	0.00285501	$484,679
	Add-On Allocations (Special Taxes Voter Approved)		
14	Imperial Community College Bond 2004	0.04670	$7,928,004
15	Imperial USD 2016 REF BD	0.04570	$7,758,240
16	Imperial USD 2016 Series A	0.03970	$6,739,653
17	Imperial USD Elect 2016 Series B	0.00810	$1,375,093
18	Imperial USD Elect 2016 Series C	0.0011	$186,741
19	Total of "Add-On" (Voter Approved) Property Taxes	0.14130	$23,987,731
	Projected Total Benefit to Local Taxing Jurisdictions**		
1	County General Fund	$63,125,423	
2	County Library	$2,383,248	
3	Fire Protection	$9,689,890	
4	Central Valley Cemetary	$4,485,594	
5	Imperial Community College	$23,552,446	
6	Imperial Unified	$86,753,648	
7	Children's Institution Tuition	$218,641	
8	Physically Handicapped	$1,157,273	
9	Trainable Severely Mentally Retarded	$426,391	
10	Juvenile Hall	$72,204	
11	Aurally Handicapped	$562,143	
12	County Superintendent of Schools	$840,698	
13	Development Center	$484,679	
	Total Estimated Property Taxes Paid for Benefit of Agencies within Imperial County	**$193,752,279**	
	Notes:		
1	TRA 69-007		
2	*County General Fund allocation is reduced by 46% for Educational Revenue Augmentation Fund Allocation		
	(County is Negative ERAF Jurisdiction and ERAF funds reallocated by State of California directly)		
3	Shown in full 30 years, though tax issue/bonds likely expire prior to end of 30-year life of Con Edison Project(s)		
4	Total Base Level Tax Generation (Exhibits D & E):	$169,764,548	
5	**Includes All-Ons		

Exhibit G

Projected Employment Impacts of Subject Site

CED Westside Canal Battery Storage, LLC Imperial County, CA

Year	1	2	3	4	5	6	7	8	9	10
Construction Craft Hours (Annual)	426487		429529		628745		794447		943108	
Number of FTE (1-Year) Labor Staff (2080 hours)	205.04		206.50		302.28		381.95		453.42	
Average Craft Pay Per Hour	$36.56		$38.20		$40.10		$42.08		$44.17	
Average Craft Fully Burdened Payroll Per Hour	$53.46		$56.11		$58.89		$61.80		$64.87	
Annualized Wage/Benefit Per Construction Emp.	$111,197		$116,705		$122,485		$128,552		$134,920	
Total Construction Wages/Benefits	$22,800,000		$24,100,000		$37,025,000		$49,100,000		$61,175,000	
Number of Projected Operational Employees	4	4	7	7	11	11	16	16	20	20
Operational Wage (inclusive of 30% benefits)	$461,500	$472,792	$811,813	$831,676	$1,303,097	$1,334,980	$1,953,775	$2,001,578	$2,547,415	$2,609,742
Total All Wages/Benefits	$23,261,500	$472,792	$811,813	$831,676	$1,303,097	$1,334,980	$1,953,775	$2,001,578	$2,547,415	$2,609,742
RIMS II Payroll Multiplier Construction Jobs	1.1331	1.1331	1.1331	1.1331	1.1331	1.1331	1.1331	1.1331	1.1331	1.1331
RIMS II Payroll Multiplier Utility Operation Jobs	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944
RIMS II Jobs Multiplier Construction Jobs	1.1859	1.1859	1.1859	1.1859	1.1859	1.1859	1.1859	1.1859	1.1859	1.1859
RIMS II Jobs Multiplier Utility Operation Jobs	1.4498	1.4498	1.4498	1.4498	1.4498	1.4498	1.4498	1.4498	1.4498	1.4498
Projected Payroll in Region (Construction) w/Multiplier	$25,834,680	$0	$27,307,710	$0	$41,953,028	$0	$55,635,210	$0	$69,317,393	$0
Projected Payroll in Region (Utility Operation) w/Multiplier	$551,216	$564,703	$969,629	$993,354	$1,556,419	$1,594,500	$2,333,589	$2,390,685	$3,042,632	$3,117,076
Projected total Jobs (Construction) with Multiplier	243.16	0.00	244.8933	0.0000	358.4751	0.0000	452.9491	0.0000	537.7073	0.0000
Projected total Jobs (Utility Operation) with Multiplier	5.80	5.80	10.15	10.15	15.95	15.95	23.20	23.20	29.00	29.00
Total Projected Payroll (Complete Project) w/Multipliers	$26,385,896	$564,703	$28,277,339	$993,354	$43,509,447	$1,594,500	$57,968,799	$2,390,685	$72,360,025	$3,117,076
Total Projected Jobs (Complete Project) w/Multipliers	248.96	5.80	255.04	10.15	374.42	15.95	476.15	23.20	566.70	29.00

Year	11	12	13	14	15	16	17	18	19	20
Number of Projected Operational Employees	20	20	20	20	20	20	20	20	20	20
Operational Wage (inclusive of 30% benefits)	$2,673,595	$2,739,009	$2,806,025	$2,874,680	$2,945,015	$3,017,070	$3,090,889	$3,166,514	$3,243,989	$3,323,359
RIMS II Payroll Multiplier Utility Operation Jobs	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944
RIMS II Jobs Multiplier Utility Operation Jobs	1.4498	1.4498	1.4498	1.4498	1.4498	1.4498	1.4498	1.4498	1.4498	1.4498
Projected Payroll in Region (Utility Operation) w/Multiplier	$3,193,341	$3,271,473	$3,351,516	$3,433,517	$3,517,525	$3,603,589	$3,691,758	$3,782,084	$3,874,620	$3,969,420
Projected total Jobs (Utility Operation) with Multiplier	29.00	29.00	29.00	29.00	29.00	29.00	29.00	29.00	29.00	29.00
Total Projected Payroll (Complete Project) w/Multipliers	$3,193,341	$3,271,473	$3,351,516	$3,433,517	$3,517,525	$3,603,589	$3,691,758	$3,782,084	$3,874,620	$3,969,420
Total Projected Jobs (Complete Project) w/Multipliers	29.00	29.00	29.00	29.00	29.00	29.00	29.00	29.00	29.00	29.00

Year	21	22	23	24	25	26	27	28	29	30
Number of Projected Operational Employees	20	20	20	20	20	20	20	20	20	20
Operational Wage (inclusive of 30% benefits)	$3,404,672	$3,487,974	$3,573,314	$3,660,743	$3,750,310	$3,842,069	$3,936,073	$4,032,377	$4,131,037	$4,232,111
RIMS II Payroll Multiplier Utility Operation Jobs	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944	1.1944
RIMS II Jobs Multiplier Utility Operation Jobs	1.4498	1.4498	1.4498	1.4498	1.4498	1.4498	1.4498	1.4498	1.4498	1.4498
Projected Payroll in Region (Utility Operation) w/Multiplier	$4,066,540	$4,166,036	$4,267,967	$4,372,391	$4,479,370	$4,588,967	$4,701,245	$4,816,271	$4,934,110	$5,054,833
Projected total Jobs (Utility Operation) with Multiplier	29.00	29.00	29.00	29.00	29.00	29.00	29.00	29.00	29.00	29.00
Total Projected Payroll (Complete Project) w/Multipliers	$4,066,540	$4,166,036	$4,267,967	$4,372,391	$4,479,370	$4,588,967	$4,701,245	$4,816,271	$4,934,110	$5,054,833
Total Projected Jobs (Complete Project) w/Multipliers	29.00	29.00	29.00	29.00	29.00	29.00	29.00	29.00	29.00	29.00

Total Project Impact of Wages (W/Construction)	**$318,298,398**
Total Projected Impact of Wages (W/O Construction)	**$98,250,378**

Notes:

1. Market Wage is based on average of unionized construction trades estimated for 2Q2020 average wage of $36.56 and fully burdened of $53.46 (not inclusive of weekends/overtime)
2. Labor Wage for Construction Adjusted by CPI (2.4467%) for Phases 2-9 (Annual Adjustment)
3. Phase Calculations shown in whole year (Phase 1 may be 15 months in total)
3. Operational Wages based budget figures provided by Con Edison

State of California Department of Industrial Relations	Development Management Group, Inc.
State Employment Development Department	Con Edison
RIMS II	United States Department of Labor

Exhibit H

Projected Costs for County to Provide General Government Services to Population

County of Imperial, California

#	Department/Unit	Item	2019-20 Adopted Budget
	General Government		
1	Administration	County Pension Bonds-1997	$5,980,848
2	Legislative and Admin	Entire Section	$4,736,982
3	Finance	Entire Section	$7,465,791
4	County Counsel	Entire Section	$2,619,200
5	Personnel	Entire Section	$2,346,878
6	Equal Employment Opportunity	Entire Section	$167,644
7	Elections	Entire Section	$1,133,600
8	Property/Facility Management	Entire Section	$5,584,858
9	Other General	Entire Section	$442,310
10	Recreational Facilities	Entire Section	$445,180
	Public Protection		
11	Other Assistance	Entire Section	$104,375
12	Administration	Entire Section	$1,402,611
13	Judicial	Entire Section	$20,461,830
14	Police Protection	Entire Section	$20,374,826
15	Detention and Correction	Entire Section	$28,338,526
16	Fire Protection	Entire Section	$7,893,167
17	Protective Inspection	Entire Section	$6,123,822
18	Other Protection	Entire Section	$22,117,608
19	Resource Conservation	Entire Section	$20,700
	Public Ways & Facilities		
17	Public Ways	Entire Section	$16,197,160
	Health and Sanitation		
18	Health	Entire Section	$103,360,842
19	Sanitation	Entire Section	$2,736,181
	Public Assistance		
20	Administration-Workforce Development	Entire Section	$11,182,479
21	Security-Sheriff	Entire Section	$1,073,337
22	Administration-Social Services	Entire Section	$51,029,356
23	Categorical AIDS	Entire Section	$60,204,906
24	General Relief	Entire Section	$277,250
25	Veterans Services	Entire Section	$342,878
26	Other Assistance	Entire Section	$46,631,640
	Education		
27	Health	Entire Section	$461,650
28	Agriculture Education	Entire Section	$446,739
29	Library Services	Entire Section	$670,048
30	Other Education	Entire Section	$101,000
	Recreation		
31	Recreation Facilities	Entire Section	$809,555
	Contingency		
32	Contingency	Entire Section	$200,000
Total of Governmental Expenditures/Responsibilities			$433,485,777
Total Number of Residents of Imperial County (2018 CA Dept. of Finance E-1)			188,821
Total Spending Per Resident of Imperial County			$2,295.75

Notes:

A Item 16 Net of City of Imperial Fire Contract

B Based on Schedule 8 of County of Imperial Government Funds Detail of Financing Uses by Function, Activity and Budget Unit

C FY 2019-20 Adopted Budget (Adopted October 1, 2019) utilized. FY 19-20 Budget Considered Constrained (Due to Covid-19)

Exhibit I

Projected Costs for County of Imperial to Provide General Government Services as Result of:

CED Westside Canal Battery Storage, LLC Imperial County, CA

Item	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Number of Projected Construction Jobs (FTE)	205.04	0	206.5	0	302.28	0	381.95	0	453.42	0
Number of Projected Operational Jobs (FTE)	4	4	7	7	11	11	16	16	20	20
Total Jobs (construction & Operational) (FTE)	209.04	4	213.5	7	313.28	11	397.95	16	473.42	20
Ave. Number of Persons Per Household	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87
Estimated Persons Supported by Gen Govt.	808.98	15.48	826.245	27.09	1212.3936	42.57	1540.0665	61.92	1832.1354	77.4
Cost Per Person (General Govt.)	$2,296	$2,352	$2,409	$2,468	$2,529	$2,591	$2,654	$2,719	$2,786	$2,854
Estimated Cost to Provide General County Govt. Services	$1,857,227	$36,408	$1,990,808	$66,869	$3,065,915	$110,285	$4,087,445	$168,361	$5,103,474	$220,875

Item	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Number of Projected Operational Jobs (FTE)	20	20	20	20	20	20	20	20	20	20
Ave. Number of Persons Per Household	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87
Estimated Persons Supported by Gen Govt.	77.4	77.4	77.4	77.4	77.4	77.4	77.4	77.4	77.4	77.4
Cost Per Person (General Govt.)	$2,924	$2,995	$3,068	$3,143	$3,220	$3,299	$3,380	$3,463	$3,547	$3,634
Estimated Cost to Provide General County Govt. Services	$226,280	$231,816	$237,488	$243,298	$249,251	$255,350	$261,597	$267,998	$274,555	$281,272

Item	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30
Number of Projected Operational Jobs (FTE)	20	20	20	20	20	20	20	20	20	20
Ave. Number of Persons Per Household	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87
Estimated Persons Supported by Gen Govt.	77.4	77.4	77.4	77.4	77.4	77.4	77.4	77.4	77.4	77.4
Cost Per Person (General Govt.)	$3,723	$3,814	$3,907	$4,003	$4,101	$4,201	$4,304	$4,409	$4,517	$4,628
Estimated Cost to Provide General County Govt. Services	$288,154	$295,205	$302,427	$309,827	$317,407	$325,173	$333,129	$341,280	$349,630	$358,184
Total Cost to Provide General Government Services	***$22,456,990***									

Notes:

Cost Per Person for General Government is adjusted by the 30 year average Consumer Price Index of 2.4467 (1990-2019)

Exhibit J

Projected Revenue Versus Expenses

CED Westside Canal Battery Storage, LLC Imperial County, CA

Years 1-30

Item	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Projected Sales Tax Income	$2,710,580		$4,522,685		$6,916,634		$9,177,435		$11,438,236	
Projected Property Tax Income (Net)	$391,283	$352,229	$924,487	$824,904	$1,660,851	$1,469,123	$2,519,020	$2,205,930	$3,460,481	$3,036,741
Total Projected Income for General Government Services	$3,101,863	$352,229	$5,447,172	$824,904	$8,577,485	$1,469,123	$11,696,455	$2,205,930	$14,898,717	$3,036,741
Projected Costs to Provide General Government Services	$1,857,227	$36,408	$1,990,808	$66,869	$3,065,915	$110,285	$4,087,445	$168,361	$5,103,474	$220,875
Estimated Revenue Surplus (Deficit) (Annual)	$1,244,636	$315,821	$3,456,364	$758,035	$5,511,570	$1,358,838	$7,609,010	$2,037,569	$9,795,243	$2,815,866
Aggregate Revenue Surplus (Deficit)	$1,244,636	$1,560,457	$5,016,821	$5,774,856	$11,286,426	$12,645,264	$20,254,274	$22,291,843	$32,087,086	$34,902,952

Item	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Projected Property Tax Income (Net)	$2,643,690	$2,281,333	$1,965,688	$1,696,760	$1,489,416	$1,343,659	$1,274,144	$1,280,872	$1,287,734	$1,294,734
Projected Costs to Provide General Government Services	$226,279	$231,816	$237,487	$243,298	$249,251	$255,349	$261,597	$267,997	$274,554	$281,272
Estimated Revenue Surplus (Deficit) (Annual)	$2,417,411	$2,049,517	$1,728,201	$1,453,462	$1,240,165	$1,088,310	$1,012,547	$1,012,875	$1,013,180	$1,013,462
Aggregate Revenue Surplus (Deficit)	$37,320,363	$39,369,880	$41,098,081	$42,551,543	$43,791,708	$44,880,018	$45,892,565	$46,905,440	$47,918,620	$48,932,082

Item	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30
Projected Property Tax Income (Net)	$1,301,873	$1,309,156	$1,316,584	$1,324,160	$1,331,888	$1,339,771	$1,347,811	$1,356,012	$1,364,378	$1,372,910
Projected Costs to Provide General Government Services	$288,154	$295,204	$302,427	$309,826	$317,407	$325,173	$333,129	$341,279	$349,629	$358,184
Estimated Revenue Surplus (Deficit) (Annual)	$1,013,719	$1,013,952	$1,014,157	$1,014,334	$1,014,481	$1,014,598	$1,014,682	$1,014,733	$1,014,749	$1,014,726
Aggregate Revenue Surplus (Deficit)	$49,945,801	$50,959,753	$51,973,910	$52,988,244	$54,002,725	$55,017,324	$56,032,006	$57,046,739	$58,061,487	$59,076,213

Total Revenues over Expenses to Provide General Govt. Services	***$59,076,213***									

Notes:										
Sales Tax Income applicable in Years 1,3,5,7 & 9 (Phased Construction Years)										
Property Tax available for General Government Services includes General Fund, Library and Fire Protection										
Local Sales/Use Tax Revenue	$34,765,570									
Net to County Property Tax Revenue	$46,767,622									
Total Projected Revenue to County (Sales/Use Tax + Property Tax)	$81,533,192									
Cost of County Government Services	$22,456,979									
Projected Revenue to County over Expenses	$59,076,213									

APPENDIX D – AIR QUALITY

Air Quality Analysis for the Westside Canal Battery Storage Project

Air Quality Analysis for the Westside Canal Battery Storage Project
Imperial County, California

Prepared for
Con Edison Clean Energy Businesses
101 West Broadway, Suite 1120
San Diego, CA 92101
Contact: Curtis Kebler
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Prepared by
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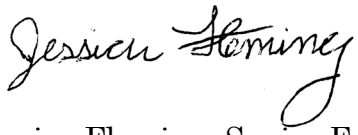
San Diego, CA 92108
P 619.308.9333

RECON Number 8888-1
March 23, 2021



Jessica Fleming, Senior Environmental Specialist

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FIGURES

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TABLES

ATTACHMENTS

Acronyms

°F	degrees Fahrenheit
AB	Assembly Bill
APCD	Air Pollution Control District
APN	Assessor Parcel Number
BLM	Bureau of Land Management
BTM	behind-the-meter
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAISO	California Independent System Operator
Caltrans	California Department of Transportation
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CO	carbon monoxide
DPM	diesel-exhaust particulate matter
I-8	Interstate 8
IID	Imperial Irrigation District
ITE	Institute of Transportation Engineers
LOS	Level of Service
MW	megawatt
NAAQS	National Ambient Air Quality Standards
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
O&M	operations and maintenance
ODCP	Operational Dust Control Plan
Pb	lead
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	Particulate matter less than 2.5 microns in diameter
Project	Westside Canal Battery Storage Project
PV	photovoltaic
ROG	reactive organic gases
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SIP	State Implementation Plan
SO_2	sulfur dioxide
TAC	toxic air contaminant
U.S. EPA	United States Environmental Protection Agency
USC	United States Code
VOC	volatile organic compounds

Executive Summary

This report provides the results of the air quality emissions analysis performed for the proposed Westside Canal Battery Storage Project (Project) in Imperial County, California. The Project site consists of approximately 148 acres of agriculturally-zoned land located in the unincorporated Mount Signal area of the County, approximately 8.0 miles southwest of the city of El Centro (Assessor Parcel Numbers [APNs] 051-350-010 and 051-350-011). The Project site is located approximately one-third mile north of the Imperial Valley Substation (IV Substation) and directly south of the intersection of Liebert Road and the Imperial Irrigation District's (IID) Westside Main Canal. The Project site is bounded by the Westside Main Canal to the north, Bureau of Land Management (BLM) lands to the south and west, and vacant private land to the east. The Campo Verde solar generation facility is located north of the Project site, across the Westside Main Canal.

The two Project parcels are proposed for development as a utility-scale energy storage complex. The Project would also utilize portions of two parcels located north of the Westside Main Canal (APN 051-350-019 owned by IID and APN 051-350-018 owned by a private landowner) for site access and as a temporary construction staging area. The Project would also access a small portion of APN 051-350-009 within an IID easement for connection to the existing IID Campo Verde – Imperial Valley 230 kilovolt radial gen-tie line during the construction of a switching station on the Project site.

This analysis evaluates the significance of the Project in accordance with the California Environmental Quality Act (CEQA) and guidance from the Imperial County Air Pollution Control District (APCD). The Project was evaluated to determine if it would (1) conflict with applicable air quality plans, (2) result in cumulative impacts to air quality, (3) impact sensitive receptors, or (4) expose a substantial number of people to objectionable odors. Project emissions were calculated using the California Emissions Estimator Model Version 2016.3.2.

A significant air quality impact would occur if the Project conflicted with the Imperial County APCD's ozone and particulate matter air quality plans. Project air pollutant emissions would be consistent with regional growth projections and the air quality plan emission forecasts, and impacts would be less than significant.

A significant air quality impact would occur if the Project resulted in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment. Construction- and operation-related emissions would be less than all applicable significance thresholds provided mitigation measures MM-AIR-1, MM-AIR-2, and MM-AIR-3 are implemented. The Project site is in a non-attainment area for ozone, particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}), and particulate matter with an aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$) emissions. Project ozone precursor, PM_{10}, and $PM_{2.5}$ emissions would be less than applicable significance thresholds. Thus, the Project would not result in a cumulatively considerable net increase of ozone precursors or particulate matter emissions, and impacts would be less than significant.

A significant air quality impact would occur if the Project exposed sensitive receptors to substantial pollutant concentrations including air toxics. There are no sensitive receptors in the immediate vicinity of the Project site. The closest sensitive receptor is a single-family residence located approximately 4,000 feet northeast of the Project site at the intersection of Wixom Road and Vogel Road. The Project would result in the generation of diesel-exhaust particulate matter (DPM) during construction and mobile-source carbon monoxide (CO) during operation. Due to the limited duration of construction and the distance to the nearest sensitive receptor, DPM generated by Project construction activities is not expected to create conditions where the incremental cancer risk exceeds the Imperial County APCD's ten in one million significance threshold; thus impacts from DPM exposure would be less than significant. Due to the limited traffic generated by the Project, the Project would not substantially contribute to elevated CO concentrations; impacts from mobile-source CO emissions would be less than significant. The components of solar generation facilities, including the proposed storage and transmission components, have been shown to emit insignificant air toxic emissions, and localized air quality impacts from Project operations would be less than significant.

Project construction would result in temporary odors associated with diesel exhaust. Odors generated from construction would be temporary and intermittent, and would largely dissipate at short distances from the source. Solar generation facilities, including the proposed storage and transmission components, are not known to emit odors during operation. Thus, the Project would not create objectionable odors adversely affecting a substantial number of people, and impacts would be less than significant.

The Project would have a less than significant impact on air quality. Mitigation measures MM-AIR-1, MM-AIR-2, and MM-AIR-3 would be required along with the standard Imperial County APCD dust and equipment measures discussed in this analysis is required.

1.0 Introduction

1.1 Purpose of the Report

This report evaluates the significance of air quality emissions associated with the Westside Canal Battery Storage Project (Project). This report characterizes existing conditions at the Project site and in the region, identifies applicable rules and regulations, and assesses impacts related to air quality associated with construction and operation of the Project.

1.2 Project Description

Westside Canal Battery Storage, LLC (Project Proponent), a subsidiary of Con Edison Clean Energy Businesses, is proposing to develop, design, construct, own, operate, and maintain the Westside Canal Battery Storage Project (Project), a utility-scale energy storage complex with a capacity of up to 2,000 megawatts (MW). The Project would store energy generation from the electrical grid, and optimally discharge that energy back into the grid as firm, reliable generation and/or grid services.

The Project would be comprised of lithium-ion battery and/or flow battery energy storage facilities, a behind-the-meter solar energy facility, a new on-site 230 kilovolt (kV) loop-in switching station, a 34.5 kV to 230 kV substation, underground electrical cables, and permanent vehicular access to and from the site over a proposed bridge spanning Imperial Irrigation District's (IID's) Westside Main Canal. The proposed loop-in switching station would connect the Project to the existing IID Campo Verde – Imperial Valley 230 kV radial gen-tie line, which connects to the Imperial Valley Substation (IV Substation) and the California Independent System Operator (CAISO), approximately one-third mile south of the Project site. The Project Proponent has submitted the necessary Interconnection Request Applications to the CAISO and IID.

The Project would complement both the existing operational renewable energy facilities, as well as those planned for future development in Imperial County (County), and would support the broader southern California bulk electric transmission system by serving as a firm, dispatchable resource.

The Project is pursuing the following objectives:

- To receive grid energy during beneficial market and operational periods and store that energy for dispatch when the customer (i.e., a load-serving entity) deems it to be more valuable.
- To be a valuable resource in allowing the customer and system operators to manage the effect of intermittent renewable generation on the grid and create reliable, dispatchable generation upon demand.
- To utilize available land that has not been used for agricultural production for more than 15 years, and enhance the site location by providing for permanent vehicular access.

1.2.1 Project Location

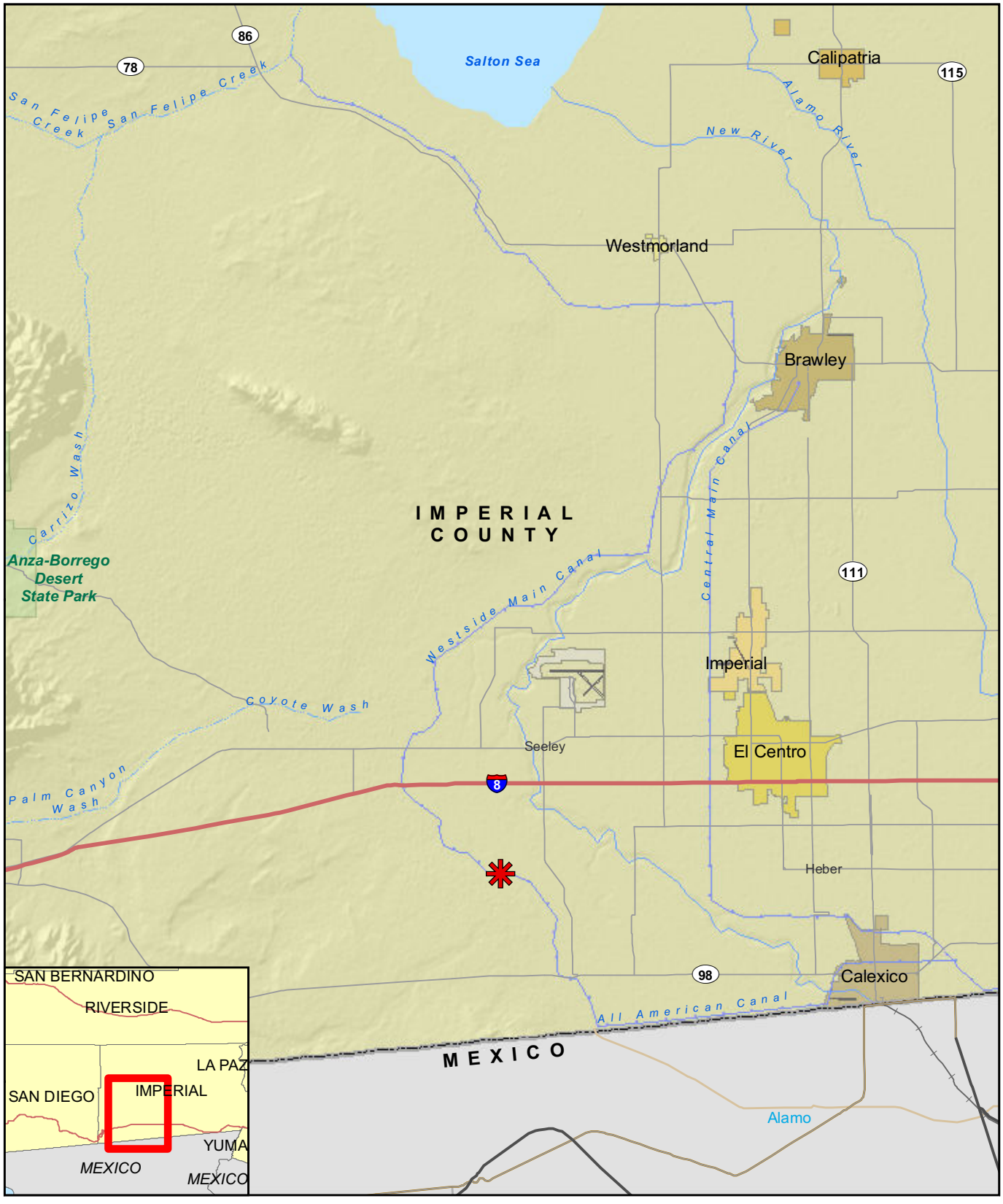
The Project would be located in the unincorporated Mount Signal area of the County, approximately 8.0 miles southwest of the city of El Centro and approximately 5.3 miles north of the U.S.-Mexico border. Figure 1 shows the regional location of the Project. The Project site is comprised of two parcels owned by the Project Proponent, Assessor Parcel Number (APN) 051-350-010 and APN 051-350-011, totaling approximately 148 acres. These parcels have limited access corridors for vehicular traffic and are considered less desirable for agricultural production, as reflected by the last 15 years during which no farming activity has occurred.

The Project site is approximately one-third mile north of the IV Substation and directly south of the intersection of Liebert Road and the IID's Westside Main Canal. The Project site is bounded by the Westside Main Canal to the north, Bureau of Land Management (BLM) lands to the south and west, and vacant private land to the east. The Campo Verde solar generation facility is located north of the Project site, across the Westside Main Canal. Figure 2 shows an aerial photograph of the Project site and the above-mentioned nearby facilities.

The two Project parcels are proposed for development as a utility-scale energy storage complex. The Project would also utilize portions of two parcels located north of the Westside Main Canal (APN 051-350-019 owned by IID and APN 051-350-018 owned by a private landowner) for site access and as a temporary construction staging area. The Project would also access a small portion of APN 051-350-009 within an IID easement for connection to the existing IID Campo Verde – Imperial Valley 230 kV radial gen-tie line during the construction of a substation on the Project site. The total proposed Project development footprint, encompassing both temporary and permanent impacts, would be approximately 163 acres.

1.2.2 Project Components

Figure 3a shows the conceptual site plan for the Project with a representation of the various energy storage technologies, behind-the-meter ground- and roof-mounted solar, common facilities within the Project site, and permanent vehicular access to the Project site. The actual configuration of the Project would depend on the size of individual phases and the type of battery technology deployed. Specific Project components are described below.



Project Location

FIGURE 1
Regional Location

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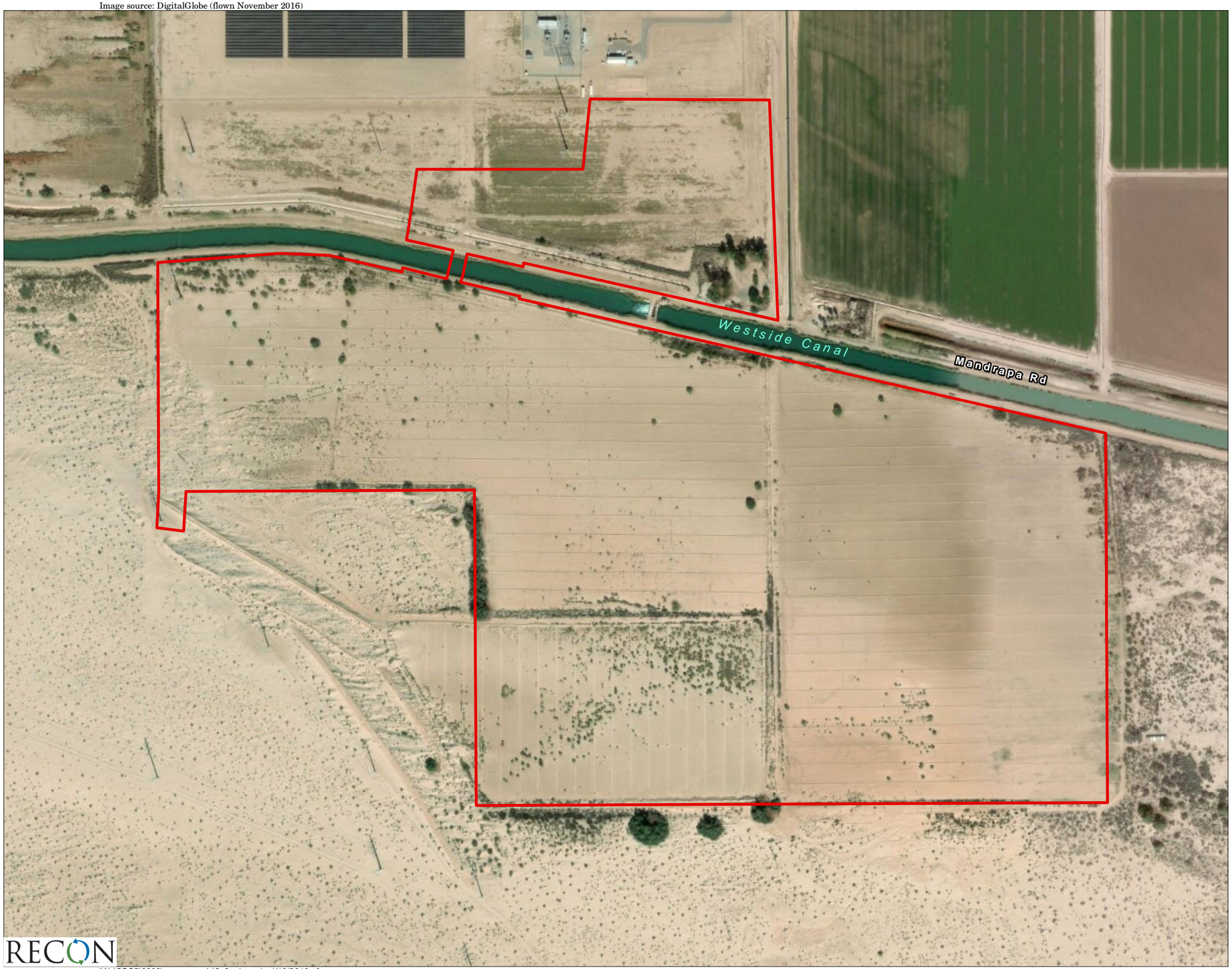
Image source: DigitalGlobe (flown November 2016)



Project Boundary

0 Feet 400

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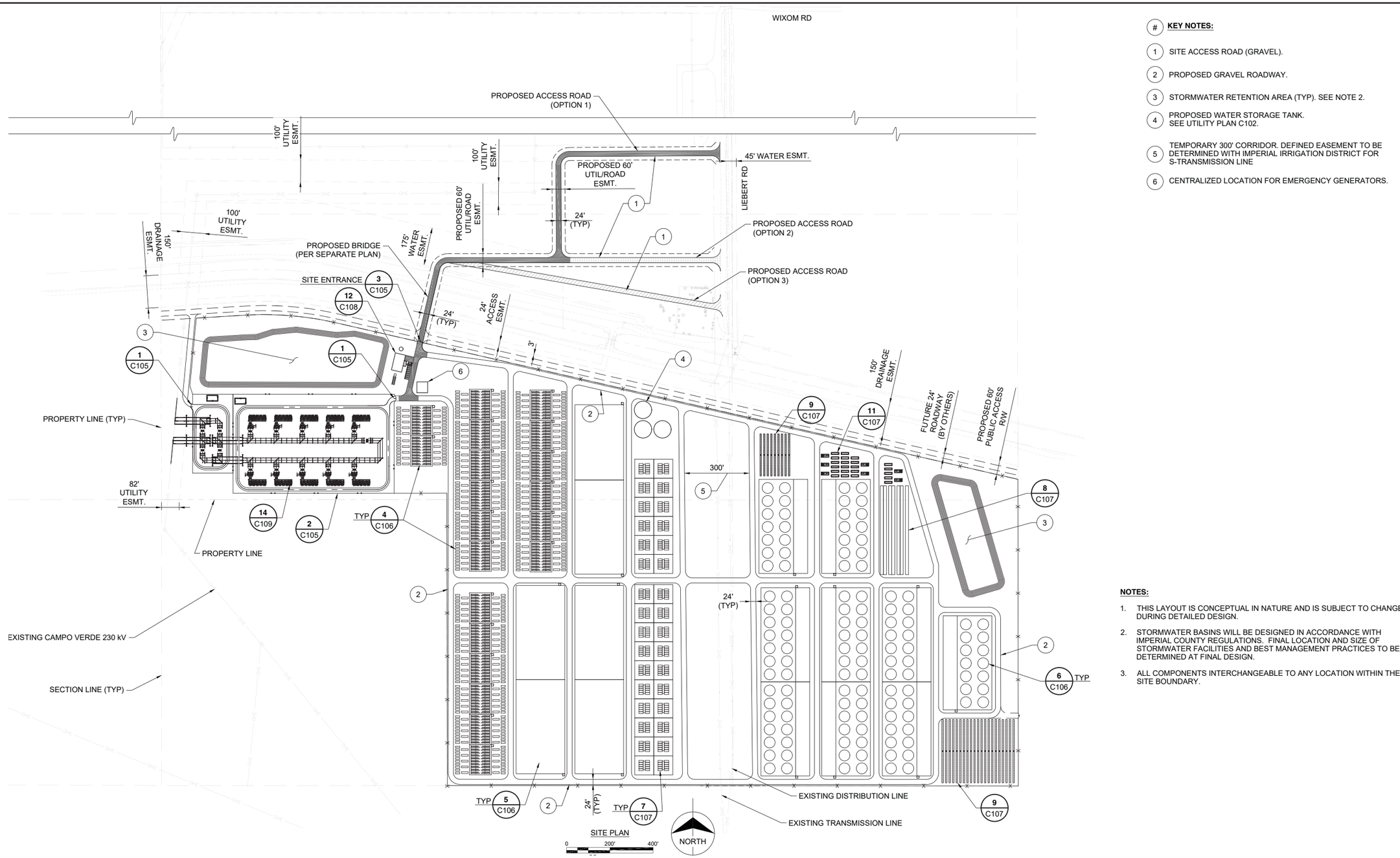
FIGURE 2
Project Location on
Aerial Photograph

Map Source: Burns McDonnell



KEY NOTES:

1. SITE ACCESS ROAD (GRAVEL).
2. PROPOSED GRAVEL ROADWAY.
3. STORMWATER RETENTION AREA (TYP). SEE NOTE 2.
4. PROPOSED WATER STORAGE TANK. SEE UTILITY PLAN C102.
5. TEMPORARY 300' CORRIDOR. DEFINED EASEMENT TO BE DETERMINED WITH IMPERIAL IRRIGATION DISTRICT FOR S-TRANSMISSION LINE
6. CENTRALIZED LOCATION FOR EMERGENCY GENERATORS.

NOTES:

1. THIS LAYOUT IS CONCEPTUAL IN NATURE AND IS SUBJECT TO CHANGE DURING DETAILED DESIGN.
2. STORMWATER BASINS WILL BE DESIGNED IN ACCORDANCE WITH IMPERIAL COUNTY REGULATIONS. FINAL LOCATION AND SIZE OF STORMWATER FACILITIES AND BEST MANAGEMENT PRACTICES TO BE DETERMINED AT FINAL DESIGN.
3. ALL COMPONENTS INTERCHANGEABLE TO ANY LOCATION WITHIN THE SITE BOUNDARY.

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FIGURE 3a
Site Plan

1.2.2.1 Phasing and Schedule

The Project would be constructed in three to five phases over a 10-year period, with each phase ranging from approximately 25 MW up to 400 MW per phase. Depending on the size of the battery system for a given phase, construction and commissioning (approval to operate) is anticipated to take approximately 6 to 12 months. For the purposes of this analysis, the applicant has assumed that construction activities would last for approximately 32 months to complete the full Project build-out.

Construction of the 100- to 200-MW first phase would include roads, a permanent clear-span bridge across the Westside Main Canal, the Operations and Maintenance (O&M) facilities, water connections and water-mains, storm water retention, switching station and Project substation, legal permanent vehicle access, as well as the first energy storage facility. To access the Project site, construction workers would travel along Interstate 8 (I-8) and head 4.6 miles south to the Project site, and would utilize the IID Fern Check Bridge as a temporary pedestrian bridge until the permanent bridge is constructed. During peak construction activities, approximately 200 workers and approximately 30 daily deliveries would be required. It is anticipated that construction of the first phase would begin in 2021.

It is anticipated that each subsequent phase would be constructed within one to two years of each other, with the timing and size of each phase dependent on market conditions and the applicant's ability to secure commercial contracts with prospective customers. With the Project being built in phases, the necessary infrastructure, such as water mains, retention ponds, and access roads, would be built out to serve the Project phases from west to east and expanded over time to serve each phase. These subsequent phases would require improvements such as additional substation equipment, water main and site road extension, but would not require construction of additional common facilities which would be completed during the first phase. The total nameplate (or rated capacity) capacity of the Project at full build-out (all phases completed) would be approximately 2,000 MW.

Construction activities during all Project phases would only occur Monday through Friday, between the hours of 7:00 a.m. and 7:00 p.m. or Saturday between the hours of 9:00 a.m. and 5:00 p.m., excluding holidays, per County Ordinance.

1.2.2.2 Common Components

As shown on the site plan (see Figure 3a), the northwest area of the Project serves as the location for the common facilities, which include the switching station and Project substation and the O&M facilities. A summary of the common facilities is presented below:

- 230 kV loop-in switching station
  - Connection to Campo Verde – Imperial Valley 230 kV radial transmission line
  - Located on applicant property
- Project substation
- O&M facilities
- Project parking

- Storm water retention basins
- Fencing and gates
- Interior access roads

Industrial buildings, warehouses, engineered containers, and/or electrolyte storage tanks would be the primary structures needed to house the main Project components. Other components to be located on the Project site and adjacent to the proposed buildings, warehouses, containers, and tanks include the following:

- Inverters, transformers, power distribution panels
- Underground water-main loop for Project operation and fire prevention
- Underground cable to connect to Project substation
- Project site access roads (unpaved/crushed rock)
- Fire water storage tanks
- Above ground water storage tanks
- Heating, Ventilation, and Air Conditioning (HVAC) units
- Ground-mounted or roof-mounted photovoltaic (PV) arrays
- Emergency backup generator(s)

a. O&M Facilities

The O&M facilities are expected to be the only manned facility on the site. It would include up to approximately 20 full-time employees depending upon the number of phases and type of energy storage facility constructed. O&M employees would work typical weekday hours but may work extended hours, including weekends and 24 hours a day, depending upon the operations and maintenance needs. No offices or staffed control centers would be located within the storage-specific warehouses/buildings. For sanitary waste, the Project would include a septic leach field to be located near the O&M facilities. The proposed O&M facilities would also require an HVAC unit.

b. Permanent Vehicle Access

There are no circulation element roadways in the immediate vicinity of the Project site. The nearest freeways are I-8, located 4.6 miles north of the Project site, and State Route 98 (SR-98), located 5.2 miles south of the Project site. Drew Road, a two-lane collector, is located 1.3 miles east of the Project site. All other roadways in the immediate vicinity of the Project site are rural roadways. All roadways that would be used to access the Project site from I-8 are currently paved, except for the portion of Liebert Road south of Wixom Road. However, this segment would be paved or graveled prior to Project operation.

The Project is surrounded by private landowners to the east, BLM land to the south and west, and IID maintenance roads and Westside Main Canal to the north. Due to the Project site having no direct vehicular access routes, the applicant is proposing to construct roads on both the north and south sides of the Westside Main Canal on private land, and a new clear-span Imperial County-specified bridge over the Westside Main Canal.

The permanent new clear-span County-specified bridge would span the Westside Main Canal to connect to a proposed access road easement on the north side of the Westside Main Canal. The north side proposed access road would ultimately connect the Project to county road (CR) Liebert Road.

Construction of the permanent clear-span bridge spanning the IID's Westside Main Canal requires the Project Proponent to have access to both the north side and the south of the Canal to perform the necessary construction activities. In addition to being necessary to facilitate construction of the new permanent clear-span bridge, access from the south side of the Canal would allow the Project Proponent to commence construction on the first phase of the Project simultaneously, thereby shortening the duration of construction and potentially minimizing the associated impacts. The Project Proponent is evaluating various options for temporary construction access, including accessing the Project site from the south side of the Westside Main Canal off SR-98, as well as options involving access from the north side of the Westside Main Canal from I-8.

Option 1 would use the existing SDG&E maintenance road off Highway 98, which extends approximately 4.4 miles to the IV Substation. Option 1 would then continue along an existing 1.2-mile-long dirt access road that leads north, then east, outside the western and northern boundaries of the substation. Option 1 then continues northwest along an existing dirt access road that parallels two power lines until the access road connects with the western edge of the Project. The existing dirt road was constructed for the construction and maintenance of the existing Campo Verde – Imperial Valley gen-tie line. Option 2 would use the existing IID Westside Main Canal access road. The selected temporary access option would be used until construction of the permanent bridge is completed. Both temporary construction access routes are presented in Figure 3b.

1.2.2.3 Battery Storage Components

The first phase of site construction would consist of either a lithium-ion battery storage facility or a flow battery storage facility. This first phase would be dependent on the first commercial contract awarded to the applicant by a customer. Large industrial buildings, warehouses, and/or containers to house the storage equipment, including battery cells, modules, racks, and controls for lithium-ion technologies, would be needed. For flow battery technologies, cell stack modules, pumps, and controls may be installed inside industrial buildings or pre-engineered outdoor enclosures. Electrolyte storage tanks and associated piping may be located indoors or outdoors, depending on the technology.

Map Source: conEdison Development

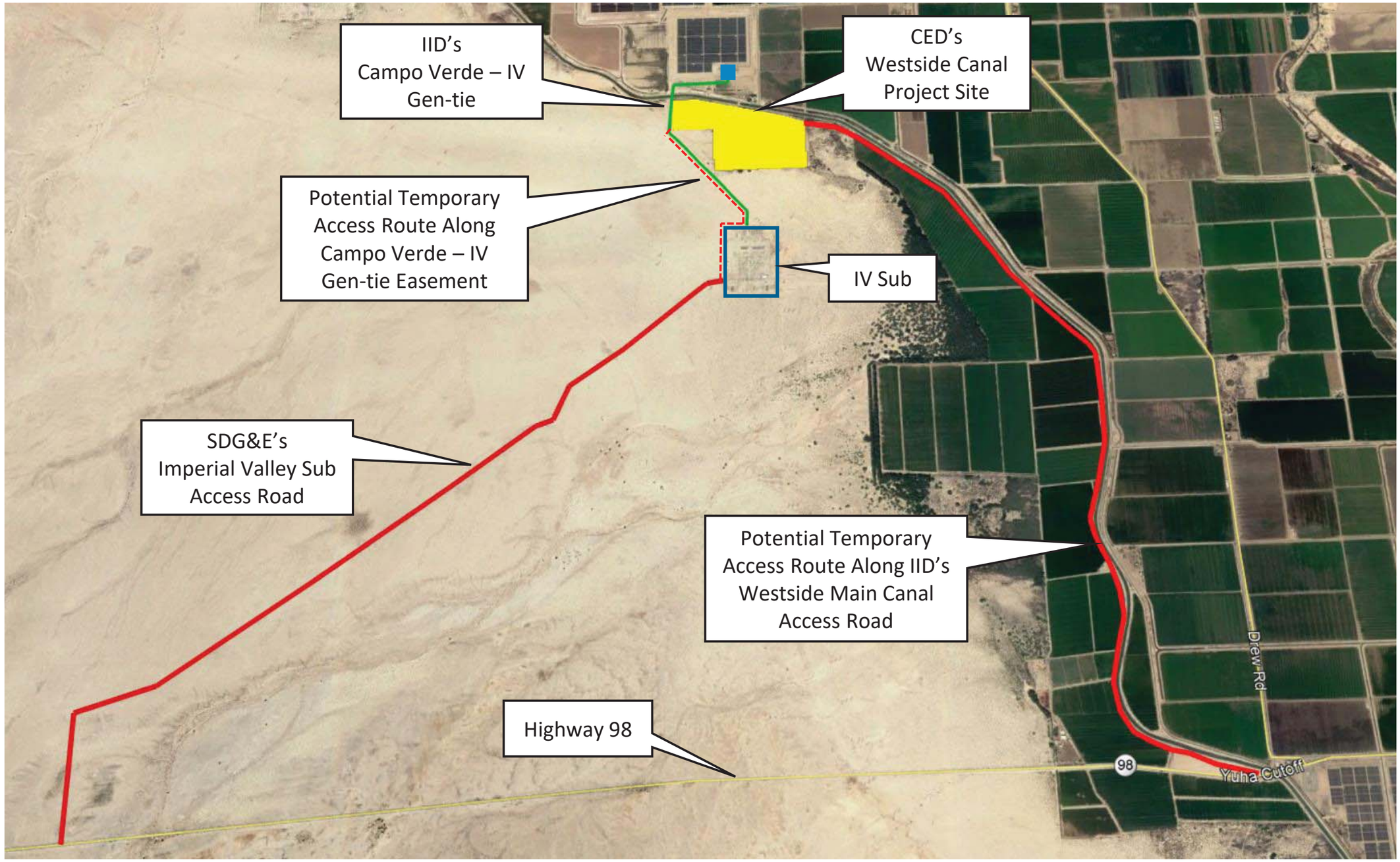

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FIGURE 3b
Temporary Construction Access Routes

a. Battery Modules Technology

Energy Storage

Energy storage is the capture of energy produced at one time for use at a later time. A device that stores energy is generally called an accumulator or battery. Energy storage involves converting energy from forms that are difficult to store to more conveniently or economically storable forms. For the purpose of grid connected energy storage, electrical energy will be stored in the form of chemical energy in lithium-ion and/or flow batteries. Energy storage technology may be centralized or may be distributed throughout the plant. Due to requirements for energy storage, the Project components such as the switching station, substation, transformers, and inverters would be energized at all times with the potential to charge or discharge.

Lithium-Ion Battery

A lithium-ion battery is a type of rechargeable battery in which lithium ions move from the negative electrode through an electrolyte to the positive electrode during discharge, and back when charging. Lithium-ion batteries use an intercalated lithium compound as the material at the positive electrode and typically graphite at the negative electrode. The batteries have a high energy density, no memory effect and low self-discharge.

Flow Battery

A flow battery is a rechargeable fuel cell in which an electrolyte containing one or more dissolved electroactive elements flows through an electrochemical cell that reversibly converts chemical energy directly to electricity. Additional electrolyte is stored externally, generally in tanks, and is usually pumped through the cell (or cells) of the reactor, although gravity feed systems are also known to be used. Flow batteries can be rapidly "recharged" by replacing the electrolyte liquid while simultaneously recovering the spent material for re-energization. Many flow batteries use carbon felt electrodes due to its low cost and adequate electrical conductivity.

b. Backup Generators

The Project would include emergency backup generator(s) to supply auxiliary power to the facility during rare events in which the entire facility or portions of the facility are disconnected from the electrical grid. The Project would use a hybrid approach to emergency backup power supply. Rather than relying exclusively on backup generators, the hybrid approach involves dedicating a portion of the battery storage system capacity as a source of emergency backup power. The reserved battery storage capacity would be approximately 3 to 4 percent of the size of the constructed battery storage system. This hybrid approach would also rely on the use of on-site, behind-the-meter (BTM) solar power generation to supplement the facility's backup power supply needs. Additionally, propane-fueled generators would augment the backup battery storage capacity and the BTM solar power generation.

The generators would be sized to accommodate control systems and HVAC system loads for equipment protection. Approximately 1.25 MW of backup power generation would be needed for every 100 MW of installed battery storage capacity. Each propane-fueled generator would have a capacity of 150 kilowatts or larger. The purpose of the generators would be to provide system safety for events in which the transmission interconnection and the on-site solar generation system are not available, by supplying the battery HVAC system to maintain battery safety and warranty temperature parameters.

The propane-fueled generators would be installed in a central location near the common facilities or distributed among individual buildings or containers. The generators would be periodically tested (monthly) to maintain backup capability in the event of a grid outage. All generators would be subject to Imperial County (APCD review and permitting requirements.

1.2.2.4 Solar Facility Components

Photovoltaic solar cells, also called PV cells, convert sunlight directly into electricity. PV gets its name from the process of converting light (photons) to electricity (voltage), which is called the PV effect. The panels are mounted at a fixed angle facing south, or they can be mounted on a tracking device that follows the sun, allowing them to capture the most sunlight. Many solar panels combined together to create one system is called a solar array. On-site, behind-the-meter, PV solar generation would serve as station auxiliary power and be deployed throughout the Project site.

1.2.3 Site Security

A six-foot-tall fence (e.g., chain-link) topped with one-foot-tall barbed wire would be installed around the entire Project site for safety and in order to control access. The switching station and each substation proposed on the site plan would also have fences installed around its perimeter. A camera-equipped call button would be installed at the front entry gate to the site which would be monitored from the Project's O&M facilities. Throughout the site at various points, security cameras may be installed to monitor other areas of the Project site. During the construction of each Project phase, the applicant would have on-site security personnel between dusk and dawn and during hours of non-active construction.

1.2.4 Interconnection Options

The proposed point of interconnection for the Project is the IV Substation 230 kV bus. As reflected in the conceptual site plan, to achieve this, the applicant plans to build a new loop-in switching station on the Project site and connect to the existing IID Campo Verde – Imperial Valley 230 kV radial gen-tie line. This existing gen-tie line ultimately connects to the IV Substation one-third mile south of the Project site. This location would serve as the Project's point of interconnection to the CAISO grid. The applicant has submitted the necessary Interconnection Request Applications to the CAISO and IID.

1.2.5 Existing and Proposed Utility Easements

a. Existing Easements

The Project site (APNs 051-350-10 and 051-350-011) has three major easements lying across the site. The first is for overhead collector transmission circuits and utility facilities, as well as access. This is for the IID Campo Verde – Imperial Valley 230 kV transmission line easement, which lies inside and along the west property line and runs north/south.

The second major easement is a prescriptive easement for an overhead transmission circuit and a utility distribution line that runs north and south and lies directly in the center of the Project site. The IID transmission line within this prescriptive easement is known as the S-Transmission line (S-Line). The third major easement lies along the north property line. This easement was granted to IID for the purposes of the existing Westside Main Canal and appropriate infrastructure and operation and maintenance roads adjacent to the Westside Main Canal.

b. Proposed Easements

The applicant and IID are in the process of determining the width of this S-Line easement to create a non-exclusive easement. This easement would also include the existing distribution line that lies within the easement. Until this new easement agreement is in place, the applicant has planned for a 300-foot temporary corridor on the Project site plan (centerline of 300-foot corridor is the S-Line) to allow the IID energy engineering team to design and implement an appropriate new easement. Once the width and location of the new easement is determined, all other areas not part of the new S-Line easement lying within the 300-foot corridor will become part of the Project site.

1.2.6 Project Operation

Operation of the Project would require routine maintenance and security. It is anticipated that the Project would employ a plant manager and an O&M manager, as well as the addition of a facility manager once the complex deploys approximately 500 MW of generation. The complex will also employ staff technicians, with at least one additional technician for every approximately 250 MW of capacity.

Operation of the Project at full build-out would require up to approximately 20 full-time employees depending upon the number of phases and type of energy storage facility constructed. The Project may require fewer full-time equivalent employees, but 20 was assumed to provide a conservative estimate. O&M employees would work typical weekday hours but may work extended hours, including weekends and 24 hours a day, depending upon the operations and maintenance needs. Assuming two one-way trips per employee, the Project would be anticipated to generate up to 40 trips per day from all maintenance and security personnel.

Figure 3a shows the conceptual site plan for the Project with a representation of lithium-ion buildings and containers as well as flow buildings and containers. The components that make up the energy storage systems and common facilities require various preventative maintenance and at times corrective maintenance. The O&M staff would maintain the Project in accordance with manufacturer and industry best practice maintenance schedules and requirements. Depending on the technology selected for the energy storage component, the substation and transmission lines as well as the behind-the-meter solar inverters and transformers would be energized at all times.

1.2.7 Discretionary Actions

1.2.7.1 General Plan Amendment and Rezone

The Project proposes a General Plan Amendment and Rezone to change the land use designation and zoning for the Project site from Agriculture (A3) to Industrial. The Industrial zoning would be limited to Energy Production/Use.

1.2.7.2 Development Agreement

The applicant may pursue a development agreement with the County of Imperial for this Project.

1.3 Criteria Pollutants

Air quality impacts can result from the emission of pollutants associated with construction and operation of a Project. Construction impacts are short term and may result from fugitive dust, equipment exhaust, and indirect effects associated with construction workers and deliveries. Operational impacts are long term and may result from equipment and processes used in the Project (e.g., water heaters, engines, boilers, and paints or solvents), motor vehicle emissions associated with the Project, regional impacts resulting from growth-inducing development, and local hot-spot effects stemming from sensitive receivers being placed close to highly congested roadways. Health effects can include the following:

- Increased respiratory infections
- Increased discomfort
- Missed days from work and school
- Increased mortality

The analysis of air quality impacts is based on the National and California Ambient Air Quality Standards (NAAQS and CAAQS). NAAQS and CAAQS represent the maximum levels of background pollution considered safe, with an adequate margin of safety, to protect the public health and welfare. Six pollutants of key concern known as "criteria pollutants" include ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM_{10} and $PM_{2.5}$), and lead (Pb).

1.3.1 Ozone

Ozone is the primary component of smog. Ozone is not directly emitted into the air but is formed through complex chemical reactions between precursor emissions of nitrogen oxides (NO_X) and reactive organic gases (ROG) (a.k.a. volatile organic compounds [VOC] or reactive organic compounds) in the presence of sunlight. The adverse health effects associated with exposure to ozone pertain primarily to the respiratory system. Scientific evidence indicates that ambient levels of ozone affect not only sensitive receptors, such as asthma sufferers and children, but healthy adults as well. Exposure to ozone has been found to significantly alter lung functions by increasing respiratory rates and pulmonary resistance, decreasing tidal volumes (the amount of air inhaled and exhaled), and impairing respiratory mechanics. Symptomatic responses include throat dryness, chest tightness, headache, and nausea. About half of smog-forming emissions come from automobiles.

1.3.2 Carbon Monoxide

Carbon monoxide is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes about 56 percent of all CO emissions nationwide. CO enters the bloodstream through the lungs by combining with hemoglobin, which normally supplies oxygen to the cells. However, CO combines with hemoglobin much more readily than oxygen does, resulting in a drastic reduction in the amount of oxygen available to the cells. Adverse health effects associated with exposure to CO concentrations include such symptoms as dizziness, headaches, and fatigue (United States Environmental Protection Agency [U.S. EPA] 2017a).

Small-scale, localized concentrations of CO above the NAAQS and CAAQS may occur at intersections with stagnation points such as those that occur on major highways and heavily traveled and congested roadways. Localized high concentrations of CO are referred to as "CO hotspots" and are a concern at congested intersections, where automobile engines burn fuel less efficiently and their exhaust contains more CO.

1.3.3 Nitrogen Dioxide

Nitrogen dioxide is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Inhalation is the most common route of exposure to NO_2. Because NO_2 has relatively low solubility in water, the principal site of toxicity is in the lower respiratory tract. The severity of the adverse health effects depends primarily on the concentration inhaled rather than the duration of exposure. An individual may experience a variety of acute symptoms, including coughing, difficulty with breathing, vomiting, headache, and eye irritation during or shortly after exposure. After a period of approximately 4 to 12 hours, an exposed individual may experience chemical pneumonitis or pulmonary edema with breathing abnormalities, cough, cyanosis, chest pain, and rapid heartbeat.

1.3.4 Sulfur Dioxide

Sulfur dioxide is a combustion product, with the primary source being power plants and heavy industries that use coal or oil as fuel. SO_2 is also a product of diesel engine combustion. The health effects of SO_2 include lung disease and breathing problems for people with asthma. SO_2 in the atmosphere contributes to the formation of acid rain.

1.3.5 Particulate Matter

Health studies have shown a significant association between exposure to particulate matter and premature death in people with heart or lung diseases. Other important effects include aggravation of respiratory and cardiovascular disease, lung disease, decreased lung function, asthma attacks, and certain cardiovascular problems such as heart attacks and irregular heartbeat (U.S. EPA 2017b).

1.3.5.1 Inhalable Coarse Particles (PM_{10})

PM_{10} is particulate matter with an aerodynamic diameter of 10 microns or less. Ten microns is about one-seventh of the diameter of a human hair. Particulate matter is a complex mixture of very tiny solid or liquid particles composed of chemicals, soot, and dust. Under typical conditions (i.e., no wildfires) particles classified under the PM_{10} category are mainly emitted directly from activities that disturb the soil including travel on roads and construction, mining, or agricultural operations. Other sources include windblown dust, salts, brake dust, and tire wear.

1.3.5.2 Inhalable Fine Particles ($PM_{2.5}$)

Airborne, inhalable particles with aerodynamic diameter of 2.5 microns or less have been recognized as an air quality concern requiring regular monitoring. Federal regulations required that $PM_{2.5}$ monitoring begin January 1, 1999. Similar to PM_{10}, $PM_{2.5}$ is also inhaled into the lungs and causes serious health problems.

1.3.6 Lead

Lead is a metal found naturally in the environment as well as in manufactured products. At high levels of exposure, lead can have detrimental effects on the central nervous system. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline, metal processing is currently the primary source of lead emissions.

2.0 Regulatory Framework

2.1 Federal Regulations

2.1.1 Criteria Pollutants

The NAAQS represent the maximum levels of background pollution considered safe, with an adequate margin of safety, to protect the public health and welfare. The Clean Air Act (CAA) was enacted in 1970 and amended in 1977 and 1990 (42 United States Code [USC] 7401) for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity. In 1971, in order to achieve the purposes of Section 109 of the CAA (42 USC 7409), the U.S. EPA developed primary and secondary NAAQS.

Six criteria pollutants of primary concern have been designated: ozone, CO, SO_2, NO_2, lead, and respirable particulate matter (PM_{10} and $PM_{2.5}$). The primary NAAQS ". . . in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health . . . " and the secondary standards ". . . protect the public welfare from any known or anticipated adverse effects associated with the presence of such air pollutant in the ambient air" (42 USC 7409(b)(2)). The NAAQS are presented in Table 1 (California Air Resources Board [CARB] 2016).

An area within a state is designated as either attainment or non-attainment for a particular pollutant. States are required to adopt enforceable plans, known as a State Implementation Plan (SIP), to achieve and maintain air quality meeting the NAAQS. State plans also must control emissions that drift across state lines and harm air quality in downwind states. Once a non-attainment area has achieved the NAAQS for a particular pollutant, it is redesignated as an attainment area for that pollutant. To be redesignated, the area must meet air quality standards for three consecutive years. After redesignation to attainment, the area is known as a maintenance area and must develop a 10-year plan for continuing to meet and maintain air quality standards, as well as satisfy other requirements of the CAA.

The Project site is located in Imperial County, which is a moderate non-attainment area for the 1997 and 2008 federal ozone standards (U.S. EPA 2017c). The Imperial Valley portion of the county is a serious non-attainment area for the 1987 federal PM_{10} standard (U.S. EPA 2017c). The portion of Imperial County that includes El Centro and other cities in Imperial Valley (nonattainment area is defined by townships) is a moderate non-attainment area for the 2012 federal $PM_{2.5}$ standards (U.S. EPA 2017c). On May 13, 2017, the U.S. EPA issued a clean data determination declaring that Imperial County had achieved attainment of the 2006 federal $PM_{2.5}$ standard (U.S. EPA 2017d).

Table 1
State and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone[8]	1 Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.07 ppm (137 µg/m³)		0.070 ppm (137 µg/m³)		
Respirable Particulate Matter (PM_{10})[9]	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		–		
Fine Particulate Matter ($PM_{2.5}$)[9]	24 Hour	No Separate State Standard		35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	12 µg/m³	15 µg/m³	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m³)	Non-dispersive Infrared Photometry	35 ppm (40 mg/m³)	–	Non-dispersive Infrared Photometry
	8 Hour	9.0 ppm (10 mg/m³)		9 ppm (10 mg/m³)	–	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		–	–	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m³)	Gas Phase Chemi-luminescence	100 ppb (188 µg/m³)	–	Gas Phase Chemi-luminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)		0.053 ppm (100 µg/m³)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m³)	Ultraviolet Fluorescence	75 ppb (196 µg/m³)	–	Ultraviolet Fluorescence; Spectro-photometry (Pararosaniline Method)
	3 Hour	–		–	0.5 ppm (1,300 µg/m³)	
	24 Hour	0.04 ppm (105 µg/m³)		0.14 ppm (for certain areas)[10]	–	
	Annual Arithmetic Mean	–		0.030 ppm (for certain areas)[10]	–	
Lead[12,13]	30 Day Average	1.5 µg/m³	Atomic Absorption	–	–	High Volume Sampler and Atomic Absorption
	Calendar Quarter	–		1.5 µg/m³ (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	–		0.15 µg/m³		
Visibility Reducing Particles[14]	8 Hour	See footnote 13	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m³	Ion Chroma-tography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m³)	Gas Chroma-tography			

See footnotes on next page.

Table 1
State and National Ambient Air Quality Standards

ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter; – = not applicable.

[1] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[2] National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[4] Any equivalent measurement method which can be shown to the satisfaction of the Air Resources Board to give equivalent results at or near the level of the air quality standard may be used.

[5] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[6] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[7] Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

[8] On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[9] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standards of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

[10] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[11] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

[12] The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[13] The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

[14] In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

SOURCE: CARB 2016.

2.1.2 Nonroad Diesel Engine Standards

The U.S. EPA developed Nonroad Diesel Engine Standards in 1994. The standards apply to all engines rated over 50 horsepower in nearly all nonroad diesel equipment. Some of the most commonly regulated types of equipment include construction and farming equipment. The primary effect of the Nonroad Diesel Engine Standards has been to reduce NO_X and PM_{10} emissions from equipment subject to the standards.

The Nonroad Diesel Engine Standards have been phased-in in tiers. Tier 1 standards applied to engines sold between 1996 and 2000, Tier 2 standards applied to engines sold between 2001 and 2006, and Tier 3 standards applied to engines sold between 2006 and 2008. Additional Tier 4 standards were authorized in 2004, and were phased in for engines sold between 2008 and 2015.

While all new equipment must meet Tier 4 standards, existing equipment may continue to circulate. The U.S. EPA maintains replacement schedules for various sizes of equipment fleets that require retrofits or replacements over time to gradually bring the existing equipment up to standard.

2.2 State Regulations

2.2.1 Criteria Pollutants

The California Clean Air Act was enacted in 1988 (California Health & Safety Code Section 39000 et seq.). Under the California Clean Air Act, CARB has developed the CAAQS and generally has set more stringent limits on the criteria pollutants than the NAAQS (see Table 1). In addition to the federal criteria pollutants, the CAAQS also specify standards for visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride (see Table 1).

The state of California is divided geographically into 15 air basins for managing the air resources of the state on a regional basis. Areas within each air basin are considered to share the same air masses and, therefore, are expected to have similar ambient air quality. Similar to the CAA, the state classifies these specific geographic areas as either "attainment" or "nonattainment" areas for each pollutant based on the comparison of measured data with the CAAQS.

The Project site is located in the Salton Sea Air Basin, which encompasses Imperial County and parts of Riverside County (Coachella Valley). The Salton Sea Air Basin is a non-attainment area for the CAAQS for ozone and PM_{10} (CARB 2017).

2.2.2 Toxic Air Contaminants

The public's exposure to toxic air contaminants (TACs) is a significant public health issue in California. Diesel-exhaust particulate matter (DPM) emissions have been established as TACs. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health (Assembly

Bill [AB] 1807: California Health and Safety Code Sections 39650–39674). The California Legislature established a two-step process to address the potential health effects from TACs. The first step is the risk assessment (or identification) phase. The second step is the risk management (or control) phase of the process.

The California Air Toxics Program establishes the process for the identification and control of TACs and includes provisions to make the public aware of significant toxic exposures and for reducing risk. Additionally, the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly Bill) was enacted in 1987 and requires stationary sources to report the types and quantities of certain substances routinely released into the air. The goals of the Air Toxics "Hot Spots" Act are to collect emission data, to identify facilities having localized impacts, to ascertain health risks, to notify nearby residents of significant risks, and to reduce those significant risks to acceptable levels.

The Children's Environmental Health Protection Act, California Senate Bill (SB) 25 (Chapter 731, Escutia, Statutes of 1999), focuses on children's exposure to air pollutants. SB 25 requires CARB to review its air quality standards from a children's health perspective, evaluate the statewide air monitoring network, and develop any additional air toxic control measures needed to protect children's health. Locally, toxic air pollutants are regulated through the Imperial County Air Pollution Control District's (APCD) Regulation X. Of particular concern statewide are DPM emissions. DPM was established as a TAC in 1998, and is estimated to represent a majority of the cancer risk from TACs statewide (based on the statewide average). Diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by CARB and are listed as carcinogens either under the state's Proposition 65 or under the federal Hazardous Air Pollutants program.

Following the identification of DPM as a TAC in 1998, CARB has worked on developing strategies and regulations aimed at reducing the risk from DPM. The overall strategy for achieving these reductions is found in CARB's Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles (CARB 2000). A stated goal of the plan is to reduce the statewide cancer risk arising from exposure to DPM by 85 percent by 2020.

In April 2005, CARB published the *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB 2005). The CARB Air Quality Handbook makes recommendations directed at protecting sensitive land uses from air pollutant emissions while balancing a myriad of other land use issues (e.g., housing, transportation needs, economics, etc.). It notes that the CARB Air Quality Handbook is not regulatory or binding on local agencies and recognizes that application takes a qualitative approach. As reflected in the CARB Air Quality Handbook, there is currently no adopted standard for the significance of health effects from mobile sources. Therefore, CARB has provided guidelines for the siting of land uses near heavily traveled roadways. Of pertinence to this analysis, CARB guidelines indicate that siting new sensitive land uses within 1,000 feet of distribution centers with heavy truck traffic should be avoided when possible.

As an ongoing process, CARB will continue to establish new programs and regulations for the control of diesel particulate and other air-toxics emissions as appropriate. The continued development and implementation of these programs and policies will continue to reduce the public's exposure to DPM.

2.2.3 State Implementation Plan

The California SIP is a collection of documents that set forth the state's strategies for achieving the NAAQS. The California SIP is a compilation of new and previously submitted plans, programs (such as air quality management plans, monitoring, modeling, permitting, etc.), district rules, state regulations, and federal controls. CARB is the lead agency for all purposes related to the California SIP under federal law. Local air districts and other agencies, such as the Department of Pesticide Regulation and the Bureau of Automotive Repair, prepare SIP elements and submit them to CARB for review and approval. CARB then forwards revisions to the U.S. EPA for approval and publication in the *Federal Register*. All of the items included in the California SIP are listed in the Code of Federal Regulations (CFR) at 40 CFR 52.220.

The Imperial County APCD is responsible for preparing and implementing the portion of the California SIP applicable to the portion of the Salton Sea Air Basin that is in Imperial County. These portions include:

- Imperial County 2009 State Implementation Plan for Particulate matter Less than 10 Microns in Aerodynamic Diameter
- Imperial County 2013 State Implementation Plan for the 2006 24-Hour $PM_{2.5}$ Moderate Non-attainment Area
- Imperial County 2017 State Implementation Plan for the 2008 8-Hour Ozone Standard

2.2.4 California In-Use Off-Road Diesel-Fueled Fleets Regulation

The California In-Use Off-Road Diesel-Fueled Fleets Regulations were approved by CARB in July 2007, and subsequent major amendments were incorporated in December 2011. The regulations are intended to reduce diesel-exhaust and NO_X emissions from in-use off-road heavy-duty diesel vehicles in California. The regulation requires that any operator of diesel-powered off-road vehicles with 25-horsepower or greater engines meet specific fleet average targets. CARB maintains schedules for small, medium, and large equipment fleets that require equipment retrofits or replacements over time to gradually bring the existing equipment up to standard. As of January 2018, all newly purchased equipment for medium and large equipment fleets will be required to meet Tier 3 or higher engine standards.

2.3 Local Regulations

2.3.1 CEQA Air Quality Handbook

The Imperial County APCD adopted its *CEQA Air Quality Handbook: Guidelines for the Implementation of the California Environmental Quality Act of 1970* in 2007 and amended the handbook in December 2017 (Imperial County APCD 2017a). The Imperial County APCD CEQA Air Quality Handbook provides guidance on how to determine the significance of impacts, including air pollutant emissions, related to the development of residential, commercial, and industrial projects. Where impacts are determined to be significant, the Imperial County APCD CEQA Air Quality Handbook provides guidance to mitigate adverse impacts to air quality from development projects.

2.3.2 Stationary Source Permitting

Pursuant to Imperial County APCD Rule 207 (New & Modified Stationary Source Review) and associated rules such as Rule 201 (Permits Required) and Rule 208 (Permit to Operate), the construction, installation, modification, replacement, and operation of any equipment which may emit air contaminants requires Imperial County APCD permits. The Imperial County APCD requires that all such equipment be assessed for the potential to result in health risk impacts, and permits to operate equipment must be renewed each year equipment is in use or upon the modification of equipment.

2.3.3 Fugitive Dust Control

The Imperial County APCD Regulation VIII regulates emissions of fugitive dust. Fugitive dust is:

> Particulate Matter entrained in the ambient air which is caused from man-made and natural activities such as, but not limited to, movement of soil, vehicles, equipment, blasting, and wind. This excludes Particulate Matter emitted directly in the exhaust of motor vehicles or other fuel combustion devices, from portable brazing, soldering, or welding equipment, pile drivers, and stack emissions from stationary sources (Imperial County APCD, Rule 800 (c)(18)).

Regulation VIII includes the following specific rules:

- Rule 800–Fugitive Dust Requirements for Control of $PM_{2.5}$
- Rule 801–Construction and Earthmoving Activities
- Rule 802–Bulk Materials
- Rule 803–Carry Out and Track Out
- Rule 804–Open Areas
- Rule 805–Paved and Unpaved Roads
- Rule 806–Conservation Management Practices

3.0 Environmental Setting

3.1 Land Use Environment

The Project site was previously graded and used as farmland and has been fallow for more than 15 years. The General Plan land use designation and zoning for the Project site and all surrounding parcels to the north and east is Agriculture (A3). The General Plan land use designation for parcels to the south and west are designated open space/recreation areas; zoning does not apply to these BLM lands. The Campo Verde solar generation facility is located north of the Project site and agricultural uses are located northeast of the Project site. Parcels farther north of the Project site also include a mix of agricultural uses and solar generation facilities. The parcel immediately east of the Project site is undeveloped. BLM land south and west of the Project site is generally undeveloped, relatively flat, and barren. The Imperial Valley Substation is located approximately one-third mile south of the southern property line of the site.

3.2 Regional Setting and Climate

Climate conditions at the Project site, like the rest of Imperial County, are governed by the large-scale sinking and warming of air in the semi-permanent tropical high-pressure center of the Pacific Ocean. The high-pressure ridge blocks out most storms except in winter when it is weakest and farthest south. The coastal mountains prevent the intrusion of any cool, damp air found in California coastal environs. Because of the barrier and weakened storms, Imperial County experiences clear skies, extremely hot summers, mild winters, and little rainfall (Imperial County APCD 2017b).

Winters are mild and dry with daily average temperatures ranging between 65 and 75 degrees Fahrenheit (°F). Summers are extremely hot with daily average temperatures ranging between 104 and 115°F. The flat terrain and the strong temperature differentials created by intense solar heating result in moderate winds and deep thermal convection. The combination of subsiding air, protective mountains, and distance from the ocean all combine to severely limit precipitation (Imperial County APCD 2017b).

The large daily oscillation of temperature produces a corresponding large variation in the relative humidity. Nocturnal humidity rises to 50 to 60 percent, but drops to about 10 percent during the day. Prevailing winds are from the west-northwest through southwest; a secondary flow maximum from the southeast is also evident. The prevailing winds from the west and northwest occur seasonally from fall through spring and are known to be from the Los Angeles area. Occasionally, Imperial County experiences periods of extremely high wind speeds. Wind speeds can exceed 31 miles per hour and this occurs most frequently during the months of April and May. However, speeds of less than 6.8 miles per hour account for more than one-half of the observed wind measurements (Imperial County APCD 2017b).

3.3 Existing Air Quality

Air quality at a particular location is a function of the kinds, amounts, and dispersal rates of pollutants being emitted into the air locally and regionally. The major factors affecting pollutant dispersion are wind speed and direction, the vertical dispersion of pollutants (which is affected by temperature inversions), and topography.

Imperial County experiences surface inversions almost every day of the year. Due to strong surface heating, these inversions are usually broken and allow pollutants to be more easily dispersed. In some circumstances, the presence of the Pacific high-pressure cell can cause the air to warm to a temperature higher than the air below. This highly stable atmospheric condition, termed a subsidence inversion, can act as a nearly impenetrable lid to the vertical mixing of pollutants. The strength of these inversions makes them difficult to disrupt. Consequently, they can persist for one or more days, causing air stagnation and the build-up of pollutants. Highest and worst-case ozone levels are often associated with the presence of subsidence inversions (Imperial County APCD 2017b).

Air quality is commonly expressed as the number of days in which air pollution levels exceed state standards set by CARB or federal standards set by the U.S. EPA. The Imperial County APCD maintains five air quality monitoring stations located throughout the region. Air pollutant concentrations and meteorological information are continuously recorded at these stations. Measurements are then used by scientists to help forecast daily air pollution levels, and to gauge compliance with state and federal air quality standards.

The nearest active monitoring station is the El Centro Monitoring Station located approximately 9.6 miles northeast of the Project site. The El Centro Monitoring Station measures ozone, NO_2, PM_{10}, and $PM_{2.5}$. Table 2 provides a summary of measurements collected at the El Centro Monitoring Station for the years 2016 through 2018.

Table 2
Summary of Air Quality Measurements - El Centro Monitoring Station

Pollutant/Standard	2016	2017	2018
Ozone			
Days State 1-hour Standard Exceeded (0.09 ppm)	4	4	2
Days State 8-hour Standard Exceeded (0.07 ppm)	11	17	14
Days Federal 8-hour Standard Exceeded (0.07 ppm)	11	17	14
Maximum 1-hr (ppm)	0.108	0.110	0.102
Maximum 8-hr (ppm)	0.082	0.092	0.090
Nitrogen Dioxide			
Days State 1-hour Standard Exceeded (0.18 ppm)	0	0	0
Days Federal 1-hour Standard Exceeded (0.100 ppm)	0	0	0
Maximum 1-hr (ppm)	0.051	0.049	0.034
Annual Average (ppm)	0.005	--	--
PM_{10}*			
Measured Days State 24-hour Standard Exceeded (50 µg/m^3)	--	--	--
Calculated Days State 24-hour Standard Exceeded (50 µg/m^3)	--	--	--
Measured Days Federal 24-hour Standard Exceeded (150 µg/m^3)	10	4	5
Calculated Days Federal 24-hour Standard Exceeded (150 µg/m^3)	10.0	4.0	5.1
Maximum Daily (µg/m^3)	284.9	268.5	253.0
State Annual Average (µg/m^3)	--	--	--
Federal Annual Average (µg/m^3)	45.0	41.3	46.9
$PM_{2.5}$*			
Measured Days Federal 24-hour Standard Exceeded (35 µg/m^3)	0	0	0
Calculated Days Federal 24-hour Standard Exceeded (35 µg/m^3)	0.0	0.0	0.0
Maximum Daily (µg/m^3)	31.3	23.2	22.4
State Annual Average (µg/m^3)	9.5	8.4	8.7
Federal Annual Average (µg/m^3)	9.4	8.4	8.6

SOURCE: California Air Resources Board (CARB) 2020.
ppm = parts per million; µg/m^3 = micrograms per cubic meter
* Calculated days value. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.

4.0 Thresholds of Significance

The California Natural Resources Agency maintains State CEQA Guidelines to assist lead agencies in developing significance thresholds for assessing potentially significant environmental impacts. According to the CEQA Guidelines Appendix G Environmental Checklist, implementation of the Project would have significant environmental impacts on air quality if it would:

1) Obstruct or conflict with the implementation of the applicable air quality plan.
2) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.
3) Expose sensitive receptors to substantial pollutant concentration including air toxics such as diesel particulates.

4) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

As stated in the State CEQA Guidelines, these questions are "intended to encourage thoughtful assessment of impacts and do not necessarily represent thresholds of significance" (Title 14, Division 6, Chapter 3 Guidelines for Implementation of the CEQA, Appendix G, Environmental Checklist Form). The State CEQA Guidelines encourage lead agencies to adopt regionally specific thresholds of significance. When adopting these thresholds, the amended Guidelines allow lead agencies to consider thresholds of significance adopted or recommended by other public agencies, or recommended by experts, provided that the thresholds are supported by substantial evidence.

The Imperial County APCD CEQA Air Quality Handbook establishes the following four separate evaluation categories (Imperial County APCD 2017a):

1) Comparison of calculated project emissions to Imperial County APCD emission thresholds.
2) Consistency with the most recent Clean Air Plan for Imperial County.
3) Comparison of predicted ambient pollutant concentrations resulting from the project to state and federal health standards, when applicable.
4) The evaluation of special conditions which apply to certain projects.

Any development with a potential to emit criteria pollutants below significance levels defined by the Imperial County APCD is called a "Tier I project," and is considered by the Imperial County APCD to have less than significant potential adverse impacts on local air quality. For Tier I projects, the project proponent should implement a set of feasible "standard" mitigation measures (enumerated by the Imperial County APCD) to reduce the air quality impact to an insignificant level. A "Tier II project" is one whose emissions exceed any of the thresholds. Its impact is significant and the project proponent should select and implement all feasible "discretionary" mitigation measures (also enumerated by the Imperial County APCD) in addition to the standard measures.

4.1 Operational Impacts

Table 3 provides general guidelines for determining the significance of impacts based on the total emissions that are expected from project operation established by the Imperial County APCD.

Table 3
Significance Thresholds for Operations

Pollutant	Tier I	Tier II
NO_X and ROG	Less than 137 lbs/day	137 lbs/day and greater
PM_{10} and SO_X	Less than 150 lbs/day	150 lbs/day and greater
CO and $PM_{2.5}$	Less than 550 lbs/day	550 lbs/day and greater

ROG = reactive organic gas; NO_X = oxides of nitrogen; CO = carbon monoxide; PM_{10} = particulate matter with an aerodynamic diameter 10 microns or less; lbs/day = pounds per day
SOURCE: Imperial County APCD 2017a.

As stated above, Tier 1 projects are required to implement all feasible standard measures specified by the Imperial County APCD. Tier II projects are required to implement all feasible standard measures as well as all feasible discretionary measures specified by the Imperial County APCD.

4.2 Construction Impacts

The Imperial County APCD has also established thresholds of significance for project construction. Table 4 provides general guidelines for determining significance of impacts based on the total emissions that are expected from project construction.

Table 4
Significance Thresholds for Construction

Pollutant	Thresholds (pounds/day)
PM_{10}	150
ROG	75
NO_X	100
CO	550

ROG = reactive organic gas; NO_X = oxides of nitrogen;
CO = carbon monoxide; PM_{10} = particulate matter with an aerodynamic diameter 10 microns or less.
SOURCE: Imperial County APCD 2017a.

Regardless of project size, all feasible standard measures specified by the Imperial County APCD for construction equipment and fugitive PM_{10} control for construction activities should be implemented at construction sites. Control measures for fugitive PM_{10} construction emissions in Imperial County are found in Imperial County APCD Regulation VIII and in the Imperial County APCD CEQA Air Quality Handbook and are discussed below.

4.3 Public Nuisance Law (Odors)

State of California Health and Safety Code Sections 41700 and 41705 and Imperial County APCD Rule 407 prohibit emissions from any source whatsoever in quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to the public health or damage to property.

The Imperial County APCD CEQA Air Quality Handbook provides screening level distances for potential odor sources. If a project is proposed within one mile of a wastewater treatment plant, sanitary landfill, composting station, feedlot, asphalt plant, painting and coating operation, or rendering plant, a potential odor problem may result (Imperial County APCD 2017a).

5.0 Air Quality Assessment

Implementation of the Project would result in air pollutant emissions associated with the construction and operation. Emissions were calculated using California Emissions Estimator Model (CalEEMod) Version 2016.3.2 (California Air Pollution Control Officers Association [CAPCOA] 2017). The CalEEMod program is a tool used to estimate emissions resulting from land development projects in the state of California. CalEEMod was developed with the participation of several state air districts including the South Coast Air Quality Management District (SCAQMD).

CalEEMod estimates parameters such as the type and amount of construction equipment required, trip generation, and utility consumption based on the size and type of each specific land use using data collected from surveys performed in SCAQMD. Where available, parameters were modified to reflect project-specific data.

5.1 Construction-related Emissions

Construction-related activities are temporary, short-term sources of air pollutant emissions. Sources of construction-related emissions include:

- Fugitive dust from grading activities;
- Exhaust emissions from construction equipment;
- Application of chemical coatings (paints, stains, sealants, etc.); and
- Exhaust and fugitive dust emission from on-road vehicles (trips by workers, delivery trucks, and material-hauling trucks).

The Project would be constructed in three to five phases over a 10-year period. For the purposes of this CEQA analysis, it was assumed that construction activities would last for a total of approximately 32 months to complete the full Project build-out. Construction of the access road from the north of the Project site, the bridge over the IID canal, and common facilities (including site grading and infrastructure, O&M building construction and substation construction) on the Project site south of the IID canal would occur simultaneously in order to reduce the overall construction schedule. This first phase of construction as well as construction of the first battery storage phase is anticipated to last for 12 months. Total construction of the subsequent battery storage phases is anticipated to last for 20 months. Construction emissions were calculated assuming construction activities would begin in 2021 and last for 32 consecutive months. This is conservative because if sequential construction activities were to occur at a later date, emissions would be less since construction equipment gets cleaner over time due to statewide rules and regulations.

In order to begin construction on the Project site prior to completion of the bridge, construction equipment would be hauled to the Project site. The Project Proponent is evaluating various options for temporary construction access, including accessing the Project site from the south side of the Westside Main Canal off SR-98, as well as options involving access from the north side of the Westside Main Canal from I-8. Under access Option 1, all construction equipment and material deliveries would access the site from the south along

the 5.6-mile unpaved road until completion of the access road and bridge north of the Project site. The first 4.4 miles of the access road is an existing unpaved service road consisting of well compacted dirt and crushed rock, and the last 1.2 miles is an unpaved dirt road that would be covered with construction mats. To access the Project site, construction workers would travel along I-8 and head 4.6 miles south to the Project site, and would utilize the IID Fern Check Bridge as a pedestrian bridge until the permanent bridge is constructed. A majority of this worker access route is paved, and the last approximately 0.3 mile is an unpaved dirt road. Under access Option 2, all material deliveries would access the site using the IID Westside Main Canal access road. As the Option 1 distance is longer than Option 2, emissions were calculated using access Option 1. During peak construction activities, approximately 200 workers and 30 daily deliveries would be required.

5.1.1 Mobilization Fugitive Dust

Mobilization fugitive dust calculations were modeled based on utilization Option 1. As discussed in Section 5.1 above, the first 4.4 miles of the access road is an existing unpaved service road consisting of well compacted dirt and crushed rock, and 1.2 miles is an unpaved dirt road that would be covered with construction mats. Hauling equipment to the Project site would result in emissions of fugitive dust. Fugitive dust (PM_{10} and $PM_{2.5}$) emissions were calculated using U.S. EPA AP-42 methodology for calculating unpaved road dust emissions. The following equation was used:

$$E = k \times (s/12)^a \times (W/3)^b \div (M/0.2)^c$$

Where,

E = Emission factor (pounds per mile traveled)
s = surface material silt content (percent)
W = mean vehicle weight (tons)
M = surface material moisture content (percent)
k, a, b, c = empirical constants for PM_{10} and $PM_{2.5}$

For construction equipment mobilization, emissions were calculated without dust control measures. It is anticipated that up to eight pieces of construction equipment would be hauled to the site per day during Project mobilization.

5.1.2 Grading Fugitive Dust

Fugitive dust would be associated with construction activities that involve ground disturbance. Calculation of fugitive dust emissions are based on the area of disturbed ground and the fugitive dust measures implemented.

The Imperial County APCD requires that, regardless of the size of a project, all feasible standard measures for fugitive PM_{10} must be implemented at construction sites. Standard measures from the Imperial County APCD handbook are listed below.

Standard Measures for Fugitive PM_{10} Control:

a) All disturbed areas, including Bulk Material storage which is not being actively utilized, shall be effectively stabilized and visible emissions shall be limited to no greater than 20% opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps or other suitable material such as vegetative ground cover.

b) All on site and off site unpaved roads will be effectively stabilized and visible emissions shall be limited to no greater than 20% opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering.

c) All unpaved traffic areas one (1) acre or more with 75 or more average vehicle trips per day will be effectively stabilized and visible emission shall be limited to no greater than 20% opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering. The transport of Bulk Materials shall be completely covered unless six inches of freeboard space from the top of the container is maintained with no spillage and loss of Bulk Material. In addition, the cargo compartment of all Haul Trucks is to be cleaned and/or washed at delivery site after removal of Bulk Material.

d) The transport of Bulk Materials shall be completely covered unless six inches of freeboard space from the top of the container is maintained with no spillage and loss of Bulk Material. In addition, the cargo compartment of all Haul Trucks is to be cleaned and/or washed at delivery site after removal of Bulk Material.

e) All Track-Out or Carry-Out will be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an Urban area.

f) Movement of Bulk Material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient water, chemical stabilizers or by sheltering or enclosing the operation and transfer line.

g) The construction of any new Unpaved Road is prohibited within any area with a population of 500 or more unless the road meets the definition of a Temporary Unpaved Road. Any temporary unpaved road shall be effectively stabilized and visible emissions shall be limited to no greater than 20% opacity for dust emission by paving, chemical stabilizers, dust suppressants and/or watering.

Construction emission estimates account for stabilization of unpaved roads, limiting vehicle speeds on unpaved roads, track-out control devices, and replacement of ground cover based on SCAQMD's Fugitive Dust Mitigation Tables (SCAQMD 2007). The dust control efficiencies are summarized in Table 5. Note that during all construction activities, the water truck would get water directly from the IID canal immediately adjacent to the Project site and,

therefore, there would not be any emissions associated with transporting water to the Project site.

Table 5
Fugitive Dust Mitigation Efficiencies

Activity	Measure	PM_{10} Control Efficiency
Track-out	Use a gravel apron, 25 feet long by road width, to reduce mud/dirt track-out from unpaved truck exit routes.	46%
Travel over unpaved roads (15 miles per hour [mph])	Limit maximum speed on unpaved roads to 15 miles per hour.	57%
Travel over unpaved roads (25 mph)	Limit maximum speed on unpaved roads to 25 miles per hour.	44%
Water Truck	Apply water every 3 hours to disturbed areas within a construction site.	61%
Grading	Replace ground cover in disturbed areas as quickly as possible.	5%
Travel over unpaved roads	Apply chemical dust suppressant annually to unpaved parking areas.	84%
SOURCE: SCAQMD 2007		

5.1.3 Equipment Exhaust

The equipment anticipated to be used in Project construction was provided by the Project applicant and is shown below in Table 6.

Table 6
Anticipated Construction Schedule and Equipment

Construction Equipment	Phase 1 (12 months)			Phases 2–5 (20 months)	Horse-power	Load Factor
	Bridge	Substation	Battery Storage	Battery Storage		
Wheeled Loader	--	--	1	1	97	0.37
Scraper	--	--	1	1	367	0.48
Grader	--	--	1	1	187	0.41
Dozer	--	--	1	1	247	0.40
Excavator	--	--	1	1	158	0.38
Backhoe	1	1	1	1	97	0.37
Rollers	1	1	1	1	80	0.38
Forklift	1	1	1	1	89	0.20
Crane	--	3	3	3	231	0.29
Skid Steer	--	1	2	2	97	0.37
Water Truck[1]	--	--	1	1	402	0.38
Drill Rig	1	--	--	--	221	0.50

NOTE: Each construction activity would also require a number of pick-up trucks. Emissions associated with pick-up trucks are included in the worker commute calculations.
[1]Water truck modeled as off-highway truck.

CalEEMod calculates emissions of all pollutants from construction equipment using emission factors from CARB's off-road diesel equipment emission factors database, OFFROAD 2011 (CARB 2011). Consistent with CARB requirements, all equipment was assumed to meet CARB Tier 3 In-Use Off-Road Diesel Engine Standards.

The Imperial County APCD requires that, regardless of the size of a project, all feasible standard measures for construction equipment must be implemented at construction sites. Standard measures from the Imperial County APCD handbook are listed below.

Standard Measures for Construction Combustion Equipment

a) Use of alternative fueled or catalyst equipped diesel construction equipment, including all off-road and portable diesel powered equipment.

b) Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes as a maximum.

c) Limit, to the extent feasible, the hours of operation of heavy duty equipment and/or the amount of equipment in use.

d) Replace fossil fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set).

5.1.4 On-road Vehicle Emissions

Construction would generate mobile source emissions from worker trips and material delivery (vendor) trips. As discussed, construction workers would travel along I-8 and head 4.6 miles south to the Project site, and would utilize the IID Fern Check Bridge as a pedestrian bridge until the permanent bridge is constructed. All construction equipment and material deliveries would access the site from the south until completion of the access road and bridge. As required by the Imperial County APCD standard PM_{10} mitigation measures, to reduce dust, the unpaved access road would either be watered or a chemical dust suppressant would be applied. As shown in Table 5, use of a water truck to apply water every 3 hours would reduce emissions by 61 percent, and chemical dust suppressants would reduce emissions by 84 percent. Since the use of a water truck is less efficient at reducing dust, this was included in the emission calculations; however, either dust suppressant method may be used. A reduced speed of 15 mph was modeled. During peak construction activities for the utility-scale energy storage complex, approximately 200 workers, and 30 daily deliveries would be required.

CalEEMod calculates emissions of all pollutants from on-road trucks and passenger vehicles using emission factors derived from CARB's motor vehicle emission inventory program EMFAC2014 (CARB 2014). Vehicle emission factors were multiplied by the total estimated number of trips and the average trip length to calculate the total mobile emissions.

5.1.5 Construction Emission Estimates

5.1.5.1 Mobilization Fugitive Dust

Using the methodology summarized in Section 5.1.1, fugitive dust emissions were calculated. Maximum daily emissions were calculated based on up to eight pieces of equipment being delivered to the site per day. These maximum daily emissions were also calculated assuming that the 1.2-mile portion of the access road from the IV Substation to the Project site would

be covered with construction mats, and that speeds on the access road would be limited to 15 mph. Fugitive dust emissions are summarized in Table 7, and calculations are provided in Attachment 1.

Table 7
Equipment Mobilization Fugitive Dust Emissions
(pounds per day)

Amount Delivered to Site Per Day	PM_{10}	$PM_{2.5}$
1	18	3
2	36	5
3	54	8
4	72	10
5	90	13
6	108	16
7	126	18
8	144	21

As shown in Table 7, with up to eight pieces of equipment delivered to the site per day, PM_{10} emissions are not anticipated to exceed the threshold of 150 pounds per day. There is no construction emission threshold for $PM_{2.5}$. Emissions of $PM_{2.5}$ are provided for informational purposes only. The results of the analysis presented in Table 7 assumes compliance with the measures presented in MM-AIR-1 below, which would ensure that impacts would be less than significant.

MM-AIR-1: The following measures would be required for construction equipment mobilization:

- The 1.2-mile portion of the access road from the IV Substation to the Project site shall be covered with construction mats.
- No more than eight pieces of construction equipment shall be delivered to the Project site in one day.
- A speed limit of 15 mph on the access road shall be enforced.

5.1.5.2 Construction Emissions

Construction activities would begin once the needed construction equipment has been delivered to the Project site. Maximum daily emissions associated with mobilization, the first phase, and subsequent phases two through five are summarized in Table 8. CalEEMod output files for Project construction and operations are contained in Attachment 2.

Table 8 Maximum Daily Construction Air Pollutant Emissions						
Emission Source	Maximum Daily Emissions (pounds)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Mobilization/Access Road (January 2021, prior to start of on-site construction activities)						
Construction Equipment	<1	5	6	<1	<1	<1
Delivery Truck Trips	<1	2	1	<1	<1	<1
Worker Trips	<1	<1	1	<1	<1	<1
Access Road Fugitive Dust (see Section 5.1.5.1)	0	0	0	0	144	21
Total	**<1**	**7**	**7**	**<1**	**144**	**21**
Significance Threshold	*75*	*100*	*550*	-	*150*	-
Exceeds Threshold?	No	No	No	-	No	-
Bridge, Substation, Common Facilities, and Battery Storage Phase 1 (February 2021 – December 2021)						
Construction Equipment	4	71	86	<1	3	3
On-Site Fugitive Dust (Grading)	<1	<1	<1	<1	<1	<1
Material Deliveries	<1	9	3	<1	48	5
Worker Trips	5	4	30	<1	48	6
Architectural Coatings	14	0	0	0	0	0
Total	**22**	**84**	**119**	**<1**	**100**	**14**
Significance Threshold	*75*	*100*	*550*	-	*150*	-
Exceeds Threshold?	No	No	No	-	No	-
Battery Storage Phases 2-5 (January 2022 – August 2023)						
Construction Equipment	2	41	49	<1	2	2
Material Deliveries	<1	8	2	<1	7	1
Worker Trips	4	4	28	<1	48	6
Total	**7**	**52**	**79**	**<1**	**58**	**9**
Significance Threshold	*75*	*100*	*550*	-	*150*	-
Exceeds Threshold?	No	No	No	-	No	-

SOURCE: Attachment 2
NOTE: Totals may vary due to independent rounding.
ROG = reactive organic gas; NO_X = oxides of nitrogen; CO = carbon monoxide;
PM_{10} = particulate matter with an aerodynamic diameter 10 microns or less;
$PM_{.5}$ = particulate matter with an aerodynamic diameter 2.5 microns or less

As shown in Table 8, construction emissions are not anticipated to exceed the applicable significance thresholds for all criteria pollutants. The results of the analysis presented in Table 8 assumes compliance with the measures presented in MM-AIR-2 below, which would ensure that impacts would be less than significant.

MM-AIR-2: The following measures would be required for construction activities:

- The 1.2-mile portion of the southern access road from the IV Substation to the Project site shall be covered with construction mats.
- A material delivery speed limit of 15 mph on the access road shall be enforced.

- For material deliveries from the south, one of the following dust suppressant measures would be required for the 4.4-mile service road:
    - A water truck shall apply water every 3 hours, or as deliveries occur; or
    - A chemical dust suppressant shall be applied.
- For the 0.3-mile portion of the northern access route that is unpaved (south of Wixom Road to the worker parking area) one of the following dust suppressant measures would be required:
    - A water truck shall apply water every 3 hours, or as worker access occurs; or
    - A chemical dust suppressant shall be applied.
- A water truck shall apply water to all active on-site grading areas every 3 hours.

5.2 Operation-related Emissions

Operation-related sources of air pollutant emissions include the direct emission of criteria pollutants. Common direct emission sources include mobile sources such as project-generated traffic and area sources such as the use of landscaping equipment.

5.2.1 Mobile Sources

CalEEMod calculates mobile source emissions using emission factors derived from CARB's motor vehicle emission inventory program, EMFAC2014 (CARB 2014). Operation of the Project would require up to 20 employees. Assuming two one-way trips per employee, the Project would be anticipated to generate up to 40 trips per day from all maintenance and security personnel. A 20-mile trip length was modeled.

5.2.2 Energy Sources

CalEEMod calculated emissions associated with building electricity and natural gas usage. Energy sources are mostly associated with greenhouse gas emissions; however, there are also minimal criteria pollutant emissions from energy sources. Emissions were calculated using 2016 Title 24 Energy Code standards. This is conservative since the O&M building would be required to comply with the more recent 2019 Title 24 Energy Code, which is more energy efficient than the previous version.

5.2.3 Area Sources

An area source is any non-permitted stationary source of emission. Common area sources include fireplaces, natural gas used in space and water heating, consumer products, architectural coatings, dust from farming operations, landscaping equipment, and small combustion equipment such as boilers or backup generators. The Project does not include measurable amounts of fireplace use, natural gas use, consumer products, architectural coatings, or other area sources.

Routine weed abatement and landscape maintenance would occur as needed. The Project site is bounded by roads, agricultural uses, and solar generation facilities. As the Project is not

adjacent to natural lands, landscaping maintenance for maintaining a fire-clearing zone would be minimal and would result in less than measurable emissions.

5.2.4 Propane-Fueled Emergency Generators

As discussed in Section 1.2.2.3(b) above, the Project would include emergency backup propane-fueled generators to augment the backup battery storage capacity, as well as BTM solar power generation during rare events in which the entire facility, or portions of the facility, are disconnected from the electrical grid. The generators would be periodically tested (monthly) to maintain backup capability in the event of a grid emergency. Emissions due to emergency generator testing were calculated using emission factors provided in the generator specifications. The Project would include up to 20 propane-fueled generators. The exact testing schedule is not known at this time. For the purposes of the emission calculations, it was assumed that each of the 20 generators would be tested once per month for a total operation time of two hours each per month. If all generators were to be tested on the same day, this would be a total of 40 hours of cumulative operation time per day. Emissions were calculated using U.S. EPA AP-42 emission factors and a fuel consumption rate of approximately 23 gallons per hour, based on specifications for a representative propane-fueled generator.

5.2.5 Operations Emission Estimates

Table 9 provides a summary of the criteria pollutant emissions generated by the Project operations. CalEEMod output files for Project construction and operations are contained in Attachment 2. Calculations for propane-fueled emergency generator testing are provided in Attachment 3.

Table 9
Maximum Daily Operations Air Pollutant Emissions

Emission Source	Maximum Daily Emissions (pounds)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Area Sources	12	<1	<1	0	<1	<1
Energy Sources	<1	<1	<1	<1	<1	<1
Mobile Sources	1	7	13	<1	48	5
Emergency Generator Testing	1	12	7	<1	1	1
Total Operations	**14**	**19**	**20**	**<1**	**48**	**6**
Significance Threshold	*137*	*137*	*550*	*150*	*150*	*550*
Exceeds Threshold?	*No*	*No*	*No*	*No*	*No*	*No*

SOURCE: Attachments 2 and 3
NOTE: Totals may vary due to independent rounding.
ROG = reactive organic gas; NO_X = oxides of nitrogen; CO = carbon monoxide;
PM_{10} = particulate matter with an aerodynamic diameter 10 microns or less;
$PM_{2.5}$ = particulate matter with an aerodynamic diameter 2.5 microns or less

To ensure that fugitive dust emissions would be controlled during project operation, the following mitigation would be required.

MM-AIR-3: Operational Dust Control Plan:

To help reduce fugitive dust emissions from on-site unpaved roads and accumulation of small dunes during operations, an Operational Dust Control Plan (ODCP) would be prepared. The ODCP would include strategies for how dust emissions would be controlled and maintained during Project operations. The ODCP would be submitted to the Imperial County APCD for approval prior to the issuance of a Certificate of Occupancy.

5.3 Project-Level Impact Analysis

As discussed in Section 4.0, the California Natural Resources Agency's State CEQA Guidelines includes questions that were developed to encourage thoughtful assessment of impacts. Project impact assessment consistent with these CEQA checklist questions is provided below.

1. *Would the project obstruct or conflict with the implementation of the applicable air quality plan?*

CARB is the lead agency for preparation of the California SIP, which outlines the state measures to achieve NAAQS. CARB delegates responsibility for preparation of SIP elements to local air districts and requires local air districts to prepare Air Quality Attainment Plans outlining measures required to achieve CAAQS.

The Imperial County APCD is the air district responsible for the Project area. Applicable Imperial County APCD air quality plans include:

- Imperial County 2009 State Implementation Plan for Particulate matter Less than 10 Microns in Aerodynamic Diameter;
- Imperial County 2013 State Implementation Plan for the 2006 24-Hour $PM_{2.5}$ Moderate Non-attainment Area; and
- Imperial County 2017 State Implementation Plan for the 2008 8-Hour Ozone Standard.

The primary concern for assessing consistency with air quality plans is whether the project would induce growth that would result in a net increase in criteria pollutant emissions that exceeds the assumptions used to develop the plan. The criteria pollutant emission projections for the Imperial County APCD air quality plans are based on Southern California Association of Governments' (SCAG) population growth and regional vehicle miles traveled projections, which are based in part on the land uses established by local general plans. As such, projects that propose development that is consistent with the local land use plans would be consistent with growth projections and air quality plans criteria pollutant emissions estimates. In the event that a project would result in development that is less dense than anticipated by the growth projections, the project would be considered consistent with the air quality plans. In the event a project would result in development that results in greater than anticipated growth projections, the project would result in air pollutant emissions that may not have

been accounted for in the air quality plans and thus may obstruct or conflict with the air quality plans.

The existing land use designation for the Project site of Agriculture (A3) is assigned a trip generation rate of two vehicle trips per acre per day (County of Imperial 2008). Based on this trip generation rate, the 148-acre Project site would generate approximately 296 daily trips as an agricultural use. The Project proposes a General Plan Amendment and Rezone to change land use designation and zoning for the Project site from Agriculture (A3) to Industrial. As described in Section 5.2.1, Project operations would generate up to 40 trips per day, which would be less than the 296 daily trips that would be generated by the Project site as an agricultural use. Therefore, mobile source emissions associated with the Project would be less than what is accounted for in the Imperial County APCD air quality plans that originally considered the Project site as an agricultural use. Furthermore, the Project would not construct housing or other uses that would result in regional population growth. Therefore, the Project would not result in new growth beyond what was originally anticipated in SCAG's growth projections for Imperial County. Additionally, as summarized in Table 9, operation of the Project would result in emissions that are well below all applicable project-level significance thresholds. Therefore, Project emissions would be consistent with SCAG's growth projections and the Imperial County APCD's air quality plans, and impacts would be less than significant.

2. *Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?*

The Project site is in non-attainment areas for NAAQS and CAAQS for ozone and particulate matter. The majority of regional PM_{10} and $PM_{2.5}$ emissions originate from dust stirred up by wind or by vehicle traffic on unpaved roads (Imperial County APCD 2009). Other PM_{10} and $PM_{2.5}$ emissions originate from grinding operations, combustion sources such as motor vehicles, power plants, wood burning, forest fires, agricultural burning, and industrial processes. Ozone is not emitted directly, but is a result of atmospheric activity on precursors. NO_X and ROG are known as the chief "precursors" of ozone. These compounds react in the presence of sunlight to produce ozone. Approximately 88 percent of NO_X and 40 percent of ROG regional emissions originate from on- and off-road vehicles (Imperial County APCD 2010). Other major sources include solvent evaporation and miscellaneous processes such as pesticide application.

As shown in Tables 7 and 8 above, all construction-related emissions would be less than the applicable Imperial County APCD significance thresholds. The results of the analysis presented in Tables 7 and 8 assumed compliance with the measures presented in MM-AIR-1 and MM-AIR-2, which would ensure that impacts would be less than significant.

With implementation of these measures, construction emissions would be less than significant. Note that the Project is also required to comply with all Imperial County APCD standard measures for fugitive dust and construction equipment. Since the Project's construction emissions would be less than the project-level significance thresholds and would comply with all Imperial County APCD measures including Regulation VIII, the Project

would result in a less than cumulatively considerable net increase in emissions during construction. In addition, all other cumulative projects are required to comply with Regulation VIII and would also be assumed to implement mitigation measures to reduce their individual construction air quality emissions. In this way, each individual project would reduce construction emissions on a project-by-project basis resulting in less than cumulatively considerable contributions to existing criteria pollutants.

As discussed under Threshold 1, the Project would be consistent with Imperial County APCD air quality plans, which address how the region would cumulatively achieve emission standards. Implementation of MM-AIR-3 would ensure that fugitive dust emissions would be controlled during project operation. As shown in Table 9, all operation-related emissions would be less than the applicable significance thresholds.

Since the Project would not conflict with implementation of Imperial County APCD air quality plans and operational emissions would be less than the applicable project-level significance thresholds, the Project would not result in a cumulatively considerable net increase in criteria pollutants for which the region is in non-attainment of federal or state standards, and cumulative impacts would be less than significant.

3. *Would the project expose sensitive receptors to substantial pollutant concentration including air toxics such as diesel particulates?*

The term "sensitive receptor" refers to a person in the population who is more susceptible to health effects due to exposure to an air contaminant than the population at large or to a land use that may reasonably be associated with such a person. Examples include schools, day care centers, hospitals, retirement homes, convalescence facilities, and residences. The Project site is in a rural environment; there are no nearby schools, day care centers, hospitals, retirement homes, or convalescence facilities. The Project site is bounded by Westside Main Canal to the north, BLM lands to the south and west, vacant land to the east, and the Campo Verde solar generation facility to the northwest. The Imperial Valley Substation is located approximately 0.5 mile south of the southern property line of the site. There are no sensitive receptors in the immediate vicinity of the Project site. The closest sensitive receptor is a single-family residence located approximately 4,000 feet northeast of the Project site at the intersection of Wixom Road and Vogel Road.

Construction-related Diesel Particulate Matter

Construction of the Project would result in short-term diesel exhaust emissions from on-site heavy-duty equipment. Particulate exhaust emissions from diesel-fueled engines (diesel PM or DPM) were identified as a TAC by CARB in 1998. Project construction would result in the generation of DPM emissions from the use of off-road diesel construction equipment during site preparation and facility installation. Other lesser construction-related sources of DPM include material delivery trucks.

Compared to typical construction projects, construction of solar generation facilities involves fewer pieces of heavy-duty diesel construction equipment which operate over larger areas; thus, construction equipment is rarely proximate to any specific receptor for an extended period of time. Due to the limited duration of construction and the distance to the nearest

sensitive receptor (4,000 feet), DPM generated by Project construction activities is not expected to create conditions where the incremental cancer risk exceeds the Imperial County APCD's ten in one million significance threshold. Therefore, Project construction would not expose sensitive receptors to a substantial pollutant concentration, and localized air quality impacts from construction-related DPM emissions would be less than significant.

On-site Operation Sources

As discussed under Threshold 2, construction- and operation-related emissions would be less than the applicable significance thresholds. Solar generation facilities have been shown to emit insignificant air toxic emissions. Localized air quality impacts from Project operations would be less than significant.

Off-site Operation Sources – CO Hot Spots

Localized CO concentration is a direct function of motor vehicle activity at signalized intersections (e.g., idling time and traffic flow conditions), particularly during peak commute hours and meteorological conditions. Under specific meteorological conditions (e.g., stable conditions that result in poor dispersion), CO concentrations may reach unhealthy levels with respect to local sensitive land uses. CO hot spots due to traffic almost exclusively occur at signalized intersections that operate at a Level of Service (LOS) E or below. Projects may result in or contribute to a CO hot spot if they worsen traffic flow at signalized intersections operating at LOS E or F.

The Project site is in a rural environment with no signalized traffic intersections within several miles of the Project site. As discussed in Section 5.2.1, Project operations would generate up to 40 trips per day.

The Project is not in proximity to a signalized intersection and would not generate substantial traffic. Therefore, the Project would not cause or contribute to a CO hot spot. Impacts would be less than significant.

4. *Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?*

The potential for an odor impact is dependent on a number of variables including the nature of the odor source, distance between the receptor and odor source, and local meteorological conditions. Project construction would result in the emission of diesel fumes and other odors typically associated with construction activities. Odors are highest near the source and would quickly dissipate off the site. The nearest sensitive receptor is a single-family residence approximately 4,000 feet from the Project site. Any odors associated with construction activities would be transient and would cease upon completion. Therefore, Project construction would not generate odors adversely affecting a substantial number of people, and impacts would be less than significant.

Energy storage facilities are not known to emit odors during operation. Project operation would include inspection, maintenance, and washing activities. These processes are not

known to emit odors. Therefore, operational impacts related to odor would also be less than significant.

5.4 Cumulative Impact Analysis

The geographic scope of cumulative impacts for air quality would be the jurisdictional boundaries of the Imperial County APCD, who are responsible for regulating air quality and preparing and implementing the portion of the California SIP applicable to the portion of the Salton Sea Air Basin that is in Imperial County. The scopes of the applicable Imperial County APCD air quality plans cover the entirety of Imperial County and address how the region would cumulatively achieve emission standards. Therefore, an evaluation of consistency with these plans constitutes an impact analysis that is cumulative in nature. As described under Section 5.3 above, the primary concern for assessing consistency with air quality plans is whether the Project would induce growth that would result in a net increase in criteria pollutant emissions that exceeds the assumptions used to develop the plan. The existing land use designation for the Project site of Agriculture (A3) would generate approximately 296 daily trips per day as an agricultural use. Project operations would generate up to 40 trips per day, which would be less than the 296 daily trips that would be generated by the Project site as an agricultural use. Therefore, mobile source emissions associated with the Project would be less than what is accounted for in the Imperial County APCD air quality plans that originally considered the Project site as an agricultural use. Furthermore, the Project would not construct housing or other uses that would result in regional population growth beyond what was originally anticipated in SCAG's growth projections for Imperial County. Additionally, as summarized in Table 9, operation of the Project would result in emissions that are well below all applicable Imperial County APCD project-level significance thresholds. Therefore, operational Project emissions would be consistent with Imperial County APCD regional criteria pollutant emission projections and SCAG regional growth projections for Imperial County, and cumulative impacts would be less than significant.

Construction of the Project, along with construction of other cumulative projects within Imperial County, would be short term and temporary in nature. As shown in Tables 7 and 8 above, all construction-related emissions would be less than the applicable Imperial County APCD significance thresholds. Since the Project's construction emissions would be less than the project-level significance thresholds and would comply with all Imperial County APCD measures including Regulation VIII, the Project would result in a less than cumulatively considerable net increase in emissions during construction. In addition, all other cumulative projects are required to comply with Regulation VIII and would also be assumed to implement mitigation measures to reduce their individual construction air quality emissions. In this way, each individual project would reduce construction emissions on a project-by-project basis resulting in less than cumulatively considerable contributions to existing criteria pollutants. Furthermore, it is unlikely construction activities would overlap or result in a proximate concentration of emissions due to the varied schedules and distances between cumulative projects within Imperial County. Therefore, cumulative impacts related to project construction would be less than significant.

6.0 Conclusions and Recommendations

This report evaluates the significance of air quality emissions associated with the Project using criteria from the California Natural Resources Agency State CEQA Guidelines and the Imperial County APCD CEQA Air Quality Handbook.

A significant air quality impact would occur if the Project would conflict with the Imperial County APCD's ozone and particulate matter air quality plans. Project air pollutant emissions would be consistent with regional growth projections and the air quality plan emission forecasts, and impacts would be less than significant.

A significant air quality impact would occur if the Project would result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is a non-attainment area. As calculated in this analysis, construction- and operation-related emissions would be less than all applicable significance thresholds provided mitigation measures MM-AIR-1, MM-AIR-2, and MM-AIR-3 are implemented. The Project site is in non-attainment areas for ozone, PM_{10}, and $PM_{2.5}$ standards. Project ozone precursor and particulate matter emissions would be less than applicable significance thresholds. Thus, the Project would not result in a cumulatively considerable net increase of ozone precursors or particulate matter emissions, and impacts would be less than significant.

A significant air quality impact would occur if the Project would expose sensitive receptors to substantial pollutant concentration including air toxics. There are no sensitive receptors in the immediate vicinity of the Project site. The closest sensitive receptor is a single-family residence located approximately 4,000 feet northeast of the Project site at the intersection of Wixom Road and Vogel Road. The Project would result in the generation of DPM during construction and mobile-source CO during operation. Due to the limited duration of construction and the distance to the nearest sensitive receptor, DPM generated by Project construction activities is not expected to create conditions where the incremental cancer risk exceeds the Imperial County APCD's ten in one million significance threshold; thus, impacts from DPM exposure would be less than significant. Due to the limited traffic generated by the Project, the Project would not substantially contribute to elevated CO concentrations; impacts from mobile-source CO emissions would be less than significant. The various components of solar generation facilities, including storage and transmission facilities, have been shown to emit insignificant air toxic emissions. Localized air quality impacts from Project operations would be less than significant.

Project construction would result in temporary odors associated with diesel exhaust. Odors generated from construction would be temporary and intermittent, and would largely dissipate at short distances from the source. The various components of solar generation facilities, including storage and transmission facilities, are not known to emit odors during operation. Thus, the Project would not create objectionable odors adversely affecting a substantial number of people and impacts would be less than significant.

The Project would have a less than significant impact on air quality. Mitigation measures MM-AIR-1, MM-AIR-2, and MM-AIR-3 would be required along with the standard Imperial County APCD dust and equipment measures discussed in Sections 5.1.1 and 5.1.2 is required.

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ATTACHMENTS

ATTACHMENT 1

Mobilization Fugitive Dust Calculations

AP-42 - Construction Equipment Mobilization - Unpaved Road Dust Emissions

$E = k \times (s/12)^a \times (W/3)^b \div (M/0.2)^c$

		Truck Loaded with Equipment	Truck without Equipment	
E =	emission factor (lbs/VMT)			
s =	surface material silt content (%)	6.4	6.4	% gravel silt content
W =	mean vehicle weight (tons)	35	17.5	tons
M =	surface material moisture content (%)	0.5	0.5	% unpaved road moisture content

Empirical Constant	PM2.5	PM10
k	0.38	2.6
a	0.8	0.8
b	0.4	0.4
c	0.3	0.3

E10 =	3.19	2.42	lbs/VMT
E2.5 =	0.47	0.35	lbs/VMT
# Trips	56	56	
Distance	4.4	4.4	miles
VMT	246.4	246.4	miles
PM10	786	596	lbs
PM2.5	115	87	lbs

	Total Uncontrolled (lbs)	Water Emission Reduction (%)	Soil Stabilizer Reduction (%)
PM10	1382	61%	84%
PM2.5	202	61%	84%

	Uncontrolled		Water Controlled (61%)		Soil Stabilizer Controlled (84%)	
Round Trips	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
1	25	4	10	1	4	1
2	49	7	19	3	8	1
3	74	11	29	4	12	2
4	99	14	39	6	16	2
5	123	18	48	7	20	3
6	148	22	58	8	24	3

ATTACHMENT 2

CalEEMod Output Files

		ROG	Nox	CO	Sox	PM10	PM2.5
Access Road							
	Fugitive Dust (calculated separately)	0	0	0	0	144	21
	Construction Equipment	0	5	6	0	0	0
	Equipment Delivery Trucks	0	2	1	0	0	0
	Worker Trips	0	0	1	0	0	0
	Total	0	7	7	0	144	21
	Threshold	*75*	*100*	*550*		*150*	
Phase 1	Construction Equipment						
	Bridge	*0*	*9*	*11*	*0*	*0*	*0*
	Substation	*1*	*20*	*24*	*0*	*1*	*1*
	Battery Storage 1	*2*	*41*	*49*	*0*	*2*	*2*
	Architectural Coatings	*0*	*2*	*2*	*0*	*0*	*0*
	Construction Equipment Subtotal	4	71	86	0	3	3
	Fugitive Dust (Grading)	0	0	0	0	0	0
	Material Delivery	0	9	3	0	48	5
	Worker Trips	5	4	30	0	48	6
	Architectural Coatings	14	0	0	0	0	0
	Total	22	84	119	0	100	14
	Threshold	*75*	*100*	*550*		*150*	
Phase 2-5	Construction Equipment	2	41	49	0	2	2
	Material Delivery	0	8	2	0	7	1
	Worker Trips	4	4	28	0	48	6
	Total	7	52	79	0	58	9
	Threshold	*75*	*100*	*550*		*150*	

8888 Westside Canal Energy Center

Imperial County APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	5.00	1000sqft	1.00	5,000.00	0
Unrefrigerated Warehouse-No Rail	500.00	1000sqft	147.00	500,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	12
Climate Zone	15			**Operational Year**	2022
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	956.99	**CH4 Intensity (lb/MWhr)**	0.022	**N2O Intensity (lb/MWhr)**	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Energy intensity factors reduced to reflect RPS 2020 mandate (956.99, 0.022, 0.005)

Land Use - 5,000 sf O&M Building
500,000 sf storage warehouses
148 acres

Construction Phase - Construction schedule per applicant

Off-road Equipment - Project equipment list

Off-road Equipment - Project equipment list

Off-road Equipment - Project equipment list

Off-road Equipment - Project equipment list

Off-road Equipment - Project equipment list
Off-road Equipment - Construciton equipment list

Off-road Equipment - Project equipment list

Trips and VMT - Max 200 workers, 30 deliveries
Trip length increased to 20 miles

On-road Fugitive Dust - Workers - last 0.3 miles of 20 mile trip would be dirt road (98.5% paved)
Materials - 4.4 miles of 20 miles trip over service road (78% paved or construction mats)
Service road silt content = 4.3%
Access road dust emissions calculated separately

Grading - 148 acres

Vehicle Trips - 20 full time employees

Road Dust - Workers - last 0.3 miles of 20 mile trip would be gravel (98.5% paved)

Energy Use - No storage warehouse heating
Warehouse lighting included in aux load calculations

Water And Wastewater - 10,000 gallons per day (3,650,000 per year)
1,000,000 stored for fire protection

Construction Off-road Equipment Mitigation - Tier 3 engines per CARB regulations
Water exposed grading areas
Water unpaved roads (61% reduction due to water applied rather than soil stabilizer reduction of 84%)

Operational Off-Road Equipment -

Stationary Sources - Emergency Generators and Fire Pumps -

Architectural Coating - O&M Building only

Solid Waste - No additional solid waste generated by storage warehouses

Area Coating -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	152,500.00	2,500.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	457,500.00	7,500.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	12.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	120.00	25.00
tblConstructionPhase	NumDays	310.00	235.00
tblConstructionPhase	NumDays	3,100.00	130.00
tblConstructionPhase	NumDays	3,100.00	235.00
tblConstructionPhase	NumDays	220.00	5.00

tblConstructionPhase	NumDays	3,100.00	434.00
tblEnergyUse	LightingElect	1.17	0.00
tblEnergyUse	NT24E	0.82	0.00
tblEnergyUse	NT24NG	0.03	0.00
tblEnergyUse	T24E	0.37	0.00
tblEnergyUse	T24NG	2.00	0.00
tblGrading	AcresOfGrading	0.00	148.00
tblGrading	AcresOfGrading	12.50	3.00
tblLandUse	LotAcreage	0.11	1.00
tblLandUse	LotAcreage	11.48	147.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	PhaseName		Common Facilities - Substation
tblOffRoadEquipment	PhaseName		Common Facilities - Bridge Construction
tblOffRoadEquipment	PhaseName		Common Facilities - Substation
tblOffRoadEquipment	PhaseName		Common Facilities - Substation
tblOffRoadEquipment	PhaseName		Common Facilities - Substation
tblOffRoadEquipment	PhaseName		Common Facilities - Substation
tblOffRoadEquipment	PhaseName		Common Facilities - Bridge Construction
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	78.00
tblOnRoadDust	HaulingPercentPave	50.00	78.00
tblOnRoadDust	HaulingPercentPave	50.00	78.00
tblOnRoadDust	HaulingPercentPave	50.00	78.00

tblOnRoadDust	HaulingPercentPave	50.00	98.50
tblOnRoadDust	MaterialSiltContent	8.50	4.30
tblOnRoadDust	MaterialSiltContent	8.50	4.30
tblOnRoadDust	MaterialSiltContent	8.50	4.30
tblOnRoadDust	MaterialSiltContent	8.50	4.30
tblOnRoadDust	MaterialSiltContent	8.50	4.30
tblOnRoadDust	MaterialSiltContent	8.50	4.30
tblOnRoadDust	MeanVehicleSpeed	40.00	15.00
tblOnRoadDust	MeanVehicleSpeed	40.00	15.00
tblOnRoadDust	MeanVehicleSpeed	40.00	15.00
tblOnRoadDust	MeanVehicleSpeed	40.00	15.00
tblOnRoadDust	MeanVehicleSpeed	40.00	15.00
tblOnRoadDust	MeanVehicleSpeed	40.00	15.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	78.00
tblOnRoadDust	VendorPercentPave	50.00	78.00
tblOnRoadDust	VendorPercentPave	50.00	78.00
tblOnRoadDust	VendorPercentPave	50.00	78.00
tblOnRoadDust	VendorPercentPave	50.00	98.50
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	98.50
tblOnRoadDust	WorkerPercentPave	50.00	98.50
tblOnRoadDust	WorkerPercentPave	50.00	98.50
tblOnRoadDust	WorkerPercentPave	50.00	98.50
tblOnRoadDust	WorkerPercentPave	50.00	98.50
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	1270.9	956.99

8888 Westside Canal Energy Center - Imperial County APCD Air District, Winter

tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblRoadDust	RoadPercentPave	50	98.5
tblSolidWaste	SolidWasteGenerationRate	282.00	0.00
tblTripsAndVMT	VendorTripLength	8.90	20.00
tblTripsAndVMT	VendorTripLength	8.90	20.00
tblTripsAndVMT	VendorTripLength	8.90	20.00
tblTripsAndVMT	VendorTripLength	8.90	20.00
tblTripsAndVMT	VendorTripLength	8.90	20.00
tblTripsAndVMT	VendorTripLength	8.90	20.00
tblTripsAndVMT	VendorTripNumber	0.00	12.00
tblTripsAndVMT	VendorTripNumber	50.00	0.00
tblTripsAndVMT	VendorTripNumber	50.00	60.00
tblTripsAndVMT	VendorTripNumber	50.00	60.00
tblTripsAndVMT	WorkerTripLength	7.30	20.00
tblTripsAndVMT	WorkerTripLength	7.30	20.00
tblTripsAndVMT	WorkerTripLength	7.30	20.00
tblTripsAndVMT	WorkerTripLength	7.30	20.00
tblTripsAndVMT	WorkerTripLength	7.30	20.00
tblTripsAndVMT	WorkerTripLength	7.30	20.00
tblTripsAndVMT	WorkerTripNumber	5.00	10.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	128.00	0.00
tblTripsAndVMT	WorkerTripNumber	128.00	400.00
tblTripsAndVMT	WorkerTripNumber	26.00	0.00
tblTripsAndVMT	WorkerTripNumber	128.00	400.00
tblVehicleTrips	CC_TL	5.00	20.00
tblVehicleTrips	CC_TL	5.00	0.00

tblVehicleTrips	CNW_TL	8.90	20.00
tblVehicleTrips	CNW_TL	8.90	0.00
tblVehicleTrips	CW_TL	6.70	20.00
tblVehicleTrips	CW_TL	6.70	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.32	40.00
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	0.68	40.00
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	6.97	40.00
tblVehicleTrips	WD_TR	1.68	0.00
tblWater	IndoorWaterUseRate	1,156,250.00	3,650,000.00
tblWater	IndoorWaterUseRate	69,375,000.00	0.00
tblWater	OutdoorWaterUseRate	0.00	1,000,000.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	27.1905	107.8890	95.0619	0.2255	182.5519	4.3551	186.9070	19.3166	4.0079	23.3245	0.0000	22,224.8687	22,224.8687	4.8523	0.0000	22,346.1748
2022	9.4463	62.6228	65.9437	0.1658	69.9728	2.2787	72.2515	8.1540	2.0975	10.2515	0.0000	16,446.1770	16,446.1770	3.0154	0.0000	16,521.5623
2023	8.7385	54.1154	62.3146	0.1633	69.9728	1.9741	71.9470	8.1540	1.8166	9.9706	0.0000	16,195.4373	16,195.4373	2.9613	0.0000	16,269.4701
Maximum	**27.1905**	**107.8890**	**95.0619**	**0.2255**	**182.5519**	**4.3551**	**186.9070**	**19.3166**	**4.0079**	**23.3245**	**0.0000**	**22,224.8687**	**22,224.8687**	**4.8523**	**0.0000**	**22,346.1748**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	21.8977	82.3530	116.2157	0.2255	75.4284	3.3429	78.7713	8.6743	3.3387	12.0130	0.0000	22,224.8687	22,224.8687	4.8523	0.0000	22,346.1748
2022	6.6122	52.3865	78.7841	0.1658	31.6217	1.9248	33.5466	4.3453	1.9209	6.2662	0.0000	16,446.1770	16,446.1770	3.0154	0.0000	16,521.5623
2023	6.3009	49.3616	76.1836	0.1633	31.6217	1.9064	33.5281	4.3453	1.9033	6.2486	0.0000	16,195.4373	16,195.4373	2.9613	0.0000	16,269.4701
Maximum	**21.8977**	**82.3530**	**116.2157**	**0.2255**	**75.4284**	**3.3429**	**78.7713**	**8.6743**	**3.3387**	**12.0130**	**0.0000**	**22,224.8687**	**22,224.8687**	**4.8523**	**0.0000**	**22,346.1748**

8888 Westside Canal Energy Center - Imperial County APCD Air District, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**23.28**	**18.04**	**-21.43**	**0.00**	**57.00**	**16.66**	**55.95**	**51.26**	**9.58**	**43.67**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	11.9737	4.7000e-004	0.0516	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1105	0.1105	2.9000e-004		0.1178
Energy	4.8000e-003	0.0436	0.0367	2.6000e-004		3.3200e-003	3.3200e-003		3.3200e-003	3.3200e-003		52.3610	52.3610	1.0000e-003	9.6000e-004	52.6722
Mobile	0.8396	7.2527	13.2769	0.0421	47.7479	0.0310	47.7789	5.2769	0.0292	5.3062		4,290.0992	4,290.0992	0.2383		4,296.0574
Total	**12.8181**	**7.2968**	**13.3652**	**0.0423**	**47.7479**	**0.0345**	**47.7824**	**5.2769**	**0.0327**	**5.3097**		**4,342.5707**	**4,342.5707**	**0.2396**	**9.6000e-004**	**4,348.8474**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	11.9737	4.7000e-004	0.0516	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1105	0.1105	2.9000e-004		0.1178
Energy	4.8000e-003	0.0436	0.0367	2.6000e-004		3.3200e-003	3.3200e-003		3.3200e-003	3.3200e-003		52.3610	52.3610	1.0000e-003	9.6000e-004	52.6722
Mobile	0.8396	7.2527	13.2769	0.0421	47.7479	0.0310	47.7789	5.2769	0.0292	5.3062		4,290.0992	4,290.0992	0.2383		4,296.0574
Total	**12.8181**	**7.2968**	**13.3652**	**0.0423**	**47.7479**	**0.0345**	**47.7824**	**5.2769**	**0.0327**	**5.3097**		**4,342.5707**	**4,342.5707**	**0.2396**	**9.6000e-004**	**4,348.8474**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Common Facilities - Acess Road	Site Preparation	1/4/2021	2/5/2021	5	25	
2	Common Facilities - Substation	Grading	2/8/2021	12/31/2021	5	235	
3	Common Facilities - Bridge Construction	Building Construction	2/8/2021	8/6/2021	5	130	
4	Battery Storage 1	Building Construction	2/8/2021	12/31/2021	5	235	
5	O&M Building - Architectural Coating	Architectural Coating	12/27/2021	12/31/2021	5	5	
6	Battery Storage 2-5	Building Construction	1/3/2022	8/31/2023	5	434	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 7,500; Non-Residential Outdoor: 2,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Common Facilities - Acess Road	Graders	1	8.00	187	0.41
Common Facilities - Acess Road	Rubber Tired Dozers	0	8.00	247	0.40
Common Facilities - Acess Road	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Common Facilities - Substation	Bore/Drill Rigs	0	8.00	221	0.50

Common Facilities - Substation	Cranes	3	8.00	231	0.29
Common Facilities - Substation	Excavators	0	8.00	158	0.38
Common Facilities - Substation	Forklifts	1	8.00	89	0.20
Common Facilities - Substation	Graders	0	8.00	187	0.41
Common Facilities - Substation	Off-Highway Trucks	1	8.00	402	0.38
Common Facilities - Substation	Rollers	1	8.00	80	0.38
Common Facilities - Substation	Rubber Tired Dozers	0	8.00	247	0.40
Common Facilities - Substation	Scrapers	0	8.00	367	0.48
Common Facilities - Substation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Common Facilities - Bridge Construction	Bore/Drill Rigs	1	8.00	221	0.50
Common Facilities - Bridge Construction	Cranes	0	7.00	231	0.29
Common Facilities - Bridge Construction	Forklifts	1	8.00	89	0.20
Common Facilities - Bridge Construction	Rollers	1	8.00	80	0.38
Common Facilities - Bridge Construction	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Common Facilities - Bridge Construction	Welders	0	8.00	46	0.45
Battery Storage 1	Cranes	3	8.00	231	0.29
Battery Storage 1	Excavators	1	8.00	158	0.38
Battery Storage 1	Forklifts	1	8.00	89	0.20
Battery Storage 1	Generator Sets	0	8.00	84	0.74
Battery Storage 1	Graders	1	8.00	187	0.41
Battery Storage 1	Off-Highway Trucks	1	8.00	402	0.38
Battery Storage 1	Pumps	0	8.00	84	0.74
Battery Storage 1	Rollers	1	8.00	80	0.38
Battery Storage 1	Rubber Tired Dozers	1	8.00	247	0.40
Battery Storage 1	Scrapers	1	8.00	367	0.48
Battery Storage 1	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Battery Storage 1	Welders	0	8.00	46	0.45
O&M Building - Architectural Coating	Air Compressors	1	8.00	78	0.48
Battery Storage 2-5	Cranes	3	8.00	231	0.29
Battery Storage 2-5	Excavators	1	8.00	158	0.38
Battery Storage 2-5	Forklifts	1	8.00	89	0.20
Battery Storage 2-5	Generator Sets	0	8.00	84	0.74
Battery Storage 2-5	Graders	1	8.00	187	0.41
Battery Storage 2-5	Off-Highway Trucks	1	8.00	402	0.38
Battery Storage 2-5	Pumps	0	8.00	84	0.74
Battery Storage 2-5	Rollers	1	8.00	80	0.38
Battery Storage 2-5	Rubber Tired Dozers	1	8.00	247	0.40
Battery Storage 2-5	Scrapers	1	8.00	367	0.48
Battery Storage 2-5	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Battery Storage 2-5	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Common Facilities - Acess Road	2	10.00	12.00	0.00	20.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Common Facilities - Substation	8	0.00	0.00	0.00	20.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Common Facilities - Bridge Construction	4	0.00	0.00	0.00	20.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Battery Storage 1	14	400.00	60.00	0.00	20.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
O&M Building - Architectural Coating	1	0.00	0.00	0.00	20.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Battery Storage 2-5	14	400.00	60.00	0.00	20.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Common Facilities - Acess Road - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1273	0.0000	0.1273	0.0137	0.0000	0.0137			0.0000			0.0000
Off-Road	0.6403	7.8204	4.0274	9.7300e-003		0.2995	0.2995		0.2755	0.2755		942.5842	942.5842	0.3049		950.2055
Total	**0.6403**	**7.8204**	**4.0274**	**9.7300e-003**	**0.1273**	**0.2995**	**0.4267**	**0.0137**	**0.2755**	**0.2893**		**942.5842**	**942.5842**	**0.3049**		**950.2055**

3.2 Common Facilities - Acess Road - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0752	1.7705	0.5260	7.2200e-003	0.2224	6.7100e-003	0.2291	0.0640	6.4100e-003	0.0704		754.9677	754.9677	0.0245		755.5801
Worker	0.1127	0.1015	0.7551	1.2300e-003	0.1520	8.8000e-004	0.1529	0.0403	8.1000e-004	0.0411		121.9673	121.9673	8.5100e-003		122.1801
Total	**0.1880**	**1.8720**	**1.2811**	**8.4500e-003**	**0.3744**	**7.5900e-003**	**0.3820**	**0.1043**	**7.2200e-003**	**0.1115**		**876.9349**	**876.9349**	**0.0330**		**877.7602**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0496	0.0000	0.0496	5.3600e-003	0.0000	5.3600e-003			0.0000			0.0000
Off-Road	0.2382	4.8716	5.8579	9.7300e-003		0.2405	0.2405		0.2405	0.2405	0.0000	942.5842	942.5842	0.3049		950.2055
Total	**0.2382**	**4.8716**	**5.8579**	**9.7300e-003**	**0.0496**	**0.2405**	**0.2902**	**5.3600e-003**	**0.2405**	**0.2459**	**0.0000**	**942.5842**	**942.5842**	**0.3049**		**950.2055**

3.2 Common Facilities - Acess Road - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0752	1.7705	0.5260	7.2200e-003	0.2224	6.7100e-003	0.2291	0.0640	6.4100e-003	0.0704		754.9677	754.9677	0.0245		755.5801
Worker	0.1127	0.1015	0.7551	1.2300e-003	0.1520	8.8000e-004	0.1529	0.0403	8.1000e-004	0.0411		121.9673	121.9673	8.5100e-003		122.1801
Total	**0.1880**	**1.8720**	**1.2811**	**8.4500e-003**	**0.3744**	**7.5900e-003**	**0.3820**	**0.1043**	**7.2200e-003**	**0.1115**		**876.9349**	**876.9349**	**0.0330**		**877.7602**

3.3 Common Facilities - Substation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.6679	0.0000	0.6679	0.0721	0.0000	0.0721			0.0000			0.0000
Off-Road	2.5380	26.7064	17.1216	0.0409		1.2086	1.2086		1.1119	1.1119		3,958.6592	3,958.6592	1.2803		3,990.6669
Total	**2.5380**	**26.7064**	**17.1216**	**0.0409**	**0.6679**	**1.2086**	**1.8765**	**0.0721**	**1.1119**	**1.1840**		**3,958.6592**	**3,958.6592**	**1.2803**		**3,990.6669**

3.3 Common Facilities - Substation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2605	0.0000	0.2605	0.0281	0.0000	0.0281			0.0000			0.0000
Off-Road	1.0026	20.2719	24.0502	0.0409		0.9553	0.9553		0.9553	0.9553	0.0000	3,958.6592	3,958.6592	1.2803		3,990.6669
Total	**1.0026**	**20.2719**	**24.0502**	**0.0409**	**0.2605**	**0.9553**	**1.2158**	**0.0281**	**0.9553**	**0.9834**	**0.0000**	**3,958.6592**	**3,958.6592**	**1.2803**		**3,990.6669**

3.3 Common Facilities - Substation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.4 Common Facilities - Bridge Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7643	8.0219	7.3825	0.0167		0.4047	0.4047		0.3724	0.3724		1,615.0822	1,615.0822	0.5224		1,628.1410
Total	**0.7643**	**8.0219**	**7.3825**	**0.0167**		**0.4047**	**0.4047**		**0.3724**	**0.3724**		**1,615.0822**	**1,615.0822**	**0.5224**		**1,628.1410**

3.4 Common Facilities - Bridge Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4118	8.5851	10.5546	0.0167		0.4563	0.4563		0.4563	0.4563	0.0000	1,615.0822	1,615.0822	0.5224		1,628.1410
Total	**0.4118**	**8.5851**	**10.5546**	**0.0167**		**0.4563**	**0.4563**		**0.4563**	**0.4563**	**0.0000**	**1,615.0822**	**1,615.0822**	**0.5224**		**1,628.1410**

3.4 Common Facilities - Bridge Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 Battery Storage 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	5.5705	60.2500	37.7236	0.0826		2.6731	2.6731		2.4593	2.4593		7,997.5991	7,997.5991	2.5866		8,062.2637
Total	**5.5705**	**60.2500**	**37.7236**	**0.0826**		**2.6731**	**2.6731**		**2.4593**	**2.4593**		**7,997.5991**	**7,997.5991**	**2.5866**		**8,062.2637**

3.5 Battery Storage 1 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3761	8.8526	2.6301	0.0361	121.2116	0.0335	121.2451	12.2218	0.0321	12.2539		3,774.8383	3,774.8383	0.1225		3,777.9005
Worker	4.5090	4.0580	30.2041	0.0492	60.6725	0.0351	60.7076	7.0227	0.0323	7.0550		4,878.6900	4,878.6900	0.3405		4,887.2027
Total	**4.8851**	**12.9106**	**32.8342**	**0.0853**	**181.8840**	**0.0686**	**181.9526**	**19.2445**	**0.0644**	**19.3089**		**8,653.5283**	**8,653.5283**	**0.4630**		**8,665.1032**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0258	40.5854	48.7768	0.0826		1.8627	1.8627		1.8627	1.8627	0.0000	7,997.5991	7,997.5991	2.5866		8,062.2637
Total	**2.0258**	**40.5854**	**48.7768**	**0.0826**		**1.8627**	**1.8627**		**1.8627**	**1.8627**	**0.0000**	**7,997.5991**	**7,997.5991**	**2.5866**		**8,062.2637**

3.5 Battery Storage 1 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3761	8.8526	2.6301	0.0361	47.8442	0.0335	47.8778	4.9355	0.0321	4.9676		3,774.8383	3,774.8383	0.1225		3,777.9005
Worker	4.5090	4.0580	30.2041	0.0492	27.3237	0.0351	27.3588	3.7107	0.0323	3.7430		4,878.6900	4,878.6900	0.3405		4,887.2027
Total	**4.8851**	**12.9106**	**32.8342**	**0.0853**	**75.1679**	**0.0686**	**75.2365**	**8.6462**	**0.0644**	**8.7106**		**8,653.5283**	**8,653.5283**	**0.4630**		**8,665.1032**

3.6 O&M Building - Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.9050					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2919	2.0358	2.4234	3.9600e-003		0.1255	0.1255		0.1255	0.1255		375.2641	375.2641	0.0258		375.9079
Total	**14.1969**	**2.0358**	**2.4234**	**3.9600e-003**		**0.1255**	**0.1255**		**0.1255**	**0.1255**		**375.2641**	**375.2641**	**0.0258**		**375.9079**

3.6 O&M Building - Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.9050					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0792	1.8093	2.4432	3.9600e-003		0.1268	0.1268		0.1268	0.1268	0.0000	375.2641	375.2641	0.0258		375.9079
Total	**13.9842**	**1.8093**	**2.4432**	**3.9600e-003**		**0.1268**	**0.1268**		**0.1268**	**0.1268**	**0.0000**	**375.2641**	**375.2641**	**0.0258**		**375.9079**

3.6 O&M Building - Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.7 Battery Storage 2-5 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.8598	50.8216	35.9363	0.0826		2.2166	2.2166		2.0393	2.0393		8,001.1903	8,001.1903	2.5878		8,065.8839
Total	**4.8598**	**50.8216**	**35.9363**	**0.0826**		**2.2166**	**2.2166**		**2.0393**	**2.0393**		**8,001.1903**	**8,001.1903**	**2.5878**		**8,065.8839**

3.7 Battery Storage 2-5 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3490	8.0811	2.3893	0.0358	9.3004	0.0286	9.3289	1.1314	0.0273	1.1587		3,744.6329	3,744.6329	0.1154		3,747.5185
Worker	4.2374	3.7200	27.6181	0.0474	60.6725	0.0336	60.7060	7.0227	0.0309	7.0536		4,700.3539	4,700.3539	0.3122		4,708.1599
Total	**4.5864**	**11.8012**	**30.0074**	**0.0832**	**69.9728**	**0.0621**	**70.0350**	**8.1540**	**0.0582**	**8.2123**		**8,444.9868**	**8,444.9868**	**0.4277**		**8,455.6784**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0258	40.5854	48.7768	0.0826		1.8627	1.8627		1.8627	1.8627	0.0000	8,001.1903	8,001.1903	2.5878		8,065.8839
Total	**2.0258**	**40.5854**	**48.7768**	**0.0826**		**1.8627**	**1.8627**		**1.8627**	**1.8627**	**0.0000**	**8,001.1903**	**8,001.1903**	**2.5878**		**8,065.8839**

3.7 Battery Storage 2-5 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3490	8.0811	2.3893	0.0358	4.2981	0.0286	4.3266	0.6346	0.0273	0.6619		3,744.6329	3,744.6329	0.1154		3,747.5185
Worker	4.2374	3.7200	27.6181	0.0474	27.3237	0.0336	27.3572	3.7107	0.0309	3.7416		4,700.3539	4,700.3539	0.3122		4,708.1599
Total	**4.5864**	**11.8012**	**30.0074**	**0.0832**	**31.6217**	**0.0621**	**31.6838**	**4.3453**	**0.0582**	**4.4035**		**8,444.9868**	**8,444.9868**	**0.4277**		**8,455.6784**

3.7 Battery Storage 2-5 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.4634	45.3392	34.9078	0.0827		1.9304	1.9304		1.7760	1.7760		8,002.8810	8,002.8810	2.5883		8,067.5884
Total	**4.4634**	**45.3392**	**34.9078**	**0.0827**		**1.9304**	**1.9304**		**1.7760**	**1.7760**		**8,002.8810**	**8,002.8810**	**2.5883**		**8,067.5884**

3.7 Battery Storage 2-5 - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2825	5.3505	2.0514	0.0351	9.3004	0.0114	9.3118	1.1314	0.0109	1.1423		3,670.6799	3,670.6799	0.0856		3,672.8211
Worker	3.9926	3.4257	25.3555	0.0456	60.6725	0.0322	60.7047	7.0227	0.0297	7.0524		4,521.8763	4,521.8763	0.2874		4,529.0607
Total	**4.2751**	**8.7762**	**27.4068**	**0.0807**	**69.9728**	**0.0437**	**70.0165**	**8.1540**	**0.0406**	**8.1946**		**8,192.5563**	**8,192.5563**	**0.3730**		**8,201.8818**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0258	40.5854	48.7768	0.0827		1.8627	1.8627		1.8627	1.8627	0.0000	8,002.8810	8,002.8810	2.5883		8,067.5884
Total	**2.0258**	**40.5854**	**48.7768**	**0.0827**		**1.8627**	**1.8627**		**1.8627**	**1.8627**	**0.0000**	**8,002.8810**	**8,002.8810**	**2.5883**		**8,067.5884**

3.7 Battery Storage 2-5 - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2825	5.3505	2.0514	0.0351	4.2981	0.0114	4.3095	0.6346	0.0109	0.6455		3,670.6799	3,670.6799	0.0856		3,672.8211
Worker	3.9926	3.4257	25.3555	0.0456	27.3237	0.0322	27.3559	3.7107	0.0297	3.7404		4,521.8763	4,521.8763	0.2874		4,529.0607
Total	**4.2751**	**8.7762**	**27.4068**	**0.0807**	**31.6217**	**0.0437**	**31.6654**	**4.3453**	**0.0406**	**4.3859**		**8,192.5563**	**8,192.5563**	**0.3730**		**8,201.8818**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.8396	7.2527	13.2769	0.0421	47.7479	0.0310	47.7789	5.2769	0.0292	5.3062		4,290.0992	4,290.0992	0.2383		4,296.0574
Unmitigated	0.8396	7.2527	13.2769	0.0421	47.7479	0.0310	47.7789	5.2769	0.0292	5.3062		4,290.0992	4,290.0992	0.2383		4,296.0574

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	200.00	200.00	200.00	1,456,000	1,456,000
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Total	200.00	200.00	200.00	1,456,000	1,456,000

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	20.00	20.00	20.00	59.00	28.00	13.00	100	0	0
Unrefrigerated Warehouse-No	0.00	0.00	0.00	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.514862	0.031726	0.160627	0.119887	0.016529	0.004969	0.019101	0.120993	0.003465	0.001214	0.005236	0.000734	0.000658
Unrefrigerated Warehouse-No Rail	0.514862	0.031726	0.160627	0.119887	0.016529	0.004969	0.019101	0.120993	0.003465	0.001214	0.005236	0.000734	0.000658

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	4.8000e-003	0.0436	0.0367	2.6000e-004		3.3200e-003	3.3200e-003		3.3200e-003	3.3200e-003		52.3610	52.3610	1.0000e-003	9.6000e-004	52.6722
NaturalGas Unmitigated	4.8000e-003	0.0436	0.0367	2.6000e-004		3.3200e-003	3.3200e-003		3.3200e-003	3.3200e-003		52.3610	52.3610	1.0000e-003	9.6000e-004	52.6722

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	445.068	4.8000e-003	0.0436	0.0367	2.6000e-004		3.3200e-003	3.3200e-003		3.3200e-003	3.3200e-003		52.3610	52.3610	1.0000e-003	9.6000e-004	52.6722
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**4.8000e-003**	**0.0436**	**0.0367**	**2.6000e-004**		**3.3200e-003**	**3.3200e-003**		**3.3200e-003**	**3.3200e-003**		**52.3610**	**52.3610**	**1.0000e-003**	**9.6000e-004**	**52.6722**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0.445068	4.8000e-003	0.0436	0.0367	2.6000e-004		3.3200e-003	3.3200e-003		3.3200e-003	3.3200e-003		52.3610	52.3610	1.0000e-003	9.6000e-004	52.6722
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**4.8000e-003**	**0.0436**	**0.0367**	**2.6000e-004**		**3.3200e-003**	**3.3200e-003**		**3.3200e-003**	**3.3200e-003**		**52.3610**	**52.3610**	**1.0000e-003**	**9.6000e-004**	**52.6722**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	11.9737	4.7000e-004	0.0516	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1105	0.1105	2.9000e-004		0.1178
Unmitigated	11.9737	4.7000e-004	0.0516	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1105	0.1105	2.9000e-004		0.1178

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.1619					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	10.8070					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.8000e-003	4.7000e-004	0.0516	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1105	0.1105	2.9000e-004		0.1178
Total	**11.9737**	**4.7000e-004**	**0.0516**	**0.0000**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**		**0.1105**	**0.1105**	**2.9000e-004**		**0.1178**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.1619					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	10.8070					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.8000e-003	4.7000e-004	0.0516	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1105	0.1105	2.9000e-004		0.1178
Total	**11.9737**	**4.7000e-004**	**0.0516**	**0.0000**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**		**0.1105**	**0.1105**	**2.9000e-004**		**0.1178**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

8888 Westside Canal Energy Center

Imperial County APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	5.00	1000sqft	1.00	5,000.00	0
Unrefrigerated Warehouse-No Rail	500.00	1000sqft	147.00	500,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	12
Climate Zone	15			**Operational Year**	2022
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	956.99	**CH4 Intensity (lb/MWhr)**	0.022	**N2O Intensity (lb/MWhr)**	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Energy intensity factors reduced to reflect RPS 2020 mandate
(956.99, 0.022, 0.005)

Land Use - 5,000 sf O&M Building
500,000 sf storage warehouses
148 acres

Construction Phase - Construction schedule per applicant

Off-road Equipment - Project equipment list

Off-road Equipment - Project equipment list

Off-road Equipment - Project equipment list

Off-road Equipment - Project equipment list

Off-road Equipment - Project equipment list
Off-road Equipment - Construciton equipment list

Off-road Equipment - Project equipment list

Trips and VMT - Max 200 workers, 30 deliveries
Trip length increased to 20 miles

On-road Fugitive Dust - Workers - last 0.3 miles of 20 mile trip would be dirt road (98.5% paved)
Materials - 4.4 miles of 20 miles trip over service road (78% paved or construction mats)
Service road silt content = 4.3%
Access road dust emissions calculated separately

Grading - 148 acres

Vehicle Trips - 20 full time employees

Road Dust - Workers - last 0.3 miles of 20 mile trip would be gravel (98.5% paved)

Energy Use - No storage warehouse heating
Warehouse lighting included in aux load calculations

Water And Wastewater - 10,000 gallons per day (3,650,000 per year)
1,000,000 stored for fire protection

Construction Off-road Equipment Mitigation - Tier 3 engines per CARB regulations
Water exposed grading areas
Water unpaved roads (61% reduction due to water applied rather than soil stabilizer reduction of 84%)

Operational Off-Road Equipment -

Stationary Sources - Emergency Generators and Fire Pumps -

Architectural Coating - O&M Building only

Solid Waste - No additional solid waste generated by storage warehouses

Area Coating -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	152,500.00	2,500.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	457,500.00	7,500.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	12.00
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tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstructionPhase	NumDays	120.00	25.00
tblConstructionPhase	NumDays	310.00	235.00
tblConstructionPhase	NumDays	3,100.00	130.00
tblConstructionPhase	NumDays	3,100.00	235.00
tblConstructionPhase	NumDays	220.00	5.00

tblConstructionPhase	NumDays	3,100.00	434.00
tblEnergyUse	LightingElect	1.17	0.00
tblEnergyUse	NT24E	0.82	0.00
tblEnergyUse	NT24NG	0.03	0.00
tblEnergyUse	T24E	0.37	0.00
tblEnergyUse	T24NG	2.00	0.00
tblGrading	AcresOfGrading	0.00	148.00
tblGrading	AcresOfGrading	12.50	3.00
tblLandUse	LotAcreage	0.11	1.00
tblLandUse	LotAcreage	11.48	147.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	PhaseName		Common Facilities - Substation
tblOffRoadEquipment	PhaseName		Common Facilities - Bridge Construction
tblOffRoadEquipment	PhaseName		Common Facilities - Substation
tblOffRoadEquipment	PhaseName		Common Facilities - Substation
tblOffRoadEquipment	PhaseName		Common Facilities - Substation
tblOffRoadEquipment	PhaseName		Common Facilities - Substation
tblOffRoadEquipment	PhaseName		Common Facilities - Bridge Construction
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	78.00
tblOnRoadDust	HaulingPercentPave	50.00	78.00
tblOnRoadDust	HaulingPercentPave	50.00	78.00
tblOnRoadDust	HaulingPercentPave	50.00	78.00

tblOnRoadDust	HaulingPercentPave	50.00	98.50
tblOnRoadDust	MaterialSiltContent	8.50	4.30
tblOnRoadDust	MaterialSiltContent	8.50	4.30
tblOnRoadDust	MaterialSiltContent	8.50	4.30
tblOnRoadDust	MaterialSiltContent	8.50	4.30
tblOnRoadDust	MaterialSiltContent	8.50	4.30
tblOnRoadDust	MaterialSiltContent	8.50	4.30
tblOnRoadDust	MeanVehicleSpeed	40.00	15.00
tblOnRoadDust	MeanVehicleSpeed	40.00	15.00
tblOnRoadDust	MeanVehicleSpeed	40.00	15.00
tblOnRoadDust	MeanVehicleSpeed	40.00	15.00
tblOnRoadDust	MeanVehicleSpeed	40.00	15.00
tblOnRoadDust	MeanVehicleSpeed	40.00	15.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	78.00
tblOnRoadDust	VendorPercentPave	50.00	78.00
tblOnRoadDust	VendorPercentPave	50.00	78.00
tblOnRoadDust	VendorPercentPave	50.00	78.00
tblOnRoadDust	VendorPercentPave	50.00	98.50
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	98.50
tblOnRoadDust	WorkerPercentPave	50.00	98.50
tblOnRoadDust	WorkerPercentPave	50.00	98.50
tblOnRoadDust	WorkerPercentPave	50.00	98.50
tblOnRoadDust	WorkerPercentPave	50.00	98.50
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	1270.9	956.99

tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblRoadDust	RoadPercentPave	50	98.5
tblSolidWaste	SolidWasteGenerationRate	282.00	0.00
tblTripsAndVMT	VendorTripLength	8.90	20.00
tblTripsAndVMT	VendorTripLength	8.90	20.00
tblTripsAndVMT	VendorTripLength	8.90	20.00
tblTripsAndVMT	VendorTripLength	8.90	20.00
tblTripsAndVMT	VendorTripLength	8.90	20.00
tblTripsAndVMT	VendorTripLength	8.90	20.00
tblTripsAndVMT	VendorTripNumber	0.00	12.00
tblTripsAndVMT	VendorTripNumber	50.00	0.00
tblTripsAndVMT	VendorTripNumber	50.00	60.00
tblTripsAndVMT	VendorTripNumber	50.00	60.00
tblTripsAndVMT	WorkerTripLength	7.30	20.00
tblTripsAndVMT	WorkerTripLength	7.30	20.00
tblTripsAndVMT	WorkerTripLength	7.30	20.00
tblTripsAndVMT	WorkerTripLength	7.30	20.00
tblTripsAndVMT	WorkerTripLength	7.30	20.00
tblTripsAndVMT	WorkerTripLength	7.30	20.00
tblTripsAndVMT	WorkerTripNumber	5.00	10.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	128.00	0.00
tblTripsAndVMT	WorkerTripNumber	128.00	400.00
tblTripsAndVMT	WorkerTripNumber	26.00	0.00
tblTripsAndVMT	WorkerTripNumber	128.00	400.00
tblVehicleTrips	CC_TL	5.00	20.00
tblVehicleTrips	CC_TL	5.00	0.00

tblVehicleTrips	CNW_TL	8.90	20.00
tblVehicleTrips	CNW_TL	8.90	0.00
tblVehicleTrips	CW_TL	6.70	20.00
tblVehicleTrips	CW_TL	6.70	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.32	40.00
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	0.68	40.00
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	6.97	40.00
tblVehicleTrips	WD_TR	1.68	0.00
tblWater	IndoorWaterUseRate	1,156,250.00	3,650,000.00
tblWater	IndoorWaterUseRate	69,375,000.00	0.00
tblWater	OutdoorWaterUseRate	0.00	1,000,000.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	27.7232	107.3331	108.2749	0.2359	182.5519	4.3545	186.9064	19.3166	4.0074	23.3241	0.0000	23,255.9477	23,255.9477	4.9421	0.0000	23,379.4999
2022	9.9238	62.1534	78.0922	0.1759	69.9728	2.2782	72.2511	8.1540	2.0970	10.2510	0.0000	17,442.3572	17,442.3572	3.0953	0.0000	17,519.7403
2023	9.1708	53.8456	73.5660	0.1730	69.9728	1.9739	71.9468	8.1540	1.8164	9.9705	0.0000	17,154.4955	17,154.4955	3.0354	0.0000	17,230.3814
Maximum	**27.7232**	**107.3331**	**108.2749**	**0.2359**	**182.5519**	**4.3545**	**186.9064**	**19.3166**	**4.0074**	**23.3241**	**0.0000**	**23,255.9477**	**23,255.9477**	**4.9421**	**0.0000**	**23,379.4999**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	22.4304	81.7972	129.4287	0.2359	75.4284	3.3424	78.7708	8.6743	3.3382	12.0125	0.0000	23,255.9477	23,255.9477	4.9421	0.0000	23,379.4999
2022	7.0898	51.9172	90.9327	0.1759	31.6217	1.9243	33.5461	4.3453	1.9205	6.2657	0.0000	17,442.3572	17,442.3572	3.0953	0.0000	17,519.7403
2023	6.7332	49.0917	87.4349	0.1730	31.6217	1.9062	33.5279	4.3453	1.9032	6.2484	0.0000	17,154.4955	17,154.4955	3.0354	0.0000	17,230.3814
Maximum	**22.4304**	**81.7972**	**129.4287**	**0.2359**	**75.4284**	**3.3424**	**78.7708**	**8.6743**	**3.3382**	**12.0125**	**0.0000**	**23,255.9477**	**23,255.9477**	**4.9421**	**0.0000**	**23,379.4999**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	22.57	18.15	-18.41	0.00	57.00	16.66	55.95	51.26	9.58	43.68	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	11.9737	4.7000e-004	0.0516	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1105	0.1105	2.9000e-004		0.1178
Energy	4.8000e-003	0.0436	0.0367	2.6000e-004		3.3200e-003	3.3200e-003		3.3200e-003	3.3200e-003		52.3610	52.3610	1.0000e-003	9.6000e-004	52.6722
Mobile	1.0635	6.9956	18.3452	0.0467	47.7479	0.0307	47.7785	5.2769	0.0289	5.3058		4,749.9406	4,749.9406	0.2681		4,756.6419
Total	**13.0420**	**7.0397**	**18.4335**	**0.0470**	**47.7479**	**0.0342**	**47.7820**	**5.2769**	**0.0324**	**5.3093**		**4,802.4122**	**4,802.4122**	**0.2693**	**9.6000e-004**	**4,809.4319**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	11.9737	4.7000e-004	0.0516	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1105	0.1105	2.9000e-004		0.1178
Energy	4.8000e-003	0.0436	0.0367	2.6000e-004		3.3200e-003	3.3200e-003		3.3200e-003	3.3200e-003		52.3610	52.3610	1.0000e-003	9.6000e-004	52.6722
Mobile	1.0635	6.9956	18.3452	0.0467	47.7479	0.0307	47.7785	5.2769	0.0289	5.3058		4,749.9406	4,749.9406	0.2681		4,756.6419
Total	**13.0420**	**7.0397**	**18.4335**	**0.0470**	**47.7479**	**0.0342**	**47.7820**	**5.2769**	**0.0324**	**5.3093**		**4,802.4122**	**4,802.4122**	**0.2693**	**9.6000e-004**	**4,809.4319**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Common Facilities - Acess Road	Site Preparation	1/4/2021	2/5/2021	5	25	
2	Common Facilities - Substation	Grading	2/8/2021	12/31/2021	5	235	
3	Common Facilities - Bridge Construction	Building Construction	2/8/2021	8/6/2021	5	130	
4	Battery Storage 1	Building Construction	2/8/2021	12/31/2021	5	235	
5	O&M Building - Architectural Coating	Architectural Coating	12/27/2021	12/31/2021	5	5	
6	Battery Storage 2-5	Building Construction	1/3/2022	8/31/2023	5	434	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 7,500; Non-Residential Outdoor: 2,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Common Facilities - Acess Road	Graders	1	8.00	187	0.41
Common Facilities - Acess Road	Rubber Tired Dozers	0	8.00	247	0.40
Common Facilities - Acess Road	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Common Facilities - Substation	Bore/Drill Rigs	0	8.00	221	0.50

Common Facilities - Substation	Cranes	3	8.00	231	0.29
Common Facilities - Substation	Excavators	0	8.00	158	0.38
Common Facilities - Substation	Forklifts	1	8.00	89	0.20
Common Facilities - Substation	Graders	0	8.00	187	0.41
Common Facilities - Substation	Off-Highway Trucks	1	8.00	402	0.38
Common Facilities - Substation	Rollers	1	8.00	80	0.38
Common Facilities - Substation	Rubber Tired Dozers	0	8.00	247	0.40
Common Facilities - Substation	Scrapers	0	8.00	367	0.48
Common Facilities - Substation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Common Facilities - Bridge Construction	Bore/Drill Rigs	1	8.00	221	0.50
Common Facilities - Bridge Construction	Cranes	0	7.00	231	0.29
Common Facilities - Bridge Construction	Forklifts	1	8.00	89	0.20
Common Facilities - Bridge Construction	Rollers	1	8.00	80	0.38
Common Facilities - Bridge Construction	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Common Facilities - Bridge Construction	Welders	0	8.00	46	0.45
Battery Storage 1	Cranes	3	8.00	231	0.29
Battery Storage 1	Excavators	1	8.00	158	0.38
Battery Storage 1	Forklifts	1	8.00	89	0.20
Battery Storage 1	Generator Sets	0	8.00	84	0.74
Battery Storage 1	Graders	1	8.00	187	0.41
Battery Storage 1	Off-Highway Trucks	1	8.00	402	0.38
Battery Storage 1	Pumps	0	8.00	84	0.74
Battery Storage 1	Rollers	1	8.00	80	0.38
Battery Storage 1	Rubber Tired Dozers	1	8.00	247	0.40
Battery Storage 1	Scrapers	1	8.00	367	0.48
Battery Storage 1	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Battery Storage 1	Welders	0	8.00	46	0.45
O&M Building - Architectural Coating	Air Compressors	1	8.00	78	0.48
Battery Storage 2-5	Cranes	3	8.00	231	0.29
Battery Storage 2-5	Excavators	1	8.00	158	0.38
Battery Storage 2-5	Forklifts	1	8.00	89	0.20
Battery Storage 2-5	Generator Sets	0	8.00	84	0.74
Battery Storage 2-5	Graders	1	8.00	187	0.41
Battery Storage 2-5	Off-Highway Trucks	1	8.00	402	0.38
Battery Storage 2-5	Pumps	0	8.00	84	0.74
Battery Storage 2-5	Rollers	1	8.00	80	0.38
Battery Storage 2-5	Rubber Tired Dozers	1	8.00	247	0.40
Battery Storage 2-5	Scrapers	1	8.00	367	0.48
Battery Storage 2-5	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Battery Storage 2-5	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Common Facilities - Acess Road	2	10.00	12.00	0.00	20.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Common Facilities - Substation	8	0.00	0.00	0.00	20.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Common Facilities - Bridge Construction	4	0.00	0.00	0.00	20.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Battery Storage 1	14	400.00	60.00	0.00	20.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
O&M Building - Architectural Coating	1	0.00	0.00	0.00	20.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Battery Storage 2-5	14	400.00	60.00	0.00	20.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Common Facilities - Acess Road - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1273	0.0000	0.1273	0.0137	0.0000	0.0137			0.0000			0.0000
Off-Road	0.6403	7.8204	4.0274	9.7300e-003		0.2995	0.2995		0.2755	0.2755		942.5842	942.5842	0.3049		950.2055
Total	**0.6403**	**7.8204**	**4.0274**	**9.7300e-003**	**0.1273**	**0.2995**	**0.4267**	**0.0137**	**0.2755**	**0.2893**		**942.5842**	**942.5842**	**0.3049**		**950.2055**

3.2 Common Facilities - Acess Road - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0734	1.7005	0.4808	7.3600e-003	0.2224	6.6000e-003	0.2290	0.0640	6.3200e-003	0.0703		769.5307	769.5307	0.0222		770.0863
Worker	0.1263	0.0963	1.0911	1.4700e-003	0.1520	8.8000e-004	0.1529	0.0403	8.1000e-004	0.0411		145.9239	145.9239	0.0110		146.1999
Total	**0.1996**	**1.7968**	**1.5718**	**8.8300e-003**	**0.3744**	**7.4800e-003**	**0.3819**	**0.1043**	**7.1300e-003**	**0.1114**		**915.4545**	**915.4545**	**0.0333**		**916.2862**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0496	0.0000	0.0496	5.3600e-003	0.0000	5.3600e-003			0.0000			0.0000
Off-Road	0.2382	4.8716	5.8579	9.7300e-003		0.2405	0.2405		0.2405	0.2405	0.0000	942.5842	942.5842	0.3049		950.2055
Total	**0.2382**	**4.8716**	**5.8579**	**9.7300e-003**	**0.0496**	**0.2405**	**0.2902**	**5.3600e-003**	**0.2405**	**0.2459**	**0.0000**	**942.5842**	**942.5842**	**0.3049**		**950.2055**

3.2 Common Facilities - Acess Road - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0734	1.7005	0.4808	7.3600e-003	0.2224	6.6000e-003	0.2290	0.0640	6.3200e-003	0.0703		769.5307	769.5307	0.0222		770.0863
Worker	0.1263	0.0963	1.0911	1.4700e-003	0.1520	8.8000e-004	0.1529	0.0403	8.1000e-004	0.0411		145.9239	145.9239	0.0110		146.1999
Total	**0.1996**	**1.7968**	**1.5718**	**8.8300e-003**	**0.3744**	**7.4800e-003**	**0.3819**	**0.1043**	**7.1300e-003**	**0.1114**		**915.4545**	**915.4545**	**0.0333**		**916.2862**

3.3 Common Facilities - Substation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.6679	0.0000	0.6679	0.0721	0.0000	0.0721			0.0000			0.0000
Off-Road	2.5380	26.7064	17.1216	0.0409		1.2086	1.2086		1.1119	1.1119		3,958.6592	3,958.6592	1.2803		3,990.6669
Total	**2.5380**	**26.7064**	**17.1216**	**0.0409**	**0.6679**	**1.2086**	**1.8765**	**0.0721**	**1.1119**	**1.1840**		**3,958.6592**	**3,958.6592**	**1.2803**		**3,990.6669**

3.3 Common Facilities - Substation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2605	0.0000	0.2605	0.0281	0.0000	0.0281			0.0000			0.0000
Off-Road	1.0026	20.2719	24.0502	0.0409		0.9553	0.9553		0.9553	0.9553	0.0000	3,958.6592	3,958.6592	1.2803		3,990.6669
Total	**1.0026**	**20.2719**	**24.0502**	**0.0409**	**0.2605**	**0.9553**	**1.2158**	**0.0281**	**0.9553**	**0.9834**	**0.0000**	**3,958.6592**	**3,958.6592**	**1.2803**		**3,990.6669**

3.3 Common Facilities - Substation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.4 Common Facilities - Bridge Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7643	8.0219	7.3825	0.0167		0.4047	0.4047		0.3724	0.3724		1,615.0822	1,615.0822	0.5224		1,628.1410
Total	**0.7643**	**8.0219**	**7.3825**	**0.0167**		**0.4047**	**0.4047**		**0.3724**	**0.3724**		**1,615.0822**	**1,615.0822**	**0.5224**		**1,628.1410**

3.4 Common Facilities - Bridge Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4118	8.5851	10.5546	0.0167		0.4563	0.4563		0.4563	0.4563	0.0000	1,615.0822	1,615.0822	0.5224		1,628.1410
Total	**0.4118**	**8.5851**	**10.5546**	**0.0167**		**0.4563**	**0.4563**		**0.4563**	**0.4563**	**0.0000**	**1,615.0822**	**1,615.0822**	**0.5224**		**1,628.1410**

3.4 Common Facilities - Bridge Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 Battery Storage 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	5.5705	60.2500	37.7236	0.0826		2.6731	2.6731		2.4593	2.4593		7,997.5991	7,997.5991	2.5866		8,062.2637
Total	**5.5705**	**60.2500**	**37.7236**	**0.0826**		**2.6731**	**2.6731**		**2.4593**	**2.4593**		**7,997.5991**	**7,997.5991**	**2.5866**		**8,062.2637**

3.5 Battery Storage 1 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3668	8.5024	2.4038	0.0368	121.2116	0.0330	121.2446	12.2218	0.0316	12.2534		3,847.6533	3,847.6533	0.1111		3,850.4313
Worker	5.0510	3.8524	43.6434	0.0590	60.6725	0.0351	60.7076	7.0227	0.0323	7.0550		5,836.9540	5,836.9540	0.4417		5,847.9970
Total	**5.4178**	**12.3548**	**46.0472**	**0.0958**	**181.8840**	**0.0681**	**181.9521**	**19.2445**	**0.0639**	**19.3084**		**9,684.6073**	**9,684.6073**	**0.5528**		**9,698.4283**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0258	40.5854	48.7768	0.0826		1.8627	1.8627		1.8627	1.8627	0.0000	7,997.5991	7,997.5991	2.5866		8,062.2637
Total	**2.0258**	**40.5854**	**48.7768**	**0.0826**		**1.8627**	**1.8627**		**1.8627**	**1.8627**	**0.0000**	**7,997.5991**	**7,997.5991**	**2.5866**		**8,062.2637**

3.5 Battery Storage 1 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3668	8.5024	2.4038	0.0368	47.8442	0.0330	47.8772	4.9355	0.0316	4.9671		3,847.6533	3,847.6533	0.1111		3,850.4313
Worker	5.0510	3.8524	43.6434	0.0590	27.3237	0.0351	27.3588	3.7107	0.0323	3.7430		5,836.9540	5,836.9540	0.4417		5,847.9970
Total	**5.4178**	**12.3548**	**46.0472**	**0.0958**	**75.1679**	**0.0681**	**75.2360**	**8.6462**	**0.0639**	**8.7101**		**9,684.6073**	**9,684.6073**	**0.5528**		**9,698.4283**

3.6 O&M Building - Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.9050					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2919	2.0358	2.4234	3.9600e-003		0.1255	0.1255		0.1255	0.1255		375.2641	375.2641	0.0258		375.9079
Total	**14.1969**	**2.0358**	**2.4234**	**3.9600e-003**		**0.1255**	**0.1255**		**0.1255**	**0.1255**		**375.2641**	**375.2641**	**0.0258**		**375.9079**

3.6 O&M Building - Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.9050					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0792	1.8093	2.4432	3.9600e-003		0.1268	0.1268		0.1268	0.1268	0.0000	375.2641	375.2641	0.0258		375.9079
Total	**13.9842**	**1.8093**	**2.4432**	**3.9600e-003**		**0.1268**	**0.1268**		**0.1268**	**0.1268**	**0.0000**	**375.2641**	**375.2641**	**0.0258**		**375.9079**

3.6 O&M Building - Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.7 Battery Storage 2-5 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.8598	50.8216	35.9363	0.0826		2.2166	2.2166		2.0393	2.0393		8,001.1903	8,001.1903	2.5878		8,065.8839
Total	**4.8598**	**50.8216**	**35.9363**	**0.0826**		**2.2166**	**2.2166**		**2.0393**	**2.0393**		**8,001.1903**	**8,001.1903**	**2.5878**		**8,065.8839**

3.7 Battery Storage 2-5 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3397	7.7940	2.1713	0.0365	9.3004	0.0281	9.3285	1.1314	0.0269	1.1582		3,817.5313	3,817.5313	0.1043		3,820.1394
Worker	4.7243	3.5378	39.9847	0.0568	60.6725	0.0336	60.7060	7.0227	0.0309	7.0536		5,623.6357	5,623.6357	0.4033		5,633.7170
Total	**5.0640**	**11.3318**	**42.1559**	**0.0933**	**69.9728**	**0.0616**	**70.0345**	**8.1540**	**0.0578**	**8.2118**		**9,441.1669**	**9,441.1669**	**0.5076**		**9,453.8564**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0258	40.5854	48.7768	0.0826		1.8627	1.8627		1.8627	1.8627	0.0000	8,001.1903	8,001.1903	2.5878		8,065.8839
Total	**2.0258**	**40.5854**	**48.7768**	**0.0826**		**1.8627**	**1.8627**		**1.8627**	**1.8627**	**0.0000**	**8,001.1903**	**8,001.1903**	**2.5878**		**8,065.8839**

3.7 Battery Storage 2-5 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3397	7.7940	2.1713	0.0365	4.2981	0.0281	4.3261	0.6346	0.0269	0.6614		3,817.5313	3,817.5313	0.1043		3,820.1394
Worker	4.7243	3.5378	39.9847	0.0568	27.3237	0.0336	27.3572	3.7107	0.0309	3.7416		5,623.6357	5,623.6357	0.4033		5,633.7170
Total	**5.0640**	**11.3318**	**42.1559**	**0.0933**	**31.6217**	**0.0616**	**31.6834**	**4.3453**	**0.0578**	**4.4030**		**9,441.1669**	**9,441.1669**	**0.5076**		**9,453.8564**

3.7 Battery Storage 2-5 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.4634	45.3392	34.9078	0.0827		1.9304	1.9304		1.7760	1.7760		8,002.8810	8,002.8810	2.5883		8,067.5884
Total	**4.4634**	**45.3392**	**34.9078**	**0.0827**		**1.9304**	**1.9304**		**1.7760**	**1.7760**		**8,002.8810**	**8,002.8810**	**2.5883**		**8,067.5884**

3.7 Battery Storage 2-5 - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2755	5.2427	1.8851	0.0358	9.3004	0.0113	9.3116	1.1314	0.0108	1.1421		3,741.5907	3,741.5907	0.0778		3,743.5347
Worker	4.4318	3.2637	36.7730	0.0546	60.6725	0.0322	60.7047	7.0227	0.0297	7.0524		5,410.0238	5,410.0238	0.3694		5,419.2583
Total	**4.7074**	**8.5064**	**38.6582**	**0.0904**	**69.9728**	**0.0435**	**70.0163**	**8.1540**	**0.0404**	**8.1945**		**9,151.6145**	**9,151.6145**	**0.4471**		**9,162.7930**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0258	40.5854	48.7768	0.0827		1.8627	1.8627		1.8627	1.8627	0.0000	8,002.8810	8,002.8810	2.5883		8,067.5884
Total	**2.0258**	**40.5854**	**48.7768**	**0.0827**		**1.8627**	**1.8627**		**1.8627**	**1.8627**	**0.0000**	**8,002.8810**	**8,002.8810**	**2.5883**		**8,067.5884**

3.7 Battery Storage 2-5 - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2755	5.2427	1.8851	0.0358	4.2981	0.0113	4.3093	0.6346	0.0108	0.6453		3,741.5907	3,741.5907	0.0778		3,743.5347
Worker	4.4318	3.2637	36.7730	0.0546	27.3237	0.0322	27.3559	3.7107	0.0297	3.7404		5,410.0238	5,410.0238	0.3694		5,419.2583
Total	**4.7074**	**8.5064**	**38.6582**	**0.0904**	**31.6217**	**0.0435**	**31.6652**	**4.3453**	**0.0404**	**4.3857**		**9,151.6145**	**9,151.6145**	**0.4471**		**9,162.7930**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0635	6.9956	18.3452	0.0467	47.7479	0.0307	47.7785	5.2769	0.0289	5.3058		4,749.9406	4,749.9406	0.2681		4,756.6419
Unmitigated	1.0635	6.9956	18.3452	0.0467	47.7479	0.0307	47.7785	5.2769	0.0289	5.3058		4,749.9406	4,749.9406	0.2681		4,756.6419

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	200.00	200.00	200.00	1,456,000	1,456,000
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Total	200.00	200.00	200.00	1,456,000	1,456,000

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	20.00	20.00	20.00	59.00	28.00	13.00	100	0	0
Unrefrigerated Warehouse-No	0.00	0.00	0.00	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.514862	0.031726	0.160627	0.119887	0.016529	0.004969	0.019101	0.120993	0.003465	0.001214	0.005236	0.000734	0.000658
Unrefrigerated Warehouse-No Rail	0.514862	0.031726	0.160627	0.119887	0.016529	0.004969	0.019101	0.120993	0.003465	0.001214	0.005236	0.000734	0.000658

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	4.8000e-003	0.0436	0.0367	2.6000e-004		3.3200e-003	3.3200e-003		3.3200e-003	3.3200e-003		52.3610	52.3610	1.0000e-003	9.6000e-004	52.6722
NaturalGas Unmitigated	4.8000e-003	0.0436	0.0367	2.6000e-004		3.3200e-003	3.3200e-003		3.3200e-003	3.3200e-003		52.3610	52.3610	1.0000e-003	9.6000e-004	52.6722

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	445.068	4.8000e-003	0.0436	0.0367	2.6000e-004		3.3200e-003	3.3200e-003		3.3200e-003	3.3200e-003		52.3610	52.3610	1.0000e-003	9.6000e-004	52.6722
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**4.8000e-003**	**0.0436**	**0.0367**	**2.6000e-004**		**3.3200e-003**	**3.3200e-003**		**3.3200e-003**	**3.3200e-003**		**52.3610**	**52.3610**	**1.0000e-003**	**9.6000e-004**	**52.6722**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0.445068	4.8000e-003	0.0436	0.0367	2.6000e-004		3.3200e-003	3.3200e-003		3.3200e-003	3.3200e-003		52.3610	52.3610	1.0000e-003	9.6000e-004	52.6722
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**4.8000e-003**	**0.0436**	**0.0367**	**2.6000e-004**		**3.3200e-003**	**3.3200e-003**		**3.3200e-003**	**3.3200e-003**		**52.3610**	**52.3610**	**1.0000e-003**	**9.6000e-004**	**52.6722**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	11.9737	4.7000e-004	0.0516	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1105	0.1105	2.9000e-004		0.1178
Unmitigated	11.9737	4.7000e-004	0.0516	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1105	0.1105	2.9000e-004		0.1178

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.1619					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	10.8070					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.8000e-003	4.7000e-004	0.0516	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1105	0.1105	2.9000e-004		0.1178
Total	**11.9737**	**4.7000e-004**	**0.0516**	**0.0000**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**		**0.1105**	**0.1105**	**2.9000e-004**		**0.1178**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.1619					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	10.8070					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.8000e-003	4.7000e-004	0.0516	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		0.1105	0.1105	2.9000e-004		0.1178
Total	**11.9737**	**4.7000e-004**	**0.0516**	**0.0000**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**		**0.1105**	**0.1105**	**2.9000e-004**		**0.1178**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

ATTACHMENT 3

Emergency Generator Testing Calculations

8888.1 Westside Canal Battery Storage Project
Propane-Fueled Generator Testing

AP-42 Emission Factor		lb/1,000 gal				
Fuel Type	TOC	Nox	CO	Sox	PM10	PM2.5
Propane	1	13	7.5	0.00015	0.7	0.7
				S=sulphur content=.0015		
Fuel Consumption Rate				0.1S		
Load						
50%	11.72	gal/hr				
100%	22.57	gal/hr				

Source:
AP42 Section 1.5 Liquefied Petroleum Gas Combustion, update July 2008 (epa.gov)

Generac Commercial QT15068GVAC Series 150kW Standby Generator 120/208V 3-PhaseLP SCAQMD Compliant (electricgeneratorsdirect.com)

# of Generators	20	generators
Testing time per generator	2	hours
Max testing time per day	40	hours
Max daily fuel consumption	903	gallons

Generator Pollutant Emissions	TOC	Nox	CO	Sox	PM10	PM2.5
Emission Factor (lbs/1,000 gal)	1	13	7.5	0.00015	0.7	0.7
Emissions (lbs/day)	0.90	11.74	6.77	0.00	0.63	0.63
Total Pollutant Emissions						
Operational Emissions From Airtec	12.82	7.30	13.37	0.04	47.78	5.31
Total Emissions	13.72	19.03	20.14	0.04	48.41	5.94
Threshold	137	137	550	150	150	550

APPENDIX E – BIOLOGICAL RESOURCES

APPENDIX E – BIOLOGICAL RESOURCES

E.1. Biological Resources Report for the Westside Canal Battery Storage Project

RECON

Biological Resources Report for the Westside Canal Battery Storage Project Imperial County, California

Prepared for
Con Edison Clean Energy Businesses
101 W. Broadway, Suite 1120
San Diego, CA 92101
Contact: Mr. Curtis Kebler

Prepared by
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P 619.308.9333

RECON Number 8888-1
January 18, 2021

Wendy Loeffler
Environmental Project Director, Biology

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FIGURES

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Acronyms and Abbreviations

°C	degrees Celsius
°F	degrees Fahrenheit
ABPP	Avian and Bat Protection Plan
APN	Assessor Parcel Number
BLM	Bureau of Land Management
Caltrans	California Department of Transportation
CBP	Customs and Border Protection
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
County	Imperial County
CWA	Clean Water Act
ESA	Endangered Species Act
GPS	Global Positioning System
HVAC	heating, ventilation, and air conditioning
ICC	Flat-tailed Horned Lizard Interagency Coordinating Committee
IID	Imperial Irrigation District
kV	kilovolt
MBTA	Migratory Bird Treaty Act
MW	megawatt(s)
MWh	megawatts per hour
NCDC	National Climate Data Center
NWS	National Weather Service
O&M	Operations and Maintenance
Project	Westside Canal Battery Storage Project
PV	photovoltaic
RECON	RECON Environmental, Inc.
RWQCB	Regional Water Quality Control Board
SDNHM	San Diego Natural History Museum
S-Line	S-Transmission line
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

Management Summary

This report provides the results of the Biological Resources Report for the Westside Canal Battery Storage Project (Project) in Imperial County, California. The total footprint encompassing permanent and temporary impacts consists of 163.32 acres of agriculturally-zoned land located in the unincorporated Mount Signal area of the County, approximately 8.0 miles southwest of the city of El Centro. The Project site is comprised of two parcels owned by Westside Canal Battery Storage, LLC (Project Proponent), a subsidiary of Con Edison Clean Energy Businesses, Assessor Parcel Numbers (APNs) 051-350-010 and 051-350-011, totaling approximately 148 acres. The two parcels are proposed for development as a utility-scale energy storage complex. The Project would also utilize portions of two parcels located north of the Westside Main Canal (APN 051-350-019 owned by the Imperial Irrigation District's (IID) and APN 051-350-018 owned by a private land owner) for site access and as a temporary construction staging area. The Project would also access a small portion of APN 051-350-009 within an IID easement for connection to the existing IID Campo Verde Imperial Valley 230 kilovolt radial gen-tie line during the construction of a substation on the Project site.

The Project site is located approximately one-third mile north of the Imperial Valley Substation (IV Substation) and directly south of the intersection of Liebert Road and the IID Westside Main Canal. The Project site is bounded by the Westside Main Canal to the north, Bureau of Land Management (BLM) lands to the south and west, and vacant private land to the east. The Campo Verde solar generation facility is located north of the Project site, across the Westside Main Canal.

The following vegetation communities or land cover types were mapped within the 163.32-acre Project site and surrounding 100-foot radius: upland mustards, fourwing saltbush scrub, creosote bush scrub, quailbush scrub, arrow weed thickets, tamarisk thickets, common reed marshes, eucalyptus groves, cattail marshes, disturbed habitat, fallow agriculture, open water, and developed land. The Project would result in impacts to 9.76 acres of five sensitive vegetation communities, comprising 6.92 acres of permanent and 2.84 acres of temporary impacts. Direct impacts comprise 6.87 acres of arrow weed thicket, 0.56 acre of tamarisk scrub, 2.15 acres of quailbush scrub, 0.14 acre of cattail marsh, and 0.04 acre of common reed marsh. Mitigation for permanent impacts could potentially be conducted on-site through restoration of the fallow agriculture and disturbed lands that occur within the temporary impact footprint. If those lands are not suitable, off-site mitigation may be required. Temporary impacts would be mitigated *in situ* either through preservation or enhancement of any impacts that were incurred during Project construction.

No sensitive plant species were observed or have a moderate or high potential to occur within the Project site; thus, there were no identified or proposed impacts or associated mitigation.

The following nine sensitive wildlife species were detected during the general and focused biological surveys conducted in 2018 and 2019 for this Project: flat-tailed horned lizard (*Phrynosoma mcalli*), ferruginous hawk (*Buteo regalis*), prairie falcon (*Falco mexicanus*),

burrowing owl, loggerhead shrike (*Lanius ludovicianus*), black-tailed gnatcatcher (*Polioptila melanura*), LeConte's thrasher (*Toxostoma lecontei*), Abert's towhee (*Melozone aberti*), and American badger (*Taxidea taxus*).

An additional 13 sensitive wildlife species were detected during surveys but are not expected to breed on or adjacent to the Project site: American white pelican (*Pelecanus erythroryhnchos*), double-crested cormorant (*Phalacrocorax auritus albociliatus*), great egret (*Ardea alba*), great blue heron (*Ardea herodias*), snowy egret (*Egretta thula thula*), black-crowned night heron (*Nycticorax nycticorax*), Cooper's hawk (*Accipiter cooperii*), northern harrier (*Circus hudsonius*), long-billed curlew (*Numenius americanus*), Vaux's swift (*Chaetura vauxi*), Brewer's sparrow (*Spizella breweri*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), and yellow warbler (*Setophaga petechia*).

In addition to those species recorded on site, five sensitive wildlife species were identified as having a high or moderate potential to occur within the Project site: Colorado Desert fringe-toed lizard (*Uma notata*), southwestern willow flycatcher (*Empidonax traillii extimus*), vermilion flycatcher (*Pyrocephalus rubinus*), pallid bat (*Antrozous pallidus*), and Yuma hispid cotton rat (*Sigmodon hispidus eremicus*).

The Project could result in direct impacts to individuals of and/or occupied habitat for flat-tailed horned lizard, Colorado Desert fringe-toed lizard, burrowing owl, and American badger. Direct impacts to nesting birds would be avoided by conducting pre-construction surveys. Direct impacts to flat-tailed horned lizard and Colorado fringe-toed lizard would be mitigated through pre-construction surveys, translocation, and construction monitoring. Direct impacts to burrowing owl and its habitat would be mitigated through preparation and/or implementation of the following: a habitat mitigation plan, a burrow exclusion plan, pre-construction surveys, grading restrictions, and construction monitoring. Direct impacts to American badger and its habitat would be mitigated through pre-construction surveys, den monitoring, exclusion, and construction monitoring. The remaining potential impacts are considered less than significant and would, therefore, require no species-specific mitigation measures.

Within the Project parcels, jurisdictional wetlands and waters were delineated along Westside Main Canal and associated irrigation ditches and riparian and marsh vegetation. These include 0.21 acre of U.S. Army Corps of Engineers (USACE) non-wetland waters of the U.S./California Department of Fish and Wildlife (CDFW) streambed/Regional Water Quality Control Board (RWQCB) unvegetated streambed and 9.22 acres of CDFW/RWQCB wetland waters of the state. The Project proposes permanent impacts to 0.04 acre and temporary impacts to 0.16 acre of USACE non-wetland water/CDFW streambed/RWQCB unvegetated streambed. The Project would result in permanent impacts to 6.71 acres and temporary impacts to 2.51 acres of CDFW/RWQCB wetland waters of the state. Mitigation for permanent impacts could potentially be conducted on-site through restoration of the fallow agriculture and disturbed lands that occur within the temporary impact footprint. If those lands are not suitable, off-site mitigation may be required. Temporary impacts would be mitigated in situ either through preservation or enhancement of any impacts that were incurred during Project construction.

Impacts to jurisdictional waters on-site would require a permit under Section 404 Clean Water Act from USACE and a Section 401 state water quality certification from RWQCB. In addition, a Section 1600 Streambed Alteration Agreement would also need to be authorized for impacts to CDFW resources. Mitigation ratios would be confirmed at that time.

1.0 Introduction

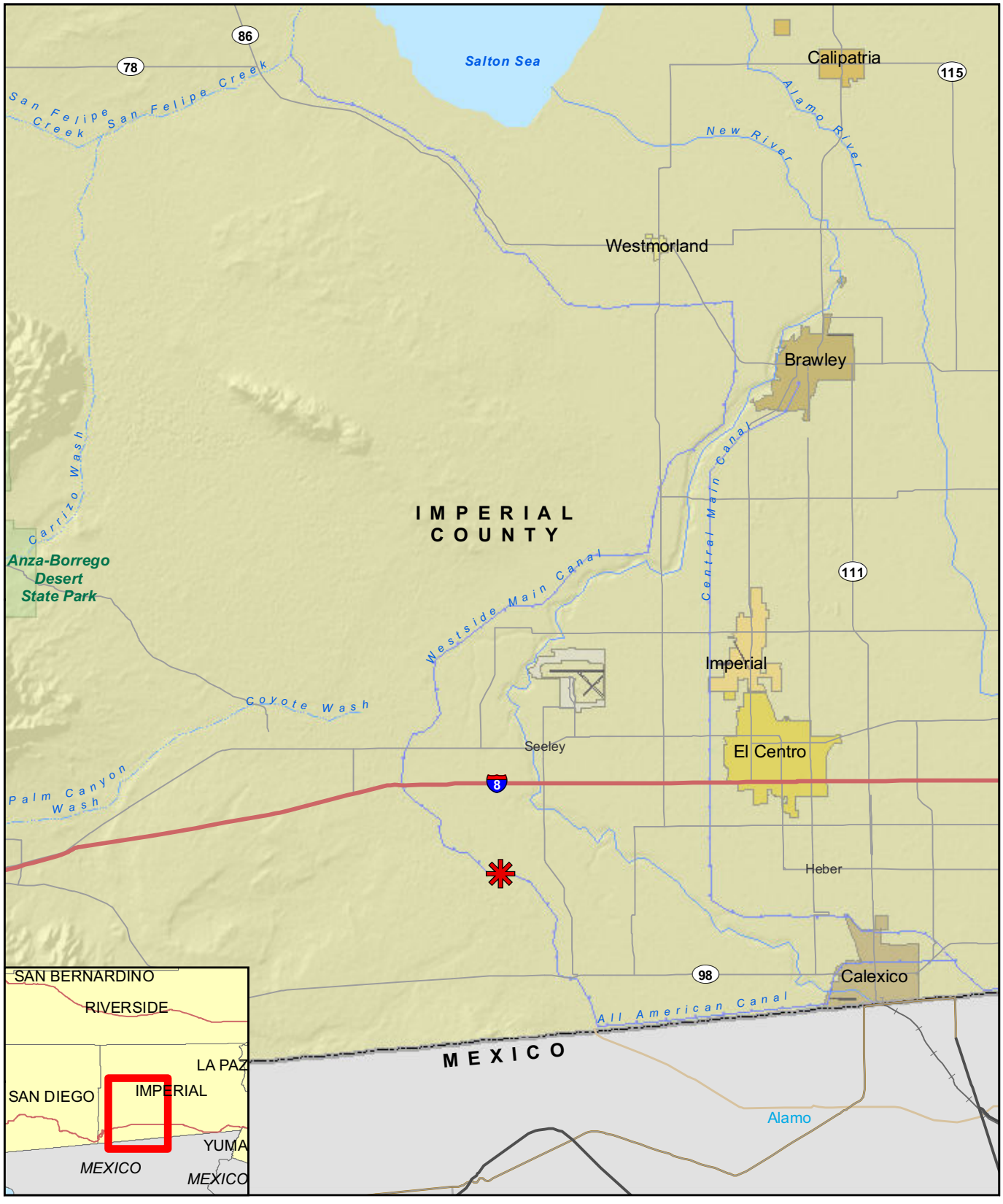
This biological resources report was prepared by RECON Environmental, Inc. (RECON) for the Westside Canal Battery Storage Project (Project) proposed by Westside Canal Battery Storage, LLC (Project Proponent), a subsidiary of Con Edison Clean Energy Businesses. The purpose of this biological resources report is to (1) document the existing biological conditions within the Project survey area; (2) evaluate the survey area and the vicinity for the potential to support sensitive biological resources; (3) provide an analysis of potential impacts associated with the proposed Project; and (4) provide a discussion of potential avoidance, minimization, and mitigation measures that may be required to reduce potential impacts to sensitive biological resources to below a level of significance.

1.1 Project Location

The Project would be located in the unincorporated Mount Signal area of the County, approximately 8.0 miles southwest of the city of El Centro and approximately 5.3 miles north of the U.S.-Mexico border. Figure 1 shows the regional location of the Project. The Project site is comprised of two parcels, owned by the Project Proponent, Assessor Parcel Number (APN) 051-350-010 and APN 051-350-011, totaling approximately 148 acres. These parcels have limited access corridors for vehicular traffic and are considered less desirable for agricultural production, as reflected by the last 15 years during which no farming activity has occurred.

The Project site is approximately one-third mile north of the Imperial Valley Substation (IV Substation) and directly south of the intersection of Liebert Road and the Imperial Irrigation District's (IID) Westside Main Canal. The Project site is bounded by the Westside Main Canal to the north, Bureau of Land Management (BLM) lands to the south and west, and vacant private land to the east. The Campo Verde solar generation facility is located north of the Project site, across the Westside Main Canal. The entire Project site is located in the southern half of Section 34, Township 16 South, Range 12 East, on the U.S. Geological Survey (USGS) Mount Signal, California quadrangle (USGS 1976; Figure 2). An aerial photograph of the survey area is shown on Figure 3a.

The two Project parcels are proposed for development as a utility-scale energy storage complex. The Project would also utilize portions of two parcels located north of the Westside Main Canal (APN 051-350-019 owned by IID and APN 051-350-018 owned by a private land owner) for site access and as a temporary construction staging area. The Project would also access a small portion of APN 051-350-009 within an IID easement for connection to the existing IID Campo Verde Imperial Valley 230 kilovolt (kV) radial gen-tie line during the construction of a substation on the Project site. The total proposed Project development footprint, encompassing both temporary and permanent impacts, would be approximately 163 acres.



Project Location

FIGURE 1
Regional Location

RECON

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Map Source: USGS 7.5 minute topographic map series, Mount Signal quadrangle, 1976, T16S R12E

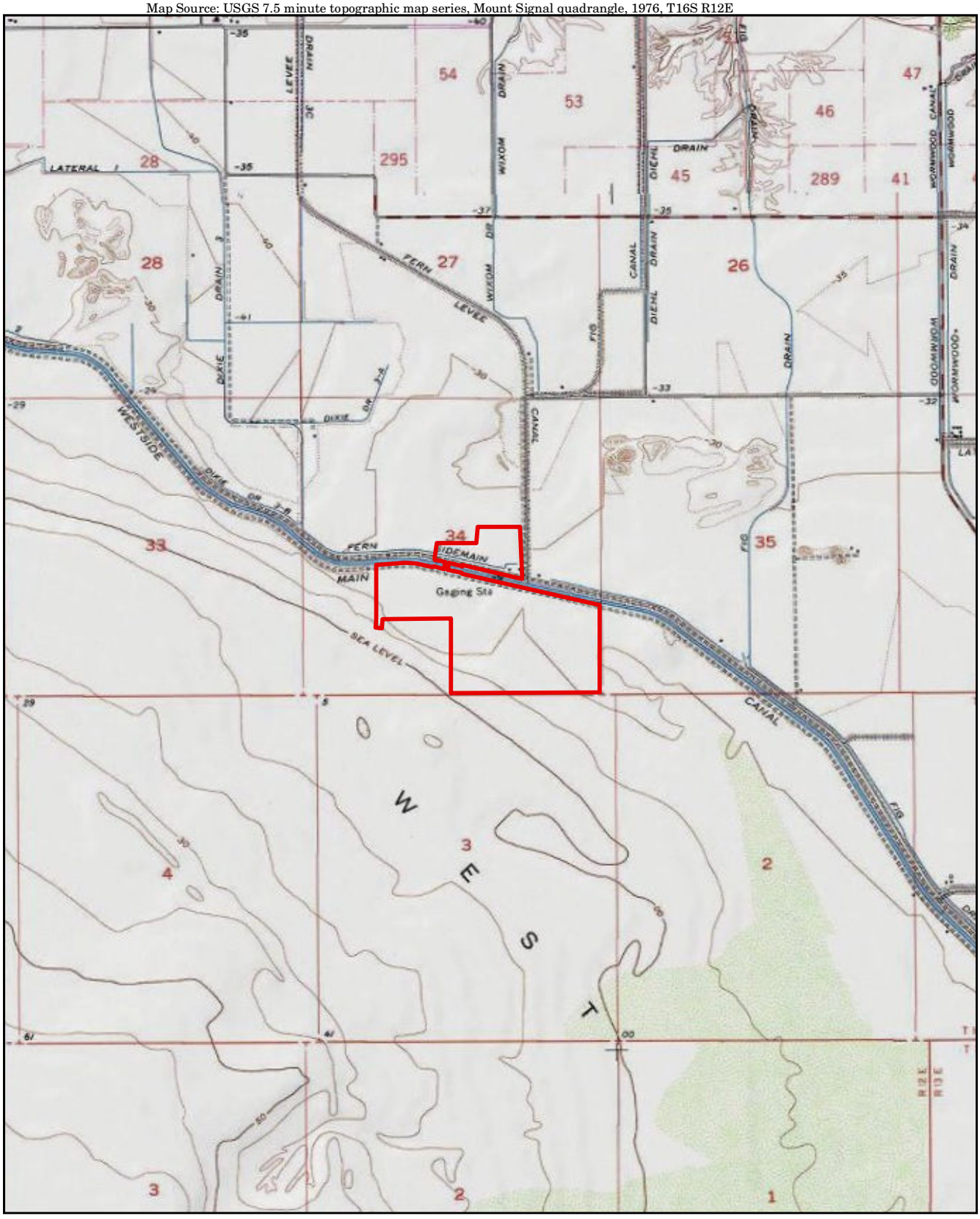

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FIGURE 2

Project Location on USGS Map

Image source: DigitalGlobe (flown November 2016)

Project Boundary

General Survey and Wetland Delineation (100-foot Buffer)

Burrowing Owl Survey Area (150-m Buffer)

0 Feet 400

FIGURE 3a
Project Location on Aerial Photograph

RECON

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1.2 Project Description

The Project Proponent is proposing to develop, design, construct, own, operate, and maintain the Project, a utility-scale energy storage complex with a capacity of up to 2,000 megawatts (MW). The Project would store energy generation from the electrical grid, and optimally discharge that energy back into the grid as firm, reliable generation and/or grid services.

The Project would be comprised of lithium-ion battery and/or flow battery energy storage facilities, a behind-the-meter solar energy facility, a new on-site 230 kV loop-in switching station, a 34.5 kV to 230 kV substation, underground electrical cables, and permanent vehicular access to and from the site over a proposed bridge spanning IID's Westside Main Canal. The proposed loop-in switching station would connect the Project to the existing IID Campo Verde-Imperial Valley 230 kV radial gen-tie line, which connects to the IV Substation and the California Independent System Operator (CAISO), approximately one-third mile south of the Project site. The Project Proponent has submitted the necessary Interconnection Request Applications to the CAISO and IID.

The Project would complement both the existing operational renewable energy facilities, as well as those planned for future development in the County, and would support the broader southern California bulk electric transmission system by serving as a firm, dispatchable resource.

The Project is pursuing the following objectives:

- To receive grid energy during beneficial market and operational periods and store that energy for future dispatch when the customer (i.e., a load-serving entity) deems it to be more valuable.

- To be a valuable resource in allowing the customer and system operators to manage the effect of intermittent renewable generation on the grid and create reliable, dispatchable generation upon demand.

- To utilize available land that has not been used for agricultural production for more than 15 years and enhance the site location by providing for permanent vehicular access.

1.2.1 Project Components

The Project would be constructed in three to five phases over a 10-year period, with each phase ranging from approximately 25 MW up to 400 MW per phase. Depending on the size of the battery system for a given phase, construction and commissioning (approval to operate) is anticipated to take approximately 6 to 12 months. For the purposes of this analysis, the applicant has assumed that construction activities would last for approximately 32 months to complete the full Project build-out.

Construction of the 100 MW to 200 MW first phase would include roads, a permanent clear-span bridge across the Westside Main Canal, Operations and Maintenance (O&M) facilities, water connections and water-mains, storm water retention, switching station and Project substation, legal permanent vehicle access, as well as the first energy storage facility. To access the Project site, construction workers would travel along Interstate 8 and head 4.6 miles south to the Project site, and would utilize the IID Fern Check Bridge as a temporary pedestrian bridge until the permanent bridge is constructed. During peak construction activities, approximately 200 workers and approximately 30 daily deliveries would be required. It is anticipated that construction of the first phase would begin in 2021.

It is anticipated that each subsequent phase would be constructed within one to two years of each other, with the timing and size of each phase dependent on market conditions and the applicant's ability to secure commercial contracts with prospective customers. With the Project being built in phases, the necessary infrastructure, such as water mains, retention ponds, and access roads, would be built out to serve the Project phases from west to east and expanded over time to serve each phase. These subsequent phases would require improvements such as additional substation equipment, water main and site road extension, but would not require construction of additional common facilities which would be completed during the first phase. The total nameplate (or rated capacity) capacity of the Project at full build-out (all phases completed) would be approximately 2,000 MW. On-site photovoltaic (PV) solar generation would serve as station auxiliary power and be deployed throughout the Project site, constructed during each phase.

Construction activities during all Project phases would only occur Monday through Friday, between the hours of 7:00 a.m. and 7:00 p.m. or Saturday between the hours of 9:00 a.m. and 5:00 p.m., excluding holidays, per County Ordinance.

Due to the Project site having no direct vehicular access routes, the applicant is proposing to construct roads on both the north and south sides of the Westside Main Canal on private land, and a new clear-span Imperial County-specified bridge over the Westside Main Canal. The permanent new clear-span County-specified bridge would span the Westside Main Canal to connect to a proposed access road easement on the north side of the Westside Main Canal. The north side proposed access road would ultimately connect the Project to county road (CR) Liebert Road.

Construction of the permanent clear-span bridge spanning the IID's Westside Main Canal requires the Project Proponent to have access to both the north side and the south of the canal to perform the necessary construction activities. In addition to being necessary to facilitate construction of the new permanent clear-span bridge, access from the south side of the canal would allow the Project Proponent to commence construction on the first phase of the Project simultaneously, thereby shortening the duration of construction and potentially minimizing the associated impacts. The Project Proponent is evaluating various options for temporary construction access, including accessing the Project site from the south side of the Westside Main Canal off State Route 98, as well as options involving access from the north side of the Westside Main Canal from Interstate 8.

Option 1 would use the existing SDG&E maintenance road off Highway 98, which extends approximately 4.4 miles to the IV Substation. Option 1 would then continue along an existing 1.2-mile-long dirt access road that leads north, then east, outside the western and northern boundaries of the substation. Option 1 then continues northwest along an existing dirt access road that parallels two power lines until the access road connects with the western edge of the Project. The existing dirt road was constructed for the construction and maintenance of the existing Centinela gen-tie line. Option 2 would use the existing IID Westside Mail Canal access road. The selected temporary access option would be used until construction of the permanent bridge is completed. Both temporary construction access routes are presented in Figure 3b.

The 4.4-mile segment of Option 1 consisting of the SDG&E maintenance road off Highway 98 is a graded and improved dirt road. Therefore, use of this roadway segment would impact any biological resources. Potential impacts on biological resources associated with use of the 1.2-mile-long dirt access road segment of Option 1 have been analyzed in the Addendum to the Biological Resources Report for the Westside Canal Battery Storage Project, Imperial County, California (Attachment 1). The IID Westside Mail Canal access road that would be used under Option 2 is a graded and improved dirt road. Therefore, use of this roadway segment would not impact any biological resources.

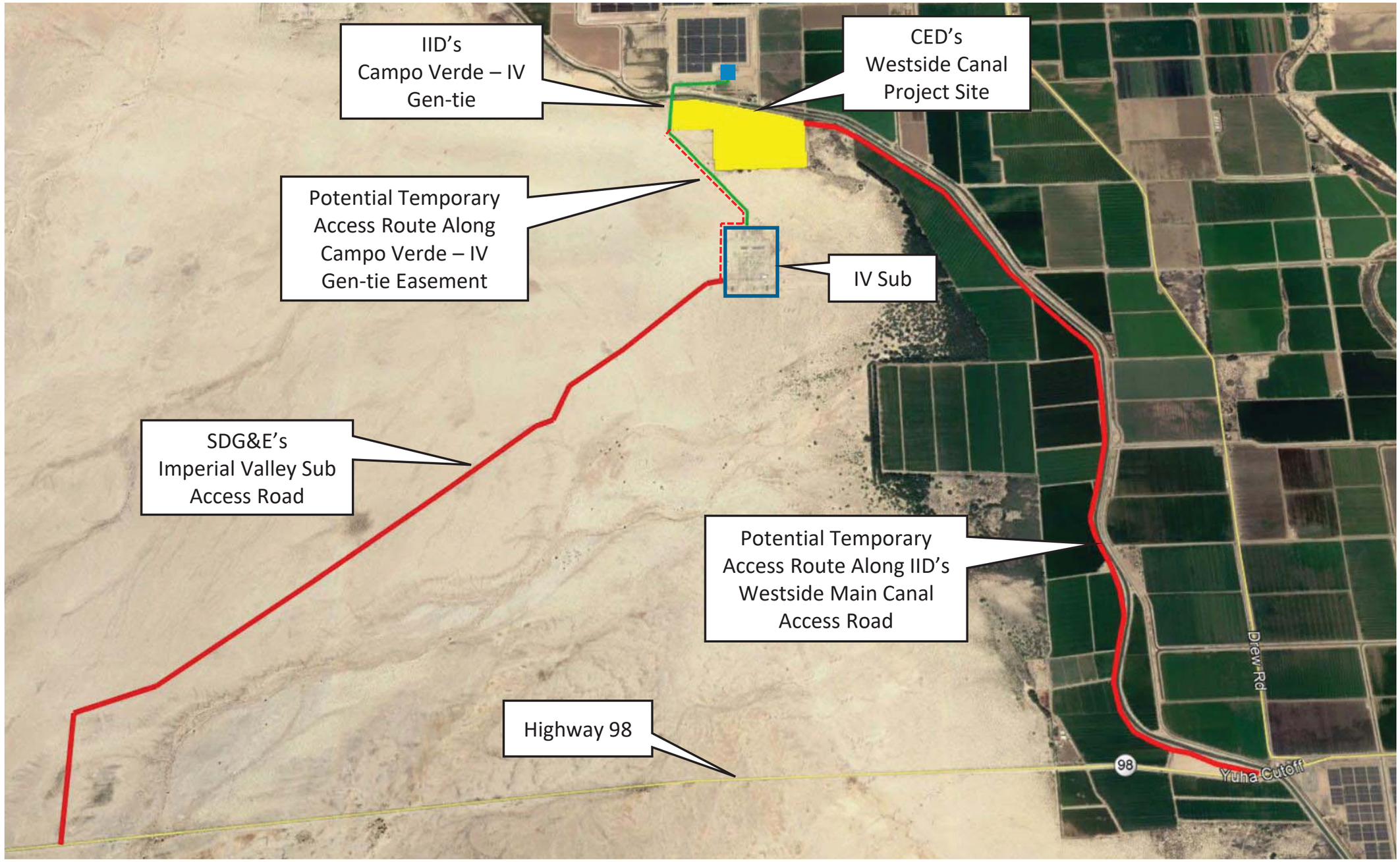
1.2.2 Common Facilities

The northwest area of the Project serves as the location for the common facilities, which include switching station and substation and the O&M facilities. With the Project being built in phases, the necessary infrastructure, such as water mains, retention ponds, and access roads, would be built out to serve the Project phases from west to east and expanded over time to serve each phase.

A summary of the common facilities is presented below:

- 230 kV loop-in switching station
  - Connection to Campo Verde Imperial Valley 230 kV radial transmission line
  - Located on applicant property
- Project substation
- O&M facilities
- Project parking
- Storm water detention basins
- Fencing and gates
- Interior access roads

Map Source: conEdison Development



RECON

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FIGURE 3b
Temporary Construction Access Routes

Industrial buildings, warehouses, engineered containers, and/or electrolyte storage tanks would be the primary structures needed to house the main Project components. Other components to be located on the Project site and adjacent to the proposed buildings, warehouses, containers, and tanks include the following:

- Inverters, transformers, power distribution panels
- Underground water-main loop for Project operation and fire prevention
- Underground cable to connect to Project substation
- Project site access roads (unpaved/crushed rock)
- Fire water storage tanks
- Above ground water storage tanks
- Heating, ventilation, and air conditioning (HVAC) units
- Ground-mounted or roof-mounted PV arrays
- Emergency backup generator(s)

The O&M facilities are expected to be the only manned facility on the site. It would include up to approximately 20 full-time employees depending upon the number of phases and type of energy storage facility constructed. O&M employees would work typical weekday hours but may work extended hours, including weekends and 24 hours a day, depending upon the operations and maintenance needs. No offices or staffed control centers would be located within the storage-specific warehouses/buildings. For sanitary waste, the Project would include a septic leach field to be located near the O&M facilities. The proposed O&M facilities would also require an HVAC unit.

2.0 Methods and Survey Limitations

Biological resource data for the Project was obtained from a combination of literature review, general biological survey, and focused biological surveys. Focused surveys were conducted for the following resources/species: burrowing owl (*Athene cunicularia*), jurisdictional wetland/waters, and rare plants (Table 1). The literature review and survey methods are discussed below.

Focused burrowing owl and rare plant surveys were conducted at appropriate times of year to detect presence/absence of target species, and the combined biological surveys covered all four seasons. Therefore, the likelihood of detection of migrants and seasonal visitors was high. Surveys were limited by temporal factors, as all surveys were conducted during the day or dusk. As a result, some nocturnal animals were observed directly as dusk turned to night following burrowing owl surveys, and others were detected by sign such as tracks, scat, and/or burrows; however, a full suite of nocturnal animals may have required full night-time surveys or trapping.

Table 1
Biological Survey Schedule Summary

Date	Survey Type and Number	Surveyor(s)	Beginning Conditions	Ending Conditions
4/5/2018	BUOW Habitat Assessment	B. Ogg, B. Rigley, A. Fromer, B. Parker	09:25; 82ºF; 2–4 mph wind; sunny	14:00; 94ºF; 2–5 mph wind; 50% high, thin cloud cover
4/13/2018	BUOW Breeding Season Survey 1	B. Ogg, B. Rigley, A. Fromer, S. Vargas	17:20; 81ºF; 2–9 mph wind; clear sky	19:36; 70 ºF; calm wind; clear sky
4/14/2018			06:00; 55ºF; 0–2 mph wind; clear sky	09:55; 78ºF; 1–3 mph wind; clear sky
5/7/2018	BUOW Breeding Season Survey 2	B. Ogg, B. Rigley, S. Vargas, K. Israel	17:45; 95ºF; 1–4 mph wind; 0% cloud cover, slight haze	19:55; 92 ºF; 2–9 mph wind; 0% cloud cover, slight haze
5/8/2018			05:25; 67ºF; 2–4 mph wind; 0% cloud cover, slight haze	09:20; 88ºF; 2–6 mph wind; 75% high, thin cloud cover
5/29/2018	BUOW Breeding Season Survey 3	B. Ogg, B. Rigley, A. Smisek, K. Valenti	17:45; 99ºF; 1–3 mph wind; 30% cloud cover	20:11; 94ºF; 4–11 mph wind; 20% cloud cover
5/30/2018			05:20; 68ºF; 2–4 mph wind; 2% cloud cover	09:45; 93ºF; 2–6 mph wind; 1% cloud cover with haze
7/5/2018	BUOW Breeding Season Survey 4	B. Ogg, A. Fromer, K. Valenti, V. Novik	17:55; 108ºF; 1–5 mph wind; 15% high, thin cloud cover	20:22; 100ºF; calm wind; 5% high, thin cloud cover
7/6/2018			05:15; 83ºF; 2–4 mph wind; 25% cloud cover	09:35; 103ºF; 1–3 mph wind; 40% cloud cover
10/4/2018	BUOW Non-breeding Season Survey 1	B. Ogg, B. Parker, E. Procsal, M. Weston, V. Novik	16:22; 89ºF; 5–10 mph wind; 5% cloud cover	19:36; 84 ºF; 5–10 mph wind; 5% cloud cover
10/5/2018			06:14; 69ºF; 3–6 mph wind; clear sky	09:55; 82ºF; 5–12 mph wind; <1% cloud cover
11/8/2018	BUOW Non-breeding Season Survey 2	B. Ogg, B. Parker, E. Procsal, M. Weston, J. Sundberg	14:45; 82ºF; 6–12 mph wind; 0% cloud cover	19:11; 74 ºF; 2–7 mph wind; 0% cloud cover
11/9/2018			05:41; 51ºF; 0–2 mph wind;0% cloud cover	10:00; 78ºF; 0–7 mph wind; 0% cloud cover
12/6/2018	BUOW Non-breeding Season Survey 3	B. Ogg, B. Parker, E. Procsal, M. Weston, K. Valenti	14:38; 70ºF; 0–1 mph wind; 0% cloud cover	17:05; 59ºF; 0–1 mph wind; 0% cloud cover
12/7/2018			06:11; 45ºF; 0 mph wind; 15% cloud cover	10:00; 59ºF; 0–2 mph wind; 90% cloud cover
1/24/2019	BUOW Non-breeding Season Survey 4	B. Ogg, B. Parker, E. Procsal, M. Weston, K. Valenti	15:07; 71ºF; 3–6 mph wind; 85% cloud cover	17:33; 61ºF; 0–2 mph wind10% cloud cover
1/25/2019			06:15; 46ºF; 0–2 mph wind; 5% cloud cover	10:00; 69ºF; 0–2 wind; <1% cloud cover
2/5/2019	General Biological Survey	B. Ogg, K. Valenti, J. Sundberg	--	--
	Wetland/Waters Delineation	A. Smisek	--	--
4/23/2019	Rare Plants Survey	J. Sundberg	--	--

BUOW = burrowing owl; ºF = degrees Fahrenheit; mph = miles per hour; % = percent.

According to precipitation data for the closest available location, Imperial, California, observed precipitation was below normal for the 2017-2018 wet season (National Climate Data Center [NCDC] 2019a, National Weather Service [NWS] 2019), which likely resulted in low germination rates for annual plant species in winter and spring 2018 within the Project vicinity at the time the Project survey effort commenced. However, observed precipitation was approximately at normal for the 2018-2019 wet season. Specifically, the normal (1981-2010) precipitation recorded for Imperial, California, for September through March is

2.47 inches, and the observed precipitation for Imperial, California, for September 2018 through March 2019 was 2.48 inches (NCDC 2019b, NWS 2019). Therefore, sensitive annual plant species would have likely been detected if present during the general biological and focused rare plant surveys conducted in winter and spring 2019.

Zoological nomenclature is in accordance with the Checklist of North and Middle American Birds (Chesser et al. 2018); Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico (Crother et al. 2012); the Revised Checklist of North American Mammals North of Mexico (Baker et al. 2003); Page et al. (2013) for fish; and Evans (2008), Wheeler and Wheeler (1973), San Diego Natural History Museum (SDNHM; 2002), and AntWeb (2018) for insects and spiders. Floral nomenclature for common plants follows Baldwin (2012) as updated by the Jepson Online Interchange (University of California 2019) and for sensitive plants the California Native Plant Society online database (CNPS; 2019). If a plant's common name was not provided in these resources, common names were obtained from Rebman and Simpson (2014), or the U.S. Department of Agriculture (USDA) maintained database (USDA 2013) or the Sunset Western Garden Book (Brenzel 2001) for ornamental/horticultural plants.

2.1 Literature Review

RECON conducted an analysis of existing sensitive species data recorded within two miles of the Project site. This analysis included searches of the California Natural Diversity Database (CNDDB; California Department of Fish and Wildlife [CDFW] 2019a), the All Species Occurrences Database (U.S. Fish and Wildlife Service [USFWS] 2019), and a search of the CNPS online rare plants database within nine USGS quadrangles surrounding the site (CNPS 2020). Additional maps, imagery, and databases reviewed included USGS topographic maps (1976), soils survey maps (USDA 1981, 2017), online aerial satellite imagery (Google Earth 2018), the Consortium of California Herbaria (2019), and the Amphibian and Reptile Atlas of Peninsular California (SDNHM 2019). RECON also conducted a review of existing literature relevant to the biological resources known from the vicinity of the Project site, including but not limited to the following:

- Final Biological Technical Report for the Campo Verde Solar Project (Heritage Environmental Consultants 2012a);
- Campo Verde Solar Energy Project Protocol Burrowing Owl Survey Report, Phase I, II and III Survey Report (2011 Breeding and 2011/2012 Winter Resident) (Heritage Environmental Consultants 2012b);
- Campo Verde Solar Project Jurisdictional Waters Report (Heritage Environmental Consultants 2012c);
- Campo Verde Solar Avian Survey Report 2011-2012 (Heritage Environmental Consultants 2012d);
- Campo Verde Solar Energy Project Protocol Burrowing Owl Survey Report, Phase I, II and III Survey Report (2012 Breeding Season) (Heritage Environmental Consultants 2012e);

- Post Survey Notification of Focused Survey Results for the Mountain Plover on the Campo Verde Solar Energy Project (Heritage Environmental Consultants 2012f); and
- Imperial County Conservation and Open Space Element (County of Imperial 2016).

Additional species not found during the records search were assessed if the range for that species extended into the Project site and habitat conditions within the Project site were potentially suitable for that species. Determination of the potential occurrence for sensitive species was based upon known ranges and habitat preferences for the species (Jennings and Hayes 1994; Unitt 2004; CDFW 2019a; Baldwin et al 2012; Jepson Flora Project (eds.) 2019, CNPS 2019; Reiser 2001; Tremor et al. 2017; Western Bat Working Group 2017; Harvey et al. 2011).

2.2 General Biological Survey

RECON biologists Brenna Ogg, Bernadette Rigley, Alex Fromer, and Brian Parker conducted initial vegetation mapping as part of the burrowing owl habitat assessment on April 5, 2018, and refined the vegetation mapping during the burrowing owl non-breeding season surveys conducted between October 4, 2018, and January 25, 2019 (see Section 2.3). Vegetation community classifications followed Sawyer et al. (2009). For areas that did not fall into one of the vegetation classifications defined by Sawyer et al. (2009), one of the following land cover types were used: developed, active agriculture, fallow agriculture, open water, and disturbed habitat. Dominant plant species, average height, and density were noted for each vegetation community. Digital photographs of representative areas were taken during the reconnaissance survey.

RECON biologists Ms. Ogg, JR Sundberg, and Kayo Valenti conducted a general biological survey of the Project site and surrounding 100-foot buffer (survey area) on February 5, 2019, between 11:00 a.m. and 3:00 p.m. The survey area totaled 163.3 acres (see Figure 3a). At the time of this survey, full access had been granted to areas within the Project boundary; however, direct access to the majority of the 100-foot buffer was unavailable. Therefore, areas within the Project boundary were accessed directly on foot, and most areas within the surrounding 100-foot buffer were surveyed from the edge of the Project boundary, using binoculars when necessary. Weather conditions during the survey consisted of 40 to 50 percent cloud cover, 5- to 16-mile-per-hour winds averaging 8 to 13 miles per hour, and air temperatures between 63 and 65 degrees Fahrenheit. The biologists inventoried plant and wildlife species, conducted a search for sensitive species, and assessed the suitability of habitat for sensitive species identified as having potential to occur based on the literature review discussed above.

2.3 Burrowing Owl Surveys

RECON conducted a burrowing owl habitat assessment, breeding season surveys, and non-breeding season surveys between April 2018 and January 2019 (see Table 1). The survey area used for the burrowing owl habitat assessment and surveys includes the Project site and the surrounding 150 meters (492 feet) (see Figure 3a). Methods used for the burrowing owl habitat assessment, breeding season surveys, and non-breeding season surveys followed the

guidelines set forth by CDFW (2012) and are summarized below. Complete survey methods are provided in the focused survey reports prepared by RECON (2018, 2019a).

Direct access was consistently available to the Project Proponent-owned parcels south of Westside Main Canal, the canal roads (including Mandrapa Road), and Liebert Road. However, access to the parcels north of Westside Main Canal and the parcels adjacent to the Project Proponent-owned parcels was limited to varying degrees throughout the survey periods. Therefore, the Project site south of Westside Main Canal, was consistently surveyed using line transects, while the majority of the survey area north of Westside Main Canal and the entirety of the 150-meter buffer south of Westside Main Canal were surveyed by using binoculars or scopes.

The habitat assessment began with a review of relevant biological information to provide local and regional context, document known occurrences of the species within the Project vicinity, and identify potentially suitable burrowing owl habitat within and adjacent to the Project site. Following the desktop review, RECON biologists Ms. Ogg, Bernadette Rigley, Alex Fromer, and Brian Parker conducted the habitat assessment on April 5, 2018 (see Table 1). The biologists assessed vegetation types, height, and density; land use; presence or absence of friable soils, burrows; topography; hydrological features; and presence or absence of burrowing owl sign.

Burrowing owl breeding season surveys included four visits between April 13 and July 6, 2018, during the burrowing owl's breeding season (see Table 1). Each survey was conducted by four biologists over a two-day period, between two hours before sunset and civil dusk on the first day and between civil dawn and 10:00 a.m. on the second day. Surveys were spaced at least three weeks apart. All wildlife species observed during the surveys were noted, and all suitable burrows were recorded using a handheld global positioning system (GPS) device.

Similarly, non-breeding season surveys included four visits between October 4, 2018, and January 25, 2019, outside the burrowing owl's breeding season. Each survey was conducted by five biologists over a two-day period, between two hours before sunset and civil evening twilight on the first day and between morning civil twilight and 10:00 on the second day. Surveys were spaced at least four weeks apart. All wildlife species observed during the surveys were noted. All suitable burrows were recorded using a handheld GPS device, and presence or absence of burrowing owl sign (e.g., pellets, whitewash, prey remains, feathers, or decoration) was documented.

2.4 Jurisdictional Waters/Wetland Delineation

On February 5, 2019, Mr. Smisek conducted a routine jurisdictional waters/wetland delineation, following the guidelines set forth by the U.S. Army Corps of Engineers (USACE; 1987 and 2008), to gather field data at locations with potential jurisdictional waters in the Project site and surrounding 100-foot radius. Prior to conducting the delineation, aerial photographs, USGS topographic maps of the site, USDA soil maps of the site, and the USFWS National Wetland Inventory were examined. Once on-site, potential federal and state jurisdictional areas were examined to determine the presence and extent of any jurisdictional

waters. Complete survey methods are provided in the Jurisdictional Waters/Wetland Delineation Report for the Westside Canal Battery Storage Complex Project, Imperial County, California (RECON 2019b).

2.5 Rare Plants Surveys

RECON staff conducted an initial search for rare plant species as part of the general biological survey discussed above (see Section 2.2). Mr. Sundberg conducted a second focused survey for rare plants within the Project site on April 23, 2019, between 10:15 a.m. and 2:10 p.m. (see Table 1). The survey was conducted in spring, during the typical blooming period for most potentially occurring species so that the detectability of these species was maximized.

The Project site was traversed on foot with a focus on the fallow agriculture areas in the Project site north of Westside Main Canal, and the western and southwestern portions of the Project site, where native habitat has re-established within the abandoned agricultural fields south of Westside Main Canal as these are areas with a higher expectation of supporting rare plants. As with the general biological survey, a species list of all plants observed was compiled during the course of the survey.

3.0 Survey Results/Existing Conditions

This section describes the existing physical and biological conditions of the Project site and surrounding area. This includes a summary of land use, topographical features, soils, and hydrological features observed during biological surveys conducted between April 5, 2018, and February 5, 2019.

3.1 Physical Characteristics

3.1.1 Existing Land Use

The main Project site south of Westside Main Canal (i.e., the Project Proponent-owned parcels) consists of agriculturally-zoned land that was previously used for agriculture but has remained inactive since at least 2003. The portion of the Project area that lies north of Westside Main Canal includes parcels owned by the IID and a private land owner, that were also previously used for agriculture and has remained inactive since at least 2013. This inactivity has resulted in the natural, wind-driven deposition of sand and/or re-establishment of native and non-native vegetation within large portions of the old agricultural fields.

The Project site is surrounded by undeveloped BLM land to the south and west and privately-owned land to the north and east.

Infrastructure that occurs within the Project site includes the Westside Main Canal; a concrete-lined irrigation channel; a 230 kV single-circuit IID distribution line and the Campo Verde 230 kV radial transmission line along with their associated easements and

maintenance roads; and Liebert Road, which is a County road. Within the Project site, all infrastructure associated with the previous agriculture operations south of Westside Main Canal has been removed or is deteriorated and non-functional.

Current activities on site are minimal and largely limited to the land the north of Westside Main Canal. These activities comprise IID, Customs and Border Protection (CBP), agricultural operations, and occasional fishing activity along the Westside Main Canal. IID activity includes vehicle travel along the Westside Main Canal roads (including Mandrapa Road) and Liebert Road. Due to the site's proximity to the U.S.-Mexico border, CBP likely travels through the Project site, although no CBP activities were observed on-site during any of the biological surveys. Infrequent vehicle activity associated with the active agriculture was observed on Liebert Road and Mandrapa Road, north of Westside Main Canal.

3.1.2 Topography and Soils

The Project site is located in the Yuha Basin of the Colorado Desert.

Elevation ranges from sea level in the far southwestern corner to -24 feet in the northeastern corner. Topography within the Project site is generally level, with the exception of human-made berms along the boundaries of the inactive and active agricultural areas and small dunes and sandy hummocks that occur west and south of the Project site, as well as within the western and southwestern portions of the Project area, where the native desert habitat is re-establishing.

The following 10 soil types are mapped within the Project site and surrounding 100-foot radius and are listed in the approximate order of prevalence: Vint loamy very fine sand, wet; Vint and Indio very fine sandy loams, wet; Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes; Meloland very fine sandy loam, wet; Rositas fine sand, wet, 0 to 2 percent slopes; Meloland fine sand; Glenbar complex; Indio-Vint complex; Rositas fine sand, 0 to 2 percent slopes; and Holtville silty clay, wet (USDA 1981). The soil series to which these soil types belong are very deep, range from moderately-well-drained to somewhat excessively-drained, and formed in alluvial and/or eolian materials on flood plains and alluvial basins, terraces, and/or sandhills (USDA 1981).

3.1.3 Hydrology

The Project site is within the Salton Sea Transboundary Watershed in the Colorado River Basin Region (State of California Water Boards 2018). Westside Main Canal is a human-made, natural-bottomed canal conveying water from the All-American Canal to the Imperial Valley area for irrigation use. It crosses through the northern portion of the Project site, flowing east to west. Within the survey area, a drop structure, known as the Fern Check structure, occurs within the canal and regulates water levels. During the February 2019 survey, water levels were regulated at approximately 18 inches below the top of the bank east of the drop structure, and approximately5 feet below the top of the bank west of the drop structure. In addition to the Westside Main Canal, the east-west concrete-lined channel

mentioned above and a concrete-lined channel extending north-south in the northeast portion of the survey area contained flowing water at the time of the survey.

Manufactured drainage ditches, both concrete-lined and natural-bottomed, occur along berms that define the boundaries of abandoned agricultural fields throughout the Project site, south of Westside Main Canal. However, these drainage ditches are non-functional. No other portions of the Project site or surrounding 100-foot radius contain topographic bottomlands where a substantial amount of water could concentrate and/or flow. No hydrology indicators were observed aside from the surface water within the Westside Main Canal and the two continuously active concrete-lined irrigation channels.

3.2 Biological Resources

3.2.1 Botanical Resources

The following vegetation communities and land cover types were mapped within the Project site and surrounding 100-foot radius: upland mustards (*Brassica* spp. and Other Mustards Semi-Natural Herbaceous Stands), fourwing saltbush scrub (*Atriplex canescens* Shrubland Alliance), creosote bush scrub (*Larrea tridentata* Shrubland Alliance), quailbush scrub (*Atriplex lentiformis* Shrubland Alliance), arrow weed thickets (*Pluchea sericea* Shrubland Alliance), tamarisk thickets (*Tamarix* spp. Semi-Natural Shrubland Stands), common reed marshes (*Phragmites australis* Herbaceous Alliance and Semi-Natural Stands), eucalyptus groves (*Eucalyptus* spp. Semi-Natural Woodland Stands), cattail marshes (*Typha* sp. Herbaceous Alliance), disturbed habitat, fallow agriculture, open water, and developed land (Table 2). A brief description of each community or land cover type is also provided below in order of prevalence within the Project site and surrounding 100-foot radius.

Table 2
Vegetation Communities/Land Cover Types within the Project Site and Surrounding 100-foot Radius (acres)

Community or Type	Project Area	100-foot Buffer
upland mustards	74.70	0.97
fourwing saltbush scrub	47.74	2.52
fallow agriculture	13.56	1.40
arrow weed thickets	6.87	2.01
creosote bush scrub	6.43	10.47
disturbed habitat	5.77	7.36
tamarisk thickets	5.26	1.34
quailbush scrub	2.15	1.33
eucalyptus groves	0.58	--
cattail marshes	0.14	--
open water	0.10	5.75
common reed marshes	0.04	2.42
developed land	0.00	1.63
Total	**163.32***	**37.20**
*Total acreage varies from sum of cells due to rounding.		

A minimum of 46 plant species was observed within the Project site and surrounding 100-foot radius, with 28 species (61 percent) considered native and the remaining 18 species

(39 percent) considered non-native and/or naturalized into the area. Dominant plant species are discussed by vegetation community below, and a complete list of plant species detected is included as Attachment 2. Figure 4 illustrates the vegetation mapped within the 100-foot radius. Active agriculture is present beyond the 100-foot radius but within the larger 150-meter buffer that was surveyed as part of the burrowing owl surveys. These are not accounted for in Table 2 or Figure 4, but can be seen in the aerial in the northwestern corner.

3.2.1.1 Upland Mustards

Upland mustards is the predominant vegetation community within the Project site and is primarily found south of Westside Main Canal. The vegetation is open and low-growing, and comprises a mix of non-native and native annual plant species. Total vegetative cover ranges between 10 and 40 percent, with London rocket (*Sisymbrium irio*) as the dominant species. Other common plants include the native narrow-leaf cryptantha (*Cryptantha angustifolia*) and non-native Mediterranean schismus (*Schismus barbatus*). Native annuals such as yellow cups (*Chylismia brevipes*) and brown-eye primrose (*Chylismia claviformis*) are scattered in low numbers.

3.2.1.2 Fourwing Saltbush Scrub

Fourwing saltbush scrub is the predominant vegetation community within the western and southwestern portions of the Project site south of Westside Main Canal. An additional linear stand of this community parallels the south side of the Westside Main Canal access road in the eastern half of the Project site. Total shrub cover ranges between 10 and 40 percent, and shrub height averages three to four feet. The dominant shrub species is fourwing saltbush with scattered creosote occurring within the southernmost stand in the Project site.

Herbaceous cover is approximately 15 percent and comprises low-growing native and non-native annuals, including narrow-leaf cryptantha, London rocket, and Mediterranean schismus with the addition of desert indianwheat (*Plantago ovata*) in the southwestern stand.

Image source: DigitalGlobe (flown November 2016)

Project Boundary

General Survey and Wetland Delineation (100-foot Buffer)

Burrowing Owl Survey Area (150-m Buffer)

Vegetation Communities

- Arrow Weed Thickets
- Common Reed Marshes
- Cattail Marshes
- Creosote Bush Scrub
- Eucalyptus Groves
- Fourwing Saltbush Scrub
- Quailbush Scrub
- Tamarisk Thickets
- Upland Mustards

Land Cover Types

- Disturbed Habitat
- Fallow Agriculture
- Open Water
- Developed

Wildlife Observations

- American Badger
- Black-tailed Jackrabbit
- Cooper's hawk
- LeConte's Thrasher
- Loggerhead Shrike
- Northern Harrier
- Turkey Vulture
- Burrowing Owl

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FIGURE 4

Existing Biological Resources

3.2.1.3 Creosote Bush Scrub

Creosote bush scrub largely occurs in the areas along the west, south, and southeast boundaries of the Project site, south of Westside Main Canal. This community occurs in the desert areas that have been subjected to minimal historical disturbance and has begun to re-establish along the edges of the Project site since abandonment of the agricultural fields. Outside the Project site, total shrub cover averages between 20 and 30 percent, and shrub height averages five to six feet. Within the Project site, shrub density is lower and height is shorter at approximately 10 percent and three feet, respectively. Creosote is the dominant shrub species throughout this community. Alkali goldenbush (*Isocoma acradenia* var. *eremophila*) occurs as a subdominant shrub species in the southeastern stand, where lateral seepage from Westside Main Canal has resulted in a higher water table.

Fourwing saltbush is scattered throughout the majority of this community in the drier western and southern stands. Herbaceous cover is low, reaching 20 percent cover is some areas, and includes low-growing native annuals and bulbs such as yellow cups, brown-eye primrose, narrow-leaf cryptantha, and desert lily (*Hesperocallis undulata*).

3.2.1.4 Fallow Agriculture

Fallow agriculture is the predominant land type cover in the portion of the Project site north of Westside Main Canal, where the land previously was used for agriculture but has remained inactive since at least 2013. These areas support 10 to 80 percent cover of herbaceous vegetation, heavily dominated by non-native Bermuda grass (*Cynodon dactylon*) and averaging one foot high. Scattered non-native annuals Mediterranean schismus and prickly lettuce (*Lactuca serriola*) occur throughout, and native alkali goldenbush shrubs occur in low numbers in the western portion of this cover type.

3.2.1.5 Disturbed Habitat

Disturbed habitat consists of bare ground and dirt roads (i.e., canal roads, Liebert Road) that are subjected to continued disturbance, preventing establishment of substantial vegetation cover. The few plants that occur within or along the edges of these areas include alkali heliotrope (*Heliotropium curassavicum*) along the canal roads, London rocket, and nettle-leaf goosefoot (*Chenopodium murale*).

3.2.1.6 Arrow Weed Thickets

Arrow weed thickets occur in five different patches, the majority of which occur as linear stands paralleling Westside Main Canal and an active concrete-lined irrigation channel in the northern portion of the Project site (see Figure 4). The largest stand occurs at the eastern edge of the Project site, continues off site to the east and south, and may have developed as a result of lateral seepage of water from Westside Main Canal. Arrow weed dominates this vegetation community at approximately 50 percent cover. Occasional saltcedar (*Tamarix ramosissima*) shrubs or trees occur within this vegetation community, and the understory

consists of a sparse cover of non-native mustards and narrow-leaf cryptantha in openings between shrubs.

3.2.1.7 Tamarisk Thickets

Tamarisk thickets occur several distinct stands, including linear patches along a network of berms and irrigation ditches that likely were manufactured for agriculture use but have since been abandoned, as well as clusters of trees along the southern boundary of the Project site, These patches of tamarisk thickets are dominated by either saltcedar with an approximate cover of 30 percent, or athel (*Tamarix aphylla*) with an approximate cover of 80 percent. The patches of athel were likely planted as a wind screen when the site was used for agriculture.

One patch of tamarisk thicket occurs within an abandoned agriculture field in the southeast portion of the survey area and contains sparse, shrub-sized saltcedar at approximately 10 percent cover. These individuals likely established naturally but currently appear to be stressed with substantially diminished canopies.

One additional stand parallels the access road along the south side of Westside Main Canal; this patch is dominated by saltcedar at approximately 50 percent cover. The saltcedar individuals in this northern patch appear mature and robust.

3.2.1.8 Open Water

Areas of open water occur within the Westside Main Canal and one concrete-lined irrigation channels. Although most portions of the open water do not contain any plants, the east-west concrete-lined channel north of the Westside Main Canal contains portions with a moderate accumulation of coontail (*Ceratophyllum demersum*) and long filamentous algae. Cover of aquatic plants within this channel is less than 5 percent; therefore, the channel is considered unvegetated.

3.2.1.9 Quailbush Scrub

Quailbush scrub occurs in two stands north of Westside Main Canal and west of Liebert Road. At approximately 50 percent cover, quailbush dominates this vegetation community. The understory is mostly bare, with sparse cover of upland herbaceous species such as Bermuda grass and London rocket. The eastern patch of quailbush scrub is small and surrounded by arrow weed thickets and disturbed habitat, and occurs with a small patch of eucalyptus groves. The western patch of this vegetation community is larger, extending north and west beyond the 100-foot radius of the Project site. Both patches occur within areas that appear to have been used historically for agriculture but have since remained fallow. Manufactured berms and ditches occur along much of the perimeters of the patches.

3.2.1.10 Common Reed Marshes

Common reed marshes occur as linear stands averaging between 5 and 10 feet in width along the banks of Westside Main Canal. This vegetation community is dominated by common reed, which comprises approximately 35 percent cover. Arrow weed occurs in most portions of this

vegetation community as a subdominant species at approximately 5 percent cover. The banks of the canal are steep and contain a substantial proportion of large rock and pieces of concrete. Although common reed growth occurs both along the slope and on top of the banks, no growth occurs from portions of the bank at or below the water level.

3.2.1.11 Developed Land

Developed land is mapped within the 100-foot radius immediately north of the Project site and comprises solar PV development.

3.2.1.12 Eucalyptus Groves

The on-site eucalyptus grove comprises one small cluster of eucalyptus trees in the northern portion of the Project site, adjacent to the intersection of Liebert Road and Mandrapa Road, north of Westside Main Canal. The trees are mature, 30 to 50 feet tall, and include coolibah (*Eucalyptus microtheca*).

3.2.1.13 Cattail Marshes

Cattail marshes occur only within the small, concrete-lined irrigation channel extending east-west north of Westside Main Canal. This vegetation community is dominated by southern cattail (*Typha domingensis*). However, it appears this vegetation was dug out of the irrigation channel prior to the February 2019 survey, as the removed cattails were observed piled nearby.

3.2.2 Zoological Resources

A total of 127 animal species were detected within the Project site and surrounding areas (within 150-meter [500-foot] radius) during the 2018 and 2019 biological surveys. These comprise 25 invertebrates, 1 amphibian, 7 reptiles, 84 birds, and 10 mammals typical of Colorado Desert communities and agricultural areas, and are summarized below. A complete list of animal species detected during the 2018 and 2019 surveys is included as Attachment 3. Sensitive animal species observed are discussed in Section 3.3.4.

3.2.2.1 Invertebrates

Invertebrates detected during the 2018 and 2019 surveys include common insects such as mosquito (*Culex* sp.), darkling beetle (not identified to species), tarantula hawk (*Pepsis* sp.), honey bee (*Apis* sp.), and cicada (not identified to species); scorpion (not identified to species; detected by tracks); three ant species including California harvester ant (*Veromessor stoddardi*) and black harvester ant (*Veromessor pergandei*); eight butterfly or skipper species including painted lady (*Vanessa cardui*), western pygmy-blue (*Brephidium exile*), orange sulphur (*Colias eurytheme*), and fiery skipper (*Hylephila phyleus muertovalle*); and two dragonflies, roseate skimmer (*Orthemis ferruginea*) and Mexican amberwing (*Perithemis intense*).

3.2.2.2 Amphibians and Reptiles

One invasive amphibian species, American bullfrog (*Lithobates catesbeiana*), was detected during the 2018 and 2019 biological surveys.

The following five reptile species were observed: western banded gecko (*Coleonyx variegatus variegatus*), western zebra-tailed lizard (*Callisaurus draconoides rhodostictus*), long-tailed brush lizard (*Urosaurus graciosus*), Great Basin tiger whiptail (*Aspidoscelis tigris tigris*), and Colorado Desert sidewinder (*Crotalus cerastes laterorepens*). In addition, turtle tracks were observed near Westside Main Canal and likely belong to spiny softshell turtle (*Apalone spinifera*), which is an introduced species known to occur in the area (Daniel and Morningstar 2019). Flat-tailed horned lizard (*Phrynosoma mcallii*) is also assumed present within the Project site based the observation of horned lizard tracks and the known occurrence of the species in the immediate vicinity of the Project site. As flat-tailed horned lizard is a sensitive species, it is discussed further in Section 3.3.4 below.

3.2.2.3 Birds

Avian species commonly observed within or adjacent to the Project site include Abert's towhee (*Melozone aberti*), Gambel's quail (*Callipepla gambelii gambelii*), rock dove (*Columba livia*), blue-gray gnatcatcher (*Polioptila caerulea*), black-tailed gnatcatcher (*P. melanura*), Anna's hummingbird (*Calypte anna*), house finch (*Haemorhous mexicanus frontalis*), Say's phoebe (*Sayornis saya*), verdin (*Auriparus flaviceps acaciarum*), western meadowlark (*Sturnella neglecta*), and lesser goldfinch (*Spinus psaltria hesperophilus*). Sensitive species are discussed in Section 3.3.4 below.

3.2.2.4 Mammals

The following 10 mammal species were detected during the 2018 and 2019 biological surveys: desert black-tailed jackrabbit (*Lepus californicus deserticola*), desert cottontail (*Sylvilagus audubonii*), round-tailed ground squirrel (*Spermophilus tereticaudus*), Botta's pocket gopher (*Thomomys bottae*), kangaroo rat (*Dipodomys* sp.), coyote (*Canis latrans*), kit fox (*Vulpes macrotis*), northern raccoon (*Procyon lotor*), American badger (*Taxidea taxus*), and bobcat (*Lynx rufus*). As American badger is a sensitive species, it is discussed further in Section 3.3.4 below.

3.3 Sensitive Biological Resources

3.3.1 Regulatory Setting

3.3.1.1 Regulatory Framework

Various federal and state regulations or policies apply to biological resources on or adjacent to the Project parcels and are summarized below.

a. Federal Regulations

The federal Endangered Species Act (ESA) provides the legal framework for the listing and protection of species (and their habitats) that are identified as being endangered or threatened with extinction. Actions that jeopardize endangered or threatened species and the habitats upon which they rely are considered 'take' under the ESA. Section 9(a) of the ESA defines 'take' as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." The ESA is administered by the USFWS.

The Migratory Bird Treaty Act (MBTA; 16 United States Code 703 et seq.) is a federal statute that implements treaties with several countries on the conservation and protection of migratory birds. The number of bird species covered by the MBTA is listed at 50 Code of Federal Regulations (CFR) 10.13. The regulatory definition of "migratory bird" is broad and includes any mutation or hybrid of a listed species and any part, egg, or nest of such birds (50 CFR 10.12). The MBTA, which is enforced by USFWS, makes it unlawful "by any means or in any manner, to pursue, hunt, take, capture, [or] kill" any migratory bird, or attempt such actions, except as permitted by regulation. The take, possession, import, export, transport, sale, purchase, barter, or offering of these activities is prohibited, except under a valid permit or as permitted in the implementing regulations (50 CFR 21.11). Pursuant to U.S. Department of the Interior Memorandum M-37050, the federal MBTA is no longer interpreted to cover incidental take of migratory birds (U.S. Department of the Interior 2017). Therefore, impacts that are incidental to implementation of an otherwise lawful project would not be considered significant.

The Rivers and Harbors Act of 1899 and the Clean Water Act (CWA) regulate project activities within non-marine navigable waters and/or waters of the U.S. The discharge of any pollutant from a point source into navigable waters is illegal unless a permit under the CWA's provisions is acquired. Permitting for projects that include both permanent and temporary dredging and filling in wetlands and waters of the U.S. is overseen by the USACE under Section 404 of the CWA. Projects can be permitted on an individual basis or be covered by one of several approved nationwide or regional general permits.

b. State Regulations

The California Environmental Quality Act (CEQA) requires an environmental review for projects with potentially adverse impacts on the environment. Adverse environmental impacts are typically mitigated in accordance with state laws and regulations.

The California ESA is similar to the federal ESA in that it provides the legal framework for the listing and protection of species (and their habitats) that are identified as being endangered or threatened with extinction.

Section 3503 of the California Fish and Game Code states that it is "unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto," and Section 3503.5 states that it is "unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird" unless authorized (State of California 1991).

The California Fish and Game Code (Sections 1600 through 1603) regulates project activities within wetlands and riparian habitats. The CDFW can issue a Streambed Alteration Agreement for projects affecting riparian and wetland habitats.

Project activities that fill or dredge within wetland waters of the U.S. and waters of the U.S. as well as wetland waters of the state and waters of the state, including isolated waters such as vernal pools and other waters showing lack of connectivity to a Traditional Navigable Waters, require a Water Quality Certification by the California Regional Water Quality Control Board (RWQCB) under Section 401 of the CWA and Section 13000 et seq. of the California Water Code under the Porter-Cologne Water Quality Control Act.

3.3.1.2 Sensitivity Criteria

Vegetation communities are considered sensitive natural communities if they are of limited distribution; have federal, state, or local laws regulating their development; and/or support concentrations of sensitive plant or wildlife species. For purposes of this report, the following natural communities are considered sensitive: (1) communities with state rarity ranks of S1-S3, as reviewed by the Vegetation Classification and Mapping Program (VegCAMP) and CNPS, and recognized by CDFW (2018a); and (2) wetlands and waters under the jurisdiction of federal and state agencies.

For purposes of this report, plant and wildlife species would be considered sensitive if they are: (1) listed by state or federal agencies as rare, threatened, or endangered or are proposed for listing; (2) given a California Rare Plant Rank 1B (considered endangered throughout its range), 2 (considered endangered in California but more common elsewhere), 3 (more information about the plant's distribution and rarity needed), or 4 (plants of limited distribution) in the CNPS Inventory of Rare and Endangered Vascular Plants of California (2019); (3) considered rare, endangered, or threatened by CDFW (2018b-d, 2019b); or (4) identified by another recognized conservation or scientific group as being depleted, potentially depleted, declining, rare, critical, endemic, endangered, or threatened.

3.3.2 Sensitive Vegetation Communities

The following vegetation communities mapped within the Project site and surrounding 100-foot radius are considered sensitive: arrow weed thickets (state rarity rank of S3), quailbush scrub (wetland waters of the state; see Section 3.3.6), common reed marshes (wetland waters of the state; see Section 3.3.6), cattail marsh (see Section 3.3.6), and one stand of tamarisk thickets (wetland waters of the state; see Section 3.3.6).

3.3.3 Sensitive Plant Species

No sensitive plant species were observed during the focused rare plant surveys or other biological surveys conducted in 2018 and 2019 for this Project, and no sensitive plant species were determined to have a moderate or high potential to occur within or adjacent to the Project site. Attachment 4 summarizes the potential occurrence of sensitive plant species

that were assessed based on species locations records, habitat suitability, and soil preferences.

3.3.4 Sensitive Wildlife Species

The following nine sensitive wildlife species were detected during the general and focused biological surveys conducted in 2018 and 2019 for this Project: flat-tailed horned lizard, ferruginous hawk (*Buteo regalis*), prairie falcon (*Falco mexicanus*), burrowing owl, loggerhead shrike (*Lanius ludovicianus*), black-tailed gnatcatcher, LeConte's thrasher (*Toxostoma lecontei*), Abert's towhee, and American badger (see Figure 4). Descriptions of these observed sensitive wildlife species are provided in the following sections and summarized in Attachment 5.

Based on an assessment of species location records and habitat suitability, the following five additional sensitive wildlife species were identified as having a high or moderate potential to occur within the Project site: Colorado Desert fringe-toed lizard (*Uma notata*), southwestern willow flycatcher (*Empidonax traillii extimus*), vermilion flycatcher (*Pyrocephalus rubinus*), pallid bat (*Antrozous pallidus*), and Yuma hispid cotton rat (*Sigmodon hispidus eremicus*). Descriptions of these potentially occurring sensitive wildlife species are provided in Section 3.3.4.2 below and summarized in Attachment 5. However, vermilion flycatcher is only addressed in Attachment 5, as the sensitivity status of this species only applies to nesting individuals, which are not expected to occur on site.

The following additional 13 sensitive wildlife species were detected during surveys but are only addressed in Attachment 5, as none of these species is expected to breed on or adjacent to the Project site: American white pelican (*Pelecanus erythroryhnchos*), double-crested cormorant (*Phalacrocorax auritus albociliatus*), great egret (*Ardea alba*), great blue heron (*Ardea herodias*), snowy egret (*Egretta thula thula*), black-crowned night heron (*Nycticorax nycticorax*), Cooper's hawk (*Accipiter cooperii*), northern harrier (*Circus hudsonius*), long-billed curlew (*Numenius americanus*), Vaux's swift (*Chaetura vauxi*), Brewer's sparrow (*Spizella breweri*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), and yellow warbler (*Setophaga petechia*). Each of these species' sensitivity status is only applied to nesting individuals or nesting colonies.

3.3.4.1 Sensitive Wildlife Species Detected

a. Flat-tailed Horned Lizard (*Phrynosoma mcallii*)

Flat-tailed horned lizard is a CDFW species of special concern and BLM sensitive species. Flat-tailed horned lizard is found in the low deserts of southwestern Arizona, southeastern California, and adjacent portions of northwestern Sonora and northern Baja California, Mexico. In California, flat-tailed horned lizard is restricted to desert washes and desert flats in central Riverside, eastern San Diego, and Imperial counties. The majority of the habitat for the species is in Imperial County (CDFW 2018c; Turner et al. 1980 as cited in Flat-tailed Horned Lizard Interagency Coordinating Committee [ICC] 2003). This species is known to inhabit sand dunes, sheets, and hummocks, as well as gravelly washes. It is thought to be

most abundant in creosote bush scrub. However, this species may be found in a variety of desert scrub communities, desert wash, succulent shrub, alkali scrub, sparsely vegetated sandy flats, desert pavement, and rocky slopes. It is typically found in dry, hot areas of low elevation (less than 800 feet; ICC 2003). Flat-tailed horned lizards escape extreme temperatures by digging shallow burrows in the loose sand. Adults are primarily active from mid-February to mid-November. Breeding activity takes place in the spring with young hatching in late July and September. The diet of horned lizards typically consists of greater than 95 percent native ant species, mostly large harvester ants (including *Pogonomyrmex* spp. and *Veromessor* spp.). Human activities have resulted in the loss of approximately 49 percent of the historic habitat of flat-tailed horned lizard (ICC 2003). The decline in this species' population is primarily due to impacts from utility lines, roads, geothermal development, sand and gravel mining, off-highway vehicle recreation, waste disposal sites, military activities, pesticide use, and U.S. Border Patrol activities (ICC 2003).

Many occurrences of flat-tailed horned lizard have been reported in the undeveloped desert areas immediately west and south of the Project site (CDFW 2019a), and horned lizard tracks were observed during 2018 surveys in the western portion of the Project site, south of Westside Main Canal. Given the cryptic nature and resulting difficulty of detection without focused surveys, these historical records are sufficient to assume this species is present in the creosote bush scrub and fourwing saltbush scrub within and adjacent to the Project site. Within the Project site, these communities provide high-quality habitat for this species, with sandy hummocks having re-established in the old agricultural fields, a good diversity of native plant species, and harvester ants present. The remainder of the Project site south of Westside Main Canal provides marginally suitable habitat, and flat-tailed horned lizard has a high potential to occur due only to the adjacency of high-quality habitat. North of Westside Main Canal, this species has a low potential to occur due to the prevalence of active agriculture and solar development.

b. Ferruginous Hawk (*Buteo regalis*)

Ferruginous hawk (wintering) is a CDFW watch list species (CDFW 2018c). This species is a fairly common winter visitor to southern California from mid-September to late April (Small 1994). The ferruginous hawk's winter range includes open terrain such as grassland, open shrub lands, desert edges, and agricultural lands (Bechard and Schmutz 1995; Small 1994). Its diet is predominantly rabbits and ground squirrels, which are captured by hunting from perches and by aerial hunting (Bechard and Schmutz 1995). Population declines are believed to be due to a general loss of grassland habitat as a result of urban development and overgrazing (Unitt 2004).

Ferruginous hawk was observed flying overhead during the December 2018 and January 2019 surveys. This species is likely to forage within the open vegetation of the Project site and adjacent agricultural fields during winter due to the presence of common prey items such as cottontail rabbits, jackrabbits, and ground squirrels. The eucalyptus trees within the northern Project site and utility towers within and adjacent to the Project site may provide suitable nest sites. However, the Project site is outside this species' known breeding range, and this species was not observed on site during its typical breeding season. Therefore,

ferruginous hawk is only expected to occur as a winter visitor and is not expected to nest within or adjacent to the Project site.

c. Prairie Falcon (*Falco mexicanus*)

Prairie falcon (nesting) is a CDFW watch list species (CDFW 2018c). The prairie falcon is a permanent resident within the arid open lands of interior California, including the Colorado Desert (Small 1994). This species' primary foraging habitat includes open perennial and annual grasslands, savannahs, rangeland, agricultural fields, and desert scrub areas (Unitt 2004). Ground squirrels (*Spermophilus* spp.) make up the bulk of the prairie falcon's diet, but they will also prey on small birds such as horned lark (*Eremophila alpestris*) and western meadowlark, especially during the winter (Steenhof 2013). This species nests directly on cliff ledges or bluffs, without building a nest, and occasionally in rock crevices that are near suitable foraging habitat. However, they are also known to reuse old raven or eagle nests. The prairie falcon will forage as far away as 20 to 25 miles from their nesting site where the density of prey is low (Unitt 2004). Current threats to prairie falcon populations include human disturbance near nest sites and the loss of foraging habitat (Unitt 2004). Urbanization of foraging habitats within the desert badlands has resulted from agricultural encroachment, livestock-grazing, energy development activities, off-road vehicle use, and military training (Steenhof 2013).

Prairie falcon was observed flying overhead and foraging in the active agricultural fields adjacent to the northern portion of the Project site in the early July, early October, and mid-December 2018. The Project site and surrounding areas provide suitable open desert habitat and agricultural fields for foraging. The Project site and surrounding areas lack suitable cliff faces or bluffs preferred for nesting. However, the utility towers that occur within and adjacent to the west side of the Project site may provide nesting opportunities, as this species is known to reuse old raven nests. Therefore, this species is expected to occur as a winter visitor and has a low potential to nest on or adjacent to the Project site due to the presence of lattice utility towers.

d. Burrowing Owl (*Athene cunicularia*)

Burrowing owl (burrow sites and some wintering sites) is a CDFW species of special concern and BLM sensitive species (CDFW 2018c). This species occurs as a year-round resident and winter visitor in Imperial County. Habitat for the burrowing owl includes dry, open, short-grass areas with level to gentle topography and well-drained soils, as well as agricultural areas (CDFW 2012; Small 1994). These areas are also often associated with burrowing mammals (Haug et al. 1993). The burrowing owl is diurnal and perches during daylight at the entrance to its burrow or on low posts. Nesting occurs from March through August. Burrowing owls form pair-bonds for more than one year and exhibit high site fidelity, reusing the same burrow year after year (Haug et al. 1993). The female remains inside the burrow and is fed by the male during most of the egg laying and incubation period. Burrowing owls are opportunistic feeders, consuming a diet that includes arthropods, small mammals, and birds, and occasionally amphibians and reptiles (Haug et al. 1993). Urbanization has greatly reduced the amount of suitable habitat for this species (Lincer and Bloom 2007). Other

contributions to the decline of this species include the poisoning of squirrels and prairie dogs, road and ditch maintenance, and collisions with automobiles (CDFW 2012).

As described in the burrowing owl survey reports (RECON 2018, 2019a), no burrowing owls were observed on the Project site during the 2018 breeding season surveys, but four burrowing owl observations were recorded within the Project site during the 2018-2019 non-breeding season surveys (see Figure 4). These observations indicate that at least two, but likely three, individuals, appear to use the Project site and surrounding areas as a wintering site or for migration and dispersal, but is not currently using the site as breeding habitat. The creosote bush scrub, fourwing saltbush scrub, upland mustards, fallow agriculture, and disturbed habitat within and adjacent to the Project site provide suitable habitat for this species for breeding and wintering due to the open structure of the vegetation, presence of prey items, and abundance of potentially suitable burrows. As the more dense stands of arrow weed thickets and tamarisk thickets occur as small or linear patches within larger expanses of open vegetation, these typically unsuitable communities may also contribute suitable perch sites.

e. Loggerhead Shrike (*Lanius ludovicianus*)

Loggerhead shrike (nesting) is a CDFW species of special concern (CDFW 2018c). This species inhabits most of the continental United States and Mexico and is an uncommon year-round resident of southern California. It prefers washes with scattered trees or shrubs, or valley floors with scattered thickets of mesquite (*Prosopis* spp.) or saltbush (*Atriplex* spp.). Outside the desert this species inhabits grasslands, agricultural fields, open sage scrub, and chaparral (Unitt 2004). The loggerhead shrike requires open habitat with tall shrubs or trees to use as perches for hunting and fairly dense shrubs for nesting. It may also use fences or power lines for hunting perches (Shuford and Gardali 2008; Yosef 1996). Loggerhead shrikes are highly territorial and usually live in pairs in permanent territories (Yosef 1996). This species feeds on small reptiles, mammals, smaller birds, amphibians, and insects that they often impale on sticks or thorns before eating (CDFW 2014a). This bird may also be associated with freshly plowed or mowed fields, as these activities create foraging opportunities for this species (Yosef 1996). Loggerhead shrike populations are declining, likely due to urbanization and loss of habitat and, to a lesser degree, pesticide use (Yosef 1996). This species has also shown a decline in undeveloped areas, which suggests that it is susceptible to habitat fragmentation (Unitt 2004). Non-native grasses and forbs introduced by livestock grazing pose the greatest threat to shrikes in sagebrush–steppe habitats (Shuford and Gardali 2008).

Loggerhead shrike was observed in tamarisk thickets on the Project site and in common reed marsh and creosote bush scrub immediately adjacent to the Project site on multiple survey visits: May 30, July 6, October 4, November 8, and December 16 and 17, 2018, and January 24, 2019. With the combination of dense patches of shrubs or trees and adjacent open areas, the Project site and surrounding areas provide suitable breeding and foraging habitat for this species. Therefore, this species is likely a resident and has a high potential to nest within the Project site.

f. Black-tailed Gnatcatcher (*Polioptila melanura*)

Black-tailed gnatcatcher is a CDFW watch list species (CDFW 2018c). This species is a fairly common resident in the lower Colorado River Valley (Small 1994). It is found in desert scrub, with a preference for well-vegetated desert washes, desert oases, and willow thickets along watercourses, but able to live far away from water sources (Unitt 2004; Small 1994). This species primarily eats insects, ranging from insect eggs and caterpillars to grasshoppers, and occasionally takes in fruit or seeds (Farquhar et al. 2002). Black-tailed gnatcatchers often pair bond for life and defend permanent territories. Breeding generally occurs from March to June, although timing is heavily dependent on weather conditions and abundance of food (Unitt 2004). A pair will build their nest in dense shrubs to provide protection from direct sun and show a preference for spiny shrubs or trees (Unitt 2004; Small 1994). This species has a low tolerance for disturbance, typically avoiding urban areas and areas with non-native vegetation; is susceptible to brown-headed cowbird (*Molothrus ater*) nest parasitism; and is threatened by habitat loss due to over-pumping of groundwater (Unitt 2004; Small 1994).

Black-tailed gnatcatcher was detected during nearly every survey visit conducted in 2018 and 2019 and was typically observed in the creosote bush scrub and arrow weed thickets along the boundaries of the Project site south of Westside Main Canal, but occasionally in the western portion of the survey buffer north of Westside Main Canal. The arrow weed thickets, fourwing saltbush scrub, tamarisk thickets, and creosote bush scrub within and adjacent to the Project site provide suitable breeding and foraging habitat for this species. Based on the frequency of detection this species was not mapped. Based on this frequency and presence of suitable habitat, this species has a high potential to nest within or adjacent to the Project site.

g. LeConte's Thrasher (*Toxostoma lecontei*)

LeConte's thrasher is a CDFW species of special concern (CDFW 2018c). It is a permanent, but uncommon, resident in the San Joaquin Valley, Mojave and Colorado Deserts of California, the Sonoran Desert in Arizona, as well as Utah, Nevada, and Baja California, Mexico (Sheppard 1996). This sensitive bird requires undisturbed substrate for foraging under desert shrubs (Sheppard 1996). Ideal habitat throughout this species' range consists of sparsely vegetated desert flats, dunes, sandy alluvial fans below desert mountains, alkaline dry lakes, or gently rolling hills (Sheppard 1970). Dominant shrub species are saltbush (*Atriplex* spp.) not exceeding eight feet high and cholla (*Opuntia* spp.) ranging three to six feet high (Sheppard 1996). Creosote (*Larrea* sp.) may also be present, but the thrasher does not typically utilize this shrub species for shelter or nesting (Sheppard 1970, 1996). This bird also uses vegetated margins of large, rolling sand dunes, i.e., Algodones Dunes in Imperial County, California, and Scammon Lagoon, Baja California (Sheppard 1996). LeConte's thrasher feeds almost completely on arthropods and digs into the ground two to three inches with its bill. This insectivorous diet provides the only source of water for the thrasher. Generally, this species can be found mostly on the ground, running from shrub to shrub with its tail held high (Sheppard 1970). Destruction of substrate and shrubs, and extensive and repeated off-road use in the deserts are the primary threats to this species. Habitat conversion to agriculture is another major factor in reducing the amount of habitat available to this species and in isolating currently occupied area (Laudenslayer et al. 1992 as

cited in Shuford and Gardali 2008). This species also suffers from shootings and livestock grazing, which denudes and decimates the vegetation (Sheppard 1996).

LeConte's thrasher was observed during the November and December 2018 survey visits in arrow weed thickets and fourwing saltbush scrub on the Project site. Although this species is likely resident in the native desert scrub communities within and adjacent to the Project site, it is unlikely to nest on the Project site due to the lack of cactus and low number of thorny shrubs.

h. Abert's Towhee (*Melozone aberti*)

Abert's towhee lacks a state or federal listing or sensitivity status but is tracked by CDFW (i.e., is included in the Special Animal List), as it meets one or more of CDFW's conditions to be considered a species at risk (CDFW 2018c). This is a characteristic, resident, and territorial species of the Sonoran and Colorado deserts (Small 1994). Abert's towhee utilizes a variety of desert scrub communities but is often associated with streamside cottonwood-willow riparian forest and mesquite woodlands. However, this species has also shown an ability to acclimate to mixed native and non-native vegetation, as long as a sufficiently dense understory is present for nest placement (Tweit and Finch 1994). Abert's towhee primarily feeds on insects on the ground and occasionally consumes seeds. Habitat conversion to agriculture and urbanization has reduced the amount of habitat available to this species (Small 1994).

Abert's towhee was observed as a common species during the 2018 and 2019 surveys in the arrow weed thickets, fourwing saltbush scrub, and creosote bush scrub within and adjacent to the Project site. Based on the frequency of detection this species was not mapped. This species has a high potential to nest in the dense patches or stands of the communities listed above.

i. American Badger (*Taxidea taxus*)

American badger is a CDFW species of special concern (CDFW 2018c). American badgers are widespread, ranging from the Great Lakes to the Pacific Coast, and from the Canadian Prairie provinces to the Mexican Plateau. This species can be found in a variety of habitats, which include shrub steppes, agricultural fields, open woodland forests, and large grass and sagebrush meadows and valleys (Streubel 2000). Its breeding season occurs from mid- to late summer, after which egg implantation is delayed until December to February. A litter of two to five young are born between March and early April (Streubel 2000). American badger's diet consists of a variety of rodents, scorpions, insects, snakes, lizards, birds, and carrion. Declines in American badger populations and distribution have resulted from habitat fragmentation from urbanization and development of roads (Tremor et al. 2017).

One American badger was observed immediately south of the Project site on July 6, 2019. American badger tracks were observed in the southwestern corner and western edge of the Project site, south of Westside Main Canal, during the same visit (see Figure 4). At least one burrow, just outside the southwestern corner of the Project site was of appropriate size to support this species. Although this species may avoid the more open upland mustard areas

in the old agricultural fields, the Project site and surrounding areas south of Westside Main Canal provide suitable habitat for this species. South of Westside Main Canal, the Project site provides suitable open scrub vegetation, potential prey (e.g., ground squirrels, pocket gophers, lizards), and numerous existing burrows and soils capable of supporting new burrows. As individuals of this species maintain large home ranges, this species would require more land than is present on-site and potentially only forages on-site. However, the presence of existing burrows does indicate the potential for the site to support breeding individuals.

3.3.4.2 Sensitive Wildlife Species with Moderate to High Potential to Occur

a. Colorado Desert Fringe-toed Lizard (*Uma notata*)

Colorado Desert fringe-toed lizard is a CDFW species of special concern and a BLM sensitive species (CDFW 2018c). This species occurs from below sea level to 590 feet above sea level from the Salton Sea east into southwestern Arizona, and south into Baja California and Sonora, Mexico (Jennings and Hayes 1994; CDFW 2014b). It is primarily insectivorous, eating mostly ants, beetles, antlion larvae, hemipterans, grasshoppers, and caterpillars, but will also eat flowers, leaves, and seeds (CDFW 2014b). Fringe-toed lizards usually seek refuge from enemies by burrowing in the sand 5 to 6 centimeters (2 to 2.4 inches) deep. They also use rodent burrows and the bases of shrubs for cover and thermoregulation. Lizards usually hibernate in sand 30 centimeters (12 inches) deep, but juveniles and subadults may be found closer to the surface (CDFW 2014b).

This species has been reported within two miles of the Project site (CDFW 2019a) and has a moderate potential to occur within the Project site south of Westside Main Canal. The creosote bush scrub and fourwing saltbush scrub adjacent to and in the western and southwestern portions of the Project site, south of Westside Main Canal, provide suitable habitat for this species due to the presence of small dunes and sandy hummocks.

b. Southwestern Willow Flycatcher (*Empidonax trailii extimus*)

The southwestern willow flycatcher is federally and state listed as endangered. This migratory bird breeds in southern California, southern Nevada, southern Utah, Arizona, New Mexico, western Texas, southwestern Colorado, and extreme northwestern Mexico (USFWS 2011).

The southwestern willow flycatcher's breeding season is from late mid-May to mid-July. For breeding and nesting activities this species requires mature, multi-tiered riparian woodland habitat with a high percentage of canopy cover where surface water is present or soil moisture is high enough to support suitable tree species (Sogge et al. 2010). Nests are typically placed in trees where plant growth is most dense, where trees and shrubs have vegetation near ground level, and where there is a low-density native canopy. Although there are exceptions, generally flycatchers are found nesting in areas with willows, tamarisk, or both (USFWS 2011).

Southwestern willow flycatchers are extremely sensitive to human activity in riparian areas. Threats to this species include loss of riparian habitat due to urbanization, flood control, water diversion, grazing, and invasion of non-native species (Unitt 2004). Parasitism by brown-headed cowbirds (*Molothrus ater*) has been a significant factor in the decline of this species in California and Arizona and elsewhere (Sedgwick 2000). It should be noted that low cowbird parasitism rates, multi-tiered riparian woodland, and surface water are all important factors for the recovery of this species to be successful (Unitt 2004).

The arrow weed and tamarisk thickets within and adjacent to the Project site are suitable as foraging habitat, so the site has moderate potential to support foraging flycatchers during migration. However, the Project site and surrounding areas lack suitable mature riparian habitat for breeding, thus this species is not expected to breed on-site.

c. Pallid Bat (*Antrozous pallidus*)

Pallid bat is a CDFW species of concern and BLM sensitive species (CDFW 2018c). It is a locally common yearlong resident throughout most of California, except for high elevations in the Sierra Nevada. This bat occupies a variety of habitats including grasslands, shrublands, woodlands, and mixed conifer forests, and roosts in caves, crevices, or mines, which must be sufficiently large to provide refuge from high daytime temperatures (CDFW 2014c). Pallid bats may also roost in tree hollows and bark, and sometimes rodent burrows or dried mud (Tremor et al. 2017). This species feeds on large prey items such as beetles, grasshoppers, cicadas, spiders, scorpions, and Jerusalem crickets, as well as occasional small rodents and lizards, which it captures on the ground or on vegetation (Bat Conservation International 2011, Tremor et al. 2017). Pallid bats are very sensitive to disturbance of the roosting sites, as these roosts are crucial for metabolic economy and juvenile development. Population declines are generally attributable to loss of roost sites resulting from human intrusion and physical alteration (CDFW 2014c).

Pallid bat has a moderate potential to forage within the Project site, as the creosote bush scrub, fourwing saltbush scrub, and active agricultural fields within and adjacent to the Project site provide suitable foraging habitat. The tall eucalyptus, tamarisk, and palm trees within and adjacent to the Project site may are only marginally suitable as roost sites. However, the patchy nature of the mature trees that occur on and adjacent to the Project site likely makes these trees less suitable as roost sites. Therefore, pallid bat has a low potential to roost on-site.

d. Yuma Hispid Cotton Rat (*Sigmodon hispidus eremicus*)

Yuma hispid cotton rat is a CDFW species of special concern (CDFW 2018c). Yuma hispid cotton rat occurs along the Colorado River and its range extends into agricultural areas of Imperial Valley as a result of irrigation infrastructure. This species occupies moist grassland, croplands, grass- or forb-dominated communities or understories, and brushy areas along the borders of fields. It has also been reported from areas dominated by marsh plants, such as cattails, arrowed, and common reed. Its diet consists primarily of grasses, taking occasional insects and crops. Yuma hispid cotton rats are solitary, nocturnal and diurnal, active year-round, and build nests of woven grass in burrows or on the ground (CDFW 2014d).

This species has been reported along the Westside Main Canal within two miles of the Project site (CDFW 2019a) and has a moderate potential to occur within and adjacent to the Project site. The combination of wetland communities along Westside Main Canal, dense herbaceous cover within the fallow agriculture areas, and active agriculture within and adjacent to the Project site may provide suitable habitat conditions for this species. This species would likely avoid the open areas of upland mustards and the drier scrub habitats in the majority of the Project site, south of Westside Main Canal, as they tend to prefer tall, dense grasses located closer to water sources.

3.3.5 Wildlife Movement Corridors

Wildlife movement corridors are defined as areas that connect suitable wildlife habitat areas in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. The Project site lies adjacent to a large expanse of undeveloped desert in the Imperial Valley, which provides unconstrained habitat connectivity between the Salton Sea and the Gulf of California. While the site functions as part of general habitat that provides for local movement of terrestrial wildlife, it does not serve as a corridor.

3.3.6 Jurisdictional Wetlands and Waters

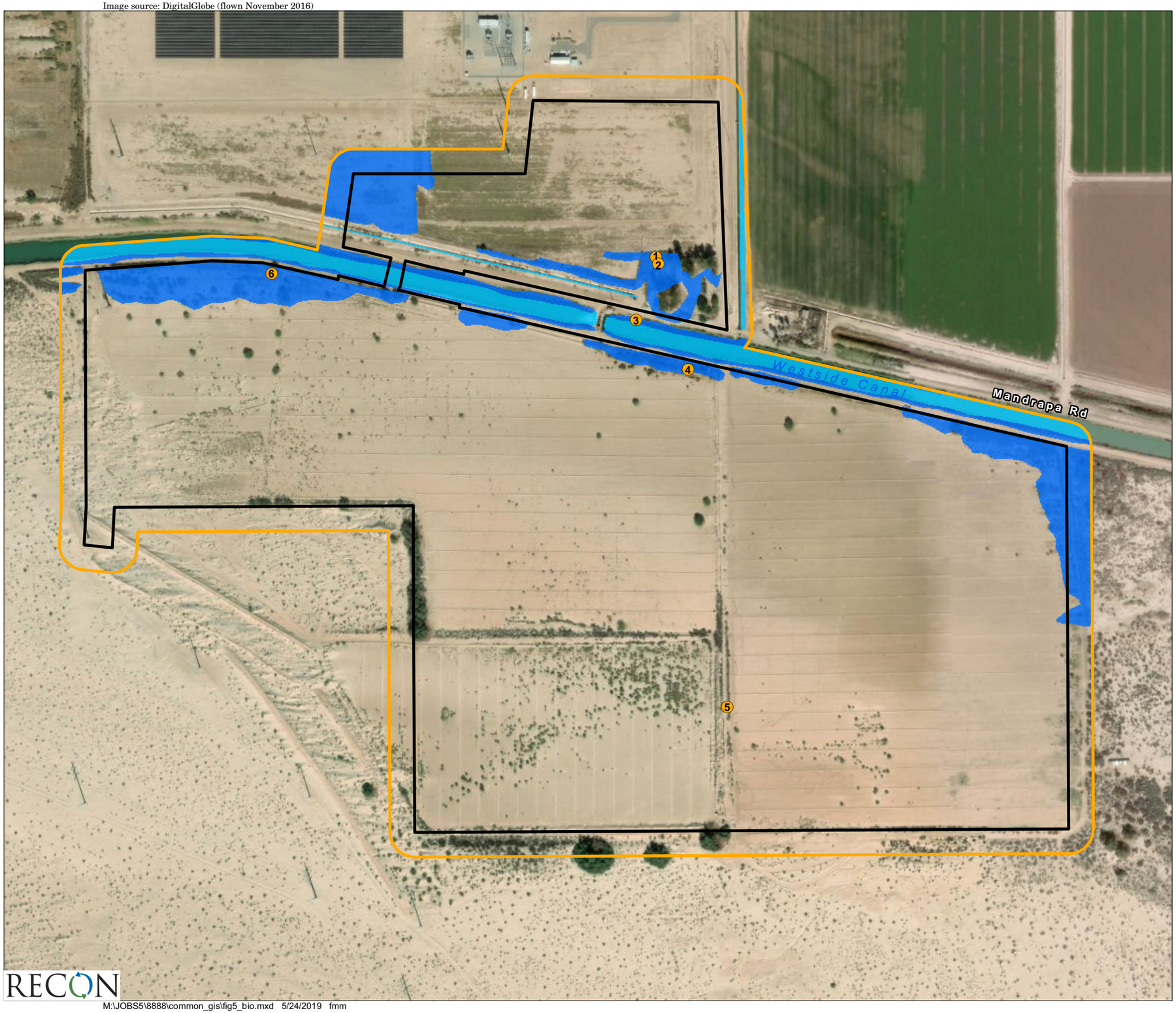
As discussed in the jurisdictional waters/wetland delineation report (RECON 2019b), jurisdictional wetlands and waters within the Project site and surrounding 100-foot radius are mostly associated with Westside Main Canal and other agriculture-related irrigation infrastructure.

As shown in Table 3 below and on Figure 5, a total of 9.63 acres of jurisdictional waters were delineated within the Project site and 11.52 acres were delineated in the surrounding 100-foot radius. This comprises the Westside Main Canal, an east-west concrete-lined irrigation channel, and a north-south concrete-lined irrigation channel.

Table 3
Existing Jurisdictional Waters within the Project Site and Surrounding 100-foot Radius (acres)

Jurisdictional Waters	Project	100-foot Buffer
USACE Total Jurisdictional Waters (404)	**0.21**	**5.76**
Non-wetland Waters of the U.S.	0.21	5.76
CDFW and RWQCB Total Jurisdictional Waters (1602/401)[1]	**9.43**	**11.52**
Wetland Waters of the State	9.22	5.76
Streambed	0.21	5.76
[1]CDFW/RWQCB area of jurisdiction includes all USACE jurisdictional waters.		

Image source: DigitalGlobe (flown November 2016)



Project Boundary

Survey Area

Sample Points

Jurisdictional Waters

CDFW/RWQCB Wetland Waters of the State

USACE Non-wetland Waters of the U.S., CDFW Streambed, RWQCB Waters of the State

0 Feet 400

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FIGURE 5

Existing Jurisdictional Waters

A total of 0.21 acre of USACE jurisdictional non-wetland waters of the U.S. was delineated within the Project site, with an additional 5.76 acres delineated within the surrounding 100-foot buffer. No USACE jurisdictional wetlands were delineated. Although it is possible that the area of cattail marshes within the Project site would have met all three wetland parameters, this wetland habitat was removed prior to the jurisdictional delineation and, therefore, was not delineated as a wetland for this report.

As shown in Table 3 and on Figure 5, a total of 9.43 acres of wetland waters of the state under the jurisdiction of CDFW and RWQCB were delineated within the Project site and 11.52 acres were delineated within the surrounding 100-foot radius. This includes all portions of the common reed marshes along the Westside Main Canal and the patches of quailbush scrub, arrow weed thickets, and tamarisk thickets in the northern portion of the Project (see Figure 4). These patches of hydrophytic vegetation primarily occur within 25 feet of an actively used, concrete-lined irrigation channel and/or the Westside Main Canal and appear to be associated with these channels as riparian habitat. Although the quailbush scrub in the northwestern portion of the survey area and the arrow weed thickets in the eastern portion of the survey area continue north and south, respectively, for many hundreds of feet from the waterways, their persistence is likely due to lateral water seepage. Therefore, these stands of vegetation would likely be considered an extension of these CDFW and RWQCB jurisdictional wetland habitats.

The tamarisk thickets in the eastern and southern portions of the Project site and surrounding 100-foot radius occur along ditches associated with the abandoned agriculture fields. These habitats are likely a relic of when these ditches regularly conveyed irrigation water and do not appear to be associated with the active water channels and canal in the northern portion of the survey area. Therefore, these stands are not considered wetlands under the jurisdiction of CDFW or RWQCB.

4.0 Project Impact Analysis

The Project would result in direct impacts to 163.3 acres within the Project site, comprising both permanent and temporary impacts. The following sections analyze the direct, indirect, and cumulative impacts to sensitive biological resources that may result from this Project. Table 4 provides the breakdown of permanent and temporary impacts within the Project site.

Table 4 Project Impacts to Vegetation Communities/Land Cover Types (acres)			
Community or Type	Permanent Impacts	Temporary Impacts	Total Impacts
upland mustard	73.45	1.24	74.70
fourwing saltbush scrub	47.72	0.01	47.74
fallow agriculture	4.02	9.54	13.56
arrow weed thickets	**6.02**	**0.85**	**6.87**
creosote bush scrub	6.24	0.19	6.43
disturbed habitat	1.81	3.96	5.77
tamarisk thickets	**4.73**	**0.53**	**5.26**
quailbush scrub	**0.34**	**1.81**	**2.15**
eucalyptus groves	0.04	0.54	0.58
cattail marshes	0.00	**0.14**	**0.14**
open water	**0.00**	**0.10**	**0.10**
common reed marshes	**0.04**	0.00	**0.04**
developed land	0.00	0.00	0.00
Total	**144.51***	**18.81***	**163.32***
*Total acreage varies from sum of cells due to rounding. **Bold** entries denote sensitive communities/land cover types (see Sections 4.1 and 4.5)			

In accordance with Appendix G of the CEQA Guidelines, the Project would have a significant impact if it would:

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the CDFW or USFWS;

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the CDFW or USFWS;

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and/or

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

4.1 Impacts to Sensitive Vegetation Communities

The Project would result in impacts to 14.46 acres of sensitive vegetation communities (Table 5), comprising 11.13 acres of permanent and 3.33 acres of temporary impacts. Table 5 provides the breakdown of impacts to each sensitive vegetation community and Figure 6 illustrates the extent of impacts on-site.

Table 5
Project Impacts to Sensitive Vegetation Communities
(acres)

Community or Type	Permanent Impacts	Temporary Impacts	Total Impacts
arrow weed thickets	6.02	0.85	6.87
tamarisk thickets	4.73	0.53	5.26
quailbush scrub	0.34	1.81	2.15
cattail marshes	0.00	0.14	0.14
common reed marshes	0.04	0.00	0.04
Total	**11.13**	**3.33**	**14.46**

Impacts to these sensitive communities would be considered significant and require mitigation. Impacts to the other vegetation communities and land cover types would not be considered significant and would not require mitigation.

4.2 Impacts to Sensitive Plant Species

The Project is not expected to impact any sensitive plant species as no sensitive plant species were observed during surveys conducted in 2018 and 2019, and no sensitive plant species were determined to have a moderate or high potential to occur.

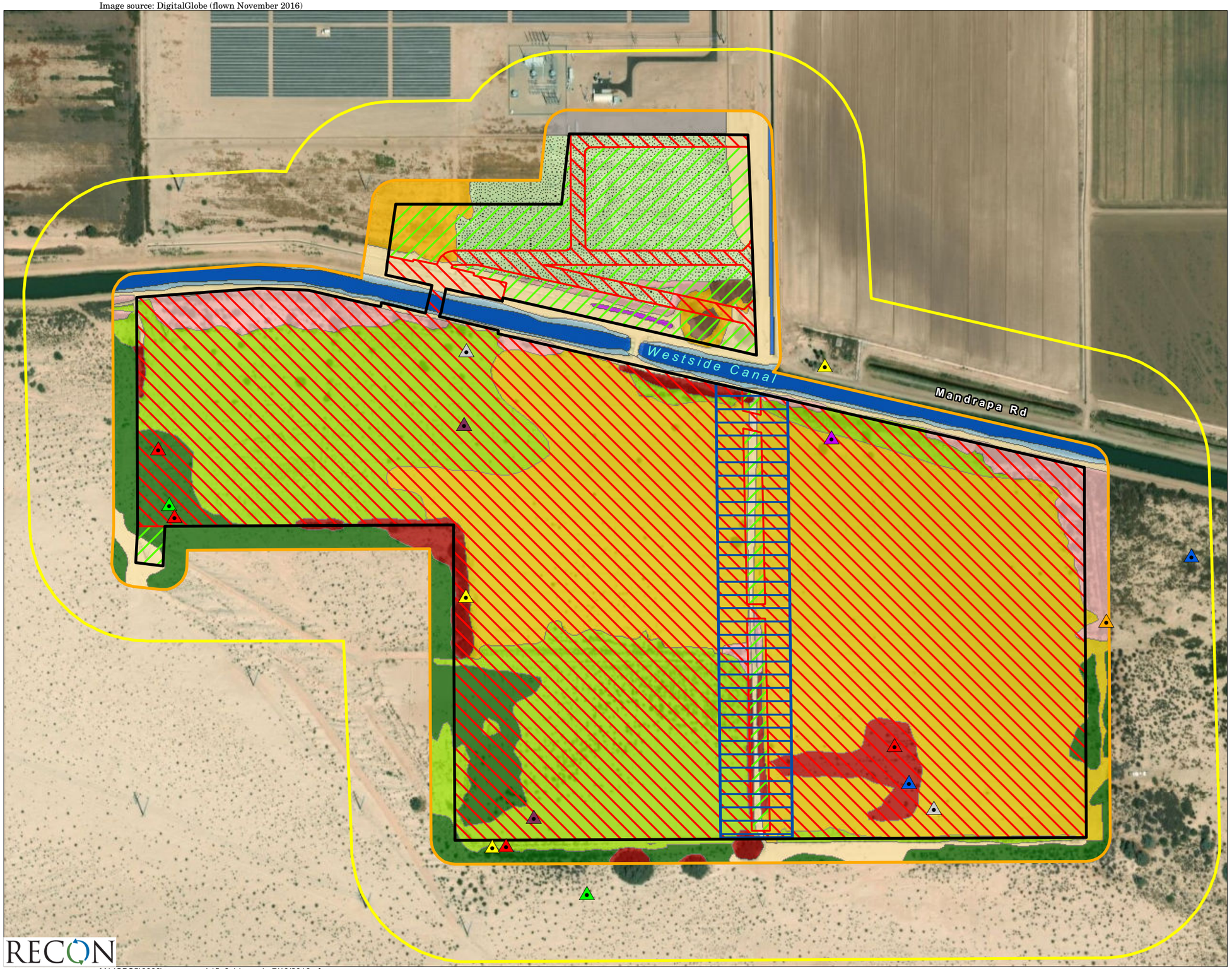
4.3 Impacts to Sensitive Wildlife Species

The Project has potential to impact to 14 sensitive wildlife species that occur or have a moderate to high potential to occur within the Project impact area. Direct impacts would result from incidental mortality and habitat removal within the Project construction footprint. The Project impact area in relation to the observed sensitive wildlife species locations is shown on Figure 6.

4.3.1 Reptiles

Two sensitive reptiles were identified as having potential to occur on-site: flat-tailed horned lizard and Colorado Desert fringe-toed lizard. Both of these species are CDFW Species of Special Concern and BLM Sensitive Species.

Image source: DigitalGlobe (flown November 2016)



- Project Boundary
- General Survey and Wetland Delineation (100-foot Buffer)
- Burrowing Owl Survey Area (150-m Buffer)
- Permanent Impacts
- Temporary Impacts
- Potential Location of Future Easement Corridor

Vegetation Communities

- Arrow Weed Thickets
- Common Reed Marshes
- Cattail Marshes
- Creosote Bush Scrub
- Eucalyptus Groves
- Fourwing Saltbush Scrub
- Quailbush Scrub
- Tamarisk Thickets
- Upland Mustards

Land Cover Types

- Disturbed Habitat
- Fallow Agriculture
- Open Water
- Developed

Wildlife Observations

- American Badger
- Black-tailed Jackrabbit
- Cooper's hawk
- LeConte's Thrasher
- Loggerhead Shrike
- Northern Harrier
- Turkey Vulture
- Burrowing Owl

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FIGURE 6
Impacts to Biological Resources

The Project has the potential to directly impact approximately 54 acres of suitable and assumed-occupied habitat for the flat-tailed horned lizard through habitat loss. Direct impacts to individual lizards, if present on-site, would be considered significant and require mitigation.

The Project has the potential to directly impact approximately 56 acres of suitable habitat for the Colorado Desert fringe-toed lizard through habitat loss. Direct impacts to individual lizards, if present on-site, would be considered significant and require mitigation.

Ongoing O&M could result in impacts though the introduction of trash and litter, attracting greater numbers of predators, such as ravens, which could in turn prey upon sensitive lizard species. There is a potential for impacts from vehicular traffic on-site post-construction. These would be considered significant and require mitigation.

4.3.2 Birds

Seven sensitive bird species were identified as having potential to occur on-site: ferruginous hawk, prairie falcon, burrowing owl, southwestern willow flycatcher, loggerhead shrike, black-tailed gnatcatcher, LeConte's thrasher, and Abert's towhee.

There is a potential for direct impacts to the burrowing owl from construction. Currently, the impacts would only be to wintering individuals; however, suitable breeding habitat is present and impacts to breeding individuals could occur if the species begins to use the site during the breeding season. Approximately 155 acres of suitable habitat are present within the Project site and would be subject to impact. Impacts to wintering and breeding individuals and their habitat would be considered significant and require mitigation.

Given that there is no suitable nesting habitat for the southwestern willow flycatcher on-site, there would be no impacts expected to occur to this species either from construction or ongoing O&M.

Direct impacts to the ferruginous hawk, prairie falcon, loggerhead shrike, LeConte's thrasher, Abert's towhee, and black-tailed gnatcatcher from construction activities would be considered less than significant for the following reasons: the site is surrounded by the larger BLM desert to the south and west that provides foraging habitat for all of these species and nesting habitat for the gnatcatcher, shrike, thrasher, and towhee; the population of any of these species on-site would not represent a substantial component of the region's population and impacts to individuals would not preclude the ability for the species to be self-sustaining. No mitigation beyond what would be required for nesting birds would be required.

Nesting birds including raptors covered under the California Fish and Game Code 3503 and 3503.5 have potential to be directly impacted by the Project if construction activities (i.e., clearing, grubbing, grading) occur during the general nesting season of February 1 to September 15. Direct impacts to nesting birds and raptors would be considered significant and require avoidance measures.

Ongoing O&M is not expected to significantly impact any of these species as the site would be maintained in the converted state and not expected to attract the species post-construction. In addition, the level of night lighting should minimal and directed down and to the interior of the site and noise generated should be minimal, so as to minimize any indirect impacts to the species on adjacent habitat.

Ongoing O&M could result in impacts though the introduction of trash and litter, attracting greater numbers of predators, such as ravens and large mammals, which could in turn prey upon sensitive bird species. These would be considered significant and require mitigation.

4.3.3 Mammals

Three sensitive mammals were either observed or identified as having moderate to high potential to occur on-site: American badger, pallid bat, and Yuma hispid cotton rat.

Direct impacts to American badger during construction, if active dens are found on-site, may be considered significant and require mitigation.

Direct impacts to the pallid bat during construction would result from loss of suitable foraging habitat. These impacts would be considered less than significant for the following reasons: this species is mobile and foraging individuals are expected to avoid and move out of harm's way; given the lack of highly suitable roosting habitat, the population of this species on-site, if present, would not represent a substantial component of the region's population and impacts to individuals would not preclude the ability for the species to be self-sustaining.

The potential for direct impacts to the Yuma hispid cotton rat, if present, is considered to be low based on the following reasons: the Westside Main Canal and associated common reed marsh along the edge would not be impacted beyond a small bridge span to connect the northern and southern parts of the Project; the grassy, fallow parcel along the north would only be temporarily impacted, rather than fully converted; this northern fallow parcel is adjacent to active agriculture, which provide more highly suitable habitat for the species; and the population of this species on-site, if present, would not likely represent a substantial component of the region's population and impacts to individuals would not preclude the ability for the species to be self-sustaining. Based on these reasons, direct impacts, if the species were to be present, would be considered adverse but less than significant.

Ongoing O&M is not expected to significantly impact any of these mammal species. Suitable habitat for the American badgers would not be present post-development. The Westside Main Canal would remain in essentially the same as the pre-construction state and thus O&M activities would not affect the Yuma hispid cotton rat or pallid bat. In addition, the level of night lighting should be minimal and directed down and to the interior of the site and noise generated should be minimal, so as to minimize any indirect impacts to the species on adjacent habitat.

4.4 Impacts to Wildlife Corridors

No significant direct or indirect impacts to wildlife movement are expected to occur from implementation of the Project, as the Project parcels do not function as a true wildlife movement corridor.

4.5 Impacts to Jurisdictional Wetlands and Waters

As shown in Table 6 and on Figure 7, the Project would impact all delineated jurisdictional waters on-site. A total of 6.75 acres would be permanently impacted and 2.68 acres would be temporarily impacted. This comprises 9.22 acres of CDFW/RWQCB wetland waters of the state and 0.21 acre of USACE jurisdictional non-wetland water and CDFW streambed/RWQCB waters of the state. Approximately 0.10 acre of open water within the Westside Main Canal would be spanned with a bridge. This is illustrated on Figure 7 as a permanent impact because it is a hardscaped component of the Project; however, given the fact that there would be no direct impact to the canal, this has been calculated as a temporary impact. The impacts to the vegetation along the banks of the canal associated with construction of the bridge are shown as permanent impacts in the event the construction of the footings could require clearing of the vegetation. The total extent of impacts would be refined once final designs are completed.

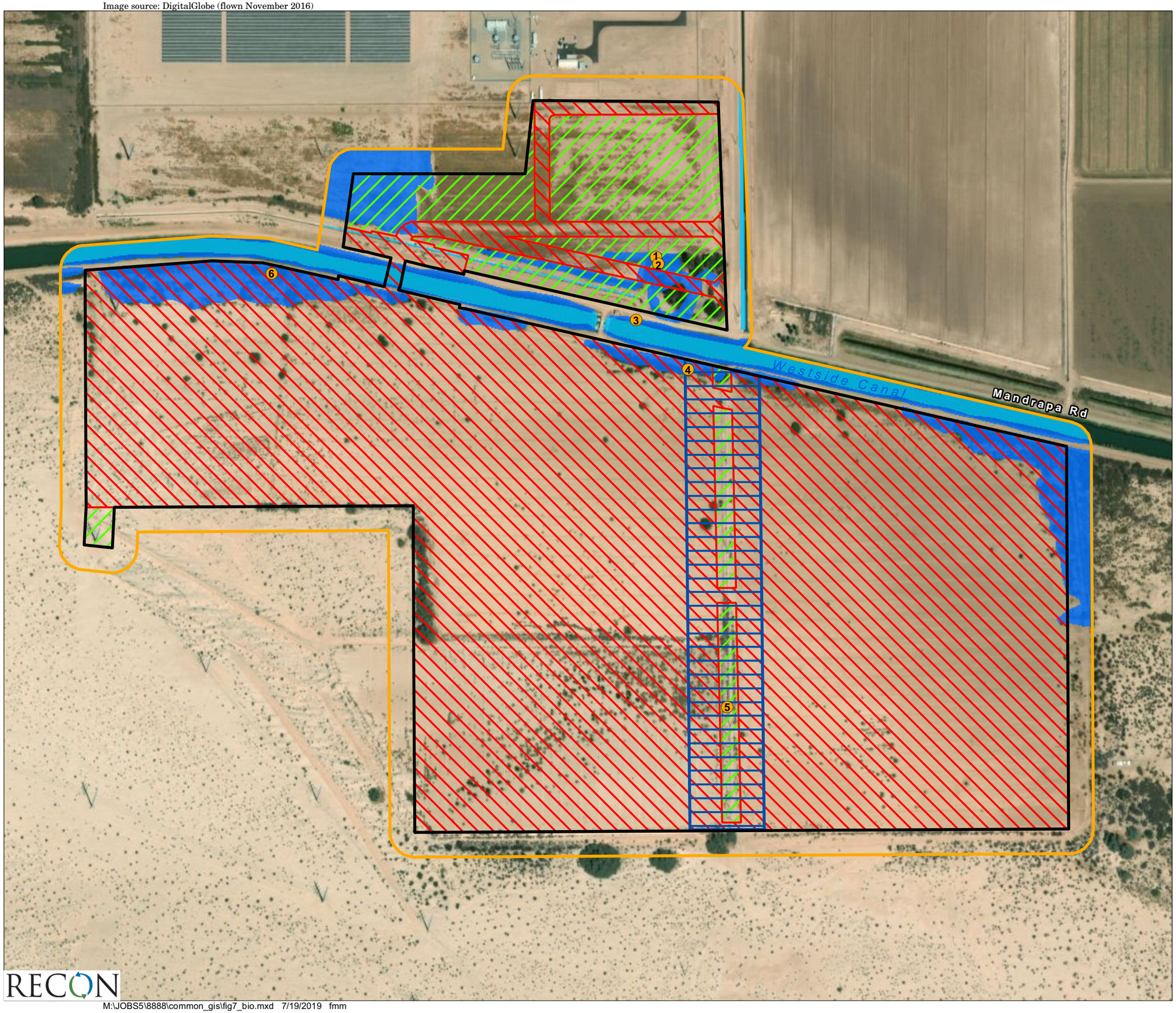
Table 6
Impacts to Jurisdictional Waters within the Project Site
(acres)

Jurisdictional Waters	Permanent Impacts	Temporary Impacts	Total Impacts
USACE Total Jurisdictional Waters (404)			
Non-wetland Waters of the U.S.	0.04	0.16[1]	0.21[2]
CDFW and RWQCB Total Jurisdictional Waters (1602/401)[3]	**6.75**	**2.68[2]**	**9.43[2]**
Wetland Waters of the State	6.71	2.51	9.22
Streambed	0.04	0.16[1]	0.21[2]

[1]Approximately 0.10 acre of open water within the Westside Main Canal would be spanned with a bridge. This is illustrated as a permanent impact, but given the fact that there would be no direct impact to the canal, this is included within the temporary impacts.
[2]Total acreage varies from sum of cells due to rounding.
[3]CDFW/RWQCB area of jurisdiction includes all USACE jurisdictional waters.

These impacts would be significant and would require mitigation. In addition, a USACE 404 Clean Water Permit, CDFW Streambed Alteration Agreement, and RWQCB 401 Water Quality Certification would be required.

Image source: DigitalGlobe (flown November 2016)



Project Boundary

Survey Area

Permanent Impacts

Temporary Impacts

Potential Location of Future Easement Corridor

Sample Points

Jurisdictional Waters

CDFW/RWQCB Wetland Waters of the State

USACE Non-wetland Waters of the U.S., CDFW Streambed, RWQCB Waters of the State

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FIGURE 7

Impacts to Jurisdictional Waters

4.6 Cumulative Impacts

The proposed Project is not expected to result in cumulative impacts to sensitive resource within the region because all potential impacts would be mitigated to a level of less than significant.

5.0 Mitigation and Monitoring Recommendations

5.1 Mitigation and Monitoring Recommendations for General Biological Resources

As currently designed, the Project has the potential to result in significant direct and indirect impacts to sensitive biological resources. The following general mitigation for biological resource protection during construction would be included in the environmental document:

BIO-1. General Measures Prior to Construction

1. The owner/permittee would engage a qualified biological monitor to implement the Project's biological monitoring program.

2. The following measures should be implemented in order to reduce potential impacts to bird and bat populations. These measures incorporate the Avian Power Line Interaction Committee design guidelines for overhead utilities by incorporating recommended or other methods that enhance the visibility of the lines to avian species. These would include, at a minimum, the following measures:

    - Minimize noise and nighttime outdoor lighting.
    - Establish and implement measures for storage and disposal of all litter and trash produced during construction and O&M. This is designed to discourage scavengers, such as ravens that may also prey on wildlife in the vicinity.
    - To avoid direct impacts to avian species, removal of habitat that supports active nests in the proposed area of disturbance should occur outside the breeding season for these species (February 1 to September 15).
    - If removal of habitat in the proposed area of disturbance must occur during the breeding season, the qualified biological monitor would conduct a pre-construction survey to determine the presence or absence of nesting birds on the proposed area of disturbance. The pre-construction survey would be conducted within 10 calendar days prior to the start of construction activities (including removal of vegetation). The applicant would submit the results of the pre-construction survey for review and approval prior to initiating any construction activities.

- If nesting birds are detected, a letter report or mitigation plan in conformance with applicable state and federal law (i.e., appropriate follow up surveys, monitoring schedules, construction and noise barriers/buffers, etc.) would be prepared and include proposed measures to be implemented to ensure that take of birds or eggs or disturbance of breeding activities is avoided. The report or mitigation plan would be submitted for review and approval.

3. The qualified biological monitor would attend the pre-construction meeting, discuss the Project's biological monitoring program, and arrange to perform any follow up mitigation measures and reporting including site-specific monitoring, restoration or revegetation, and additional fauna/flora surveys/salvage.

4. A Worker Education Training Program should be established by the qualified biological monitor for all employees and any subcontractors to provide instruction on sensitive species identification; measures to avoid contact, disturbance, and injury; and reporting procedures in the case of dead and/or injured wildlife species.

5. Prior to commencement of construction activities, the qualified biological monitor would meet with the owner/permittee or designee and the construction crew and implement the Worker Education Training Program. This would be repeated as necessary, when new crew members begin work on the Project.

6. Prior to construction activities, the qualified biological monitor would supervise the placement of orange construction fencing or equivalent along the limits of disturbance adjacent to sensitive biological habitats and verify compliance with any other Project conditions. Appropriate steps/care should be taken to minimize attraction of nest predators to the site.

BIO-2. General Measures During Construction

1. Speed limits along all access roads and within the Project site should not exceed 15 miles per hour. This is designed to prevent flat-tailed horned lizard mortality.

2. All construction (including access/staging areas) would be restricted to areas previously identified, proposed for development/staging, or previously disturbed. The qualified biological monitor would monitor construction activities as needed to ensure that construction activities do not encroach into biologically sensitive areas, or cause other similar damage, and that the work plan has been amended to accommodate any sensitive species located during the pre-construction surveys.

3. The qualified biological monitor would note/act to prevent any new disturbances to habitat, flora, and/or fauna onsite (e.g., flag plant specimens for avoidance during access). If active nests or other previously unknown sensitive resources are detected, all Project activities that directly impact the resource would be delayed until species specific local, state or federal regulations have been determined and applied by the Qualified Biologist.

BIO-3. General Measures Post-Construction

1. A Monitoring Report would be submitted to the relevant resource agencies documenting the implementation of the general measures during construction as well as any resource-specific measures such as habitat restoration, compensation, and species-specific avoidance and minimization measures.

BIO-4. General Measures During O&M

1. Speed limits along all access roads and within the Project site should not exceed 15 miles per hour. Access for O&M activities would be kept to the minimum necessary for operations. This limited access is designed to prevent flat-tailed horned lizard mortality.

2. A worker education program should be presented to all employees conducting O&M to inform staff of resource protection measures in place. This should be presented to any new employees.

5.2 Mitigation and Monitoring Recommendations for Sensitive Vegetation Communities

The following measures are proposed to fulfill habitat-based mitigation requirements for impacts to sensitive vegetation communities:

BIO-5. Habitat-based Mitigation

1. Mitigation for permanent and temporary impacts to sensitive vegetation communities and land cover types is provided in Table 7. Mitigation for permanent impacts could potentially be conducted on-site through restoration of the fallow agriculture and disturbed lands that occur within the temporary impact footprint. If those lands are not suitable, off-site mitigation may be required. Temporary impacts would be mitigated on site through replacement or enhancement of the impacted area.

2. A Habitat Restoration and Mitigation Plan would be prepared to detail the proposed mitigation program. This plan should also include mitigation required for jurisdictional waters as noted in Section 5.4.

Table 7
Project Impacts to Sensitive Vegetation Communities/Land Cover Types

Community or Type	Permanent			Temporary		
	Impacts (acres)	Mitigation Ratio	Mitigation (acres)	Impacts (acres)	Mitigation Ratio	Mitigation (acres)*
arrow weed thickets	6.02	2:1	12.04	0.85	1:1	0.85
tamarisk thickets	4.73	2:1	9.46	0.53	1:1	0.53
quailbush scrub	0.34	2:1	0.68	1.81	1:1	1.81
cattail marshes	0	--	--	0.14	1:1	0.14
common reed marshes	0.04	2:1	0.08	--	--	--
Total	**11.13**		**22.26**	**3.33**		**3.33**

*Temporary impacts would be mitigated on site through replacement or enhancement of the impacted area.

Implementation of the mitigation and monitoring measures listed above would reduce impacts to sensitive vegetation communities to a level of less than significant.

5.3 Mitigation and Monitoring Recommendations for Sensitive Wildlife Species

Additional species-specific recommended measures to avoid, minimize, and/or mitigate significant Project impacts to sensitive wildlife species are provided in this section.

5.3.1 Mitigation and Monitoring Recommendations for Flat-tailed Horned Lizard

The following measures are recommended to mitigate for direct and indirect impacts to flat-tailed horned lizard and its habitat. Implementation of mitigation measure BIO-4, including enforcement of speed limits and implementing the worker education program, would minimize impacts during O&M activities.

BIO-6. Flat-tailed horned lizard Measures Prior to Construction

In accordance with the Flat-tailed Horned Lizard Rangewide Management Strategy (ICC 2003), the measures proposed below are designed to avoid, minimize, and/or compensate for potential direct and indirect effects construction may have on flat-tailed horned lizard. The following Construction Measures would be implemented, when conducting construction activities within the creosote bush scrub and fourwing saltbush scrub vegetation:

1. Prior to ground-disturbing activities, an individual would be designated and approved by the wildlife regulatory agencies (e.g., CDFW, BLM) as a qualified biological monitor (i.e., field contact representative). Only persons authorized by CDFW (in California) shall conduct surveys and handle flat-tailed horned lizards. Investigators shall have experience in surveying for flat-tailed horned lizards, including ability to recognize and follow flat-tailed horned lizard tracks, or shall obtain training from an experienced investigator. Prior to any survey or monitoring effort, a proposal shall be

developed and approved by CDFW (in California), and/or by the state or federal agency that manages the lands to be surveyed. The qualified biological monitor would be designated for the period during which on-going construction and post-construction monitoring and reporting by an approved biologist is required, such as annual reporting on habitat restoration. Each successive qualified biological monitor would be approved by the wildlife regulatory agencies. The qualified biological monitor would have the authority to ensure compliance with the conservation measures for the flat-tailed horned lizard and would be the primary agency contact for the implementation of these measures. The qualified biological monitor would have the authority and responsibility to halt activities that are in violation of the conservation measures. A detailed list of responsibilities for the Designated Biologist is summarized:

2. The qualified biological monitor shall notify the wildlife regulatory agencies at least 14 calendar days before initiating ground-disturbing activities.

3. The boundaries of all areas to be disturbed (including staging areas, access roads, and sites for temporary placement of spoils) would be delineated with stakes and flagging prior to construction activities. Spoils would be stockpiled in disturbed areas lacking native vegetation or where habitat quality is poor. To the extent possible, disturbance of shrubs and surface soils due to stockpiling would be minimized. All disturbances, vehicles, and equipment would be confined to the flagged areas. To the extent possible, surface disturbance would be timed to minimize mortality to flat-tailed horned lizard.

4. Prior to Project initiation, a worker education program would be developed and implemented by the qualified biological monitor, and would be available in both English and Spanish. Wallet-sized cards summarizing this information would be provided to all construction, operation, and maintenance personnel. The education program would include the following aspects:

    - biology and status of the flat-tailed horned lizard,
    - protection measures designed to reduce potential impacts to the species,
    - function of flagging designating authorized work areas,
    - reporting procedures to be used if a flat-tailed horned lizard is encountered in the field, and
    - driving procedures and techniques, for commuting, and driving on, to the Project site, to reduce mortality of flat-tailed horned lizard on roads.

BIO-7. Flat-tailed horned lizard Measures During Construction

1. The qualified biological monitor would have the authority and responsibility to halt activities that are in violation of the conservation measures. A detailed list of responsibilities for the monitor during construction is summarized:

    - Be present during construction (e.g., grubbing, grading, facility installation) activities that take place in flat-tailed horned lizard habitat to avoid or minimize

take of flat-tailed horned lizard. Activities include, but are not limited to, ensuring compliance with all impact avoidance and minimization measures, monitoring for flat-tailed horned lizards and removing lizards from harm's way, and checking avoidance areas (e.g., washes) to ensure that signs, and stakes are intact and that human activities are restricted in these avoidance zones.

- At the end of each work day, inspect all potential wildlife pitfalls (trenches, bores and other excavations) for wildlife and then ensure that each feature is either backfilled or completely and securely covered to prevent wildlife access.
- Immediately notify the wildlife regulatory agencies in writing, if the Project applicant is not in compliance with any conservation measures, including but not limited to any actual or anticipated failure to implement conservation measures within the time periods specified.
- During construction, examine areas of active surface disturbance periodically, at least hourly, when surface temperatures exceed 29 degrees Celsius (°C; 85 degrees Fahrenheit [°F]) for the presence of flat-tailed horned lizard.

2. Flat-tailed horned lizards would be removed from harm's way during all construction activities. Flat-tailed horned lizard removal would be conducted by two or more Biological Monitors when construction activities are being conducted in suitable habitat. To the extent feasible, methods to find flat-tailed horned lizards would be designed to achieve a maximal capture rate and would include, but not be limited to using strip transects, tracking, and raking around shrubs. During construction, the minimum survey effort would be 30 minutes per 0.40 hectare (30 minutes per 1 acre). Persons that handle flat-tailed horned lizards would first obtain all necessary permits and authorization from the CDFG. Flat-tailed horned lizard removal surveys would also include:
    - A Horned Lizard Observation Data Sheet and a Project Reporting Form, per Appendix 8 of the Rangewide Management Strategy, would be completed. During construction, quarterly reports describing flat-tailed horned lizards removal activity would be submitted to the wildlife regulatory agencies.
3. The removal of flat-tailed horned lizard out of harm's way would include relocation to nearby suitable habitat in low-impact areas of the Yuha Management Area, which is located to the west and south of the Project site. Relocated flat-tailed horned lizards would be placed in the shade of a large shrub in undisturbed habitat. If surface temperatures in the sun are less than 24°C (75°F) or exceed 38°C (100°F), the Designated Biologist or Biological Monitor, if authorized, would hold the flat-tailed horned lizard for later release. Initially, captured flat-tailed horned lizards would be held in a cloth bag, cooler, or other appropriate clean, dry container from which the lizard cannot escape. Lizards would be held at temperatures between 75°F and 90°F and would not be exposed to direct sunlight. Release would occur as soon as possible after capture and during daylight hours. The Designated Biologist or Biological Monitor would be allowed some judgment and discretion when relocating lizards to maximize survival of flat-tailed horned lizards found in the Project area.

4. To the maximum extent practicable, grading in flat-tailed horned lizard habitat would be conducted during the active season, which is defined as March 1 through September 30, or when ground temperatures are between 24°C (75°F) and 38°C (100°F). If grading cannot be conducted during this time, any flat-tailed horned lizards found would be removed to low-impact areas (see above) where suitable burrowing habitat exists, (e.g., sandy substrates and shrub cover).

BIO-8. Flat-tailed horned lizard Compensation

Pursuant to Title 43 CFR and the Federal Land Policy and Management Act of 1976, federal land management agencies may permit actions that result in flat-tailed horned lizard habitat loss on their lands; however, for losses both within and outside the Management Areas, compensation is charged if residual effects would occur after all reasonable on-site mitigation has been applied. The goal of compensation is to prevent the net loss of flat-tailed horned lizard habitat and make the net effect of a project neutral or positive to flat-tailed horned lizards by maintaining a habitat base for flat-tailed horned lizards. To achieve this goal, compensation will be based on the acreage of flat-tailed horned lizard habitat lost after all reasonable on-site mitigation has been applied at a 1:1 ratio for habitat lost outside a flat-tailed horned lizard Management Area. For this Project, compensation will be required for a loss of 54 acres of flat-tailed horned lizard habitat.

Implementation of the mitigation and monitoring measures listed above would reduce impacts to flat-tailed horned lizard to a level of less than significant.

5.3.2 Mitigation and Monitoring Recommendations for Colorado Desert Fringe-toed Lizard

The following measures are recommended to mitigate for direct and indirect impacts to Colorado Desert fringe-toed lizard and its habitat. Implementation of mitigation measure BIO-4, including enforcement of speed limits and implementing the worker education program, would minimize impacts during O&M activities.

BIO-9. Colorado Desert Fringe-toed Lizard Measures During Construction

1. A qualified biological monitor as defined in BIO-1 and BIO-6 would be identified to implement monitoring for this species.
2. Colorado Desert fringe-toed lizard would be removed from harm's way during all construction activities, either through flushing or relocation, if individuals are able to be captured.
3. The removal of Colorado Desert fringe-toed lizard out of harm's way would include relocation to nearby suitable habitat in low-impact areas of the Yuha Management Area located west and south from the Project site. Initially, captured lizards would be held in a cloth bag, cooler, or other appropriate clean, dry container from which the lizard cannot escape. They would be held at temperatures between 75°F and 90°F and would not be exposed to direct sunlight. Relocated individuals would be placed in the

shade of a large shrub in undisturbed habitat. If surface temperatures in the sun are less than 24°C (75°F) or exceed 38°C (100°F), the qualified biological monitor would hold the individuals for later release. Release would occur as soon as possible after capture and during daylight hours.

Implementation of the mitigation and monitoring measures listed above would reduce impacts to Colorado Desert fringe-toed lizard to a level of less than significant.

5.3.3 Mitigation and Monitoring Recommendations for Burrowing Owl

The following measures are recommended to mitigate for direct and indirect impacts to burrowing owl and its habitat. Implementation of mitigation measure BIO-4, including enforcement of speed limits and implementing the worker education program, would minimize impacts during O&M activities.

BIO-10. Recommended Burrowing Owl Measures

1. As the construction schedule and details are finalized, a Qualified Biologist would prepare a Conceptual Burrowing Owl Mitigation Plan in accordance with the CDFW 2012 Staff Report or the most recent state and/or federal protocols/guidance for approval by the relevant resource agencies. Consultation with CDFW may be necessary during their review of the proposed plan in order to gain their approval. The Conceptual Burrowing Owl Mitigation Plan would include off-site mitigation for the loss of 155 acres of suitable burrowing owl winter foraging habitat at a ratio of 1:1. The quality of preserved suitable occupied burrowing owl habitat must be comparable to or better than the habitat being impacted. The land to be preserved must be occupied by burrowing owl and support fossorial mammals. A conservation easement for the protection of burrowing owl/habitat would be placed over the mitigation land.
2. A Mitigation Land Management Plan for the long-term maintenance and monitoring of the approved mitigation land would be prepared to identify a long-term funding mechanism (e.g., an endowment) for the maintenance of the mitigation lands for burrowing owl.
3. Initial grading should take place between September 1 and January 31 to avoid impact to breeding burrowing owls (CDFW 2012). If construction is to begin during the breeding season, it is recommended that the measures below be implemented prior to February 1 to discourage the nesting of the burrowing owls within the area of impact. As construction continues, any area where owls are sighted should be subject to frequent surveys for burrows before the breeding season begins, so that owls can be relocated before nesting occurs.
4. Pre-construction surveys would be conducted for burrowing owls prior to the commencement of construction activities. The surveys would conform to the survey protocol in the CDFW 2012 Staff Report. No more than 14 days prior to any ground-

disturbing activities, a Qualified Biologist would conduct a take avoidance survey for burrowing owls. If no owls are found during this first survey, a final survey would be conducted 24 hours prior to ground disturbance to confirm that burrowing owls are absent.

5. If burrowing owls are found on the site during the surveys, any potentially impacted burrowing owl individuals must be relocated out of the impact area using passive or active methodologies approved by the resource agencies. A Burrow Exclusion Plan would be prepared according to the 2012 CDFW guidelines and approved by CDFW. The Burrow Exclusion Plan may include the use of artificial burrows as a means of replacing burrows lost to impacts.
6. A biologist familiar with burrowing owl biology would monitor construction activities to make sure that burrowing owls that may move into the area during construction are detected and impacts are avoided.

Implementation of the mitigation and monitoring measures listed above would reduce impacts to burrowing owl to a level of less than significant.

5.3.4 Mitigation and Monitoring Recommendations for Nesting Birds

Implementation of mitigation measures BIO 1-4 is expected to avoid direct impacts to nesting birds. Implementation of these mitigation and monitoring measures and other species-specific measures discussed above would reduce impacts to nesting birds to a level of less than significant.

5.3.5 Mitigation and Monitoring Recommendations for American Badger

The following measures are recommended to mitigate for direct and indirect impacts to American badger. Implementation of mitigation measure BIO-4, including enforcement of speed limits and implementing the worker education program, would minimize impacts during O&M activities.

BIO-11. American Badger Measures During Construction

1. A qualified biological monitor would conduct a pre-construction survey for American badger concurrent with the pre-construction survey for burrowing owl.
    a. If badgers are detected between September and January, which is outside of the breeding/denning season, the qualified biological monitor would monitor the den to determine the status, whether active or inactive. Dens determined to be potentially inactive would be passively excluded using one-way doors and excavated/collapsed once it has been established that the den is empty. If an active den is detected within the work area, the Project Proponent would avoid the den,

if feasible, until the qualified biological monitor determines the den is no longer active.

b. Any badger dens detected during the denning season March through August would be flagged and a 100-foot avoidance buffer established where no ground-disturbing activities may occur until the dens are determined to no longer be in use by the family.

Implementation of the mitigation and monitoring measures listed above would reduce impacts to American badger to a level of less than significant.

5.4 Mitigation and Monitoring Recommendations for Jurisdictional Wetlands and Waters

The proposed Project would impact total of 0.21 acres of USACE jurisdictional resources, and 9.43 acres of CDFW jurisdictional resources. A breakdown of permanent and temporary impacts, as well as the proposed mitigation required to offset these impacts is shown on Table 8.

Impact to jurisdictional waters of the U.S. on-site would require a permit under Section 404 CWA from USACE and a Section 401 state water quality certification from RWQCB. In addition, a Section 1600 Streambed Alteration Agreement would also need to be authorized for impact to CDFW resources. Mitigation ratios would be determined at that time.

Implementation of **BIO-5** should include the proposed restoration and mitigation proposed for impacts to jurisdictional waters.

Table 8
Proposed Mitigation for Impacts to Jurisdictional Waters

	Permanent			Temporary		
	Impacts (acres)	Mitigation Ratio	Mitigation (acres)	Impacts (acres)	Mitigation Ratio	Mitigation (acres)
USACE Total Jurisdictional Waters (404)						
Non-wetland Waters of the U.S.	**0.04**[1]	**1:1**	**0.04**	**0.16**[1]	**1:1**	**0.16**
CDFW and RWQCB Total Jurisdictional Waters (1602/401) [3]						
Wetland Waters of the State	6.71	2:1	13.42	2.51	1:1	2.51
Streambed	0.04[1]	1:1	0.04	0.16[1]	1:1	0.16
Total CDFW/RWQCB	**6.75**		**13.46**	**2.67**		**2.67**

[1]Approximately 0.10 acre of open water within the Westside Main Canal would be spanned with a bridge. This is illustrated as a permanent impact, but given the fact that there would be no direct impact to the canal, this is included within the temporary impacts.

Implementation of the mitigation and monitoring measures listed above would reduce impacts to jurisdictional waters to a level of less than significant.

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ATTACHMENTS

ATTACHMENT 1

Addendum to the Biological Resources Report for
the Westside Canal Battery Storage Project
Imperial County, California

RECON

An Employee-Owned Company

January 18, 2021

Mr. Curtis Kebler
Director, Business Development
Con Edison Clean Energy Businesses
101 W. Broadway, Suite 1120
San Diego, CA 92101

Reference: Addendum to the Biological Resources Report for the Westside Canal Battery Storage Project, Imperial County, California (RECON Number 8888-1)

Dear Mr. Kebler:

This letter describes the additional biological survey and analysis conducted for the proposed southern access route for the Westside Canal Battery Storage Project (Project) in support of the request for a Right-of-Way grant from the Bureau of Land Management (BLM). The Project is currently proposed by Westside Canal Battery Storage, LLC, a subsidiary of Con Edison Clean Energy Businesses. This letter is being submitted as an addendum to the Biological Resources Report prepared for this Project (RECON 2021). The Biological Resources Report did not include an analysis of this southern access route, which has been proposed as a potential temporary access route to support construction of the proposed bridge spanning IID's Westside Main Canal.

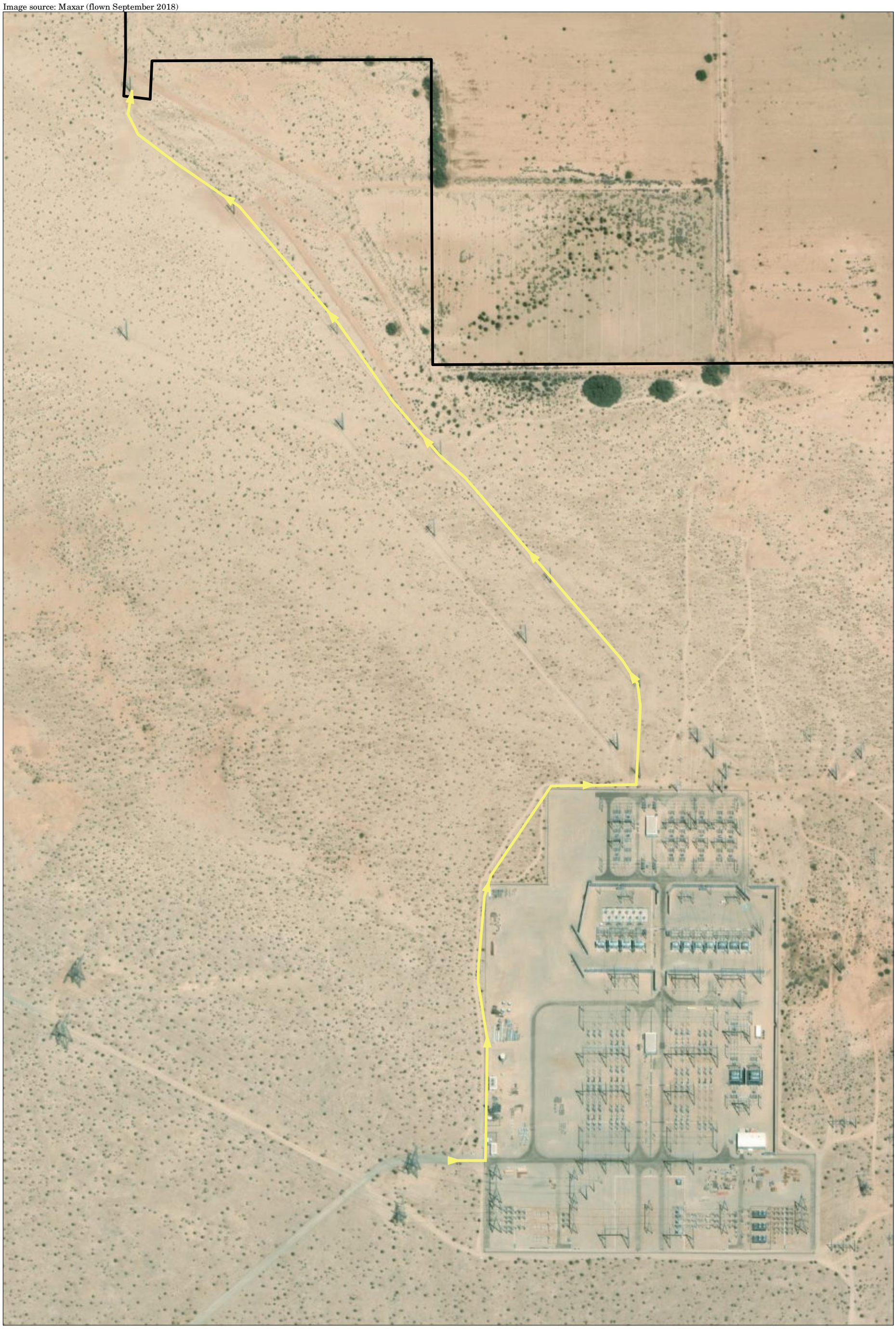
Location and Description

The proposed southern access route begins at the entrance to the San Diego Gas & Electric-owned Imperial Valley Substation and follows an existing dirt access road that leads north, then east, along the western and northern boundaries of the substation (Figure 1). The proposed southern access route then continues northwest along an existing dirt access road that parallels two power lines until the access road connects with the western edge of the Project site. The proposed southern access route is approximately 1.2 miles long.

The Project is surrounded by private landowners to the east, Bureau of Land Management (BLM) land to the south and west, and Imperial Irrigation District (IID) maintenance roads and Westside Main Canal to the north. Due to the need to access the site on both the north and south side of the West Main Canal to initiate construction of the proposed bridge, the applicant is proposing to utilize the access route leading from the Imperial Valley Substation until the permanent bridge is constructed. The applicant is proposing to construct a new clear-span Imperial County-specified bridge to span the Westside Main Canal which would connect to a proposed access road easement on the north side of the Westside Main Canal. The north side proposed access road would ultimately connect the Project to Liebert Road, which is a county road. Once access to the Project site is secured from Liebert Road, the temporary southern access route would no longer be utilized.

Use of the temporary southern access route would consist of driving construction-related trucks and equipment along the existing dirt access road in order to access the south side of the Westside Main Canal. Minor road improvements may be necessary in certain areas where small sand dunes have formed within the roadbed. These small dunes would be graded level using a skid steer or similar piece of equipment. In areas where the existing access road contains loose sand, a matting would be laid down within the existing roadbed to provide stability for construction equipment. The type and total quantity of matting has yet to be determined.

Image source: Maxar (flown September 2018)



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Project Boundary

Access Route

FIGURE 1

Westside Canal Battery Storage Project
Proposed Temporary Access Route

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Survey Methods

For the purposes of this addendum letter, the survey area includes a 300-foot corridor centered along the proposed southern access route (see Figure 1). RECON biologist Andrew Smisek conducted a general biological survey within the survey area on March 26, 2020, between 11:00 a.m. and 3:00 p.m. A resume for Mr. Smisek is included as Attachment 1. The survey area totals approximately 42 acres. Weather conditions during the survey consisted of sunny skies, 5- to 10-mile-per-hour winds, and air temperatures between 70 and 75 degrees Fahrenheit. During the survey, Mr. Smisek inventoried plant and wildlife species, conducted a search for sensitive species, and assessed the suitability of habitat for sensitive species identified as having potential to occur based on the previous literature review discussed in the Biological Resources Report (RECON 2019). This included an assessment for potential use by flat-tailed horned lizard (*Phrynosoma mcallii*) and burrowing owl (*Athene cunicularia*). The burrowing owl habitat assessment consisted of an assessment of vegetation types, height, and density; land use; presence or absence of friable soils and/or burrows; topography; hydrological features; and presence or absence of burrowing owl sign.

According to precipitation data for El Centro, California, observed precipitation was above normal for the period of January through March, 2020. A total of approximately 1.75 inches of rain fell during this period, compared to the historical average of 1.07 inches for this period (National Climate Data Center 2020a and 2020b). The above-normal rainfall likely resulted in substantial germination rates for annual plant species within the survey area at the time the survey. Therefore, the majority of sensitive annual plant species would have likely been detected if present during the general biological survey.

Prior to conducting the survey, Mr. Smisek reviewed aerial photographs, U.S. Geological Survey topographic maps of the site, U.S. Department of Agriculture soil maps of the site, and the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory. The survey included a search for potential federal and state jurisdictional areas following the guidelines set forth by U.S. Army Corps of Engineers (1987 and 2008).

Survey Results

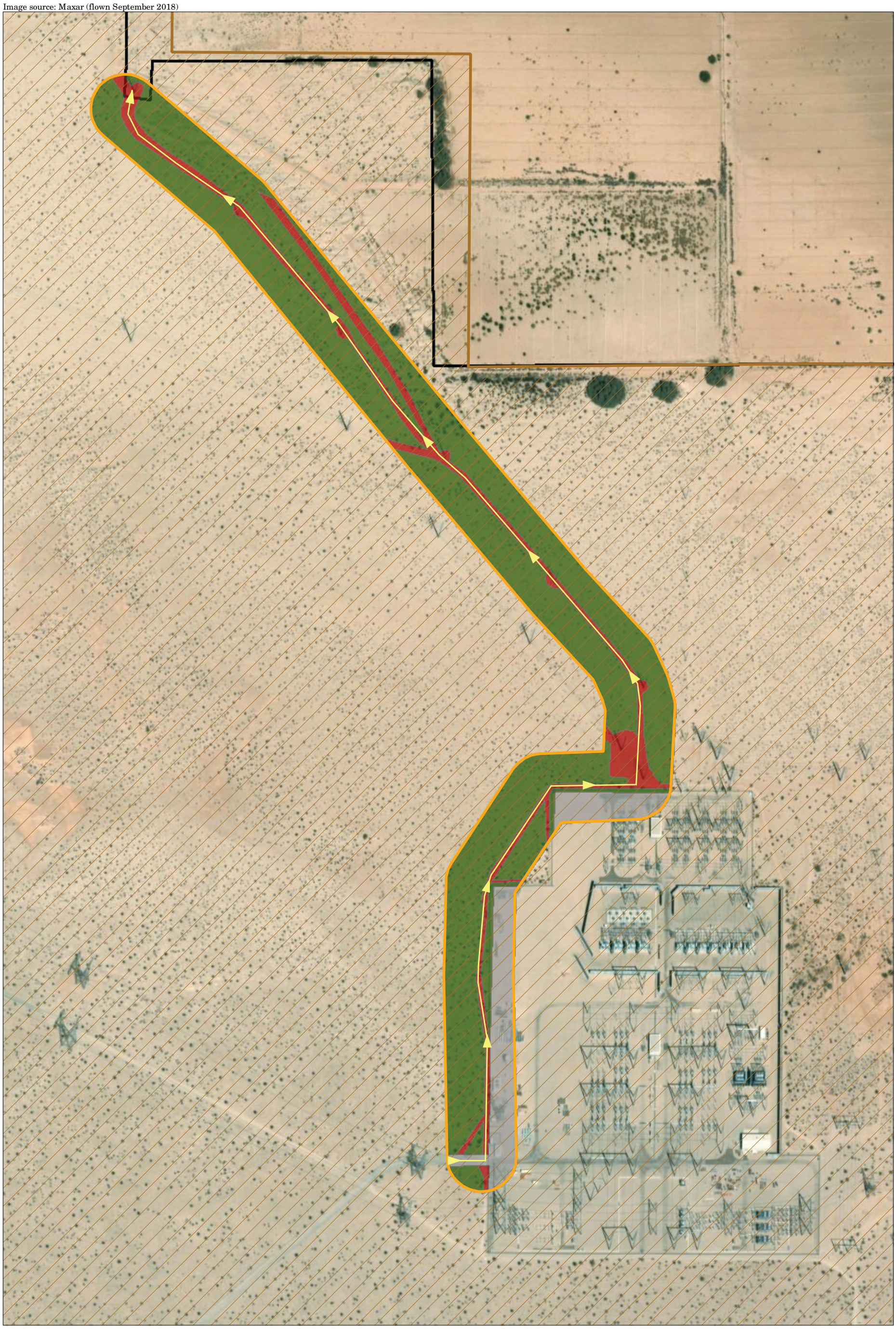
The following vegetation communities and land cover types were mapped within the survey area: creosote bush scrub (*Larrea tridentata* Shrubland Alliance), disturbed habitat, and developed land (Figure 2). A brief description of each community or land cover type is also provided below.

Creosote bush scrub occurs throughout the survey area as part of a large expanse of this vegetation community and as slivers of habitat occurring between dirt access roads and the substation. On-site areas containing this community appear to be in their natural, intact state, not having been subjected to historical disturbance like those areas of creosote bush scrub within the Project site. Creosote bush (*Larrea tridentata*) is the dominant species, occurring with a vegetation cover of approximately 10 percent and shrub height averaging five to six feet. White bur-sage (*Ambrosia dumosa*) occurs as a sub-dominant species at approximately 2 percent cover. Since the recent rain events in the vicinity of the Project, creosote bush scrub within the survey area also contains a consistent cover of herbaceous annual plant species, including narrow-leaf cryptantha (*Cryptantha angustifolia*), desert indianwheat (*Plantago ovata*), and Mediterranean schismus (*Schismus barbatus*).

Disturbed habitat consists of the dirt access road and other bare areas surrounding the existing power poles that are subjected to continued disturbance, preventing establishment of substantial vegetation cover. The few plants that occur within or along the edges of these areas include Mediterranean schismus and desert indianwheat.

Developed land within the survey area consists of those areas that overlap portions of the Imperial Valley Substation, which occurs as a gravel yard containing a number of various power structures and surrounded by a chain-link fence.

Image source: Maxar (flown September 2018)



Project Boundary
Southern Access Route Survey Area
Yuha Desert Management Area
Access Route

Vegetation Communities
Creosote Bush Scrub
Developed
Disturbed Habitat

0 Feet 400

RECON

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FIGURE 2
Existing Biological Resources

No jurisdictional resources were observed within the survey area. Although some small erosional features were observed along the dirt access road and a small area is topographically situated such that brief periods of ponding may occur during significant rain events, these features did not exhibit sufficient hydrology or hydric soil indicators to be considered potentially jurisdictional. No portions of the survey area contain hydrophytic vegetation.

Wildlife observed during the survey include northern desert iguana (*Dipsosaurus dorsalis dorsalis*), rock dove (*Columba livia*), common raven (*Corvus corax clarionensis*), harvester ant (*Veromessor* sp.), painted lady (*Vanessa cardui*), and duskywing (*Erynnis* sp.).

Regulatory Framework

A number of state and federal regulations or policies apply to the biological resources within and/or adjacent to the survey area. This includes the federal Endangered Species Act (ESA), the Migratory Bird Treaty Act (MBTA), the California Environmental Quality Act (CEQA), the California ESA, and Section 3503 of the California Fish and Game Code. More detail regarding these regulations and policies can be found in the Biological Resources Report (RECON 2019).

Sensitive Biological Resources

No sensitive plant species were observed during the survey and none were observed or are expected within the Project site based on the analysis conducted for the Biological Resources Report (RECON 2019). However, the creosote bush scrub in the survey area for the southern access route has potential to support two sensitive rare plant species, Watson's amaranth (*Amaranthus watsonii*; California Rare Plant Rank 4.3) and Abram's spurge (*Euphorbia abramsiana*; California Rare Plant Rank 2B.2). Unlike the creosote bush scrub within the Project site, that along the potential southern access route has not been historically disturbed and, therefore, may provide suitable habitat for these species. These two sensitive annual plant species would not have been apparent at the time of the March 2020 survey because they do not develop into their vegetative or flowering stages until summer and fall. These species are not expected to occur in the disturbed habitat within the dirt access roads proposed to be used as the southern access route.

Flat-tailed horned lizard is a California Department of Fish and Wildlife (CDFW) species of special concern and BLM sensitive species. Many occurrences of flat-tailed horned lizard have been reported in the undeveloped desert areas within the survey area and immediately adjacent to the southern access route (CDFW 2020), and horned lizard tracks were observed during 2018 surveys in the western portion of the Project site. Given the cryptic nature and resulting difficulty of detection without focused surveys, these historical records are sufficient to assume this species is present in the creosote bush scrub and adjacent disturbed habitat within the survey area. The creosote bush scrub provides high-quality habitat for this species, as it contains sandy hummocks, a good diversity of native plant species, and harvester ants.

Colorado Desert fringe-toed lizard (*Uma notata*) is a CDFW species of special concern and BLM sensitive species. Although it has not been detected during previous project surveys, this species has been reported in similar habitat within two miles of the Project site (CDFW 2020) and has a moderate potential to occur. The creosote bush scrub within the survey area provides suitable habitat for this species due to the presence of small dunes and sandy hummocks.

Burrowing owl is a CDFW species of special concern and BLM sensitive species. As reported in the Biological Resources Report (RECON 2019), four burrowing owl observations were recorded within the Project site during the 2018-2019 focused surveys, as well as a number of potentially suitable burrows. Within the survey area, the creosote bush scrub and disturbed habitat may provide suitable habitat for this species to forage due to the open structure of the vegetation and presence of prey items. However, no potentially suitable burrows were observed during the March 2020 survey and habitat assessment, and it is unlikely that burrowing owls are currently breeding within the survey area.

Other sensitive wildlife with potential to utilize the habitats within the survey area include loggerhead shrike (*Lanius ludovicianus*; CDFW species of special concern), black-tailed gnatcatcher (*Polioptila melanura*; CDFW watch list species), Abert's towhee (*Melozone aberti*; CDFW Special Animal List), and pallid bat (*Antrozous pallidus*; CDFW species of concern and BLM sensitive species).

Impact Analysis

Because the use of the proposed southern access route would be contained within the existing dirt access road (mapped as disturbed habitat), no impacts are expected to occur to creosote bush scrub or any potentially occurring rare plants, including Watson's amaranth or Abram's spurge, within this vegetation community. No rare plants are expected to occur within the disturbed habitat of the dirt access road. Additionally, although burrowing owl may utilize the survey area for foraging, no burrows occur within the dirt access road. Therefore, this species is not expected to be impacted by the use of the southern access route. Although potentially occurring loggerhead shrike, black-tailed gnatcatcher, Abert's towhee, and/or pallid bat may utilize the creosote bush scrub within the survey area, these species are not expected to utilize the disturbed habitat within the dirt access road or be impacted by the use of the dirt access road.

Flat-tailed horned lizard and Colorado Desert fringe-toed lizard, both of which are CDFW species of special concern and BLM sensitive species, have potential to be directly impacted within the existing access road as a result of vehicle strike. Any impacts to individual flat-tailed horned lizards or Colorado Desert fringe-toed lizards would be considered significant and require mitigation.

Recommended Avoidance Measures

The proposed southern access route occurs entirely within the Yuha Desert Flat-tailed Horned Lizard Management Area (see Figure 2), as designated in the Flat-tailed Horned Lizard Rangewide Management Strategy (RMS; ICC 2003). In accordance with the RMS, the measures proposed below are designed to avoid and/or minimize potential direct impacts to flat-tailed horned lizard throughout the duration of use of the southern access route:

- Use of the southern access route should be scheduled to occur as much as possible during the flat-tailed horned lizard's dormant period, November 15 to February 15, and the schedule for use of this access route should be approved by the BLM before construction begins.
- For any use of the southern access route during the flat-tailed horned lizard's active period, before November 15 or after February 15, a qualified biological monitor (as defined in the Biological Resources Report) that is trained to recognize flat-tailed horned lizard and approved by the BLM should be present onsite to keep the road clear for vehicular use.
- Prior to use, the southern access route will be delineated with stakes and flagging.
- As described in the Biological Resources Report, prior to use of the southern access route, a worker education program should be developed and implemented by the qualified biological monitor, and should be available in both English and Spanish. Wallet-sized cards summarizing this information should be provided to all construction, operation, and maintenance personnel. The education program should include the following aspects:
    - Biology and status of the flat-tailed horned lizard;
    - Protection measures designed to reduce potential impacts to the species;
    - Function of flagging designating authorized work areas;
    - Reporting procedures to be used if a flat-tailed horned lizard is encountered in the field; and
    - Driving procedures and techniques, for commuting, and driving on to the Project site, to reduce mortality of flat-tailed horned lizard on roads.
- Prior to any grading of sand dunes within the access road or installation of matting material, a qualified biological monitor shall notify the wildlife regulatory agencies at least 14 calendar days before initiating these ground-disturbing activities.

- The qualified biological monitor shall be present during ground-disturbing activities to monitor for flat-tailed horned lizards and remove lizards from harm's way. The removal of flat-tailed horned lizard out of harm's way should include relocation according to the standards (e.g., handling techniques, temperature restrictions, notification, etc.) established in the Biological Resources Report and in accordance with the RMS.
- Speed limits along all access roads should not exceed 15 miles per hour (mph). The qualified biologist may reduce this speed limit to 10 mph in areas identified as active wildlife corridors as needed to reduced mortality. All construction-related vehicles must remain on the designated access roads. Cross country vehicles and equipment use outside of designated work areas in suitable flat-tailed horned lizard habitat shall be prohibited.
- During use of the southern access route, the construction contractor should establish and implement measures for storage and disposal of all litter and trash produced during construction and operations & maintenance. This is designed to discourage scavengers, such as ravens, that may prey on potentially occurring flat-tailed horned lizard.

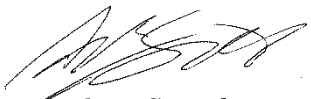
No compensatory mitigation is proposed for impacts to flat-tailed horned lizard from the use of the southern access route because construction access to this area would be temporary and would not result in the loss of any flat-tailed horned lizard habitat. In accordance with the RMS, no compensatory mitigation would be required since the avoidance measures proposed above are expected to eliminate all adverse, on-site effects to flat-tailed horned lizard.

The following measures are recommended to avoid direct impacts to Colorado Desert fringe-toed lizard throughout the duration of use of the southern access route:

- A qualified biological monitor (as defined in the Biological Resources Report) shall be present during ground disturbing activities to monitor for Colorado Desert fringe-toed lizard and remove any individuals from harm's way, either through flushing or relocation, if individuals are able to be captured.
- The removal of Colorado Desert fringe-toed lizard out of harm's way would include relocation to nearby suitable habitat according to the standards established in the Biological Resources Report.

If you have any questions concerning the contents of this letter, please contact me by phone or e-mail at (619) 308-9333 extension 158 or asmisek@reconenvironmental.com.

Sincerely,



Andrew Smisek
Biologist

AKS:sh

Attachment

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1987 Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, Department of the Army. January.

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ATTACHMENT 1

Resume

Andrew Smisek
Biologist

Experience Highlights

- ✓ Wetland delineations, reporting, and permitting
- ✓ CRAM
- ✓ Quino checkerspot butterfly surveys and reporting
- ✓ Construction/environmental compliance monitoring
- ✓ Biological constraints surveys and reporting
- ✓ Rare plant surveys and reporting

Experience

5 years

Education/Registrations

B.S. Biology, University of Wisconsin

Certifications/Permits

CDFW Scientific Collecting Permit for amphibians, birds, invertebrates (California vernal pool branchiopods [fairy shrimp] and terrestrial invertebrates), and reptiles

CDFW California Endangered Species Act Plant Voucher Collecting Permit

CDFW Flat-Tailed Horned Lizard Training and Certification

OSHA 10-Hour Training Course in Construction Safety and Health

USFWS Permit TE-797665 for Quino checkerspot butterfly and vernal pool branchiopods

Mr. Smisek conducts vegetation analyses, habitat assessments, rare plant surveys, bird nest surveys, and environmental compliance monitoring in a variety of habitats in southern California. He is experienced with GPS and GIS systems to map and record vegetation types and sensitive species occurrences.

Brand's Phacelia Census Project on Lichty Mesa, San Diego, CA

Mr. Smisek assisted in sensitive plant species surveys on the international border. The project focused on the status of a Brand's phacelia population as required by a Candidate Conservation Agreement. All sensitive plant species in the survey area were mapped and counted with the assistance of sub-meter GPS technology.

Sierra Alta Way Wastewater Emergency Pipe Replacement Project, San Diego County, CA

Mr. Smisek prepared a post-construction jurisdictional waters/wetland delineation report for an emergency sewer pipe replacement project for the County. The analysis included historical land use issues which created an atypical situation on-site, as well as the project's compliance with the County's Regional General Permit #63.

North Chollas Community Park Concession Stand and Restrooms Project, San Diego, CA

Mr. Smisek conducted a general biology survey and submitted a biological letter report in accordance with the City's Biology Guidelines for the proposed development within Chollas Park.

Mission Valley Preserve California Rapid Assessment Method Survey, San Diego, CA

Mr. Smisek assisted in conducting a CRAM survey within a portion of the Mission Valley Preserve along the San Diego River. The CRAM results were uploaded to the eCRAM database.

Otay Mesa Southwest Village Specific Plan, San Diego, CA

The Southwest Village Specific Plan would allow up to approximately 4,000 residences, a commercial and retail use area, elementary school site, parks, and open space

Training

Wetland Delineation, Wetland Training Institute

California Rapid Assessment Method Certified

Poaceae Workshop, The Jepson Herbarium

Monkeyflowers in the Field, Rancho Santa Ana Botanic Garden

Introductory Bird Course, San Diego Audubon Society

Keying with the Second Edition of The Jepson Manual, The Jepson Herbarium

Affiliations

San Diego River Park Foundation

Friends of Mission Valley Preserve

California Native Plant Society

Center for Natural Lands Management

Friends of Maple Canyon

and undeveloped areas. Mr. Smisek conducted focused Quino checkerspot butterfly surveys on this project site within the Otay Mesa area and prepared a report which was submitted to the USFWS.

Jurisdictional Waters/Wetland Delineation for the Rancho Vistoso Neighborhood 5 Project, Oro Valley, AZ

Mr. Smisek delineated jurisdictional non-wetland waters within the 190-acre project site and prepared a waters/wetland delineation report.

El Capitan Dam Spillway Vegetation Removal Project, San Diego County, CA

Mr. Smisek assisted in conducting both a wetland delineation and a CRAM survey within the project site, and prepared a waters/wetland delineation report for the City of San Diego. Mr. Smisek also conducted focused Quino checkerspot butterfly surveys and led focused rare plant surveys within the 75-acre project survey area. He reported on rare plant results and prepared a Quino checkerspot butterfly survey report which was submitted to the USFWS.

County of San Diego Department of Public Works Adjunct Staff, CA

Mr. Smisek provides in-house support to the Environmental Services Unit at the County Department of Public Works. This ongoing support includes pre-construction wetland and biological surveys and analysis, assisting with post-construction mitigation compliance and agency communication, and coordinating compliance with wetland impacts associated with the County's Regional General Permit #53.

Ashwood Street Corridor Improvement Project, San Diego County, CA

Mr. Smisek prepared a biological letter report for the proposed Phase 1 project impacts that included an analysis of the potential for impacts to a number of sensitive species, the including coastal California gnatcatcher, glossy snake, and arroyo toad. Mr. Smisek also provided Phase 1 implementation recommendations and coordinated biological monitoring during construction.

Helix Canyon Estates, San Diego County, CA

Mr. Smisek conducted a general biology survey and submitted a biological letter report in accordance with

the County's Report Format and Content Requirements and the Multiple Species Conservation Program for the proposed development of a parcel in western San Diego County.

Beyer Park Development Project, San Diego, CA

Mr. Smisek conducted sensitive plant species surveys and vegetation mapping throughout the approximately 60-acre survey area. A total of 13 rare plants were found, including the state and federally listed Otay tarplant. All sensitive plant species in the survey area were mapped and counted with the assistance of sub-meter GPS technology.

Pacific Beach Drive Crown Point/Olney Sidewalk Project, San Diego, CA

Mr. Smisek conducted noise monitoring to ensure no impacts occurred to adjacent marsh habitat considered occupied by Belding's savannah sparrow and the federally listed Ridgway's rail within the adjacent Multi-Habitat Planning Area.

Sheriff's Department Emergency Vehicle Operations Course, San Diego County, CA

Mr. Smisek conducted a general biological survey and created a biological constraints report which included an assessment of the potential to impact a number of sensitive species and advisement on impacts to critical habitat for coastal California gnatcatcher, Quino checkerspot butterfly, least Bell's vireo, and golden eagle.

San Diego River Park Foundation Discovery Center, San Diego, CA

Mr. Smisek conducted a biological resources survey and prepared a biological technical report in accordance with the City's Biology Guidelines. Mr. Smisek worked directly with City staff to update the MHPA Boundary Line Adjustment and Biological Superior Option discussion.

Temescal Wetland Creation, San Diego, CA

Mr. Smisek created a restoration plan for wetland creation at an off-site mitigation area following City of San Diego guidelines. The restoration plan describes the activities which will take place over a five-year period involving habitat creation and enhancement and how the project will meet mitigation requirements. The plan includes clearly defined goals and objectives of the restoration project; an implementation plan;

maintenance tasks; qualitative and quantitative monitoring methods; performance goals; and contingency measures to implement if the project fails to meet final performance goals.

Alpine Boulevard Streetscaping Project, Alpine, CA

Mr. Smisek regularly conducted monitoring visits and nesting bird surveys during project construction to ensure construction activities were consistent with avian and wetland mitigation and compliance measures.

El Cajon Mountain Preserve, San Diego County, CA

Mr. Smisek was the project manager for this project which included establishing methods for and conducting rare plant census surveys, Quino checkerspot butterfly habitat suitability surveys, focused western spadefoot and general wildlife surveys, and invasive plant species surveys. Data was collected using tablets with a sub-meter accuracy GPS extension. Mr. Smisek prepared a preserve management report and worked closely with GIS staff to compile the data into maps tailored for preserve management purposes.

Jonas Salk Elementary School Project Vernal Pool Mitigation, San Diego, CA

Mr. Smisek assisted in wet-season and dry-season San Diego fairy shrimp and other aquatic crustacean surveys as well as water quality measurements within restored and reference pools.

Murrieta Creek Monitoring Project Phase I and Phase IIa, City of Temecula, Riverside County, CA

Mr. Smisek conducted construction monitoring to identify potential biological issues within the work area and to ensure environmental compliance. Tasks included occupied burrowing owl and least Bell's vireo habitat monitoring, coordination with construction crews, meeting attendance, and daily reporting.

Rolling Hills Ranch Preserve, Chula Vista, CA

Mr. Smisek conducted general biological surveys, including mapping vegetation communities and recording rare plant and wildlife populations.

Brand's Phacelia Census Project on Lichty Mesa, San Diego, CA

Mr. Smisek assisted in sensitive plant species surveys on the international border. The project focused on the status of a Brand's phacelia population as required by a Candidate Conservation Agreement. All sensitive plant

species in the survey area were mapped and counted with the assistance of sub-meter GPS technology.

City Heights Canyons Enhancements and Trails Project, San Diego, CA

Mr. Smisek created a revegetation plan for four urban canyons within the city of San Diego. The revegetation plan describes the activities which will take place over a five-year period and involve habitat enhancement and restoration, installation of trails, and other project components. The revegetation plan includes clearly defined goals and objectives of the revegetation project; documentation of pre-restoration on-site conditions; an implementation plan; maintenance tasks; qualitative and quantitative monitoring methods; performance goals; and contingency measures to implement if the project fails to meet final performance goals.

SDG&E NCCP Environmental Enhancement, San Diego and Orange Counties, CA

Mr. Smisek provided restoration consulting services to SDG&E in support of the Natural Community Conservation Plan and the Enhancement and Monitoring Program. He conducted post-construction site assessments and annual monitoring of enhancement sites, prepared implementation plans, and maintained database entries to track progress of various sites throughout San Diego County.

SDG&E Sunrise Powerlink Habitat Restoration AWCS, San Diego and Imperial Counties, CA

Mr. Smisek coordinated remedial restoration tasks including shrub transplantation and protection. He also coordinated seed collection and application tasks specific to U.S. Forest Service requirements. He assisted in primary restoration tasks including qualitative and quantitative monitoring, seed collection, and coordinating the treatment of invasive plants found in temporary and permanent impact areas. He served as a botanical monitor for this project and assisted in rare plant surveys, including listed species such as San Diego thornmint, and rare plant seed collection. Mr. Smisek also assisted in the project-related plot treatment experiments in Mount Laguna and focused invasive plant surveys.

Otay Ranch Preserve Habitat Management, Chula Vista, CA

Mr. Smisek conducted focused Quino checkerspot butterfly protocol surveys and rare plant surveys on a

number of parcels throughout the 11,000-acre Otay Ranch Preserve in an effort to update sensitive species population data and provide preserve management guidance.

Alta Del Mar, San Diego, CA

Mr. Smisek conducted construction monitoring to ensure environmental compliance during soil disturbance activities adjacent to vernal pools in the Shaw Lorenz development.

Pacific Highlands Ranch, San Diego, CA

Mr. Smisek conducted construction monitoring to ensure environmental compliance during brush clearing and soil disturbance activities as well as noise monitoring next to the occupied coastal California gnatcatcher habitat and suitable habitat for least Bell's vireo in the Pacific Highlands Ranch Development.

ATTACHMENT 2

Plant Species Observed

Attachment 2 Plant Species Observed			
Scientific Name	Common Name	Habitat	Origin
GNETALES			
EPHEDRACEAE	**EPHEDRA FAMILY**		
Ephedra trifurca Torr. ex S. Watson	longleaf ephedra	CBS	N
ANGIOSPERMS: MONOCOTS			
AGAVACEAE	**AGAVE FAMILY**		
Hesperocallis undulata A. Gray	desert lily	CBS	N
ARECACEAE	**PALM FAMILY**		
Phoenix dactylifera L.	date palm	AWT	I
Washingtonia filifera (Linden ex André) H. Wendl. ex de Bary	California fan palm	CRM, AWT	N
CYPERACEAE	**SEDGE FAMILY**		
Cyperus odoratus L.	rusty flatsedge	CRM	N
POACEAE (GRAMINEAE)	**GRASS FAMILY**		
Cynodon dactylon (L.) Pers.	Bermuda grass	DH, AGF, CRM, QS	I
Phragmites australis (Cav.) Steud.	common reed	CRM, AWT	N
Schismus barbatus (L.) Thell.	Mediterranean schismus	AGF, UM	I
TYPHACEAE	**CATTAIL FAMILY**		
Typha domingensis Pers.	southern cattail	CRM, CTM, OW	N
ANGIOSPERMS: DICOTS			
APOCYNACEAE	**DOGBANE FAMILY**		
Nerium oleander L.	common oleander	DH	I
ASTERACEAE	**SUNFLOWER FAMILY**		
Ambrosia dumosa (A. Gray) Payne	white bur-sage, burro-weed	FSS, CBS	N
Encelia frutescens (A. Gray) A. Gray	button brittlebush	AGF, QS	N
Geraea canescens Torr. & A. Gray	desert sunflower	FSS, CBS, DH	N
Isocoma acradenia var. *eremophila* (Greene) G.L. Nesom	alkali goldenbush	AGF, QS, CBS	N
Lactuca serriola L.	prickly lettuce	AGF, UM	I
Palafoxia arida B.L. Turner & M.I. Morris	Spanish needles	CBS, FSS	N
Pluchea sericea (Nutt.) Coville	arrow weed	AWT, CRM	N
Sonchus oleraceus L.	common sow thistle	AGF	I

Attachment 2 Plant Species Observed			
Scientific Name	Common Name	Habitat	Origin
BORAGINACEAE	**BORAGE FAMILY**		
Cryptantha sp.	cryptantha	AGF, QS, CBS, AWT	N
Cryptantha angustifolia (Torr.) Greene	narrow-leaf cryptantha	AWT, DH, QS, CBS, FSS, UM	N
Heliotropium curassavicum L. var. *oculatum* (A. Heller) I. M. Johnst. ex Tidestr.	seaside heliotrope, alkali heliotrope	CRM, DH	N
Pectocarya sp.	pectocarya, comb-bur	FSS	N
Tiquilia palmeri	Palmer's crinklemat	CBS	N
BRASSICACEAE (CRUCIFERAE)	**MUSTARD FAMILY**		
Brassica tournefortii Gouan	Sahara mustard	UM, CBS	I
Sisymbrium irio L.	London rocket	CBS, DH, FSS, AGF, AWT, QS, UM	I
CHENOPODIACEAE	**GOOSEFOOT FAMILY**		
Atriplex canescens (Pursh) Nutt.	four-wing saltbush, shad-scale	FSS, QS, AGF, AWT	N
Atriplex lentiformis (Torr.) S. Watson	big saltbush, quailbush	DH, AGF, QS	N
Atriplex polycarpa (Torr.) S. Watson	allscale saltbush	AGF, QS, AWT	N
Chenopodium murale L.	nettle-leaf goosefoot	DH, AGF, UM, TT	I
Salsola paulsenii Litv.	Barbwire Russian thistle	AGF	I
EUPHORBIACEAE	**SPURGE FAMILY**		
Croton californicus Müll. Arg.	California croton	UM	N
FABACEAE (LEGUMINOSAE)	**LEGUME FAMILY**		
Melilotus indicus (L.) All.	sourclover	CRM, AGF	I
Prosopis chilensis (Mol.) Stunz.	Chilean mesquite	DH	I
Prosopis glandulosa Torr. *var. torreyana* (L.D. Benson) M.C. Johnst.	honey mesquite	AGF, AWT, CRM, UM	N
GENTIANACEAE	**GENTIAN FAMILY**		
Eustoma exaltatum (L.) G. Don	catchfly prairie gentian	CRM	N
MALVACEAE	**MALLOW FAMILY**		
Malva parviflora L.	cheeseweed, little mallow	UM	I
Sphaeralcea ambigua A. Gray	desert globe-mallow	AGF	N

Attachment 2 Plant Species Observed			
Scientific Name	Common Name	Habitat	Origin
MYRTACEAE	**MYRTLE FAMILY**		
Eucalyptus sp.	gum tree	EG	I
Eucalyptus microtheca F.Muell.	coolibah	EG	I
NYCTAGINACEAE	**FOUR O'CLOCK FAMILY**		
Abronia villosa S. Watson *var. villosa*	sand verbena	CBS, UM, FSS	N
ONAGRACEAE	**EVENING-PRIMROSE FAMILY**		
Eremothera boothii (Douglas) W.L. Wagner & Hoch	Booth's evening primrose	CBS	N
Chylismia brevipes (A. Gray) Small	yellow cups	AWT, UM	N
Chylismia claviformis (Torr. & Frém.) A. Heller	brown-eye primrose	AWT, UM, CBS, FSS	N
Oenothera deltoides	dune primrose	CBS	N
PLANTAGINACEAE	**PLANTAIN FAMILY**		
Plantago ovata Forssk.	desert indianwheat	FSS, CBS	I
RESEDACEAE	**MIGNONETTE FAMILY**		
Oligomeris linifolia (Vahl ex Hornem.) J.F. Macbr.	narrow-leaf oligomeris	CBS	N
TAMARICACEAE	**TAMARISK FAMILY**		
Tamarix aphylla (L.) H. Karst.	athel	AWT, QS, TT	I
Tamarix ramosissima Ledeb.	saltcedar	TT, AWT	I
ZYGOPHYLLACEAE	**CALTROP FAMILY**		
Kallstroemia californica	California caltrop	CBS	N
Larrea tridentata (DC.) Coville	creosote bush	CBS, FSS, UM	N

VEGETATION COMMUNITIES
AGF = Fallow agriculture
AWT = Arrow weed thickets
CBS = Creosote bush scrub
CRM = Common reed marshes
CTM = Cattail marshes
DH = Disturbed habitat
EG = Eucalyptus groves
FSS = Fourwing saltbush scrub
OW = Open water
QS = Quailbush scrub
TT = Tamarisk thickets
UM = Upland mustards

ORIGIN
N = Native to locality
I = Introduced species from outside locality

ATTACHMENT 3

Wildlife Species Observed

Attachment 3 Wildlife Species Detected			
Scientific Name	Common Name	Occupied Habitat	Evidence of Occurrence
INVERTEBRATES (Nomenclature for spiders and insects from Evans 2008; for butterflies from San Diego Natural History Museum 2002; for ants from Wheeler and Wheeler and Antweb 2018)			
TENEBRIONIDAE	**DARKLING BEETLES**		
Not identified to species	darkling beetle	UM	O
COCCINELLIDAE	**LADY BEETLES**		
Hippodamia sp.	lady beetle	UM	O
CURCULIONIDAE	**SNOUT AND BARK BEETLES**		
Not identified to species	weevil	AWT	O
CICADIDAE	**CICADAS**		
Not identified to species	cicada	CBS	V
CULICIDAE	**MOSQUITOS**		
Culex sp.	mosquito	DH, UM, OW	O
SYRPHIDAE	**SYRPHID FLIES**		
Not identified to species	hover fly	UM	O
LIBELLULIDAE	**SKIMMERS**		
Orthemis ferruginea	roseate skimmer	DH	O
Perithemis intensa	Mexican amberwing	DH	O
COENAGRIONIDAE	**NARROW-WINGED DAMSELFLIES**		
Argia sp.	dancer	UM	O
APIDAE	**HONEY BEES**		
Apis mellifera	honey bee (I)	UM	O
MUTILLIDAE	**VELVET ANTS**		
Dasymutilla gloriosa	thistle down velvet ant	AWT	O
POMPILIDAE	**SPIDER WASPS**		
Pepsis sp.	tarantula hawk	UM	O
FORMICIDAE	**ANTS**		
Myrmecocystus minicus	N/A	UM	O
Veromessor stoddardi	California harvester ant	FSS	O
Veromessor pergandei	black harvester ant	UM	O

Attachment 3 Wildlife Species Detected			
Scientific Name	Common Name	Occupied Habitat	Evidence of Occurrence
NOT IDENTIFIED TO FAMILY	**TERMITES**		
Not identified to species	termite	UM	O
SCORPIONES	**SCORPIONS**		
Not identified to species	scorpion	AWT, CBS, FSS, UM	T
HESPERIIDAE	**SKIPPERS**		
Hylephila phyleus muertovalle	fiery skipper	CBS	O
Pyrgus communis	common checkered skipper	UM	O
PIERIDAE	**WHITES & SULPHURS**		
Colias eurytheme	orange [=alfalfa] sulphur	FSS, UM	O
LYCAENIDAE	**BLUES, COPPERS, & HAIRSTREAKS**		
Brephidium exile	western pygmy-blue	UM	O
Hemiargus ceraunus gyus	Edward's [=Ceraunus] blue	FSS	O
NYMPHALIDAE	**BRUSH-FOOTED BUTTERFLIES**		
Danaus gilippus strigosus	striated queen	UM	O
Vanessa annabella	west coast lady	DH	O
Vanessa cardui	painted lady	AWT, DH, FSS, UM	O
AMPHIBIANS (Nomenclature from Crother et al. 2012)			
RANIDAE	**TRUE FROGS**		
Lithobates catesbeiana	American bullfrog (I)	AWT, CRM, OW	O, V
REPTILES (Nomenclature from Crother et al. 2012)			
EMYDIDAE	**BOX & WATER TURTLES**		
Apalone spinifera (likely identification based on known range of introduced species)	spiny softshell turtle (I)	AWT, CRM, DH, OW	T
GEKKONIDAE	**GECKOS**		
Coleonyx variegatus variegatus	western banded gecko	UM	O, T
PHRYNOSOMATIDAE	**SPINY LIZARDS**		
Callisaurus draconoides rhodostictus	western zebra-tailed lizard	CBS, UM	O, C
Phrynosoma mcallii	flat-tailed horned lizard	CBS	T
Urosaurus graciosus	long-tailed brush lizard	FSS	O

Attachment 3 Wildlife Species Detected			
Scientific Name	Common Name	Occupied Habitat	Evidence of Occurrence
TEIIDAE	**WHIPTAIL LIZARDS**		
Aspidoscelis tigris tigris	Great Basin tiger whiptail	UM	O
CROTALIDAE	**RATTLESNAKES**		
Crotalus cerastes laterorepens	Colorado Desert sidewinder	CBS, FSS	T
BIRDS (Nomenclature from Chesser et al. 2018)			
ANATIDAE	**DUCKS, GEESE, & SWANS**		
Anas platyrhynchos platyrhynchos	mallard	OW	O
Branta canadensis	Canada goose	FO	O, V
Anser =[*Chen*] *caerulescens caerulescens*	snow goose	FO	O
ODONTOPHORIDAE	**NEW WORLD QUAIL**		
Callipepla gambelii gambelii	Gambel's quail	AWT, FSS	O, T, V
PHALACROCORACIDAE	**CORMORANTS**		
Phalacrocorax auritus albociliatus	double-crested cormorant	FO	O
ARDEIDAE	**HERONS & BITTERNS**		
Ardea alba	great egret	FO	O
Ardea herodias	great blue heron	FO	O
Butorides virescens	green heron	CRM	O
Egretta thula candidissma	snowy egret	AG, FO	O
Nycticorax nycticorax	black-crowned night heron	CRM	O
CATHARTIDAE	**NEW WORLD VULTURES**		
Cathartes aura	turkey vulture	FO	O
ACCIPITRIDAE	**HAWKS, KITES, & EAGLES**		
Accipiter cooperii	Cooper's hawk	AWT, FO	O, V
Buteo jamaicensis	red-tailed hawk	FO	O, V
Buteo regalis	ferruginous hawk	FO	O
Circus hudsonius	northern harrier	AWT, FO, TT	O
FALCONIDAE	**FALCONS & CARACARAS**		
Falco mexicanus	prairie falcon	AG, FO	O
Falco sparverius sparverius	American kestrel	AWT, UM, CBS, DH, FO	O, V

Attachment 3 Wildlife Species Detected			
Scientific Name	Common Name	Occupied Habitat	Evidence of Occurrence
RALLIDAE	**RAILS, GALLINULES, & COOTS**		
Fulica americana americana	American coot	OW	O, V
Gallinula galeata	common gallinule	CTM	O
CHARADRIIDAE	**LAPWINGS & PLOVERS**		
Charadrius vociferus vociferus	killdeer	AG, UM, FSS, DH	O, V
RECURVIROSTRIDAE	**STILTS & AVOCETS**		
Himantopus mexicanus	black-necked stilt	FO	O
SCOLOPACIDAE	**SANDPIPERS & PHALAROPES**		
Actitis macularius	spotted sandpiper	DH	O, V
Gallinago delicata	Wilson's snipe	CRM	O
Numenius americanus	long-billed curlew	FO	O
COLUMBIDAE	**PIGEONS & DOVES**		
Columba livia	rock dove (I)	DH, FO	O
Streptopelia decaocto	Eurasian collared-dove (I)	DH	O, V
Zenaida asiatica mearnsi	white-winged dove	AWT	O, V
Zenaida macroura marginella	mourning dove	AWT, DH	O, V
CUCULIDAE	**CUCKOOS & ROADRUNNERS**		
Geococcyx californianus	greater roadrunner	CBS, AWT	O, T
STRIGIDAE	**TYPICAL OWLS**		
Athene cunicularia hypugaea	western burrowing owl	TT, CBS, FSS, UM	O, B, T, V
Bubo virginianus	great horned owl	AWT	O, V
CAPRIMULGIDAE	**GOATSUCKERS**		
Chordeiles acutipennis texensis	lesser nighthawk	CBS, FSS, FO	O, V
APODIDAE	**SWIFTS**		
Aeronautes saxatalis	white-throated swift	FO	O, V
Chaetura vauxi vauxi	Vaux's swift	FO	O
TROCHILIDAE	**HUMMINGBIRDS**		
Calypte anna	Anna's hummingbird	AWT	O, V
ALCEDINIDAE	**KINGFISHERS**		
Megaceryle alcyon	belted kingfisher	CRM, FO, OW	O

Attachment 3 Wildlife Species Detected			
Scientific Name	Common Name	Occupied Habitat	Evidence of Occurrence
PICIDAE	**WOODPECKERS & SAPSUCKERS**		
Colaptes auratus	northern flicker	TT	O, V
Dryobates [=*Picoides*] *nuttallii*	Nuttall's woodpecker	TT	O
TYRANNIDAE	**TYRANT FLYCATCHERS**		
Contopus sordidulus	western wood-pewee	TT	O
Myiarchus cinerascens cinerascens	ash-throated flycatcher	AWT, UM	O, V
Sayornis nigricans semiatra	black phoebe	CBS, DH, UM	O, V
Sayornis saya	Say's phoebe	CBS, UM, FSS, TT	O, V
Tyrannus verticalis	western kingbird	UM	O, V
Tyrannus vociferans vociferans	Cassin's kingbird	DH	O
LANIIDAE	**SHRIKES**		
Lanius ludovicianus grinnelli	loggerhead shrike	CBS, CRM, TT, DH	O, V
VIREONIDAE	**VIREOS**		
Vireo gilvus swainsonii	warbling vireo	TT	O
CORVIDAE	**CROWS, JAYS, & MAGPIES**		
Corvus brachyrhynchos hesperis	American crow	AG, FO	O, V
Corvus corax clarionensis	common raven	CBS, UM, FO	O, V
ALAUDIDAE	**LARKS**		
Eremophila alpestris	horned lark	UM, FSS	O
HIRUNDINIDAE	**SWALLOWS**		
Hirundo rustica erythrogaster	barn swallow	FO	O
Petrochelidon pyrrhonota tachina	cliff swallow	FO	O, V
Stelgidopteryx serripennis	northern rough-winged swallow	FO	V
REMIZIDAE	**VERDIN**		
Auriparus flaviceps acaciarum	verdin	CBS, TT, FSS	O, V
TROGLODYTIDAE	**WRENS**		
Thryomanes bewickii	Bewick's wren	AWT, CBS	O, V
REGULIDAE	**KINGLETS**		
Regulus calendula calendula	ruby-crowned kinglet	CRM	O
SYLVIIDAE	**GNATCATCHERS**		
Polioptila caerulea	blue-gray gnatcatcher	AWT, CBS, FSS	O, V

Attachment 3 Wildlife Species Detected			
Scientific Name	Common Name	Occupied Habitat	Evidence of Occurrence
Polioptila melanura	black-tailed gnatcatcher	AWT, CBS	O, V
MIMIDAE	**MOCKINGBIRDS & THRASHERS**		
Mimus polyglottos polyglottos	northern mockingbird	AWT, DH	O, V
Toxostoma lecontei lecontei	LeConte's thrasher	AWT, FSS	O, V
STURNIDAE	**STARLINGS & MYNAS**		
Sturnus vulgaris	European starling (I)	AWT, DH, EG	O, V
MOTACILLIDAE	**WAGTAILS & PIPITS**		
Anthus rubescens pacificus	American pipit	UM	O
PTILOGONATIDAE	**SILKY FLYCATCHERS**		
Phainopepla nitens lepida	phainopepla	CBS	V
PARULIDAE	**WOOD-WARBLERS**		
Setophaga [=*Dendroica*] *coronata*	yellow-rumped warbler	AWT, FSS, TT	O, V
Setophaga [=*Dendroica*] *nigrescens*	black-throated gray warbler	AWT, TT	O
Setophaga [=*Dendroica*] *petechia*	yellow warbler	TT	O
Setophaga [=*Dendroica*] *townsendi*	Townsend's warbler	AWT, TT	O
Geothlypis trichas	common yellowthroat	AWT, CRM	O, V
Oreothlypis [=*Vermivora*] *celata*	orange-crowned warbler	TT	O, V
Cardellina [=*Wilsonia*] *pusilla*	Wilson's warbler	FS, TT	O
PASSERELLIDAE	**NEW WORLD SPARROWS**		
Artemisiospiza belli	Bell's sparrow	FSS	O
Artemisiospiza nevadensis	sagebrush sparrow	FSS	O, V
Melospiza melodia	song sparrow	AWT	O, V
Passerculus sandwichensis nevadensis	savannah sparrow	UM	O
Melozone [=*Pipilo*] *aberti*	Abert's towhee	AWT, FSS, CBS	O
Spizella breweri	Brewer's sparrow	UM	O, V
Zonotrichia leucophrys	white-crowned sparrow	AWT, FSS, TT	O, V
ICTERIDAE	**BLACKBIRDS & NEW WORLD ORIOLES**		
Agelaius phoeniceus	red-winged blackbird	AG	O, V
Icterus bullockii	Bullock's oriole	EG	O
Molothrus ater	brown-headed cowbird	DH	O, V
Quiscalus mexicanus	great-tailed grackle	DH, FO	O
Sturnella neglecta	western meadowlark	AG, FSS	O, V

Attachment 3 Wildlife Species Detected			
Scientific Name	Common Name	Occupied Habitat	Evidence of Occurrence
Xanthocephalus xanthocephalus	yellow-headed blackbird	CRM	O
FRINGILLIDAE	**FINCHES**		
Spinus [=*Carduelis*] *psaltria hesperophilus*	lesser goldfinch	AWT, TT	O, V
Haemorhous [=*Carpodacus*] *mexicanus frontalis*	house finch	AWT, DH, TT	O, V
MAMMALS (Nomenclature from Baker et al. 2003)			
LEPORIDAE	**RABBITS & HARES**		
Lepus californicus deserticola	desert black-tailed jackrabbit	CBS, UM	O, S, T
Sylvilagus audubonii	desert cottontail	DH, FSS, CBS, UM	C, O, S
SCIURIDAE	**SQUIRRELS & CHIPMUNKS**		
Spermophilus tereticaudus	round-tailed ground squirrel	UM	B, O, V
GEOMYIDAE	**POCKET GOPHERS**		
Thomomys bottae	Botta's pocket gopher	AWT, FSS, DH	B
HETEROMYIDAE	**POCKET MICE & KANGAROO RATS**		
Dipodomys sp.	kangaroo rat	CBS, TT	T
CANIDAE	**CANIDS**		
Canis latrans	coyote	UM, CBS, FSS, TT	O, S, T, V
Vulpes macrotis	kit fox	AWT, CBS, TT	O, T
PROCYONIDAE	**PROCYONIDS**		
Procyon lotor	northern raccoon	DH	T
MUSTELIDAE	**WEASELS, OTTERS, & BADGERS**		
Taxidea taxus	American badger	CBS	O, T
FELIDAE	**CATS**		
Lynx rufus	bobcat	CBS	S

Attachment 3
Wildlife Species Detected

(I) = Introduced species

HABITATS

AG = Active agriculture
AGF = Fallow agriculture
CBS = Creosote bush scrub
CRM = Common reed marshes
CTM = Cattail marshes
DH = Disturbed habitat
EG = Eucalyptus groves
FO = Flying overhead
FSS = Fourwing saltbush scrub
OW = Open water
QS = Quailbush scrub
TT = Tamarisk thickets
UM = Upland mustards

EVIDENCE OF OCCURRENCE

B = Burrow
C = Carcass/remains
D = Den site
M = Midden
N = Nest
O = Observed
S = Scat
T = Track
V = Vocalization/Audible detection

ATTACHMENT 4

Sensitive Plant Species Observed or with the Potential to Occur

Attachment 4 Sensitive Plant Species Observed or with the Potential for Occurrence					
Scientific Name Common Name	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
LYCOPODS					
SELAGINELLACEAE FAMILY **SPIKE-MOSS**					
Selaginella eremophila desert spike-moss	2B.2	Perennial; creosote bush scrub; shaded crevices and rocky places; elevation less than 2,953 feet.	No	Not expected to occur	The Project site and surrounding areas lack suitable shaded and/or rocky areas to support this species. In addition, this species would have been apparent if present.
ANGIOSPERMS: DICOTS					
AMARANTHACEAE **AMARANTH FAMILY**					
Amaranthus watsonii Watson's amaranth	4.3	Annual herb; blooms August–September; creosote bush scrub and wetlands.	No	Not expected to occur	Surveys were conducted at the appropriate time of year to detect this species in vegetative state if present.
APIACEAE **CARROT FAMILY**					
Eryngium aristulatum var. *parishii* San Diego button-celery	FE, CE, 1B.1	Biennial/perennial herb; vernal pools, mesic areas of coastal sage scrub and grasslands, blooms April–June; elevation less than 2,000 feet. Known from San Diego and Riverside counties. Additional populations occur in Baja California, Mexico.	No	Not expected to occur	The Project site and surrounding areas lack suitable vernal pool or open vernally mesic habitat to support this species.
APOCYNACEAE **DOGBANE FAMILY**					
Funastrum utahense Utah vine milkweed	4.2	Perennial herb; blooms April–June; creosote bush scrub; elevation below 3,281 feet.	No	Not expected to occur	Surveys were conducted at the appropriate time of year to detect this species if present.

Attachment 4 Sensitive Plant Species Observed or with the Potential for Occurrence					
Scientific Name Common Name	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
APODANTHACEAE **STEMSUCKER FAMILY**					
Pilostyles thurberi Thurber's pilostyles	4.3	Perennial herb (parasitic on *Psorothamnus*); blooms January; Sonoran desert scrub; sandy alluvial plains; elevation less than 984 feet.	No	Not expected to occur	This species has been reported within two miles of the Project site (CDFW 2019a). However, no *Psorothamnus* was observed in the Project site or adjacent areas to support this species.
ASTERACEAE **SUNFLOWER FAMILY**					
Chaenactis carphoclinia var. peirsonii *Peirson's pincushion*	1B.3	Annual herb; blooms March–April; open, rocky or gravelly slopes; creosote bush scrub; elevation less than 1,640 feet.	No	Not expected to occur	The Project site and adjacent areas lack suitable rocky or gravelly slopes to support this species. In addition, surveys were conducted at the appropriate time of year to detect this species if present.
Helianthus niveus ssp. *tephrodes* Algodones Dunes sunflower	CE, 1B.2, BLM	Perennial herb; blooms March–May; dunes; elevation less than 328 feet.	No	Not expected to occur	The sandy soil and small dunes that occur in and adjacent to the western portion of the Project site, south of Westside Main Canal, may provide suitable habitat for this species. However, surveys were conducted during this species typical blooming period; therefore, it would have likely been apparent if present.
Malperia tenuis *brown turbans*	2B.3	Annual herb; blooms April and Dec; Sonoran desert scrub; sandy areas and rocky slopes; elevation less than 1,640 feet.	No	Low potential to occur	Records of this species within two miles of the Project site are either very old (from 1964), or lack locational precision (CDFW 2019a University of California 2019). The creosote bush scrub in and adjacent to the Project site may be superficially suitable; however historical agriculture on the site make it unlikely for any historical populations on site to persist at present.

Attachment 4 Sensitive Plant Species Observed or with the Potential for Occurrence					
Scientific Name Common Name	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
Palafoxia arida var. *gigantea* giant Spanish-needle	1B.3, BLM	Dunes; blooms March–May.	No	Not expected to occur	This species is mostly reported from eastern Imperial Valley. Surveys were conducted during the typical blooming period for this species; therefore, it likely would have been apparent if present.
Xylorhiza cognata Mecca-aster	1B.2, BLM	Perennial herb; blooms Jan–June; arid canyons and washes; creosote bush scrub; canyons; elevation 65–787 feet.	No	Not expected to occur	No suitable canyons or washes occur within or adjacent to the Project site. Surveys were conducted during the typical blooming period for this species; therefore, it likely would have been apparent if present.
Xylorhiza orcuttii Orcutt's woody-aster	1B.2, BLM	Perennial herb; blooms January–May; creosote bush scrub; barren slopes, canyons; elevation 65–984 feet.	No	Not expected to occur	No suitable canyons or slopes occur in or adjacent to the Project site. Surveys were conducted during the typical blooming period for this species; therefore, it likely would have been apparent if present.
BORAGINACEAE **BORAGE FAMILY**					
Johnstonella [=*Cryptantha*] *costata* ribbed cryptantha	4.3	Annual herb; blooms Feb–May; creosote bush scrub, sandy soil; elevation less than 1,640 feet.	No	Low potential to occur	The nearest record of this species is from Pinto Wash, about 4 miles to the southwest of the site. While this species does occur in creosote bush scrub with sandy soils, historical agriculture on site likely extirpated any populations present.
Johnstonella [=*Cryptantha*] *holoptera* winged cryptantha	4.3	Annual herb; blooms March–April; washes, creosote bush scrub, sandy soil; elevation 328–3,937 feet.	No	Not expected to occur	The Project site and adjacent areas lack suitable washes, slopes, or ridges to support this species. In addition, surveys were conducted at the appropriate time of year to detect this species if present.

Attachment 4 Sensitive Plant Species Observed or with the Potential for Occurrence					
Scientific Name Common Name	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
Nama stenocarpa mud nama	2B.2	Annual/perennial herb; marshes and swamps, lake margins, riverbanks; blooms January–July; elevation less than 1,700 feet.	No	Not expected to occur	One historical occurrence is recorded within two miles of the Project site (CDFW 2019a). However, the Project site and adjacent areas lack suitable intermittently wet areas to support this species. In addition, surveys were conducted at the appropriate time of year to detect this species if present.
Pholisma sonorae sand food	1B.2, BLM	Perennial parasitic herb; blooms April–May; dunes; elevation less than 656 feet.	No	Not expected to occur	Two potential host plants of the *Ambrosia* and *Pluchea* genera were observed within the Project site. However, surveys were conducted at the appropriate time of year to detect this species if present, and records for this species are restricted to the east side of Imperial Valley.
BRASSICACEAE **MUSTARD FAMILY**					
Lyrocarpa coulteri Coulter's lyrepod	4.3	Perennial herb; blooms April–Dec; creosote bush scrub; dry slopes, gravelly flats, and washes; elevation less than 1,969 feet.	No	Not expected to occur	The Project site and adjacent areas lack suitable slopes, gravelly flats, or washes to support this species. In addition, surveys were conducted during the typical blooming period for this species; therefore, it likely would have been apparent if present.
BURSERACEAE **TORCHWOOD FAMILY**					
Bursera microphylla Little-leaf elephant tree	2B.3	Tree; rocky desert slopes; blooms May–June; elevation less than 2,300 feet.	No	Not expected to occur	The Project site and surrounding areas lack suitable rocky desert slopes to support this species. In addition, as it is a tree, this species would have been apparent if present.
CACTACEAE **CACTUS FAMILY**					
Opuntia wigginsii [=*Cylindropuntia echinocarpa*] Wiggins' cholla [Silver cholla]	3.3	Shrub; creosote bush scrub.	No	Not expected to occur	As a perennial succulent of moderate size, this species would have been apparent if present.

Attachment 4 Sensitive Plant Species Observed or with the Potential for Occurrence					
Scientific Name Common Name	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
Cylindropuntia wolfii Wolf's cholla	4.3	Shrub; blooms April–May; Alluvial fans and rocky slope in Sonoran desert scrub.	No	Not expected to occur	The Project site and surrounding areas lack suitable alluvial fan or rocky slope habitat to support this species. In addition, as a perennial, succulent plant, this species would have been apparent if present.
EUPHORBIACEAE **SPURGE FAMILY**					
Croton wigginsii Wiggins' croton	CR, 2B.2, BLM	Shrub; blooms March–April; creosote bush scrub; dunes; elevation less than 328 feet.	No	Not expected to occur	Surveys were conducted during the typical blooming period for this species; therefore, it likely would have been apparent if present.
Ditaxis serrata var. *californica* California ditaxis	3.2	Perennial herb; blooms April–November; washes, canyons; creosote bush scrub; elevation less than 656 feet.	No	Not expected to occur	The Project site and adjacent areas lack suitable canyons or washes to support this species. In addition, surveys were conducted during the typical blooming period for this species; therefore, it likely would have been apparent if present.
Euphorbia [=*Chamaesyce*] *abramsiana* Abram's spurge	2B.2	Annual herb; blooms September–November; creosote bush scrub; elevation less than 656 feet.	No	Low potential to occur	The nearest likely extant record of this species is in the Jacumba Wilderness Area, 11 miles to the southwest (University of California 2019). Although rare plant surveys were not conducted during a time of year when this species would have been apparent, this species has a low potential to occur on-site. The Project area has historically been used for agriculture for many years based on historical aerial photography. This intensive use of the land would have likely extirpated any previously existing population of Abram's spurge.

Attachment 4 Sensitive Plant Species Observed or with the Potential for Occurrence					
Scientific Name Common Name	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
Euphorbia [=*Chamaesyce*] *arizonica* Arizona spurge	2B.3	Perennial herb; blooms March–April; creosote bush scrub; elevation less than 984 feet.	No	Low potential to occur	The nearest likely extant record of this species is from the In-Ko-Pah area, 20 miles to the west (University of California 2019). While this species does occur in creosote bush scrub, historical agriculture on site likely extirpated any populations present.
FABACEAE **LEGUME FAMILY**					
Acmispon haydonii pygmy lotus	1B.3	Perennial herb; blooms March–June; creosote bush scrub; elevation 1,969–3,937 feet.	No	Not expected to occur	The Project site is outside this species' known elevational range. In addition, surveys were conducted during the typical blooming period for this species; therefore, it likely would have been apparent if present.
Astragalus crotalariae Salton milk-vetch	4.3	Perennial herb; blooms Jan–April; creosote bush scrub; elevation 60–250 feet.	No	Not expected to occur	The creosote bush scrub and sandy soils in and adjacent to the Project site may provide suitable habitat for this species. However, as this is a perennial species and surveys were conducted during the species' typical blooming period, it likely would have been apparent if present.
Astragalus insularis var. *harwoodii* Harwood's milk-vetch	2B.2	Annual herb; blooms Jan–May; desert dunes; open sandy flats or stony desert washes; mostly in creosote bush scrub.	No	Not expected to occur	The sandy soils in the western portion, along the edges of, and adjacent to the Project area south of Westside Main Canal may provide suitable habitat. However, surveys were conducted at the appropriate time of year to detect this species if present.
Astragalus lentiginosus var. *borreganus* Borrego milk-vetch	4.3	Annual herb; blooms March–May; creosote bush scrub, sandy areas; elevation 98–820 feet.	No	Not expected to occur	The sandy soils in the western portion, along the edges of, and adjacent to the Project area south of Westside Main Canal may provide suitable habitat. However, surveys were conducted at the appropriate time of year to detect this species if present.

Attachment 4 Sensitive Plant Species Observed or with the Potential for Occurrence					
Scientific Name Common Name	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
Astragalus magdalenae var. *peirsonii* Peirson's milk-vetch	FT, CE, 1B.2	Perennial herb; blooms Dec–April; dunes; elevation 164–656 feet.	No	Not expected to occur	The sandy soils in the western portion, along the edges of, and adjacent to the Project area south of Westside Main Canal may provide suitable habitat. However, surveys were conducted at the appropriate time of year to detect this species if present.
Astragalus sabulonum Gravel milk-vetch	2B.2	Annual; sandy or gravelly soils in Mojave and Sonoran deserts; blooms November–April; elevation 160-3,000 feet.	No	Not expected to occur	This species has been reported within two miles of the Project site (CDFW 2019a). The sandy soils in the western portion, along the edges of, and adjacent to the Project area south of Westside Main Canal may provide suitable habitat. However, surveys were conducted at the appropriate time of year to detect this species if present.
Calliandra eriophylla pink fairy-duster	2B.3	Shrub; sandy washes, slopes, and mesas in desert; blooms February–April and/or September–October, following rain; elevation 4,900 feet.	No	Not expected to occur	This species has been reported within two miles of the Project site (CDFW 2019a). However, as this is a perennial shrub species and surveys were conducted during the typical blooming period, it likely would have been detected if present.
Lupinus excubitus [=*albifrons*] var. *medius* Mountin Springs bush lupine	1B.3, BLM	Shrub; blooms March–April; creosote bush scrub; desert washes; elevation less than 3,281 feet.	No	Not expected to occur	The Project site and adjacent areas lack suitable washes to support this species. In addition, as this is a perennial shrub species and surveys were conducted during the typical blooming period, it likely would have been detected if present.

Attachment 4 Sensitive Plant Species Observed or with the Potential for Occurrence					
Scientific Name Common Name	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
Parkinsonia microphylla little-leaved palo verde	4.3	Tree; blooms April–May; creosote bush scrub.	No	Not expected to occur	The Project site and adjacent areas lack suitable rocky slopes to support this species. In addition, as this is a perennial shrub/tree species and surveys were conducted during the typical blooming period, it likely would have been detected if present.
LAMIACEAE **MINT FAMILY**					
Teucrium cubense ssp. *depressum* dwarf germander	2B.2	Annual herb; blooms March–May; creosote bush scrub, sandy areas, alkaline flats; elevation less than 797 feet.	No	Not expected to occur	The sandy soils in the western portion, along the edges of, and adjacent to the Project area south of Westside Main Canal may provide suitable habitat. However, surveys were conducted at the appropriate time of year to detect this species if present.
LOASACEAE **LOASA FAMILY**					
Eucnide rupestris annual rock-nettle	2B.2	Crevices, cliffs in desert; blooms December–April; elevation 1,600-2,000 feet.	No	Not expected to occur	The Project site is outside this species' known elevational range and lacks suitable crevices or cliffs. Surveys were conducted at the appropriate time of year to detect this species if present.
Mentzelia hirsutissima hairy stickleaf	2B.3	Annual herb; blooms April–May; creosote bush scrub; washes, fans, and slopes; elevation less than 1,969 feet.	No	Not expected to occur	This species has been reported within two miles of the Project site (CDFW 2019a). However, the Project site and adjacent areas lack suitable washes or slopes to support this species. In addition, surveys were conducted at the appropriate time of year to detect this species if present.
Mentzelia tridentata creamy blazing star	1B.3, BLM	Annual herb; blooms April–May; creosote bush scrub; elevation 2,296–3,280 feet.	No	Not expected to occur	The Project site is outside this species' known elevational range. In addition, surveys were conducted at the appropriate time of year to detect this species if present.

Attachment 4 Sensitive Plant Species Observed or with the Potential for Occurrence					
Scientific Name Common Name	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
MALVACEAE **MALLOW FAMILY**					
Ayenia compacta California ayenia	2B.3	Perennial herb/shrub; blooms March–April; washes and dry rocky canyons; elevation less than 1,640 feet.	No	Not expected to occur	The Project site and adjacent areas lack suitable washes or rocky canyons in the desert slopes to support this species. In addition, surveys were conducted at an appropriate time of year to detect this species if present.
Herissantia crispa curly herissantia	2B.3	Annual or perennial herb; creosote bush scrub; blooms August–September; elevation less than 2,700 feet.	No	Not expected to occur	This species is only known from a few occurrences on the desert slopes in eastern San Diego county and likely would have been apparent in vegetative state if present.
Horsfordia alata pink velvet-mallow	4.3	Shrub; blooms April and Nov–Dec; creosote bush scrub; rocky canyons and washes; elevation 328–1,640 feet.	No	Not expected to occur	The Project site and adjacent areas lack suitable washes or rocky canyons in the desert slopes to support this species. In addition, surveys were conducted at an appropriate time of year to detect this species if present.
Horsfordia newberryi Newberry's velvet-mallow	4.3	Perennial herb; blooms March–April and November–December; creosote bush scrub; elevation 328–2,625 feet.	No	Not expected to occur	This is a perennial species, and surveys were conducted during its typical blooming period. Therefore, it likely would have been detected if present.
MARTYNIACEAE **UNICORN-PLANT FAMILY**					
Proboscidea althaeifolia desert unicorn-plant	4.3	Perennial herb; blooms in fall; desert washes within creosote bush scrub; elevation less than 3,281 feet.	No	Not expected to occur	The Project site and adjacent areas lack suitable desert washes to support this species. In addition, as this is a perennial species, it likely would have been detected if present.

Attachment 4 Sensitive Plant Species Observed or with the Potential for Occurrence					
Scientific Name Common Name	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
NYCTAGINACEAE	**FOUR O'CLOCK FAMILY**				
Abronia villosa var. *aurita* chaparral sand verbena	1B.1, BLM	Annual herb; sandy floodplains in inland, arid areas of coastal sage scrub and open chaparral; blooms January–August; elevation 300–5,300 feet.	No	Not expected to occur	The Project site and adjacent areas lack suitable sandy floodplain to support this species. In addition, surveys were conducted at the appropriate time of year to detect this species if present.
Mirabilis tenuiloba Slender-lobed four o'clock	4.3	Perennial herb; blooms March–May; creosote bush scrub; rocky slopes; elevation less than 1,640 feet.	No	Not expected to occur	The Project site and adjacent areas lack suitable rocky desert slopes to support this species. In addition, surveys were conducted at an appropriate time of year to detect this species if present.
ONAGRACEAE	**EVENING-PRIMROSE FAMILY**				
Chylismia arenaria sand evening-primrose	2B.2	Annual or perennial herb; sandy washes, rocky slopes, desert scrub; blooms March–April; elevation less than 1,410 feet.	No	Not expected to occur	The Project site and adjacent areas lack suitable sandy washes or rocky slopes to support this species. In addition, surveys were conducted at an appropriate time of year to detect this species if present.
PICRODENDRACEAE	**BITTER-TREE FAMILY**				
Tetracoccus hallii Hall's tetracoccus	4.3	Shrub; blooms March–May; creosote bush scrub; rocky slopes and washes; elevation less than 3,937 feet.	No	Not expected to occur	The Project site and adjacent areas lack suitable sandy washes or rocky slopes to support this species. In addition, this is a shrub, and surveys were conducted during its typical blooming period. Therefore, this species likely would have been detected if present.

Attachment 4 Sensitive Plant Species Observed or with the Potential for Occurrence					
Scientific Name Common Name	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
POLEMONIACEAE **PHLOX FAMILY**					
Ipomopsis effusa Baja California ipomopsis	2B.1	Annual herb; alluvial fans; blooms April; elevation less than 330 feet.	No	Not expected to occur	This species has been reported within two miles of the Project site (CDFW 2019a). However, the Project site and adjacent areas lack suitable desert washes to support this species. In addition, surveys were conducted at an appropriate time of year to detect this species if present.
Ipomopsis tenuifolia slender-leaved ipomopsis	2B.3	Perennial herb; blooms March–May; creosote bush scrub; gravelly to rocky slopes and canyons; elevation 328–3,937 feet.	No	Not expected to occur	The Project site and adjacent areas lack suitable rocky slopes to support this species. In addition, this is a perennial species, and surveys were conducted during its typical blooming period. Therefore, this species likely would have been detected if present.
POLYGONACEAE **BUCKWHEAT FAMILY**					
Nemacaulis denudata var. *gracilis* slender cotttonheads	2B.2	Annual herb; coastal and desert dunes, Sonoran desert scrub; blooms March–May; elevation 170–1,300 feet.	No	Low potential to occur	The sandy soils in the western portion, along the edges of, and adjacent to the Project area south of Westside Main Canal are superficially suitable, although historical agriculture on site likely extirpated any populations present. The nearest likely extant record of this species is in the Jacumba wilderness Area, 13 miles to the southwest (University of California 2019).
RHAMNACEAE **BUCKTHORN FAMILY**					
Colubrina californica Las Animas colubrina	2B.3	Shrub; blooms April–May; creosote bush scrub; elevation less than 3,281 feet.	No	Not expected to occur	This is a shrub, and surveys were conducted during its typical blooming period. Therefore, this species likely would have been detected if present.

Attachment 4 Sensitive Plant Species Observed or with the Potential for Occurrence					
Scientific Name Common Name	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
Condalia globosa var. *pubescens* spiny abrojo	4.2	Shrub; blooms March–April; creosote bush scrub; elevation less than 3,281 feet.	No	Not expected to occur	This is a shrub, and surveys were conducted during its typical blooming period. Therefore, this species likely would have been detected if present.
SIMAROUBACEAE **QUASSIA FAMILY**					
Castela emoryi Emory's crucifixion-thorn	2B.2	Shrub; dry, gravelly washes, slopes, and plains in desert; blooms June–July; elevation 2,150 feet.	No	Not expected to occur	As this is a conspicuous shrub, this species likely would have been detected if present.
SOLANACEAE **NIGHTSHADE FAMILY**					
Lycium parishii Parish's desert-thorn	2B.3	Perennial shrub; coastal sage scrub, Sonoran desert scrub; blooms March–April; elevation 1,000–3,300 feet.	No	Not expected to occur	This species has been reported within two miles of the Project site (CDFW 2019a). However, this is a shrub, and surveys were conducted during its typical blooming period. Therefore, this species likely would have been detected if present.
ANGIOSPERMS: MONOCOTS					
POACEAE **GRASS FAMILY**					
Imperata brevifolia California satintail	2B.1	Perennial grass; blooms September–May; creosote bush scrub; elevation less than 1,640 feet.	No	Not expected to occur	This is a perennial species, and surveys were conducted during its typical blooming period. Therefore, this species likely would have been detected if present.

Attachment 4 Sensitive Plant Species Observed or with the Potential for Occurrence					
Scientific Name Common Name	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential

STATUS CODES

FE = Federally listed endangered
FT = Federally listed threatened
CE = State listed endangered
CR = State listed rare
BLM = Bureau of Land Management sensitive species

CALIFORNIA NATIVE PLANT SOCIETY (CNPS): CALIFORNIA RARE PLANT RANKS (CRPR)

1B = Species rare, threatened, or endangered in California and elsewhere. These species are eligible for state listing.
2B = Species rare, threatened, or endangered in California but more common elsewhere. These species are eligible for state listing.
3 = Species for which more information is needed. Distribution, endangerment, and/or taxonomic information is needed.
4 = A watch list of species of limited distribution. These species need to be monitored for changes in the status of their populations.
.1 = Species seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat).
.2 = Species fairly threatened in California (20-80% occurrences threatened; moderate degree and immediacy of threat).
.3 = Species not very threatened in California (<20% of occurrences threatened; low degree and immediacy of threat or no current threats known).

ATTACHMENT 5

Sensitive Wildlife Species Occurring or
with the Potential to Occur

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Common Name *Scientific Name*	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
FISHES (Nomenclature from Page et al. 2013)					
CYPRINODONTIDAE **PUPFISH**					
Desert pupfish *Cyprinodon macularius*	FE, CE	Desert pools and streams.	No	Not expected to occur	The Project site lacks natural desert pools or streams to support the species.
CYPRINIDAE **MINNOWS**					
Bonytail chub *Gila elegans*	FE, CE	Swift, muddy rivers.	No	Not expected to occur	The Project site lacks a natural river to support the species.
CATOSTOMIDAE **SUCKER**					
Humpback (=razorback) sucker *Xyrauchen texanus*	FE, CE, CFP	Warm tributaries, shallow water, gravelly-bottom rivers.	No	Not expected to occur	The Project site lacks natural streams or rivers to support the species.
REPTILES (Nomenclature from Crother et al. 2012)					
TESTUDINIDAE **GOPHER TORTOISES**					
Desert tortoise *Gopherus agassizii*	FT, CT	Mohave and Sonoran desert areas, especially areas of creosote bush scrub.	No	Not expected to occur	The Project site is outside this species' known range (SDNHM 2019). No desert tortoise burrows or other sign was observed.
GEKKONIDAE **GECKOS**					
Switak's banded gecko *Coleonyx switaki*	CT, BLM	Rock outcrops on arid hillsides and canyons in desert scrub vegetation types.	No	Low	The Project site and surrounding area lack suitable rock outcrops and/or hillsides.

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Common Name *Scientific Name*	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
IGUANIDAE **IGUANID LIZARDS**					
Flat-tailed horned lizard *Phrynosoma mcalli*	SSC, BLM	Dunes and sandy flats of low desert.	Horned lizard tracks observed	Assumed present	This species has been reported repeatedly in the undeveloped desert areas immediately west and south of the Project site (CDFW 2019a). Horned lizard tracks were observed in the western portion of the Project site, south of Westside Main Canal, and the western and southwestern portions of the Project site provide suitable habitat.
Colorado Desert fringe-toed lizard *Uma notata*	SSC, BLM	Loose sand of desert dunes, flats, riverbanks, and washes. Prefers scant vegetation.	No	Moderate	This species has been reported within two miles of the Project site (CDFW 2019a). The desert scrub communities and loose sand in the western portion of the Project site, south of Westside Main Canal, provide suitable habitat.
BIRDS (Nomenclature from Chesser et al. 2018)					
PELECANIDAE **PELICANS**					
American white pelican (nesting colony) *Pelecanus erythrorhynchos*	SSC	Lagoons, bays, estuaries, freshwater ponds; inland lakes during spring migration. Migrant and winter visitor.	Observed flying overhead	Not expected to forage or nest on site	This species is a winter visitor to southern California. The Project site lacks suitable pond or lake habitat for foraging.

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Common Name *Scientific Name*	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
PHALACROCORACIDAE CORMORANTS					
Double-crested cormorant (nesting colony) *Phalacrocorax auritus albociliatus*	WL	Bays, lagoons, estuaries. Non-breeding year-round visitor.	Observed flying overhead	Low potential to forage; not expected to nest	The Westside Main Canal may provide foraging opportunities. However, the Project site and surrounding area lack suitable nesting habitat isolated from predators and human disturbance.
ARDEIDAE HERONS & BITTERNS					
Great egret (nesting colony) *Ardea alba*	*	Lagoons, bays, estuaries. Ponds and lakes in the coastal lowland. Winter visitor, uncommon in summer.	Observed flying overhead	Moderate potential to forage; not expected to nest	The Westside Main Canal and adjacent active and fallow agricultural fields may provide foraging opportunities. However, the Project site and surrounding area lack suitable nesting habitat, i.e., trees adjacent to pond, lake, or lagoon and isolated from human activity.
Great blue heron (nesting colony) *Ardea herodias*	*	Bays, lagoons, ponds, lakes. Non-breeding year-round visitor, some localized breeding.	Observed flying overhead	Moderate potential to forage; not expected to nest	The Westside Main Canal and adjacent active and fallow agricultural fields may provide foraging opportunities. However, the Project site and surrounding area lack suitable nesting habitat, i.e., trees adjacent to pond, lake, or lagoon and isolated from human activity.

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Common Name *Scientific Name*	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
Snowy egret (nesting colony) *Egretta thula*	*	Coastal waters and freshwater ponds and lakes. Winter visitor, summer resident. Localized breeding colonies.	Observed flying overhead and in adjacent active agricultural fields	High potential to forage; not expected to nest	The Westside Main Canal and adjacent active and fallow agricultural fields provide foraging opportunities. However, the Project site and surrounding area lack suitable nesting habitat, i.e., marsh and/or trees adjacent to pond, lake, or lagoon.
Least bittern (nesting) *Ixobrychus exilis*	SSC	Brackish and freshwater marshes in the coastal lowland. Rare summer resident, rare in winter.	No	Moderate potential to forage; not expected to nest	The wetland vegetation along the Westside Main Canal and irrigation ditches may provide suitable foraging habitat. However, the Project site and surrounding area lack sufficiently large and/or dense stands of emergent wetland vegetation to provide suitable nesting habitat.

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Common Name *Scientific Name*	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
Black-crowned night heron (nesting colony) *Nycticorax nycticorax*	*	Lagoons, estuaries, bayshores, ponds, and lakes. Often roost in trees. Year-round visitor. Localized breeding.	Observed in common reed marsh	Present; not expected to nest	The wetland vegetation along the Westside Main Canal and irrigation ditches, as well as the active agricultural fields provide suitable foraging habitat. However, the Project site and surrounding area lack suitable nesting habitat, i.e., marsh and/or trees adjacent to pond, lake, or lagoon and isolated from predators and human activity.
ACCIPITRIDAE HAWKS, KITES, & EAGLES					
Cooper's hawk (nesting) *Accipiter cooperii*	WL	Mature forest, open woodlands, wood edges, river groves. Parks and residential areas.	Observed flying overhead and in arrow weed thickets east of Project site in the months of April, November, December, and January	High potential to forage; not expected to nest	The Project site and surrounding areas provide suitable, open foraging habitat. The eucalyptus trees in the northern portion and tamarisk trees in the southern portion of the Project site provide potentially suitable nest sites. However, the Project site is outside this species' typical breeding range. The dates of observations of this species (i.e., lack of observations throughout the breeding season) on-site suggest the observed individual(s) is/are winter visitor(s).

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Common Name *Scientific Name*	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
Golden eagle (nesting and wintering) *Aquila chrysaetos*	WL, CFP, BLM	Require vast foraging areas in grassland, broken chaparral, or sage scrub. Nest in cliffs and boulders. Uncommon resident.	No	Low potential to forage; not expected to nest	The Project site and surrounding areas provide suitable, open foraging habitat; however the nearest suitable cliffs are located approximately 15 miles to the west. No suitable habitat for nesting is present.
Ferruginous hawk (wintering) *Buteo regalis*	WL	Require large foraging areas. Grasslands, agricultural fields. Uncommon winter resident.	Observed flying overhead in the months of December and January	High potential to forage; not expected to nest	The Project site and surrounding areas provide suitable, open foraging habitat with common prey items (e.g., cottontail, jackrabbit, ground squirrel). The eucalyptus trees within the northern Project site and utility towers within and adjacent to the Project site may provide suitable nest sites. However, the Project site is outside this species' known breeding range.

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Common Name *Scientific Name*	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
Northern harrier (nesting) *Circus hudsonius*	SSC	Coastal lowland, marshes, grassland, agricultural fields. Migrant and winter resident, rare summer resident.	Observed flying overhead and foraging in arrow weed and tamarisk thickets in April, early May, October, and November	High potential to forage; not expected to nest	The Project site and surrounding areas provide suitable, open foraging habitat with common prey items (e.g., small mammals, lizards, birds). However, this species is typically only a winter visitor to the desert; the Project site is outside this species' known breeding range. The dates of observations of this species (i.e., lack of observations throughout the breeding season) on-site also suggest the observed individual(s) is/are winter visitor(s).
Bald eagle (nesting and wintering) *Haliaeetus leucocephalus*	(Fed. Delisted), CE, CFP, BLM	Rivers, lakes. Rare winter visitor, rare fall migrant. Feed mainly on fish.	No	Not expected to occur	The Project site and surrounding areas lacks suitable nesting and foraging habitat (i.e., large trees or cliff faces adjacent to a large body of water).

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Common Name *Scientific Name*	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
FALCONIDAE **FALCONS & CARACARAS**					
Prairie falcon (nesting) *Falco mexicanus*	WL	Grassland, agricultural fields, desert scrub. Uncommon winter resident. Rare breeding resident.	Observed flying overhead and in adjacent active agricultural field in early July, early October, and mid-December	High potential to forage; low potential to nest	The Project site and surrounding areas provide suitable open desert habitat and agricultural fields for foraging. The Project site and surrounding areas lack suitable cliff faces or bluffs preferred for nesting; however, the utility towers that occur within and adjacent to the west side of the Project site may provide nesting opportunities.
RALLIDAE **RAILS, GALLINULES, & COOTS**					
California black rail *Laterallus jamaicensis coturniculus*	CT, CFP, BLM	Tidal marshes, grassy marshes. Known occurrences very limited in California, with the closest in the Salton Sea area and lower Colorado River valley.	No	Not expected to occur	The Project site and surrounding areas lack wetland habitat of sufficient size and/or suitable plant species composition to support this species.
Yuma Ridgway's rail *Rallus obsoletus* [=*longirostris*] *yumanensis*	FE, CT, CFP	Marshland vegetation, dense cattail stands, bulrush, reeds. Resident.	No	Not expected to occur	This species has been reported within two miles of the Project site (CDFW 2019a). However, the Project site and surrounding areas lack suitable, undisturbed marsh habitat with calm and shallow (three to eight inches deep) water.

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Common Name *Scientific Name*	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
GRUIDAE CRANES					
Greater sandhill crane (nesting and wintering) *Antigone canadensis tabida*	CT, CFP, BLM	Nest marshes, bogs, or meadows, and prairies. Outside breeding season, occupy shallow lakes or rivers by night and irrigated croplands, pastures, grasslands, or wetlands by day.	No	Low potential to forage; not expected to nest	The fallow agricultural fields on site are largely unsuitable as long-term wintering habitat due to lack of irrigation. This species may occasionally visit the marshy areas along the Westside Main Canal during migration. However, the Project site is outside this species' known breeding range.
CHARADRIIDAE LAPWINGS & PLOVERS					
Western snowy plover (nesting) *Charadrius alexandrinus nivosus*	FT, SSC	Sandy beaches; lagoon margins; tidal mud flats; barren to sparsely vegetated alkaline or saline lakes, reservoirs, or ponds; riverine sand bars. Migrant and winter resident. Localized breeding.	No	Not expected to occur	The Project site and surrounding areas lack suitable open ground adjacent to an alkaline body of water or agricultural waste-water pond, or riverine sand bars. The closest known breeding population occurs at Salton Sea.

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Common Name *Scientific Name*	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
Mountain plover (wintering) *Charadrius montanus*	SSC, BLM	Grasslands, fields, valleys, grazed pastures, alkaline flats, fallow and/or tilled fields. Localized winter resident.	No	Low potential to forage on-site.	This species has been reported within two miles of the Project site (CDFW 2019a, Heritage Environmental Consultants 2012f). The active agricultural fields northeast of the Project site may provide more suitable wintering/foraging habitat, depending on crop rotation and status.
SCOLOPACIDAE SANDPIPERS & PHALAROPES					
Long-billed curlew (nesting) *Numenius americanus*	WL	Breeds in northern North America in tidal mud flats, salt marshes, bays. Migrates to the coast for wintering. Fall and spring migrant through Project area.	Observed flying overhead	Not expected to nest or forage on-site.	No suitable breeding habitat is present on site. The active agricultural fields northeast of the Project site provide suitable foraging habitat during migration; however , no suitable habitat is present on site.
LARIDAE GULLS, TERNS, & SKIMMERS					
Laughing gull (nesting colony) *Larus atricilla*	WL	Year-round resident on beaches and coastal areas of the Gulf of California. Common post-breeding visitor and occasional breeding species at Salton Sea.	No	Low potential to forage; not expected to nest	Agricultural fields northeast of the Project site may provide suitable foraging grounds during migration. However, the Project site and surrounding areas lacks suitable marsh or sandy flats adjacent to a large body of water for nesting.

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Common Name *Scientific Name*	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
CUCULIDAE CUCKOOS & ROADRUNNERS					
Western yellow-billed cuckoo (nesting) *Coccyzus americanus occidentalis*	FT, CE, BLM	Riparian woodlands. Summer resident. Very localized breeding.	No	Not expected to occur	The Project site and surrounding areas lack suitable mature riparian forest.
STRIGIDAE TYPICAL OWLS					
Long-eared owl (nesting) *Asio otus*	SSC	Roost in dense riparian woodland, oak woodland, tamarisk woodland. Forages over grasslands and open shrublands. Rare resident and winter visitor.	No	Low potential to forage and nest	The open vegetation within and adjacent to the Project site provides suitable foraging grounds, and the tamarisk thickets may provide marginally suitable roosting habitat, but breeding not expected.
Burrowing owl (burrow sites and some wintering sites) *Athene cunicularia*	SSC, BLM	Grassland, agricultural land, coastal dunes. Require rodent burrows. Declining resident.	Observed in fourwing saltbush scrub and upland mustards in Project site and in creosote bush scrub west of Project site	Present as non-breeding winter visitor; high potential to occur/nest during breeding season	A minimum of two individuals were observed within the western and southern portions of the Project site during 2018-2019 non-breeding season surveys. This species was also observed in the active agricultural fields within one mile northeast of the Project site during 2018 breeding season surveys and has been reported within two miles of the Project site (CDFW 2019a).

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Common Name *Scientific Name*	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
APODIDAE **SWIFTS**					
Vaux's swift (nesting) *Chaetura vauxi*	SSC	All habitat types during summer and winter migration. Breeds in coniferous forests of the central and northern California ranges.	Observed flying overhead	Low potential to forage; not expected to nest	Habitat on site is only marginally suitable for foraging during migration; however nearby agricultural fields provide better foraging opportunity. Project site is outside breeding range of this species.
TYRANNIDAE **TYRANT FLYCATCHERS**					
Southwestern willow flycatcher (nesting) *Empidonax traillii extimus*	FE, CE	Nesting restricted to willow thickets. Also occupies other woodlands. Rare spring and fall migrant, rare summer resident. Extremely localized breeding.	No	Moderate potential to forage; not expected to nest	The arrow weed and tamarisk thickets within and adjacent to the Project site may provide suitable foraging habitat during migration. However, the Project site and surrounding areas lack suitable mature riparian habitat for breeding.

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Common Name *Scientific Name*	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
Vermilion flycatcher (nesting) *Pyrocephalus rubinus*	SSC	Desert scrub habitats, agricultural areas, parks, ponds, rivers. Rare breeder in Imperial County.	No	Moderate potential to forage; low potential to nest	This species was observed approximately two miles northeast of the Project site, as reported by a security guard working at the solar field north of the Project site. A photograph was shown to the surveying biologists during the January 24, 2019, burrowing owl survey. The natural vegetation communities and agricultural fields within and adjacent to the Project site provide suitable foraging habitat during migration. The arrow weed and tamarisk thickets provide marginally suitable nesting habitat; however breeding is rare in the region.
LANIIDAE SHRIKES					
Loggerhead shrike (nesting) *Lanius ludovicianus*	SSC	Open foraging areas near scattered bushes and low trees.	Observed in tamarisk thickets on Project site and in common reed marsh and creosote bush scrub immediately adjacent to Project site	Present, likely resident; high potential to nest	This species was repeatedly observed during the biological surveys. With the combination of dense patches of shrubs or trees and adjacent open areas, the Project site and surrounding areas provide suitable breeding habitat for this species.

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Common Name *Scientific Name*	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
VIREONIDAE VIREOS					
Least Bell's vireo (nesting) *Vireo bellii pusillus*	FE, CE	Willow riparian woodlands. Summer resident.	No	Low potential to forage; not expected to nest	The arrow weed and tamarisk thickets within and adjacent to the Project site may provide somewhat suitable foraging habitat during migration. However, the Project site and surrounding areas lack suitable mature riparian habitat for breeding.
POLIOPTILIDAE GNATCATCHERS					
Black-tailed gnatcatcher *Polioptila melanura*	WL	Semi-arid and desert scrub communities including creosote bush, salt bush, mesquite, and cacti. Known to use willows and tamarisk along Colorado River.	Observed in arrow weed thickets and creosote bush scrub along the Project site boundaries south of Westside Main Canal	Present, likely resident; high potential to nest on and adjacent to Project site	This species was repeatedly observed during the biological surveys. The arrow weed thickets, fourwing saltbush scrub, tamarisk thickets, and creosote bush scrub within and adjacent to the Project site provide suitable habitat for this species.

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Common Name *Scientific Name*	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
MIMIDAE **MOCKINGBIRDS & THRASHERS**					
Crissal thrasher *Toxostoma crissale*	SSC	Mesquite thickets, desert washes with trees and dense shrubs. Rare resident.	No	Low potential to forage or nest	The arrow weed and tamarisk thickets provide marginally suitable nesting habitat. For nesting, this species prefers dense thorny shrubs, which are scattered within the Project site and surrounding area. This species is also sensitive to human disturbance.
LeConte's thrasher *Toxostoma lecontei*	SSC	Desert washes, creosote bush scrub. Uncommon resident.	Observed in arrow weed thickets and fourwing saltbush scrub on Project site	Present, likely resident; low potential to nest within Project site	Although this species as observed and is likely a resident in the native desert scrub communities within and adjacent to the Project site, it is unlikely to nest on the Project site due to the lack of cactus and low number of thorny shrubs.
PASSERELLIDAE **SPARROWS**					
Abert's towhee *Melozone aberti*	*	Desert scrub in Sonoran and Colorado deserts.	Observed as a common species in arrow weed thickets, fourwing saltbush scrub, and creosote bush scrub on and adjacent to Project site	Present, likely resident; high potential to nest on and adjacent to Project site	This species was repeatedly observed during the biological surveys. The arrow weed thickets, fourwing saltbush scrub, tamarisk thickets, and creosote bush scrub within and adjacent to the Project site provide suitable habitat for this species.

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Common Name *Scientific Name*	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
Brewer's sparrow (nesting) *Spizella breweri*	*	Big sagebrush scrub, occasionally open pinyon-juniper woodlands.	Observed once on Project site in April 2018	Observed foraging on site during winter; not expected to nest	The scrub communities within and adjacent to the Project site provide suitable foraging habitat during migration. The Project site is outside this species' known breeding range.
ICTERIDAE YELLOW-BREASTED CHATS					
Yellow-breasted chat (nesting) *Icteria virens auricollis*	SSC	Dense riparian woodland. Localized summer resident.	No	Low potential to forage; not expected to nest	The arrow weed and tamarisk thickets within and adjacent to the Project site may provide marginally suitable foraging habitat during migration. However, the Project site and surrounding areas lack suitable mature riparian habitat for breeding.
ICTERIDAE BLACKBIRDS & NEW WORLD ORIOLES					
Yellow-headed blackbird (nesting) *Xanthocephalus xanthocephalus*	SSC	Breeds within deeply flooded freshwater marshes, ponds.	Observed in common reed marshes along Westside Main Canal, along Project site boundary	Occasional visitor during migration; not expected to nest	The marsh vegetation within and adjacent to the Project site occurs in small and/or narrow patches and is not associated with a large water body such as a lake or pond. Therefore, the marsh is likely unsuitable as breeding habitat for this species.

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Common Name *Scientific Name*	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
PARULIDAE **WOOD-WARBLERS**					
Yellow warbler (nesting) *Setophaga* [=*Dendroica*] *petechia*	SSC	Breeding restricted to riparian woodland. Spring and fall migrant, localized summer resident, rare winter visitor.	Observed in tamarisk thickets on Project site in April 2018	Occasional visitor during migration; not expected to nest	The arrow weed and tamarisk thickets within and adjacent to the Project site provide suitable foraging habitat during migration. However, the Project site and surrounding areas lack suitable mature riparian habitat for breeding.
MAMMALS (Nomenclature from Baker et al. 2003)					
PHYLLOSTOMIDAE **NEW WORLD LEAF-NOSED BATS**					
California leaf-nosed bat *Macrotus californicus*	SSC, BLM	Occurs in deserts of California, southern Nevada, Arizona and south into Baja California and Sonora, Mexico. Roosts in long caves and mine tunnels that maintain relatively warm temperatures and high humidity throughout the year. Forages by gleaning large arthropods within desert washes up to 6 miles of roost.	No	Low potential to forage; not expected to roost	The fallow agricultural fields, arrow weed and tamarisk thickets, and marshes along the Westside Main Canal provide potentially suitable foraging habitat; however . the Project site lacks suitable roost sites, and few roosting opportunities are expected within 6 miles.

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Common Name *Scientific Name*	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
VESPERTILIONIDAE VESPER BATS					
Pallid bat *Antrozous pallidus*	SSC, BLM	Arid deserts and grasslands below 6,000 feet. Roosts in shallow caves, crevices, rock outcrops, buildings, tree cavities. Especially near water. Colonial. Gleans larger arthropods, occasionally lizards and rodents.	No	Moderate potential to forage; low potential to roost	The open desert communities within and adjacent to the Project site provide suitable foraging habitat. The tall eucalyptus, tamarisk, and palm trees within and adjacent to the Project site may provide suitable roost sites.
Townsend's big-eared bat *Corynorhinus townsendii*	SSC, BLM	Caves, mines, buildings. Found in a variety of habitats, arid and mesic. Individual or colonial. Extremely sensitive to disturbance.	No	Low potential to forage; not expected to roost	The shrub- and tree-dominated vegetation communities within and adjacent to the Project site provide potentially suitable foraging habitat. The Project site lacks suitable roost sites.
MOLOSSIDAE FREE-TAILED BATS					
Western mastiff bat *Eumops perotis californicus*	SSC, BLM	Desert scrub, chaparral, oak woodland, ponderosa pine and mixed conifer forests, and meadows. Strongly tied to areas with cliffs and other significant rock features for roosting. Forages over a wide variety of habitats up to 15 miles from the roost.	No	Not expected to forage or roost	The Project site lacks suitable roost sites. The nearest suitable roosting opportunities are likely in the Mountain Springs area 15-20 miles west of the Project site. Project site likely too far from roosting sites to be suitable for foraging. ..

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Common Name *Scientific Name*	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
Big free-tailed bat *Nyctinomops macrotis*	SSC	Rugged, rocky terrain, in desert scrub, woodland, and evergreen forests. Roosts most common in rock crevices in cliffs, but have also been found in buildings, caves, and tree cavities. Forages almost entirely on large moths.	No	Low potential to forage; not expected to roost	The Project site lacks suitable roost sites. The nearest suitable roosting opportunities are likely in the Mountain Springs area 15-20 miles west of the Project site. While this species is known to travel substantial distances to forage, the potential foraging habitat on site is low quality, and better opportunities are present in active agricultural fields nearby.
HETEROMYIDAE **POCKET MICE & KANGAROO RATS**					
Palm Springs little pocket mouse *Perognathus longimembris bangsi*	SSC, BLM	Desert riparian, desert scrub, desert wash, coastal sage scrub, and sagebrush with sandy soil. Also found on gravel washes and stony soils.	No	Low	The extent of this species' range is not well defined but does extend into the western portion of Imperial Valley. This species tends to prefer denser herbaceous cover than that found within thje open desert communities within the Project site and surrounding areas.

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Common Name *Scientific Name*	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
CRICETIDAE HAMSTERS, VOLES, LEMMINGS, & NEW WORLD RATS AND MICE					
San Diego desert woodrat *Neotoma lepida intermedia*	SSC	Coastal sage scrub, chaparral, desert scrub; typically associated with rock outcrops, cacti, or dense undergrowth.	No	Low	The desert communities within and adjacent to the Project site may provide suitable habitat. However, the Project site lacks cactus and rock outcrops, and no woodrat middens were observed within the Project site.
Yuma hispid cotton rat *Sigmodon hispidus eremicus*	SSC	Cattail marshes along the Colorado River.	No	Moderate	This species has been reported along the Westside Main Canal within two miles of the Project site (CDFW 2019a). The combination of wetland communities along Westside Main Canal, dense herbaceous cover within the fallow agriculture areas, and active agriculture within and adjacent to the Project site provides moderately suitable habitat conditions for this species.

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Common Name *Scientific Name*	Sensitivity Status	Habitat Preference/ Requirements	Detected On Site?	Potential to Occur On Site	Basis for Determination of Occurrence Potential
MUSTELIDAE **WEASELS, OTTERS, & BADGERS**					
American badger *Taxidea taxus*	SSC	Grasslands, Sonoran desert scrub.	Observed in creosote bush scrub immediately south of Project site; tracks observed in fourwing saltbush scrub on Project site	Present	This species was observed south of the Project site, and tracks were observed in the western and southwestern portions of the Project site. The desert communities within and adjacent to the Project site provide suitable foraging habitat. Suitably-sized burrows were observed immediately adjacent to the southwestern edge of the Project site.
BOVIDAE **CATTLE, ANTELOPE, GOATS, & SHEEP**					
Peninsular bighorn sheep (DPS) *Ovis canadensis nelsoni* [=*O. c. cremnobates*]	FE, CT, CFP	Open, rocky habitat, sparse vegetated desert slopes. Rocky ridges. Mainly within San Jacintos, Santa Rosas, San Ysidros (San Diego County).	No	Not expected to occur	The Project site and surrounding areas lack suitable rocky, mountainous terrain. The Project site is outside this species' known range.

(I) = Introduced species

DPS = federal Distinct Population Segment

STATUS CODES

FE = Listed as endangered by the federal government
FT = Listed as threatened by the federal government
CE = Listed as endangered by the state of California
CT = Listed as threatened by the state of California
CFP = California Department of Fish and Wildlife fully protected species
SSC = California Department of Fish and Wildlife species of special concern
WL = California Department of Fish and Wildlife watch list species
BLM = Bureau of Land Management Sensitive species
* = Taxa where at least one of the following conditions applies:

- Taxa considered endangered or rare under Section 15380(d) of CEQA guidelines;
- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range but not currently threatened with extirpation;
- Population(s) in California that may be peripheral to the major portion of a taxon's range but which are threatened with extirpation within California;
- Taxa closely associated with a habitat that is declining in California at significant rate (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands); or
- Taxa designated as a special status, sensitive, or declining species by other state or federal agencies, or a non-governmental organization and determined by the CNDDB to be rare, restricted, declining, or threatened across their range in California.

APPENDIX E – BIOLOGICAL RESOURCES

E.2. Results of 2018 Burrowing Owl Habitat Assessment and Breeding Season Surveys for the Westside Canal Energy Center Project

RECON

An Employee-Owned Company

August 3, 2018

Ms. Marilyn Teague
Sempra Infrastructure, LLC
HQ-12N1
488 8th Avenue
San Diego, CA 92101

Reference: Results of 2018 Burrowing Owl Habitat Assessment and Breeding Season Surveys for the Westside Canal Energy Center Project (RECON Number 8888)

Dear Ms. Teague:

This letter summarizes the results of the 2018 habitat assessment and breeding season surveys for western burrowing owl (*Athene cunicularia hypugaea*) conducted for Sempra Renewables, LLC's Westside Canal Energy Center Project (project). Project location, burrowing owl species and historical occurrence information, habitat assessment and survey methods, and results are discussed in detail below. Survey results will be used to assess potential project impacts and identify appropriate avoidance, minimization, and/or mitigation measures. Burrowing owl was not detected within the project survey area during 2018 breeding season surveys.

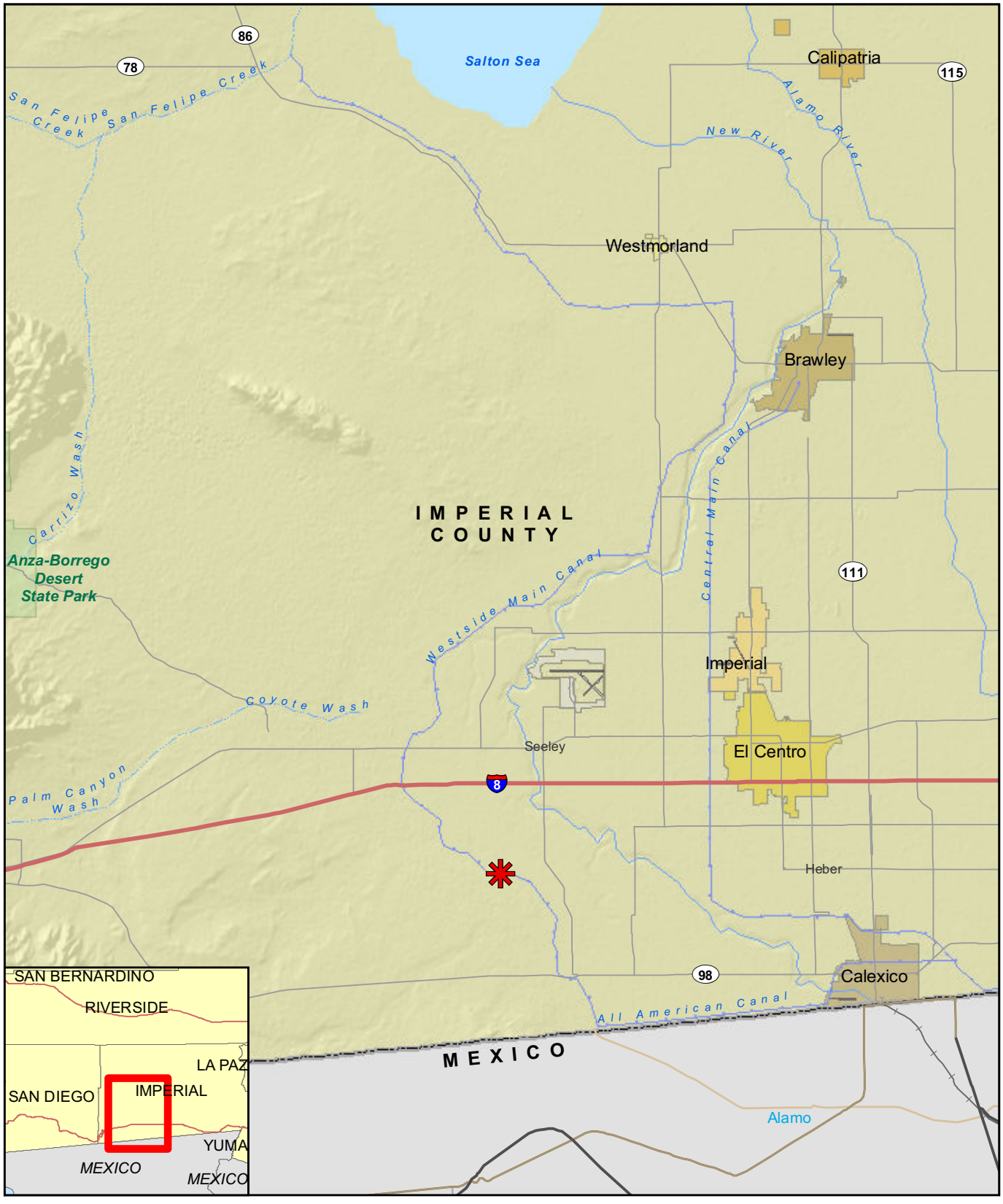
Project Location and Description

The project site is located in an unincorporated area of southwestern Imperial County, approximately 4.5 miles south-southwest of Seeley, California (Figure 1). The main project area includes Assessor's Parcel Numbers (APNs) 051-350-010 and 051-350-011. Additional project components, including access routes and staging areas, include portions of adjacent APNs 051-350-019 and 051-350-018. All project components are located in the southern half of Section 34, Township 16 South, Range 12 East, on the U.S. Geological Survey (USGS) Mount Signal, California quadrangle (USGS 1976; Figure 2).

The project is currently in the design phase and includes development, construction, and operation of a hybrid renewable energy facility, consisting of a solar photovoltaic plus Battery Energy Storage generating plant and an Energy Storage System. The project will also include construction of a new loop-in substation on-site, as well as construction of an access road and bridge to provide vehicular access from Liebert Road and across the Westside Canal (Figure 3). Construction and project details, such as proposed timeline, daily work schedules, equipment to be used, activities, and phasing, are not yet finalized. The project boundary shown on Figures 2, 3, and 4 is the preliminary project footprint and includes the currently anticipated permanent and temporary impacts. The estimated in-service date for the project is December 2020.

Western Burrowing Owl Species Description

Burrowing owl is a California Department of Fish and Wildlife (CDFW) species of special concern. Western burrowing owl, the western subspecies, is primarily restricted to the western United States and Mexico. Studies conducted by Ruhlen et al. (2004) show that the density and abundance of this species within the Imperial Valley is exceptionally high compared to other areas in southern California.



Project Location

FIGURE 1
Regional Location

RECON

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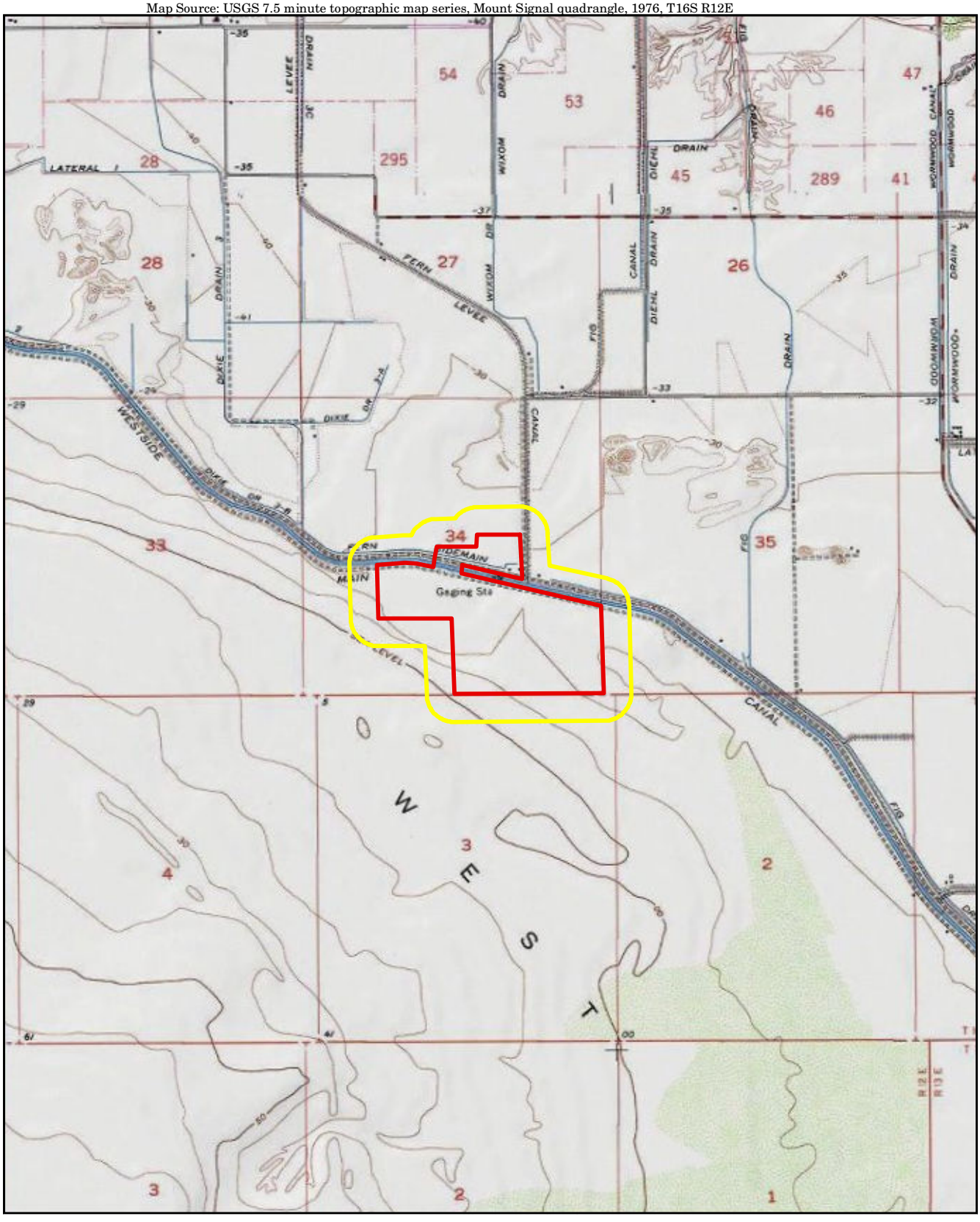
Map Source: USGS 7.5 minute topographic map series, Mount Signal quadrangle, 1976, T16S R12E



Project Boundary

Survey Area

RECON

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FIGURE 2

Project Location on USGS Map

Image source: SANDAG (flown November 2014)

- Project Boundary
- Survey Area
- Photograph Locations

Vegetation Communities

- Arrow Weed Thickets
- Common Reed Marshes
- Cattail Marshes
- Creosote Bush Scrub
- Eucalyptus Groves
- Fourwing Saltbush Scrub
- Quailbush Scrub
- Tamarisk Thickets
- Upland Mustards

Land Cover Types

- Disturbed Habitat
- Fallow Agriculture
- Active Agriculture
- Open Water
- Developed

0 Feet 400

FIGURE 3
Vegetation Communities and
Land Cover Types within the
2018 Burrowing Owl Survey Area

RECON

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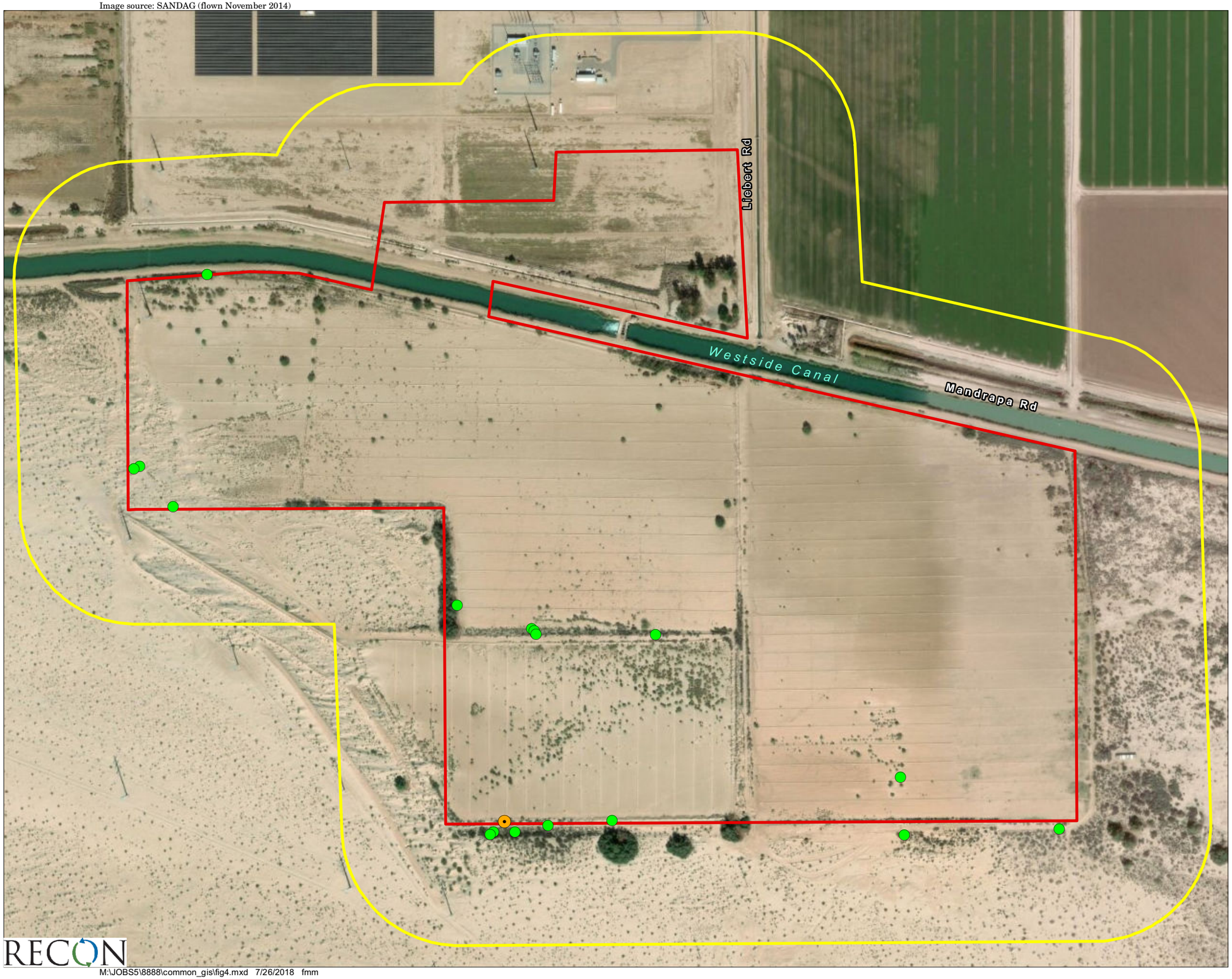
Image source: SANDAG (flown November 2014)



Project Boundary
Survey Area
Suitable Burrow
Suitable Burrow with Sign

0 Feet 400

RECON

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FIGURE 4
2018 Burrowing Owl Habitat Assessment and Breeding Season Survey Results

Habitat for the western burrowing owl includes dry, open, low-growing grasslands, deserts, and scrublands with level to gently sloping topography and well-drained soils (CDFW 2012). These areas are also often associated with burrowing mammals (Haug et al. 1993). Irrigation canals, ditches, and drains immediately adjacent to agricultural fields are also commonly used as nesting sites (Ruhlen et al. 2004). Western burrowing owl is known to use multiple burrows in addition to their nesting burrows called "satellite" burrows. These non-nesting burrows are used to seek protection from predators and for roosting during the non-breeding season (CDFW 2012).

Western burrowing owl is diurnal and typically perches during daylight at the entrance to its burrow or on adjacent structures, such as low posts. Nesting typically occurs from March through August. Western burrowing owl breeding pairs form a bond for more than one year and exhibit high site fidelity, reusing the same burrow year after year (Haug et al. 1993). The female remains inside the burrow during most of the egg laying and incubation period and is fed by the male throughout brooding. Western burrowing owl is an opportunistic feeder, consuming a diet that includes arthropods, small mammals, and birds, and occasionally amphibians and reptiles (Haug et al. 1993).

Urbanization has greatly reduced the amount of suitable habitat for the western burrowing owl. Other contributions to the decline of this species include the poisoning of fossorial mammals, road and ditch maintenance, and collisions with automobiles (CDFW 2012).

Methods

For the purposes of this report, the "survey area" includes the project area and the surrounding 150 meters (see Figures 2 through 4). As land owners had not granted permission to access adjacent properties, direct access was limited to the project area south of Westside Canal (land owned by Sempra Energy), the canal roads (including Mandrapa Road), and Liebert Road. Therefore, the project area south of Westside Canal, totaling approximately 148 acres, was surveyed using line transects with surveyors spaced 150 to 230 feet apart, with low to very low vegetation density and cover allowing for excellent ground visibility. The majority of the survey area north of Westside Canal and the entirety of the 150-meter buffer south of Westside Canal, totaling approximately 180 acres, were surveyed by using binoculars or scopes. These areas were surveyed by conducting 15-minute point count surveys along the roads north of Westside Canal and project boundary south of Westside Canal, with spacing dependent on the height and density of the surrounding vegetation.

Methods used for the burrowing owl habitat assessment and breeding season surveys follow the guidelines set forth by CDFW (2012) and are detailed below.

Habitat Assessment Methods

The habitat assessment began with a review of relevant biological information to provide local and regional context, document known occurrences of the species within the project vicinity, and identify potentially suitable burrowing owl habitat within and adjacent to the project area. This analysis included record searches of the California Natural Diversity Database (CNDDB; CDFW 2018) and eBIRD (http://ebird.org). Additional resources reviewed included San Diego County Bird Atlas (Unitt 2004), Proceedings of the California Burrowing Owl Symposium (Barclay et al. 2007), USGS topographic maps (USGS 1976), soils survey maps (USDA 1975), and online aerial satellite imagery (Google Earth Pro 2018).

RECON Environmental, Inc. (RECON) biologists Brenna Ogg, Bernadette Rigley, Alex Fromer, and Brian Parker conducted the habitat assessment on April 5, 2018 (Table 1). The biologists assessed vegetation types, height, and density; land use; presence or absence of friable soils, burrows, and/or burrow complexes; topography; hydrological features; and presence or absence of burrowing owl sign.

Vegetation community classifications in this report follow Sawyer et al. (2009) per the CDFW guidelines. Where Sawyer et al. (2009) does not provide an appropriate classification, the following land cover types were used: developed, active agriculture, fallow agriculture, open water, and disturbed habitat.

Table 1
Survey Information

Date	Survey Type	Surveyors	Beginning Conditions	Ending Conditions
4/5/2018	Habitat Assessment	B. Ogg, B. Rigley, A. Fromer, B. Parker	09:25; 82°F; 2–4 mph wind; sunny	14:00; 94°F; 2–5 mph wind; 50% high, thin cloud cover
4/13/2018	Breeding Season Survey #1	B. Ogg, B. Rigley, A. Fromer, S. Vargas	17:20; 81°F; 2–9 mph wind; clear sky	19:36; 70 °F; calm wind; clear sky
4/14/2018			06:00; 55°F; 0–2 mph wind; clear sky	09:55; 78°F; 1–3 mph wind; clear sky
5/7/2018	Breeding Season Survey #2	B. Ogg, B. Rigley, S. Vargas, K. Israel	17:45; 95°F; 1–4 mph wind; 0% cloud cover, slight haze	19:55; 92 °F; 2–9 mph wind; 0% cloud cover, slight haze
5/8/2018			05:25; 67°F; 2–4 mph wind; 0% cloud cover, slight haze	09:20; 88°F; 2–6 mph wind; 75% high, thin cloud cover
5/29/2018	Breeding Season Survey #3	B. Ogg, B. Rigley, A. Smisek, K. Valenti	17:45; 99°F; 1–3 mph wind; 30% cloud cover	20:11; 94°F; 4–11 mph wind; 20% cloud cover
5/30/2018			05:20; 68°F; 2–4 mph wind; 2% cloud cover	09:45; 93°F; 2–6 mph wind; 1% cloud cover with haze
7/5/2018	Breeding Season Survey #4	B. Ogg, A. Fromer, K. Valenti, V. Novik	17:55; 108°F; 1–5 mph wind; 15% high, thin cloud cover	20:22; 100°F; calm wind; 5% high, thin cloud cover
7/6/2018			05:15; 83°F; 2–4 mph wind; 25% cloud cover	09:35; 103°F; 1–3 wind; 40% cloud cover

°F = degrees Fahrenheit; mph = miles per hour; % = percent.

Breeding Season Survey Methods

RECON biologists Brenna Ogg, Bernadette Rigley, Sonya Vargas, Kevin Israel, Alex Fromer, Kayo Valenti, Andrew Smisek, and Victor Novik conducted western burrowing owl breeding season surveys in accordance with the guidelines developed by the CDFW (CDFW 2012). Surveys included four visits during the western burrowing owl breeding season. Each survey was conducted by four biologists over a two-day period, between two hours before sunset and civil dusk on the first day and between civil dawn and 10:00 on the second day. Surveys were spaced at least three weeks apart. All wildlife species observed during the surveys were noted, and all suitable burrows were recorded using a handheld Global Positioning System (GPS) device. Survey dates, personnel, times, and weather conditions are provided in Table 1.

Results/Existing Conditions

Literature Review and Desktop Evaluation Results

Based on a review of the CNDDB and eBIRD, the agricultural fields north and east of the project site and the desert areas west of the project site have multiple records of western burrowing owl (CDFW 2018). The closest reported occurrences to the project area are between 3.5 and 4 miles to the southeast and west. One occurrence was within active agriculture, and one was within creosote scrub. Both were reported in 2007 (CDFW 2018).

Based on a review of aerial imagery and the proximity of known occurrences of the species, RECON concluded that the majority of the project area and larger survey area provide potentially suitable burrowing owl habitat. The project area largely comprises land that, although zoned for agriculture, has been inactive since approximately 2013 on the north side of Westside Canal as a result of solar energy development and 2003 or earlier on the south side of Westside Canal. Surrounding areas to the south, west, and east are

mostly undeveloped, and areas to the north include a mix of active agriculture and photovoltaic solar development.

Eight soil series occur within the survey area and are listed in their approximate order of predominance: Vint, Vint and Indio, Meloland, Rositas, Imperial-Glenbar, Indio-Vint, Holtville, and Glenbar complex. These include eleven distinct soil types, which generally comprise very fine to fine sand with varying degrees of loam, silt, and clay components (USDA 1975).

Habitat Assessment Results

The main project area south of Westside Canal consists of land that was previously used for agriculture but has remained inactive since at least 2003. This has resulted in the natural, wind-driven deposition of sand and re-establishment of native and non-native vegetation within the old agricultural fields. The westernmost and southwestern portions of the main project area currently support the highest cover of native shrub species, while the central and eastern portions mostly support a mix of native and non-native annual plant species.

The project area north of Westside Canal mostly consists of land that was previously used for agriculture but has been inactive for a relatively shorter period (since approximately 2013). Non-native weedy plant species are common in this area, with remnant patches of planted non-native trees.

Overall, areas north of the project area are more developed than those to the south of the project area. The 150-meter buffer area south of Westside Canal consists of mostly undeveloped land, with one transmission line and associated access roads to the west and one wooden shade structure and bare pad (assumed belonging to U.S. Border Patrol) to the east. Imperial Valley Substation lies approximately 1,800 feet to the south, beyond the 150-meter buffer. The 150-meter buffer area north of Westside Canal consists of active agriculture, photovoltaic solar development, and dirt roads. Dirt roads also run immediately adjacent and parallel to the north and south banks of Westside Canal, and one dirt road follows a distribution line south through the main project area.

In general, the survey area contains level topography close to sea level with short earthen berms along the edges of the active and inactive agricultural fields and irrigation canals. Small sandy hummocks occur amongst the native desert vegetation in the 150-meter buffer. The southwestern section of the old agricultural fields in the main project area sits on a slightly higher terrace than the adjacent fields to the north and west, and the elevation increases slightly from there in the southwestern corner of the 150-meter buffer, with small sand hummocks and dunes forming along the leeward side of a human-created berm/access road.

Available water sources observed during the surveys were limited to the northern portion of the survey area and included only human-created sources: Westside Canal and the irrigation ditches, channels, and temporarily ponded areas within the active agriculture fields. All of the concrete-lined irrigation channels south of Westside Canal are dilapidated and/or buried in sand, and have likely not transported water since the agricultural land south of Westside Canal went inactive. The old, unused irrigation channels south of Westside Canal may support temporary ponding during the wet season. However, there was no sign of recent ponding, and the 2017-2018 wet season had well-below average rainfall totals. Furthermore, it appeared that all annual plant stalks observed on-site in upland areas were remaining from the 2016-2017 wet season. No substantial annual growth was observed as a result of 2017-2018 rainfall.

Vegetation communities mapped within the survey area include upland mustards (*Brassica* spp. and Other Mustards Semi-Natural Herbaceous Stands), creosote bush scrub (*Larrea tridentata* Shrubland Alliance), fourwing saltbush scrub (*Atriplex canescens* Shrubland Alliance), quailbush scrub (*Atriplex lentiformis* Shrubland Alliance), arrow weed thickets (*Pluchea sericea* Shrubland Alliance), tamarisk thickets (*Tamarix* spp. Semi-Natural Shrubland Stands), common reed marshes (*Phragmites australis* Herbaceous Alliance and Semi-Natural Stands), eucalyptus groves (*Eucalyptus* spp. Semi-Natural Woodland Stands), and cattail

marshes (*Typha* sp. Herbaceous Alliance) (see Figure 3). Additional land cover types include fallow agriculture, active agriculture, disturbed habitat, developed land, and open water (see Figure 3). Nearly all vegetation communities and land cover types within the survey area provide potentially suitable habitat for western burrowing owl due to the low stature and/or low-density vegetative cover. Areas dominated by annual plant species (e.g., upland mustards) typically support 5 to 25 percent vegetative cover with average plant height less than two feet (Photographs 1 and 2; see Figure 3 for photograph locations). Areas dominated by native upland shrubs (e.g., creosote bush scrub, fourwing saltbush scrub, quailbush scrub) typically support between 25 and 40 percent vegetative cover with shrub height generally less than four feet (Photographs 3 through 6; see Figure 3 for photograph locations). Active agricultural fields generally comprised low-growing or recently cut, irrigated vegetation (Photograph 7; see Figure 3 for photograph location).

Some stands of vegetation within the survey area would not likely provide suitable habitat on their own due to the tall (greater than six feet) height and high (greater than 75 percent cover) density of the vegetation. These include small stands or rows of arrow weed thickets, tamarisk thickets, common reed marshes, eucalyptus groves, and cattail marshes, which occur along the irrigation canals and channels as well as in the eastern 150-meter buffer south of Westside Canal. These also include some stands of creosote bush scrub and quailbush scrub with a higher density and average shrub height in the southern and southeastern 150-meter buffer, as well as in the project area north of Westside Canal. However, as these areas of tall, dense vegetation occur within a larger expanse of open, low-stature habitat, these communities were included in the focused breeding season surveys. Ecotones where the open and dense vegetation meet may provide opportunities for burrow and perch sites (Photograph 8; see Figure 3 for photograph location).

Burrows created by fossorial mammals, as well as concrete pipes associated with the irrigation channels, provide potentially suitable burrows for western burrowing owl throughout much of the survey area (Photographs 9 through 11). Fossorial mammals detected within the survey area include round-tailed ground squirrel (*Spermophilus tereticaudus*), kangaroo rat (*Dipodomys* sp.), kit fox (*Vulpes macrotis*), coyote (*Canis latrans*), and American badger (*Taxidea taxus*). Locations of potentially suitable burrows for western burrowing owl (greater than 11 centimeters in diameter and greater than 150 centimeters in depth) are shown on Figure 4. Only one burrow in the southwestern portion of the survey area had old whitewash near the burrow entrance (see "Suitable Burrow with Sign" on Figure 4 and Photograph 11). No burrowing owls, pellets, feathers, or recent sign was observed during the habitat assessment.

Breeding Season Survey Results

No western burrowing owls were detected within the survey area during 2018 breeding season surveys. As mentioned above, possible burrowing owl sign (i.e., whitewash at the entrance to a burrow) was observed in the southwestern portion of the survey area. However, by the time of the fourth breeding season survey, the entrance to this burrow had been modified and constricted, suggesting recent activity by an animal other than a burrowing owl (Photograph 12), and no new burrowing owl sign was observed at this site.

One western burrowing owl was observed incidentally outside the survey area adjacent to West Wixom Road while driving to the third morning survey. The observation location was approximately 0.75 mile northeast of the survey area at the northern edge of an active agricultural field, with a photovoltaic solar field to the north.

Possible western burrowing owl predators observed during surveys include American badger, coyote, great horned owl (*Bubo virginianus*), Cooper's hawk (*Accipiter cooperii*), red-tailed hawk (*Buteo jamaicensis*), and American crow (*Corvus bracyrhynchos*) (Coulombe 1971, Haug et al. 1993). Of these, coyote, red-tailed hawk, and American crow were the most commonly detected species. Great horned owl is a resident species on site with an active nest observed in the northeastern portion of the survey area. One burrow near the southwestern corner of the survey area also had sign of possible use by American badger. However, no evidence of western burrowing owl predation was observed.

PHOTOGRAPH 1
Upland Mustards and Fourwing Saltbush Scrub in Old Agricultural Field (Left of Irrigation Channel) and Small Tamarisk Thickets in 150-Meter Buffer (Right of Irrigation Channel), Facing East-Northeast from South-Central Project Boundary, Taken April 5, 2018

PHOTOGRAPH 2
Upland Mustards and Open Tamarisk Thickets in Easternmost Old Agricultural Field, Facing Northeast from the Southwest Corner of the Field, Taken April 14, 2018

PHOTOGRAPH 3
Fourwing Saltbush Scrub in Old Agricultural Field in Central Section of Project Area, Facing East-Southeast Along Old Access Road Berm Between Fields, Taken July 6, 2018

PHOTOGRAPH 4
Creosote Bush Scrub in Eastern 150-Meter Buffer, Facing East from Eastern Project Boundary, Taken May 7, 2018

PHOTOGRAPH 5

Disturbed Habitat and Creosote Bush Scrub in Southern 150-Meter Buffer, Facing South from Southern Project Boundary, Taken May 29, 2018

PHOTOGRAPH 6

Creosote Bush Scrub in the Western 150-Meter Buffer, Facing Southwest from the Inside Corner of the Western Project Boundary, Taken May 30, 2018

PHOTOGRAPH 7
Active Agricultural Field in Northwestern 150-Meter Buffer, Facing North
Along Liebert Road, Taken April 5, 2018

PHOTOGRAPH 8
Active Agricultural Field (Left of Irrigation Channel) and Common Reed Marsh (Right of Irrigation Channel) in Northeastern 150-meter Buffer, Facing East, Taken April 5, 2018

PHOTOGRAPH 9
Potentially Suitable Natural Burrow, Taken April 5, 2018

PHOTOGRAPH 10
Potentially Suitable Human-Made Burrow,
Taken April 5, 2018

PHOTOGRAPH 11
Potentially Suitable Natural Burrow with Whitewash,
Taken April 5, 2018

PHOTOGRAPH 12

Previously Suitable Natural Burrow with Sign of Recent Disturbance,
Taken July 6, 2018

Conclusion and Mitigation Requirements

Western burrowing owl was not detected within the survey area during 2018 breeding season surveys. Therefore, western burrowing owl currently does not appear to be using the survey area as breeding habitat. However, as the project area and larger survey area provide suitable habitat for this species and the species was observed approximately 0.75 mile from the project area, non-breeding season surveys are required to determine if the species uses the survey area as a wintering site, for dispersal, or during migration. These surveys shall follow the guidelines set forth by CDFW (2012) and take place between September 1 and January 31.

Depending on the results of the non-breeding season surveys, formal consultation with CDFW may be required in order to develop an appropriate mitigation plan for the project. One or more mitigation measures, such as avoidance, minimization measures, translocation, artificial burrow construction, burrow exclusion and closure, and/or habitat-based mitigation or preservation, may be required.

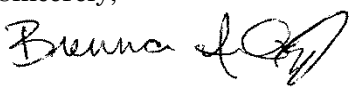
At a minimum, regardless of the results of non-breeding season surveys, take-avoidance (pre-construction) surveys for western burrowing owl would be required at least 14 days prior to ground disturbance. This effort would detect any change in western burrowing owl presence within the survey area in order to avoid direct take of owls and inform any necessary take avoidance actions. These surveys would include all areas where suitable habitat is present within the survey area (CDFW 2012).

Depending on timing of the project construction, additional and ongoing site surveillance may also be required to detect whether burrowing owls have colonized or re-colonized the survey area prior to or during project implementation (CDFW 2012).

If habitat that would be impacted by the project is determined occupied by western burrowing owl, habitat-based mitigation would also be required. Temporarily impacted areas would need to be restored to pre-project conditions. Permanent impacts to nesting, occupied and satellite burrows, and/or western burrowing owl habitat would require mitigation such that the habitat acreage, number of burrows, and burrowing owls are replaced (CDFW 2012).

If you have any questions concerning the contents of this letter, please contact me by phone or email at (619) 308-9333 extension 118 or bogg@reconenvironmental.com.

Sincerely,



Brenna Ogg
Senior Biologist
CDFW Scientific Collecting Permit SC-9997

cc: Justin Garcia, California Department of Fish and Wildlife
Esther Burkett, California Department of Fish and Wildlife
Michael Flores, California Department of Fish and Wildlife

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APPENDIX E – BIOLOGICAL RESOURCES

E.3. Results of 2018-2019 Burrowing Owl Non-Breeding Season Surveys for the Westside Canal Energy Center Project

RECON

An Employee-Owned Company

April 8, 2019

Mr. Jim Pomillo
Con Edison Clean Energy Businesses, Inc.
100 Summit Lake Drive
Valhalla, New York 10595

Reference: Results of 2018-2019 Burrowing Owl Non-Breeding Season Surveys for the Westside Canal Energy Center Project (RECON Number 8888)

Dear Mr. Pomillo:

This letter summarizes the results of the 2018-2019 non-breeding season surveys for western burrowing owl (*Athene cunicularia hypugaea*) conducted for the Westside Canal Energy Center Project (project), which is currently proposed by Con Edison Clean Energy Businesses, Inc. (Con Edison) and was formerly proposed by Sempra Renewables, LLC. Project location and description, burrowing owl natural history and historical occurrence information, prior burrowing owl survey results, survey methods, and results are discussed in detail below. Survey results will be used to assess potential project impacts and identify appropriate avoidance, minimization, and/or mitigation measures. Western burrowing owl was observed within the project survey area during these surveys.

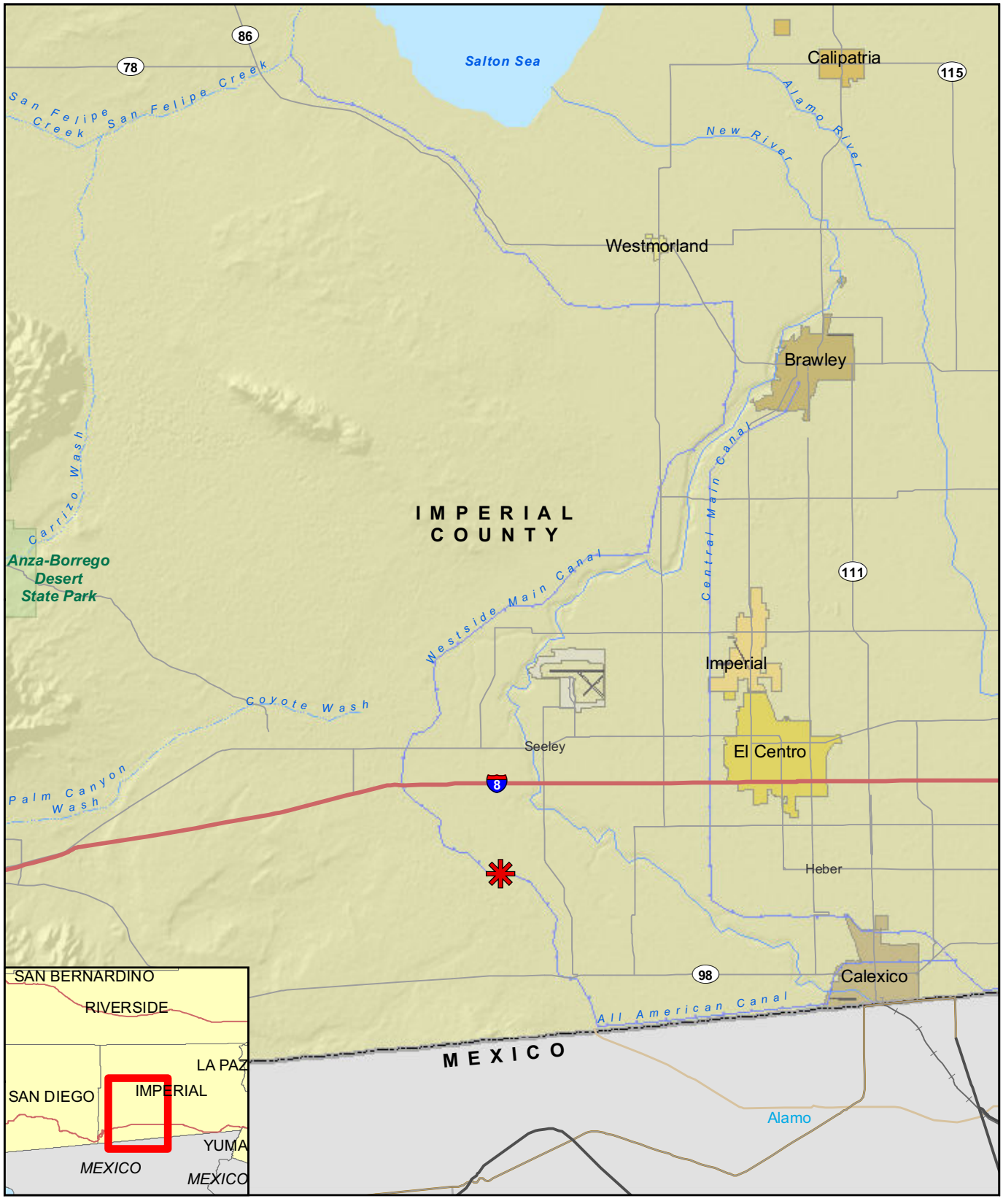
Project Location and Description

The project site is located in an unincorporated area of southwestern Imperial County, approximately 4.5 miles south-southwest of Seeley, California (Figure 1). The main project area includes Assessor's Parcel Numbers 051-350-010 and 051-350-011. Additional project components, including access routes, staging areas, and tie-line connection, include portions of adjacent Assessor's Parcel Numbers 051-350-019, 051-350-018, and 051-350-009. All project components are located in the southern half of Section 34, Township 16 South, Range 12 East, on the U.S. Geological Survey (USGS) Mount Signal, California quadrangle (USGS 1976; Figure 2). An aerial photograph of the survey area is shown on Figure 3.

The project is currently in the design phase and includes development, construction, and operation of the Westside Canal Energy Center (WCEC), a Battery Energy Storage System (BESS) and renewable energy facility project. The project would consist of two distinct phases, WCEC 1 and WCEC 2, and common facilities to support each. WCEC 1 (phase 1) would consist of a Lithium-ion Battery Energy Storage System (BESS) facility, and WCEC 2 (phase 2) would consist of a flow batter BESS facility. The project would also include construction of a new loop-in substation on site, as well as construction of an access road and bridge to provide vehicular access from Liebert Road and across the Westside Canal. The project boundary used in this report is the preliminary project footprint and includes areas currently anticipated for permanent and temporary impacts. At present, construction of the access roads, bridge, and WCEC 1 is anticipated to commence in 2021 and conclude in 2022.

Western Burrowing Owl Species Description

Burrowing owl is a California Department of Fish and Wildlife (CDFW) species of special concern. Western burrowing owl, the western subspecies, is primarily restricted to the western United States and Mexico. Studies conducted by Ruhlen et al. (2004) show that the density and abundance of this species within the Imperial Valley is exceptionally high compared to other areas in southern California.



Project Location

FIGURE 1
Regional Location

RECON

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Map Source: USGS 7.5 minute topographic map series, Mount Signal quadrangle, 1976, T16S R12E

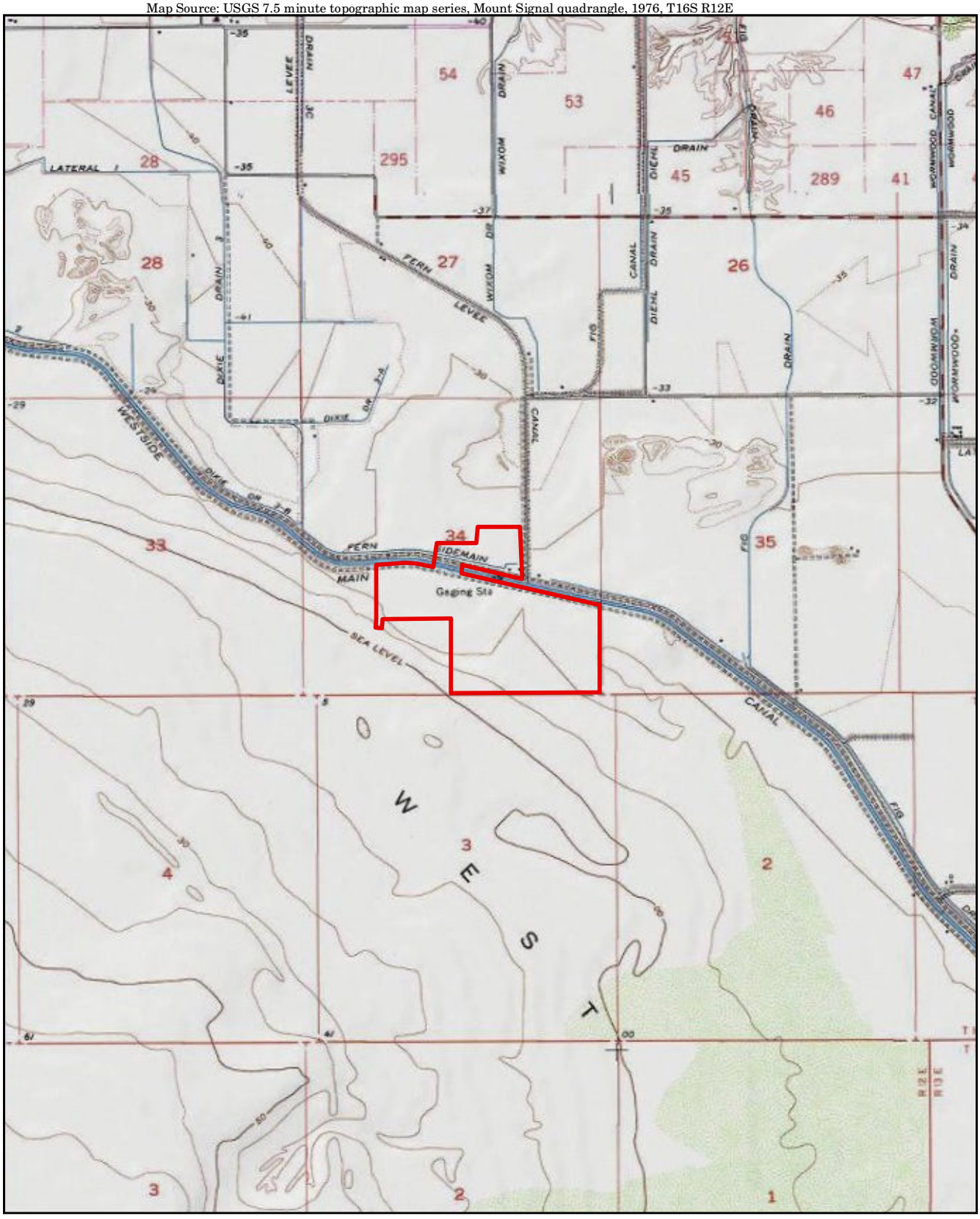

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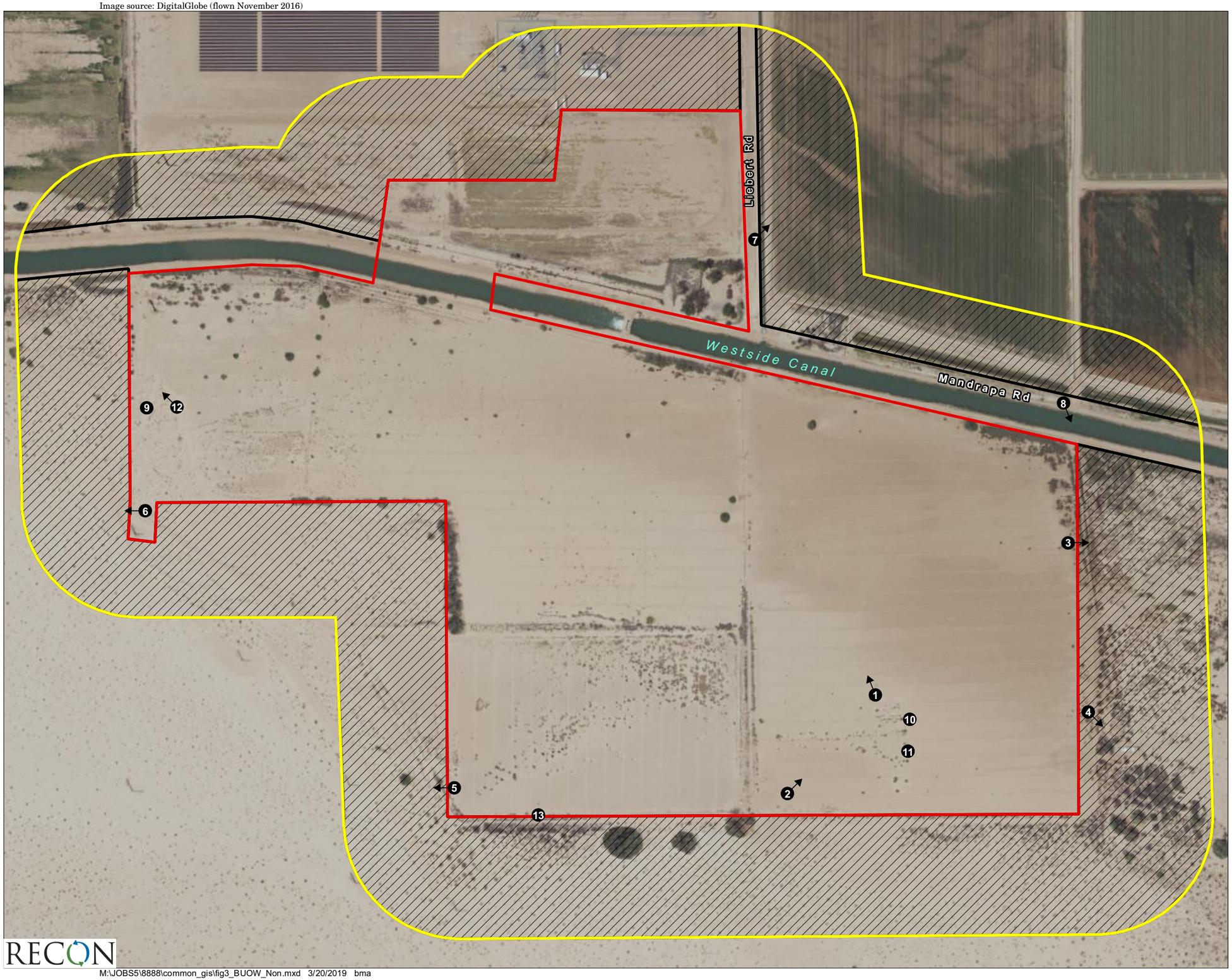
FIGURE 2

Project Location on USGS Map

Image source: DigitalGlobe (flown November 2016)



Project Boundary
Survey Area
No Direct Access
Photograph Locations

0 Feet 400

FIGURE 3
Project Area on
Aerial Photograph

RECON

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Habitat for western burrowing owl includes dry, open, low-growing grasslands, deserts, and scrublands with level to gently sloping topography and well-drained soils (CDFW 2012). These areas are also often associated with burrowing mammals (Haug et al. 1993). Irrigation canals, ditches, and drains immediately adjacent to agricultural fields are also commonly used as nesting sites (Ruhlen et al. 2004). Western burrowing owl is known to use multiple "satellite" burrows in addition to their nesting burrows. Satellite burrows are used to seek protection from predators and for roosting during the non-breeding season (CDFW 2012).

Western burrowing owl is diurnal and typically perches at the entrance to its burrow or on adjacent structures, such as low posts. Nesting typically occurs from March through August. Breeding pairs form a bond for more than one year and exhibit high site fidelity, reusing the same burrow year after year (Haug et al. 1993). The female remains inside the burrow during most of the egg laying and incubation period and is fed by the male throughout this period. Western burrowing owl is an opportunistic feeder, with a diet that includes arthropods, small mammals, and birds, and occasionally amphibians and reptiles (Haug et al. 1993).

Urbanization has greatly reduced the amount of suitable habitat for western burrowing owl. Other contributions to the decline of this species include the poisoning from pest control measures intended to control fossorial mammals, road and ditch maintenance, and collisions with automobiles (CDFW 2012).

Previous Habitat Assessment and Breeding Season Survey Summary

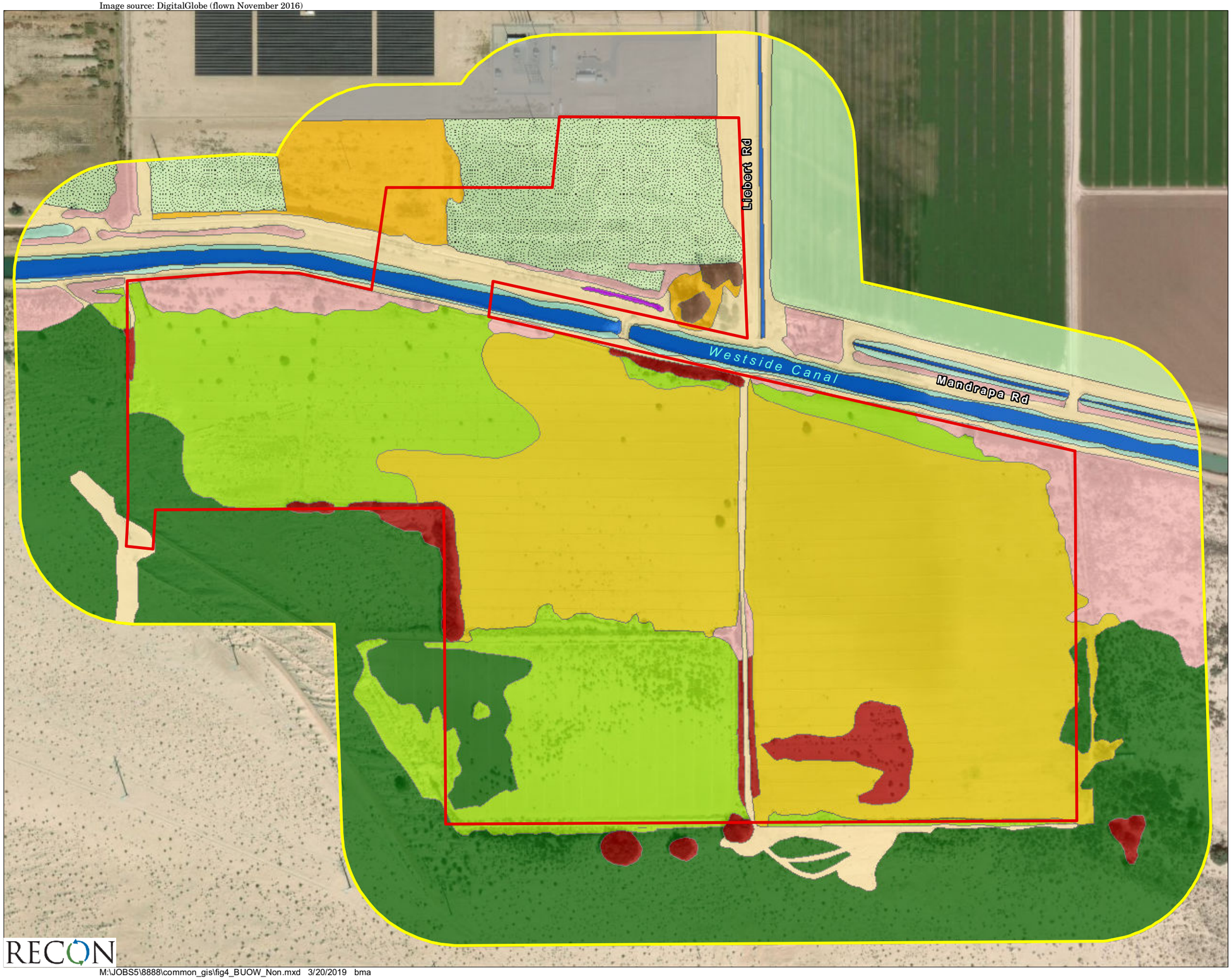
In 2018, RECON Environmental, Inc. (RECON) conducted a literature review, desktop evaluation, habitat assessment, and breeding season surveys for burrowing owl for the project. The assessment and surveys were conducted in accordance with the guidelines developed by CDFW (CDFW 2012); the methods and results are detailed in the survey report prepared by RECON (2018). In summary, the majority of the survey area provides suitable habitat for western burrowing owl, with low stature and/or low-density vegetative cover providing suitable foraging habitat, and fossorial mammals and other man-made structures providing suitable burrows. However, no western burrowing owls were detected within the survey area during the 2018 breeding season surveys.

Vegetation community/land cover type mapping used in this report is largely consistent with that provided in the habitat assessment and breeding season survey report prepared by RECON in 2018. However, minor revisions have been made as a result of the biologists gaining direct access to additional areas and seasonal variations providing a better understanding of plant species composition on site. The updated vegetation mapping is provided on Figure 4, and Photographs 1 through 8 provide representative views of the survey area. Vegetation communities mapped within the survey area include upland mustards (*Brassica* spp. and Other Mustards Semi-Natural Herbaceous Stands), creosote bush scrub (*Larrea tridentata* Shrubland Alliance), fourwing saltbush scrub (*Atriplex canescens* Shrubland Alliance), quailbush scrub (*Atriplex lentiformis* Shrubland Alliance), arrow weed thickets (*Pluchea sericea* Shrubland Alliance), tamarisk thickets (*Tamarix* spp. Semi-Natural Shrubland Stands), common reed marshes (*Phragmites australis* Herbaceous Alliance and Semi-Natural Stands), eucalyptus groves (*Eucalyptus* spp. Semi-Natural Woodland Stands), and cattail marshes (*Typha* sp. Herbaceous Alliance). Additional land cover types include fallow agriculture, active agriculture, disturbed habitat, developed land, and open water.

Methods

For the purposes of this report, the "survey area" includes the project area and the surrounding 150 meters (see Figure 3). At the start of the survey period, only one land owner granted permission to access an adjacent property. Therefore, direct access was limited to lands owned by Con Edison (the majority of the project area south of Westside Canal) and Imperial Irrigation District (one parcel north of Westside Canal), the canal roads (including Mandrapa Road), and Liebert Road. By the fourth survey, full access had been granted to the entire project boundary north and south of Westside Canal; however, the majority of the 150-meter buffer remained unavailable to direct access (see Figure 3). Where direct access was available, areas were surveyed using line transects with surveyors spaced 100 to 200 feet apart, with low to very low vegetation density and cover allowing for excellent ground visibility and wide transect spacing. Areas where direct access was unavailable were surveyed using binoculars or scopes. These areas were surveyed by conducting 15-minute point surveys along the project boundary and access roads, with spacing dependent on the height and density of the surrounding vegetation.

Image source: DigitalGlobe (flown November 2016)



Project Boundary
Survey Area

Vegetation Communities

Arrow Weed Thickets
Common Reed Marshes
Cattail Marshes
Creosote Bush Scrub
Eucalyptus Groves
Fourwing Saltbush Scrub
Quailbush Scrub
Tamarisk Thickets
Upland Mustards

Land Cover Types

Disturbed Habitat
Fallow Agriculture
Active Agriculture
Open Water
Developed

0 Feet 400

RECON

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FIGURE 4
Vegetation Communities
and Land Cover Types

PHOTOGRAPH 1
Old Agricultural Field with Upland Mustards (foreground) and Fourwing Saltbush Scrub (background), Facing Northwest from East-Central Portion of Project Area, Taken January 25, 2019

PHOTOGRAPH 2
Upland Mustards and Tamarisk Thickets in Easternmost Old Agricultural Field, Facing Northeast from Southern Boundary, Taken April 14, 2018

PHOTOGRAPH 3
Dense Arrow Weed Thicket in Eastern 150-meter Buffer, Facing East from Northeastern Project Boundary, Taken January 25, 2019

PHOTOGRAPH 4
Creosote Bush Scrub in Eastern 150-meter Buffer, Facing Southeast from Eastern Project Boundary, Taken January 25, 2019

PHOTOGRAPH 5
Fourwing Saltbush Scrub in Southwestern Portion of Survey Area,
Facing Southwest, Taken January 25, 2019

PHOTOGRAPH 6
Creosote Bush Scrub in the Western 150-meter Buffer, Facing West from the
Western Project Boundary, Taken December 17, 2018

PHOTOGRAPH 7
Active Agricultural Field and Irrigation Channel in Northeastern 150-meter Buffer, Facing Northeast, Taken December 16, 2018

PHOTOGRAPH 8
Westside Canal and Common Reed Marsh in Eastern Portion of Survey Area, Facing South, Taken November 8, 2018

RECON biologists Brenna Ogg, Brian Parker, Beth Procsal, Mandy Weston, JR Sundberg, Kayo Valenti, and Victor Novik conducted burrowing owl non-breeding season surveys in accordance with the guidelines developed by CDFW (CDFW 2012). Surveys included four visits during the burrowing owl's non-breeding season. Each survey was conducted by five biologists over a two-day period, between two hours before sunset and civil evening twilight on the first day and between morning civil twilight and 10:00 on the second day. Surveys were spaced at least four weeks apart. All wildlife species observed during the surveys were noted. All suitable burrows were recorded using a handheld Global Positioning System (GPS) device, and presence or absence of burrowing owl sign (e.g., pellets, whitewash, prey remains, feathers, or decoration) was documented. Survey dates, personnel, times, and weather conditions are provided in Table 1.

Table 1
Survey Information

Date	Survey Type	Surveyors	Beginning Conditions	Ending Conditions
10/4/2018	Non-Breeding Season Survey #1	B. Ogg, B. Parker, E. Procsal, M. Weston, V. Novik	16:22; 89ºF; 5–10 mph wind; 5% cloud cover	19:36; 84 ºF; 5–10 mph wind; 5% cloud cover
10/5/2018			06:14; 69ºF; 3–6 mph wind; clear sky	09:55; 82ºF; 5–12 mph wind; <1% cloud cover
11/8/2018	Non-Breeding Season Survey #2	B. Ogg, B. Parker, E. Procsal, M. Weston, J. Sundberg	14:45; 82ºF; 6–12 mph wind; 0% cloud cover	19:11; 74 ºF; 2–7 mph wind; 0% cloud cover
11/9/2018			05:41; 51ºF; 0–2 mph wind; 0% cloud cover	10:00; 78ºF; 0–7 mph wind; 0% cloud cover
12/6/2018	Non-Breeding Season Survey #3	B. Ogg, B. Parker, E. Procsal, M. Weston, K. Valenti	14:38; 70ºF; 0–1 mph wind; 0% cloud cover	17:05; 59ºF; 0–1 mph wind; 0% cloud cover
12/7/2018			06:11; 45ºF; 0 mph wind; 15% cloud cover	10:00; 59ºF; 0–2 mph wind; 90% cloud cover
1/24/2019	Non-Breeding Season Survey #4	B. Ogg, B. Parker, E. Procsal, M. Weston, K. Valenti	15:07; 71ºF; 3–6 mph wind; 85% cloud cover	17:33; 61ºF; 0–2 mph wind 10% cloud cover
1/25/2019			06:15; 46ºF; 0–2 mph wind; 5% cloud cover	10:00; 69ºF; 0–2 wind; <1% cloud cover

ºF = degrees Fahrenheit; mph = miles per hour; % = percent.

Non-Breeding Season Survey Results

Four western burrowing owl observations were made during 2018-2019 breeding season surveys, representing at least two, but likely three, individuals. Each observation is described below, and the observation locations are shown on Figure 5. Data for these western burrowing owl observations were submitted to the California Natural Diversity Database on April 2, 2019.

- One western burrowing owl was observed on November 9, 2018, in creosote bush scrub along the westernmost project boundary. It was flushed from the vicinity of a burrow and flew off to the northwest. The burrow did not have any sign of whitewash, pellets, or feathers, but there was a large number of mammal, insect, and bird tracks, including burrowing owl tracks (Photograph 9).
- One western burrowing owl was observed on December 17, 2018, near the previous observation in creosote bush scrub along the westernmost project boundary, and likely represents a repeat observation of the owl observed on November 9, 2018. The owl was flushed from a small sandy hillock with creosote and a burrow, and flew off to a berm, where it perched for several minutes before flying out of sight.
- One western burrowing owl was observed on December 17, 2018, within an open fallow agricultural field sparsely vegetated by low-growing tamarisk shrubs in the southeastern portion of the survey area. This individual was flushed from the vicinity of a small sinkhole, flew north, and then circled off site to the south. The sinkhole (see Photograph 11) had abundant whitewash and appeared to be an active western burrowing owl burrow. A second burrow with whitewash and pellets was found approximately 135 feet southeast of the first burrow (see Photograph 12).
- One western burrowing owl was detected using an infrared motion-triggered trail camera on December 16, 2018 (Photograph 13). The camera was placed adjacent to a dirt road along the southern project boundary. Two suitable burrows with no owl sign were located approximately 10 feet from the camera location. A third suitable burrow with whitewash had been detected within approximately 45 feet of the camera location during 2018 breeding season surveys; however, that burrow has since been disturbed and partially backfilled by animal activity. Four photos were triggered by a western burrowing owl at 19:16. While the photos are over-exposed, the shape and posture of the bird photographed is consistent with burrowing owl.

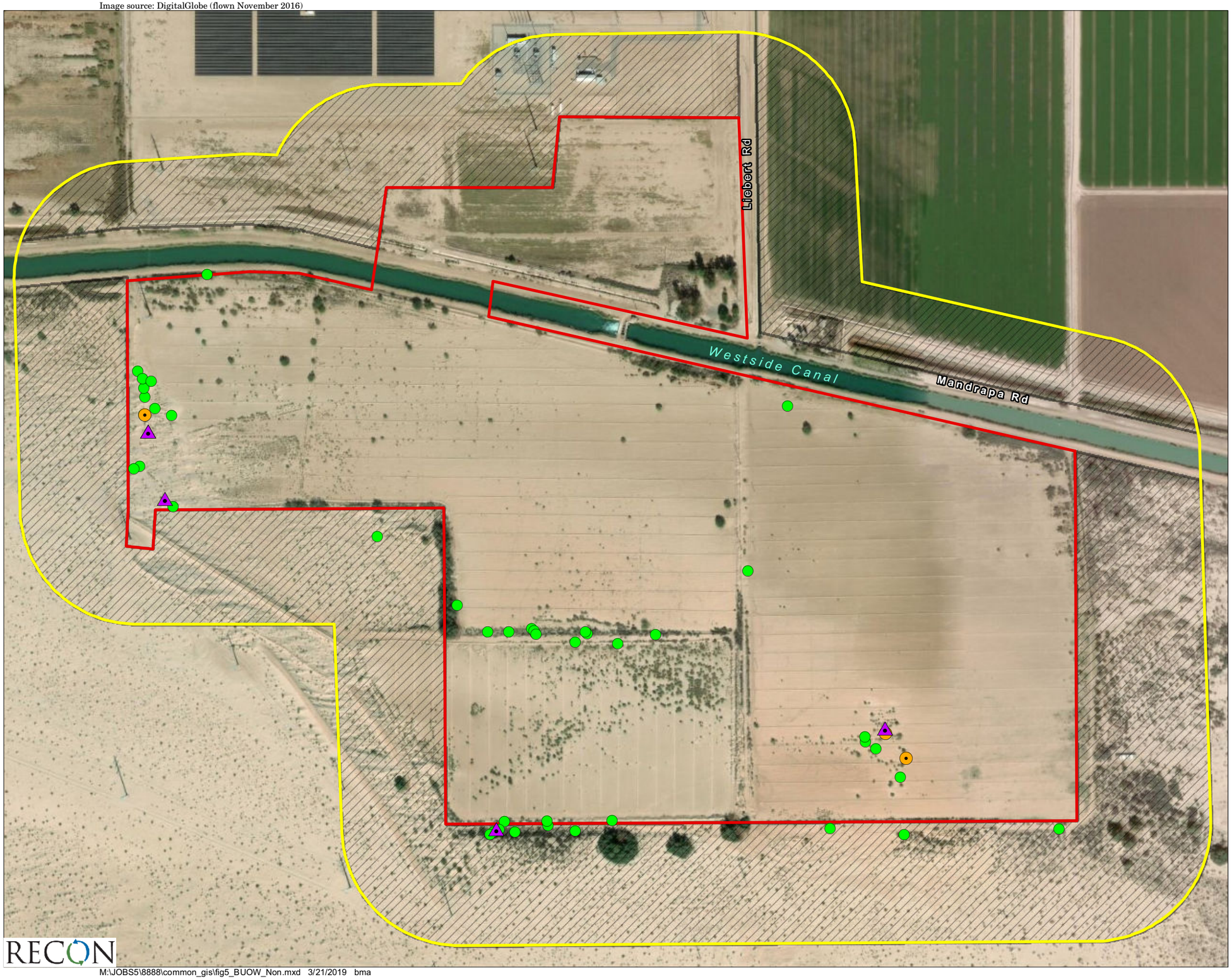
As mentioned above, three suitable burrows with western burrowing owl sign (i.e., whitewash, pellets, and/or tracks) were observed near the western burrowing owl observations: one in close proximity to the observation near western project boundary and two near the observations in the fallow agricultural field in the southeastern portion of the project area.

Possible burrowing owl predators detected during the non-breeding season surveys include great horned owl (*Bubo virginianus*), Cooper's hawk (*Accipiter cooperii*), red-tailed hawk (*Buteo jamaicensis*), northern harrier (*Circus hudsonius*), common raven (*Corvus corax*), American crow (*Corvus brachyrhynchos*), and coyote (*Canis latrans*) (Coulombe 1971, Haug et al. 1993). Coyote, red-tailed hawk, and American crow were regularly detected throughout the survey period. Great horned owl is a resident species on site with an active nest observed in the northeastern portion of the survey area. Although not detected during the non-breeding season surveys, RECON has previously observed American badger (*Taxidea taxus*) within the survey area. No evidence of burrowing owl predation was observed.

Conclusion and Mitigation Requirements

Four western burrowing owl observations were recorded during the 2018-2019 non-breeding season surveys, representing at least two, but likely three, individuals. Based on these results and the negative results of the 2018 breeding season surveys, western burrowing owl appears to use the project area and larger survey area as a wintering site or for migration and dispersal, but is not currently using the site as breeding habitat.

Image source: DigitalGlobe (flown November 2016)



- Project Boundary
- Survey Area
- No Direct Access
- Suitable Burrow
- Suitable Burrow with Sign
- Western Burrowing Owl (*Athene cunicularia hypugaea*) Observation

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RECON

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FIGURE 5
2018-2019 Burrowing Owl
Non-Breeding Season
Survey Results

PHOTOGRAPH 9

Active Burrow Located Near First Burrowing Owl Observation, in Creosote Bush Scrub in Western Portion of Survey Area, Taken November 9, 2018

PHOTOGRAPH 10

Burrowing Owl Observed in Creosote Bush Scrub, Facing Northeast From Western Portion of Survey Area, Taken November 9, 2018 through Spotting Scope

PHOTOGRAPH 11
Active Burrow Located in Tamarisk Thicket within Old Agricultural Field in Southeastern Portion of Survey Area, Taken December 17, 2018

PHOTOGRAPH 12
Active Burrow with Pellets and Whitewash Within Old Agricultural Field in Southeastern Portion of Survey Area, Taken December 17, 2018

PHOTOGRAPH 13

Burrowing Owl Observed in Fourwing Saltbush Scrub near Southern Boundary, Taken December 16, 2018 with Trail Camera

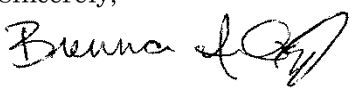
Based on these results, formal consultation with CDFW would be required to develop an appropriate mitigation plan for the project. One or more mitigation measures, such as avoidance, minimization measures, translocation, artificial burrow construction, burrow exclusion and closure, and/or habitat-based mitigation or preservation, may be required.

At a minimum, take-avoidance (pre-construction) surveys for western burrowing owl would be required at least 14 days prior to ground disturbance. This effort would detect any change in western burrowing owl presence within the survey area in order to avoid direct take of owls and inform any necessary take avoidance actions. These surveys would include all areas where suitable habitat is present within the survey area (CDFW 2012). Depending on the timing of construction or any delays in project activities, ongoing site surveillance may be required to detect whether the species has re-colonized the project area prior to or during project implementation (CDFW 2012).

If occupied western burrowing owl habitat would be impacted by the project, habitat-based mitigation would also be required. Temporarily impacted areas would need to be restored to pre-project conditions. Permanent impacts to nesting, occupied and satellite burrows, and/or suitable habitat would require mitigation such that the habitat acreage, number of burrows, and burrowing owls are replaced (CDFW 2012).

If you have any questions concerning the contents of this letter, please contact me by phone or email at (619) 308-9333 extension 118 or bogg@reconenvironmental.com.

Sincerely,



Brenna Ogg
Senior Biologist
CDFW Scientific Collecting Permit SC-9997

cc: Justin Garcia, California Department of Fish and Wildlife
Esther Burkett, California Department of Fish and Wildlife

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APPENDIX E – BIOLOGICAL RESOURCES

E.4. Jurisdictional Waters/Wetlands Delineation Report for the Westside Canal Battery Storage Project

RECON

Jurisdictional Waters / Wetland Delineation Report for the Westside Canal Battery Storage Project, Imperial County, California

Prepared for
Con Edison Clean Energy Businesses
101 W. Broadway, Suite 1120
San Diego, CA 92101
Contact: Mr. Curtis Kebler

Prepared by
RECON Environmental, Inc.
3111 Camino del Rio North, Suite 600
San Diego, CA 92108-5726
P 619.308.9333

RECON Number 8888.1
January 18, 2021

Andrew Smisek, Associate Biologist

TABLE OF CONTENTS

ATTACHMENTS

Acronyms and Abbreviations

APN	Assessor Parcel Number
FAC	Facultative
FACU	Facultative-Upland
FACW	Facultative-Wetland
GPS	global positioning system
IID	Imperial Irrigation District
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
OHWM	Ordinary High Water Mark
Project	Westside Canal Battery Storage Project
TNW	Traditional Navigable Waterway
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey

1.0 Site Description and Landscape Setting

The Westside Canal Battery Storage Project (Project) would be located in the unincorporated Mount Signal area of Imperial County, approximately 8.0 miles southwest of the city of El Centro and approximately 5.3 miles north of the U.S.-Mexico border. Figure 1 (in Attachment 1) shows the regional location of the Project. The Project site is comprised of two parcels owned by Westside Canal Battery Storage, LLC, a subsidiary of Con Edison Clean Energy Businesses: Assessor Parcel Number (APN) 051-350-010 and APN 051-350-011, totaling approximately 148 acres. These parcels have limited access corridors for vehicular traffic and are considered less desirable for agricultural production, as reflected by the last 15 years during which no farming activity has occurred.

The Project site is approximately one-third mile north of the Imperial Valley Substation and directly south of the intersection of Liebert Road and the Imperial Irrigation District's (IID) Westside Canal. The Project site is bounded by the Westside Canal to the north, Bureau of Land Management lands to the south and west, and vacant private land to the east. The Campo Verde solar generation facility is located north of the Project site, across the Westside Canal. The entire Project site is located in the southern half of Section 34, Township 16 South, Range 12 East, on the U.S. Geological Survey (USGS) Mount Signal, California quadrangle (USGS 1976; Attachment 1: Figure 2). An aerial photograph of the Review Area is shown in Attachment 1: Figure 3.

The two Project parcels are proposed for development as a utility-scale energy storage complex. The Project would also utilize portions of two parcels located north of the Westside Canal (APN 051-350-019 owned by IID and APN 051-350-018 owned by a private land owner) for site access and as a temporary construction staging area. The Project would also access a small portion of APN 051-350-009 within an IID easement for connection to the existing IID Campo Verde Imperial Valley 230 kilovolt radial gen-tie line during the construction of a switching station on the Project site. The total proposed Project development footprint, encompassing both temporary and permanent impacts, would be approximately 163 acres.

The applicant will accompany the U.S. Army Corps of Engineers (USACE) on all site visits. The USACE must contact the applicant prior to visiting the site. The contact information for the applicant is:

Property Owner:	Westside Canal Battery Storage, LLC
Applicant:	Westside Canal Battery Storage, LLC
Primary Contact:	Curtis Kebler, Director, Business Development
Telephone:	(619) 318-6735
E-mail:	KeblerC@conedceb.com

2.0 Site Alterations, Current and Past Land Use

A majority of the Review Area has been altered by past agricultural uses. The land was likely graded and the soil regularly tilled, fertilized, and watered. During agricultural operations, it likely supported minimal natural vegetation. The agricultural fields within the Review Area have been left fallow for approximately the past ten years.

2.1 Soils

Information on the soil types occurring in the Review Area is summarized from the Soil Survey for Imperial County (U.S. Department of Agriculture [USDA] 1981) and the Hydric Soils of California list (hydric soil list) obtained from the Natural Resource Conservation Service (NRCS; 2015). Soil types mapped within the Review Area are shown in Attachment 1: Figure 4. The following 10 soil types are mapped within the Review Area: Glenbar complex; Holtville silty clay, wet; Imperial-Glenbar silty clay loams, wet, 0–2 percent slopes; Indio-Vint complex; Meloland fine sand; Meloland very fine sandy loam, wet; Rositas fine sand, 0–2 percent slopes; Rositas fine sand, wet, 0–2 percent slopes; Vint loamy very fine sand, wet; and Vint and Indio very fine sandy loams, wet (USDA 1981). Water is also mapped within the Westside Canal (see Attachment 1: Figure 4). None of these soil types are listed as hydric in Imperial County.

2.2 Hydrology

The Westside Canal is a manmade, natural-bottom canal conveying water from the All-American Canal for irrigation use within the Imperial Valley area. It crosses through the northern portion of the Review Area, flowing east to west. Within the Review Area, a drop structure, known as the Fern Check structure, occurs within the canal and regulates water levels. During the survey, water levels were regulated at approximately 18 inches below the top of the bank east of the drop structure, and approximately five feet below the top of the bank west of the drop structure. In addition to the Westside Canal, the east-west concrete-lined secondary canal mentioned above and a concrete-lined secondary canal extending north-south in the northeast portion of the Review Area contained flowing water at the time of the survey.

2.3 Vegetation

The following vegetation communities and land cover types were mapped within the Review Area: upland mustards (*Brassica* spp. and Other Mustards Semi-Natural Herbaceous Stands), creosote bush scrub (*Larrea tridentata* Shrubland Alliance), four-wing saltbush scrub (*Atriplex canescens* Shrubland Alliance), quailbush scrub (*Atriplex lentiformis* Shrubland Alliance), arrow-weed thickets (*Pluchea sericea* Shrubland Alliance), tamarisk thickets (*Tamarix* spp. Semi-Natural Shrubland Stands), common reed marshes (*Phragmites australis* Herbaceous Alliance and Semi-Natural Stands), eucalyptus groves

(*Eucalyptus* spp. Semi-Natural Woodland Stands), cattail marshes (*Typha* sp. Herbaceous Alliance), disturbed habitat, fallow agriculture, open water, and developed land (Attachment 2: Table 1; Attachment 1: Figure 5).

3.0 Precipitation Data and Analysis

Climate data, including precipitation totals, for the nearest recording station to the Project site was gathered from the NRCS National Water and Climate Center databases (NRCS 2020). The climate data obtained are discussed below.

3.1 Climate and Growing Season

The Review Area is located within the Sonoran Desert region of southern California, in an area generally characterized as hot dry throughout most of the year, with slightly cooler and wetter winters. The majority of precipitation typically falls between December and March as somewhat frequent low-intensity rainfall. Infrequent and very localized high-intensity monsoonal rainfall can occur during the summer months. The growing season is typically very short after winter rainfall as precipitation amounts are low and temperatures begin to increase quickly during the spring months and into summer.

3.2 Antecedent Precipitation Tool Summary

The Antecedent Precipitation Tool was used to analyze the 30-day rolling total and the 30-year normal range of precipitation data for the nearest recording weather stations to the Review Area. The data presented in the Antecedent Precipitation Tool Results graphic (Attachment 3) indicate that minimal precipitation occurred in the vicinity of the Review Area in the days prior to the February 5, 2018 survey and that normal conditions occurred at the time of the survey.

The three canal features that occur within the Review Area are likely insignificantly affected by local precipitation amounts because flow within these features is regulated by a series of drop structures.

3.3 Wetland Hydrology and Analysis

Hydrology within the Review Area as a whole consists of only the three manmade canal features described above. These do not appear to be significantly influenced by precipitation events and they are all controlled using drop structures.

Manufactured drainage ditches, both concrete-lined and natural-bottomed, occur along berms that define the boundaries of abandoned agricultural fields throughout much of the Review Area. However, these drainage ditches appear to be unused since abandonment of the agricultural operations on-site. No other portions of the Review Area contain topographic bottomlands where a substantial amount of water could concentrate and/or flow to develop hydrology indicators.

4.0 Investigation Methods

A routine jurisdictional waters/wetland delineation, following the guidelines set forth by USACE (1987 and 2008), was performed to gather field data at locations with potential jurisdictional waters in the Project Review Area. The Review Area for this study, as identified by the Westside Canal Battery Storage, LLC, comprises the proposed Project boundary and the surrounding 100-foot radius (see Attachment 1: Figure 3). RECON biologist Andrew Smisek conducted the routine delineation fieldwork on February 5, 2019. Once on-site, the potential federal and state jurisdictional areas were examined to determine the presence and extent of any jurisdictional waters.

4.1 Wetland Parameters

4.1.1 Hydrophytic Vegetation

Vegetation communities comprising partially or entirely hydrophytic plant species were examined, and data for each vegetation stratum (i.e., tree, shrub, herb, and vine) were recorded on the datasheet provided in the 2008 Arid West Regional Supplement (USACE 2008). The percent absolute cover of each species present was visually estimated and recorded.

First, the wetland indicator status of each species recorded within a vegetation community was determined by using the National Wetland Plant List (Lichvar et al. 2016). Dominant species with an indicator status of NI (No Indicator) or not listed in the 2016 National Wetland Plant List were evaluated as either wetland or upland indicator species based on local professional knowledge of where the species are most often observed in habitats that are characteristic in southern California.

The dominance test was then used to determine which vegetation community qualified as hydrophytic vegetation at each site. In situations where a site failed the dominance test but contained positive indicators of hydric soils and/or wetland hydrology, the prevalence index was used. The presence or absence of morphological adaptations was noted; however, none of the sampled wetland areas required an analysis of morphological adaptations to determine if the vegetation was hydrophytic.

4.1.2 Hydric Soils

Sample points were selected within potential wetland areas and where the apparent boundary between wetland and upland was inferred based on changes in the composition of the vegetation and topography. Soil pits were dug to a depth of at least 18 inches or to a depth necessary to determine soil color, evidence of soil saturation, depth to groundwater, and indicators of a reducing soil environment (i.e., mottling, gleying, and hydrogen sulfide odor). A Munsell Soil-Color Book (2009) was used to determine soil colors, and the 2008 Arid West Regional Supplement (USACE 2008) and the Field Indicators of Hydric Soils in

the United States guide (USDA 2017) was used to determine the presence of hydric soil indicators.

4.1.3 Wetland Hydrology

Hydrologic information for the site was obtained by reviewing USGS topographic maps and by directly observing hydrology indicators in the field. All portions of any potentially occurring wetlands or non-wetland waters within the Review Area were inspected for signs of hydrology as defined in the 2008 Arid West Regional Supplement (USACE 2008). The location of any water conveyance structures, such as culverts, that may influence the hydrology of any potentially jurisdictional resource were recorded and considered when making a hydrology determination.

4.2 Pre-Field Review

Prior to conducting the delineation, an aerial photograph, USGS topographic maps of the site, USDA soil maps of the site, the Mount Signal, California quadrangle (USGS 1976), and the U.S. Fish and Wildlife Service National Wetland Inventory (NWI) were examined to aid in the determination of potential waters of the U.S. on-site (U.S. Fish and Wildlife 2019; Attachment 1: Figure 6).

4.3 On-site Wetland Investigation

Once on-site, the parcel of land was examined to determine the presence of any indicators of wetlands, including wetland vegetation, hydric soils, and hydrology. Field data, including hand drawn maps and recorded global positioning system (GPS) points and lines, were later digitized/downloaded into ArcGIS. Mapped jurisdictional waters created using these data were analyzed in ArcGIS to provide acreages or target jurisdictional and vegetation boundaries. USACE wetland determination data forms are included as Attachment 4, USACE Ordinary High Water Mark (OHWM) data forms are included as Attachment 5, and photographs of the Review Area are provided in Attachment 6. Descriptions of the potential wetland vegetation communities sampled are provided below.

Quailbush scrub occurs in two patches north of the Westside Canal in the northern portion of the survey area (Attachment 1: Figure 5). At approximately 50 percent cover, quailbush (Facultative [FAC]) dominates this vegetation community (Attachment 6: Photograph 1). The understory is mostly bare, with sparse cover of upland herbaceous species such as Bermuda grass (*Cynodon dactylon*; Facultative-Upland [FACU]) and non-native mustard (*Sisymbrium* sp.; FACU). The eastern patch of quailbush scrub is small and surrounded by arrow weed thickets and Eucalyptus woodland. The western patch of this vegetation community is larger, extending north and west outside the survey area. Both patches occur within areas that appear to have been historically used for agriculture but have since been abandoned. Manufactured berms and ditches occur along much of the perimeter of the patches. Although the ditches are no longer used for irrigation, these patches of quailbush scrub occur within 25 feet of an actively used, concrete-lined secondary canal, and within

100 feet of the Westside Canal. Laterally seeping water from these sources may contribute to the presence of quailbush scrub within the survey area.

Arrow weed thickets occur in five different patches throughout the survey area, the majority of which occur as linear strips paralleling the Westside Canal and an actively used, concrete-lined secondary canal (Attachment 1: Figure 5). Arrow weed (Facultative-Wetland [FACW]) dominates this vegetation community at approximately 50 percent cover (Attachment 6: Photograph 2).

Occasional saltcedar (*Tamarix ramosissima*; NI) occur within this vegetation community, and the understory consists of a sparse cover of non-native mustard and narrow-leaved cryptantha (*Cryptantha angustifolia*; NI) occurring in openings between shrubs. As with the quailbush scrub, lateral seepage from the Westside Canal and secondary canal may contribute to the presence of this hydrophytic vegetation community.

Tamarisk thickets occur mostly as patches within the southern portion of the survey area (Attachment 1: Figure 5). One patch occurs as a linear strip paralleling the Westside Canal in the northern portion. This patch is dominated by saltcedar at approximately 50 percent cover. Although saltcedar does not have a wetland indicator status, it generally occurs within stream corridors in this region. Therefore, a wetland indicator status of FAC has been assigned for the purposes of this report. The saltcedar individuals in this northern patch appear mature and robust. The tamarisk thickets in the southern portion of the survey area mostly occur along a network of berms and ditches that were likely historically manufactured for agriculture use but have since been abandoned. These small and linear patches of tamarisk thickets are dominated by either saltcedar with an approximate cover of 30 percent or athel (*Tamarix aphylla*; FAC) with an approximate cover of 80 percent (Attachment 6: Photograph 3). The patches of athel were likely planted as a wind screen when the site was actively used for agriculture. One patch of tamarisk thicket occurs within an abandoned agriculture field in the southeast portion of the survey area and contains sparse saltcedar at approximately 10 percent cover. The individuals here appear stressed with substantially diminished canopies.

Common reed marshes occur as linear strips averaging between 5 and 10 feet in width along the banks of the Westside Canal in the northern portion of the survey area. This vegetation community is dominated by common reed (FACW) which has approximately 35 percent cover (Attachment 6: Photograph 4). Arrow weed occurs in most portions of this vegetation community as a subdominant species at approximately five percent cover. The banks of the canal are steep and contain a substantial proportion of large rock and pieces of concrete. Although common reed growth occurs both along the slope and on top of the banks, no growth occurs from portions of the bank at or below the water level.

Cattail marshes occur only within the small, concrete-lined secondary canal extending east-west north of the Westside Canal in the northern portion of the survey area. This vegetation community is dominated by southern cattail (*Typha domingensis*; Obligate [OBL]) as noted in previous surveys conducted for this Project (RECON 2018). However, it appears this vegetation was dug out of the secondary canal prior to this survey, as the removed cattails were observed piled nearby.

4.4 On-site Ordinary High Water Mark Investigation

The lateral extent of the OHWM was delineated using the observed hydrology indicators within the Westside Canal and two concrete-lined secondary canals in accordance with *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Lichvar and McColley 2008). The indicators observed include surface water, water staining, and drift deposits. Based on observations made during other surveys conducted for this Project during various times of the year since April 2018, it is assumed these three manufactured canals actively convey water continuously. Photographs of the three canals are provided in Attachment 6 (see Photographs 5–7). Water flow within these features is regulated through a series of drop structures to fulfill the irrigation demands of the surrounding agricultural land uses. It appears the volume of flow within these three features is fairly consistent.

5.0 Description of All Wetlands and Other Non-wetland Waters

The aquatic resources delineated include three non-wetland waters features within the Review Area, the Westside canal and two secondary canals. No wetland areas were detected. A summary of the aquatic resources and location of these resources in relation to the Review Area boundary are provided in Attachment 2: Table 2 and on Attachment 1: Figure 7, respectively.

5.1 Wetlands

No wetlands were delineated within the Review Area. The areas containing hydrophytic vegetation did not contain hydrology or hydric soil indicators (see Attachment 4). Although it is possible that the area of cattail marshes within the Review Area would have met all three wetland parameters, this wetland habitat was removed prior to the jurisdictional delineation survey and, therefore, was not delineated as a wetland for this report.

5.2 Non-wetland Waters

A total of 5.97 acres and 6,475 linear feet of non-wetland waters were delineated within the Review Area (see Attachment 2: Table 2). Non-wetland waters within the Review Area include the Westside Canal, the east-west concrete-lined secondary canal, and the north-south concrete-lined secondary canal. The lateral extent of each of these features was based on the OHWM, as determined by hydrology indicators. The Westside Canal averages approximately 90 feet in width throughout the Review Area. The east-west canal is approximately 4 feet in width, and the north-south canal is approximately 15 feet in width.

The Westside Canal flows west and north from the Project site through an expanse of agricultural land where it is used to irrigate agricultural fields. Any unused water within the canal continues north through a series of drains to empty into the Salton Sea, a Traditional Navigable Waterway (TNW). The two concrete-lined canals also extend from the Review Area throughout the expanse of agriculture land and connect with other canals and waterways, eventually draining into the Salton Sea. Additionally, as the Westside Canal and these secondary canals are assumed to convey water nearly continuously, they would be considered Relatively Permanent Waters. Their connectivity to a TNW and status as Relatively Permanent Waters would likely put the Westside Canal and these two concrete-lined secondary canals within the Review Area under the jurisdiction of USACE.

6.0 Deviation from National Wetland Inventory

The results of this analysis varies slightly from the NWI (see Attachment 1, Figure 6). The NWI includes a perennial riverine system with a natural bottom (code R2UBHx) along the alignment of the Westside Canal within the Review Area. This description is accurate with what was observed during the survey (see Attachment 2: Table 2). The NWI also includes an intermittent riverine system (code R4SBCx) along the alignment of the 15-foot-wide north-south running canal. However, based on regular field surveys since April 2018 and a review of aerial photography, this canal is likely perennial (see Attachment 2: Table 2). The fact that this canal is concrete-lined is not included in the NWI details for this feature. No system is mapped by the NWI along the 4-foot-wide east-west running canal. As with the north-south canal, this feature appears to be perennial (see Attachment 2: Table 2). All three features within the Review Area are subject to regulated water flow through the use of drop structures.

7.0 Mapping Method

The maps of the delineated jurisdictional waters within the Review Area are based on the above analysis. The boundary of the majority of aquatic resource was obtained from a combination of GPS data collected in the field and aerial photography. Geographic information system mapping software (ArcMap) was used to produce the graphical maps contained in this report.

8.0 Results and Conclusions

Potential USACE jurisdictional waters include all three non-wetland waters features mapped within the Review Area: the Westside canal, the east-west concrete-lined canal, and the north-south concrete-lined canal. As described above, hydrology indicators were used to delineate the OHWM for each of these features. Flow within these features is regulated by a series of drop structures for the purposes of the surrounding agricultural needs. Because it appears these features flow perennially, and because they have a direct connection downstream to a TNW, they may be considered non-wetland waters of the U.S.

type for these features is considered to be "relatively permanent waters" due to their perennial flow and connectivity with a TNW.

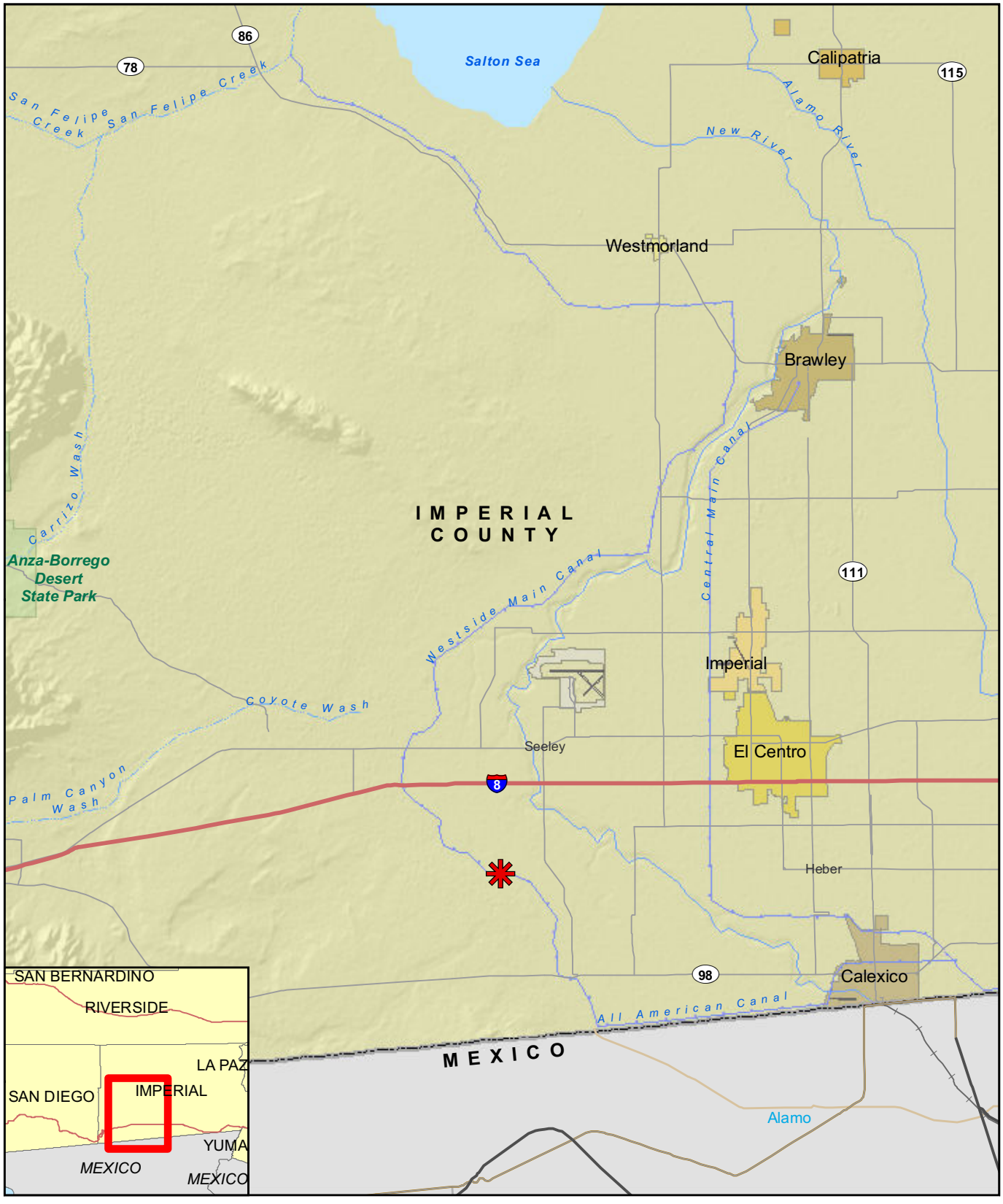
9.0 Disclaimer Statement

This report describes the results of a jurisdictional waters delineation conducted within the approximately 163-acre Review Area. The jurisdictional waters delineation is used to identify and map the potential extent of the federal jurisdictional waters of the U.S. The purpose of this study was to identify and map the limits of any aquatic water features on the property to provide necessary background information for analysis by USACE in making a jurisdictional determination. USACE will review the content of this report and ultimately make a determination of federal jurisdiction for any waters of the U.S. that may be present in the Review Area. References used in the preparation of this report are included below in Attachment 7.

ATTACHMENTS

ATTACHMENT 1

Maps



Project Location

FIGURE 1
Regional Location

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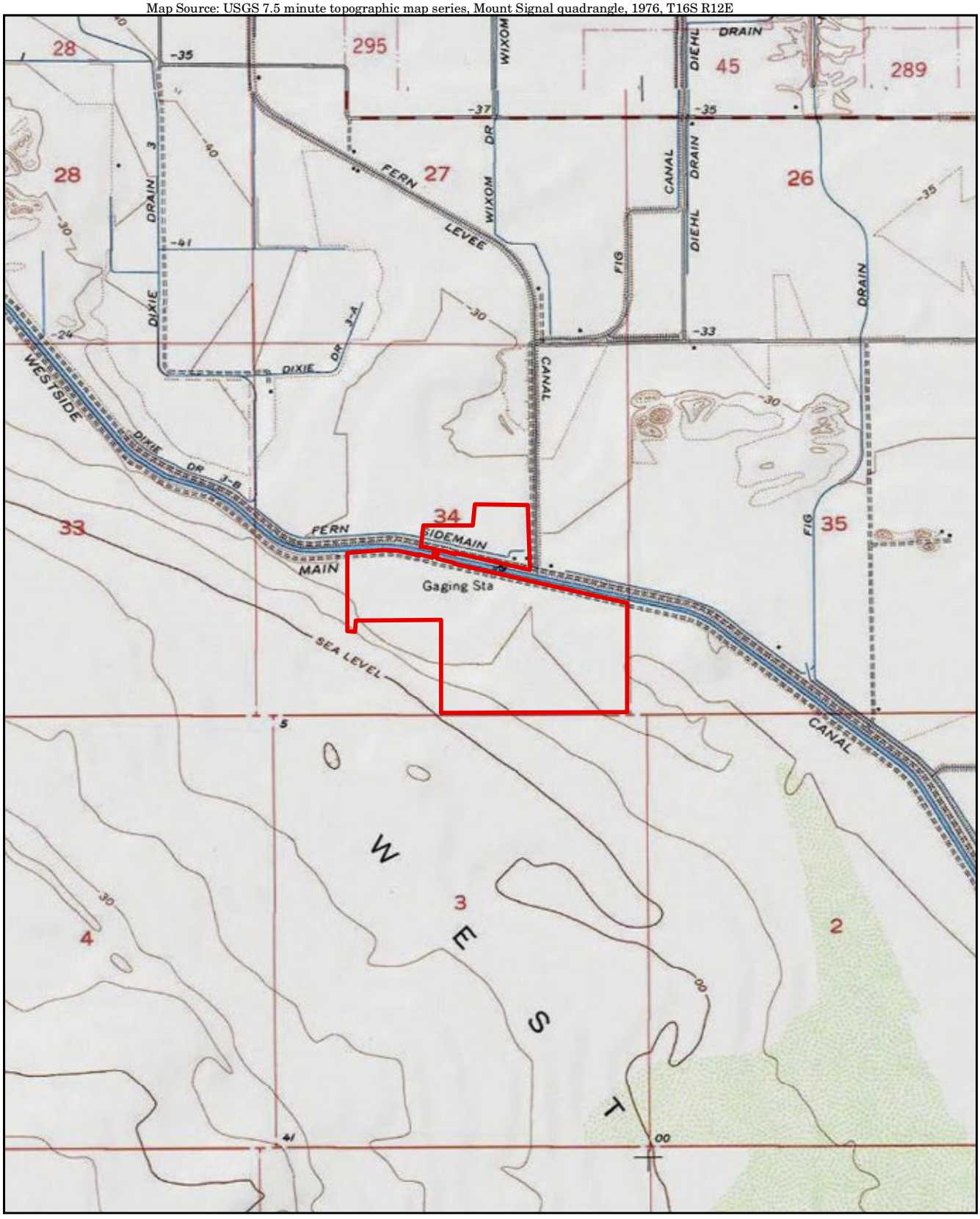
Map Source: USGS 7.5 minute topographic map series, Mount Signal quadrangle, 1976, T16S R12E



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Project Boundary

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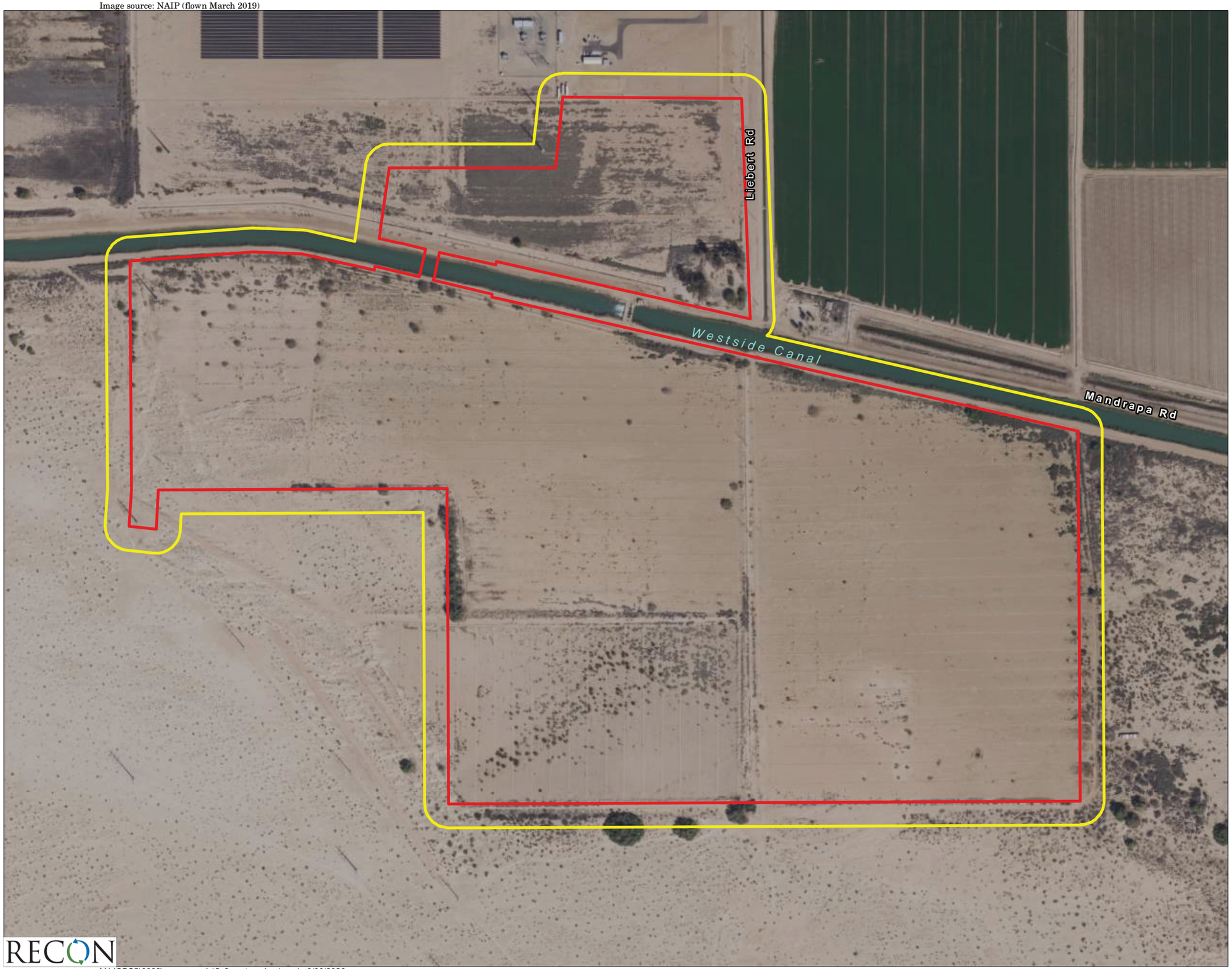
FIGURE 2

Project Location on USGS Map

Image source: NAIP (flown March 2019)



Project Boundary
Review Area

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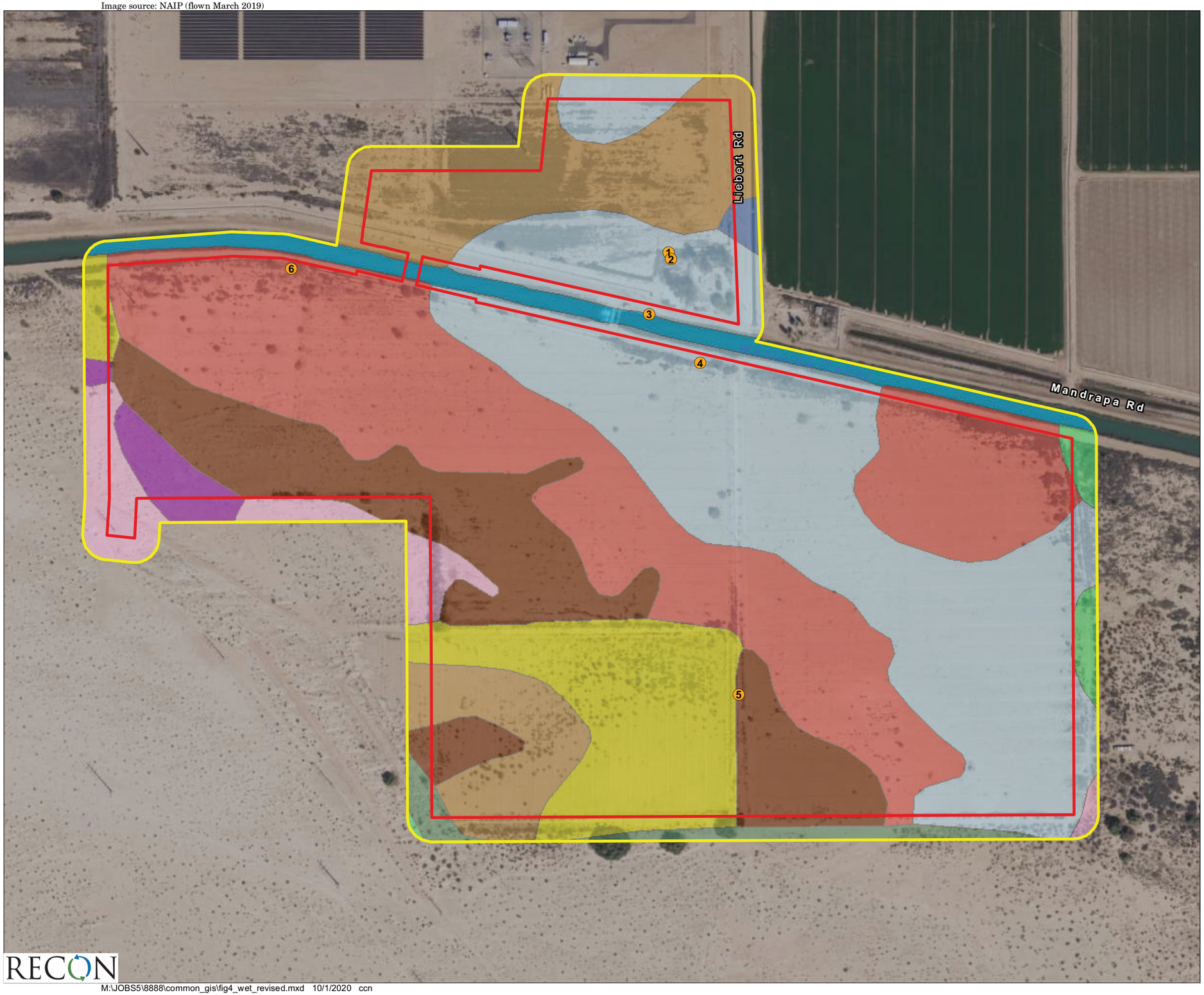
FIGURE 3
Project Location on
Aerial Photograph

Image source: NAIP (flown March 2019)



Project Boundary

Review Area

Sample Points

Soil Type

- Glenbar Complex
- Holtville Silty Clay, Wet
- Imperial-Glenbar Silty Clay Loams, Wet, 0-2% Slopes
- Indio-Vint Complex
- Meloland Fine Sand
- Meloland Very Fine Sandy Loam, Wet
- Rositas Fine Sand, 0-2% Slopes
- Rositas Fine Sand, Wet, 0-2% Slopes
- Vint And Indio Very Fine Sandy Loams, Wet
- Vint Loamy Very Fine Sand, Wet
- Water

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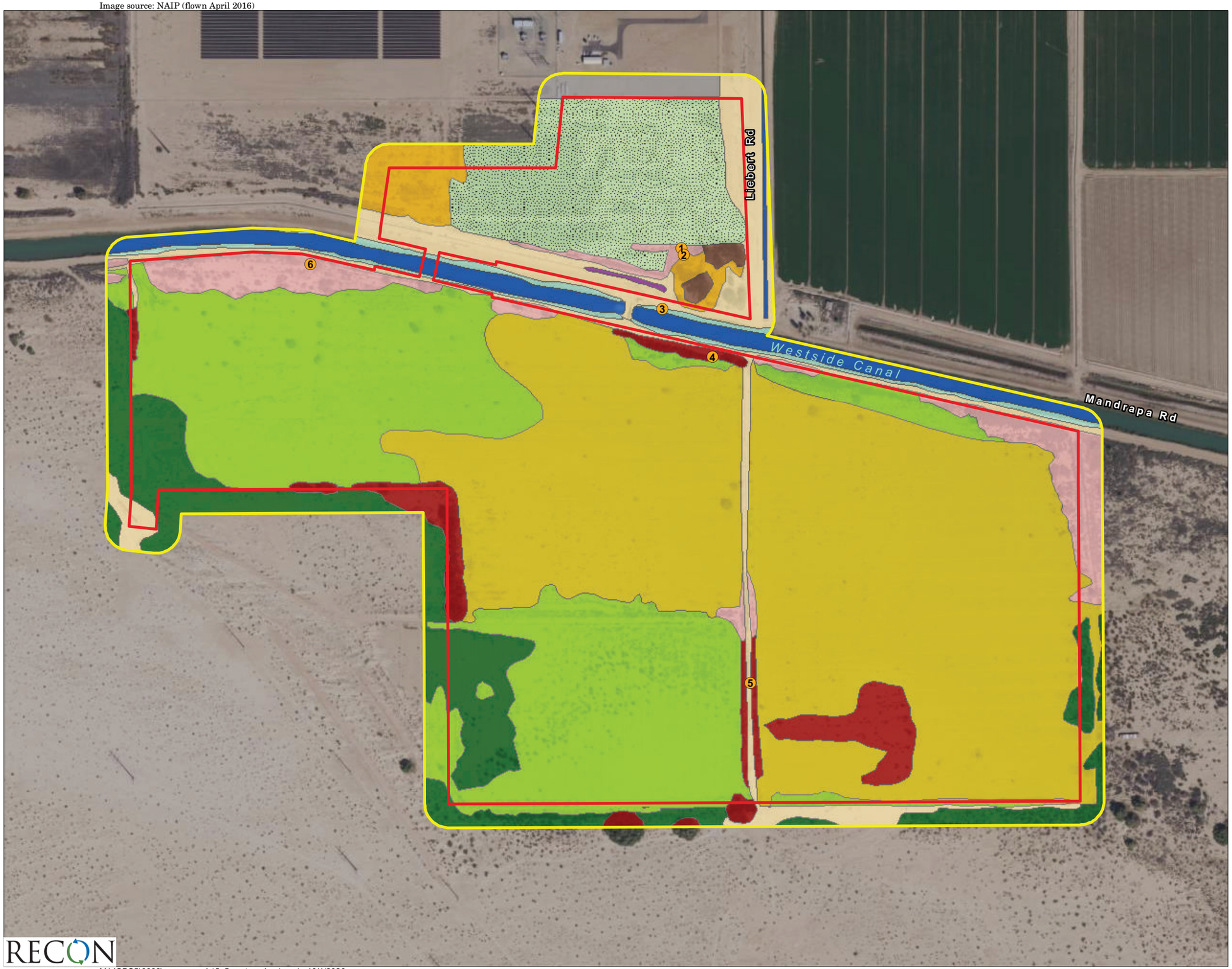
FIGURE 4

Project Location on Soils Map

Image source: NAIP (flown April 2016)



Project Boundary

Review Area

Sample Points

Vegetation Communities

- Arrow Weed Thickets
- Common Reed Marshes
- Cattail Marshes
- Creosote Bush Scrub
- Eucalyptus Groves
- Fourwing Saltbush Scrub
- Quailbush Scrub
- Tamarisk Thickets
- Upland Mustards

Land Cover Types

- Disturbed Habitat
- Fallow Agriculture
- Open Water
- Developed

0 Feet 400

RECON

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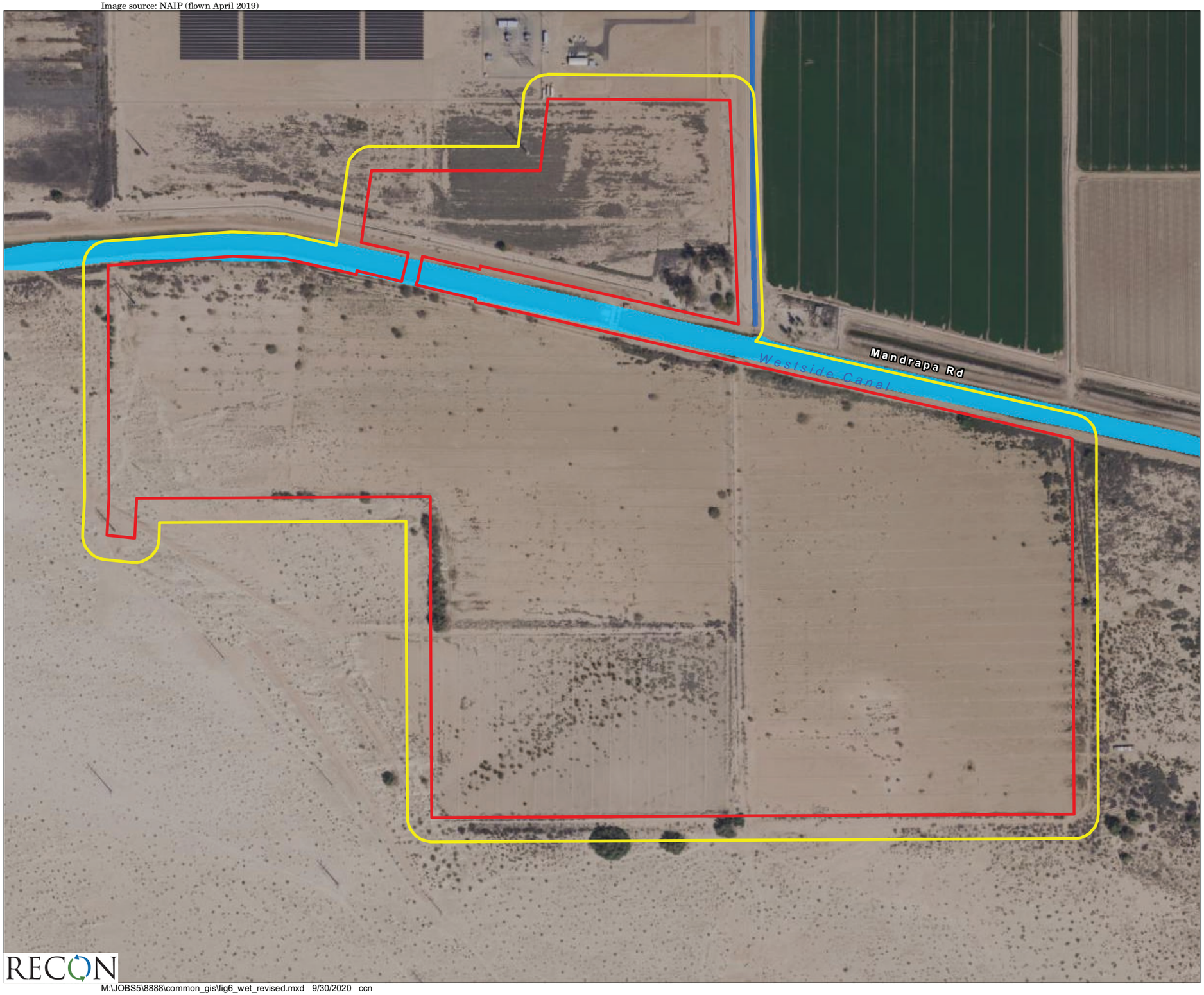
FIGURE 5
Vegetation Communities
within the Review Area

Image source: NAIP (flown April 2019)



Project Boundary

Review Area

National Wetlands Inventory

Riverine (R2UBHx)

Riverine (R4SBCx)

0 Feet 400

FIGURE 6

National Wetlands Inventory
within Review Area

RECON

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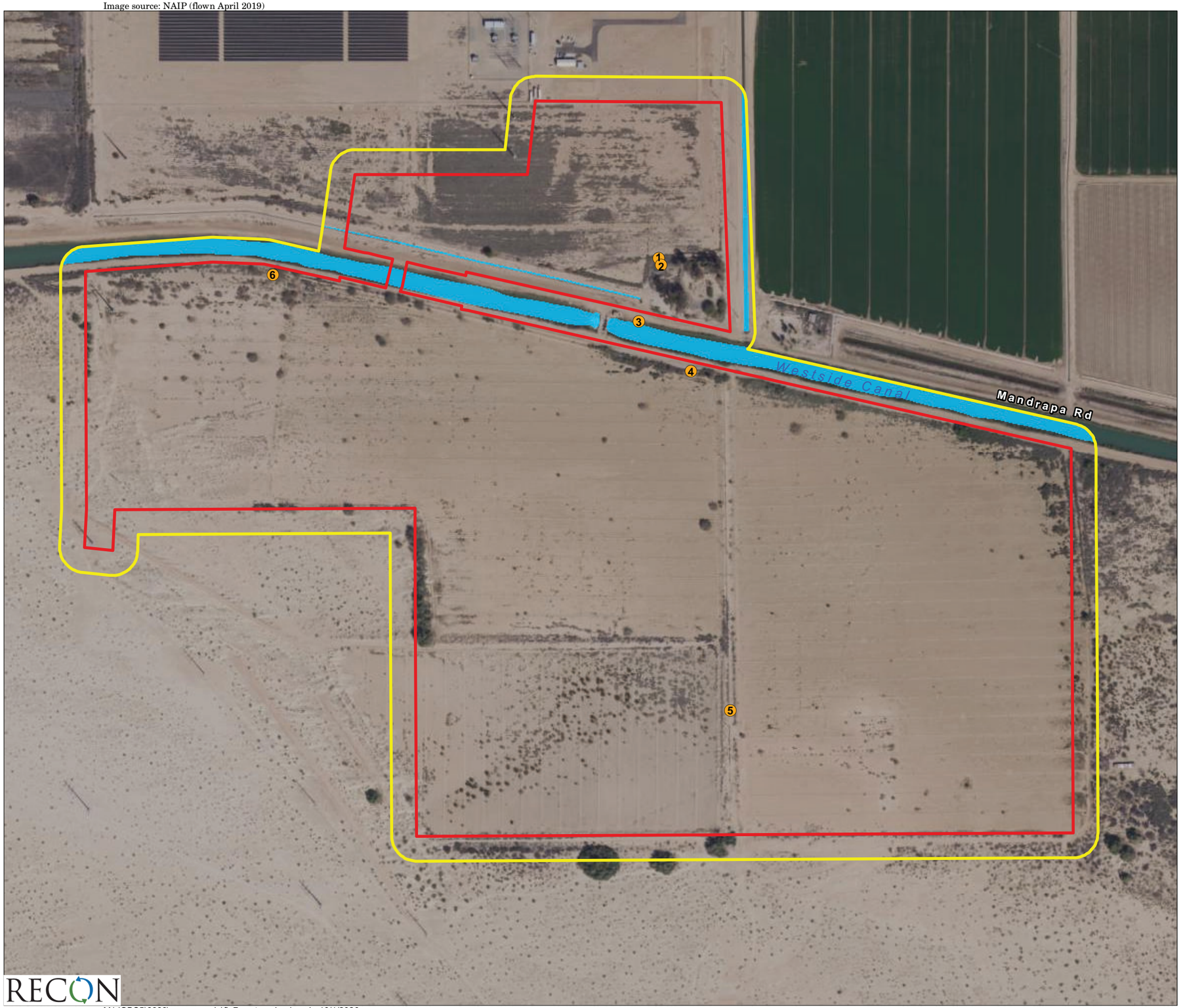
Image source: NAIP (flown April 2019)



Project Boundary

Review Area

Sample Points

Potential Non-wetland Waters of the U.S.

0 Feet 400

RECON

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FIGURE 7

Aquatic Resources Delineation

ATTACHMENT 2

Tables

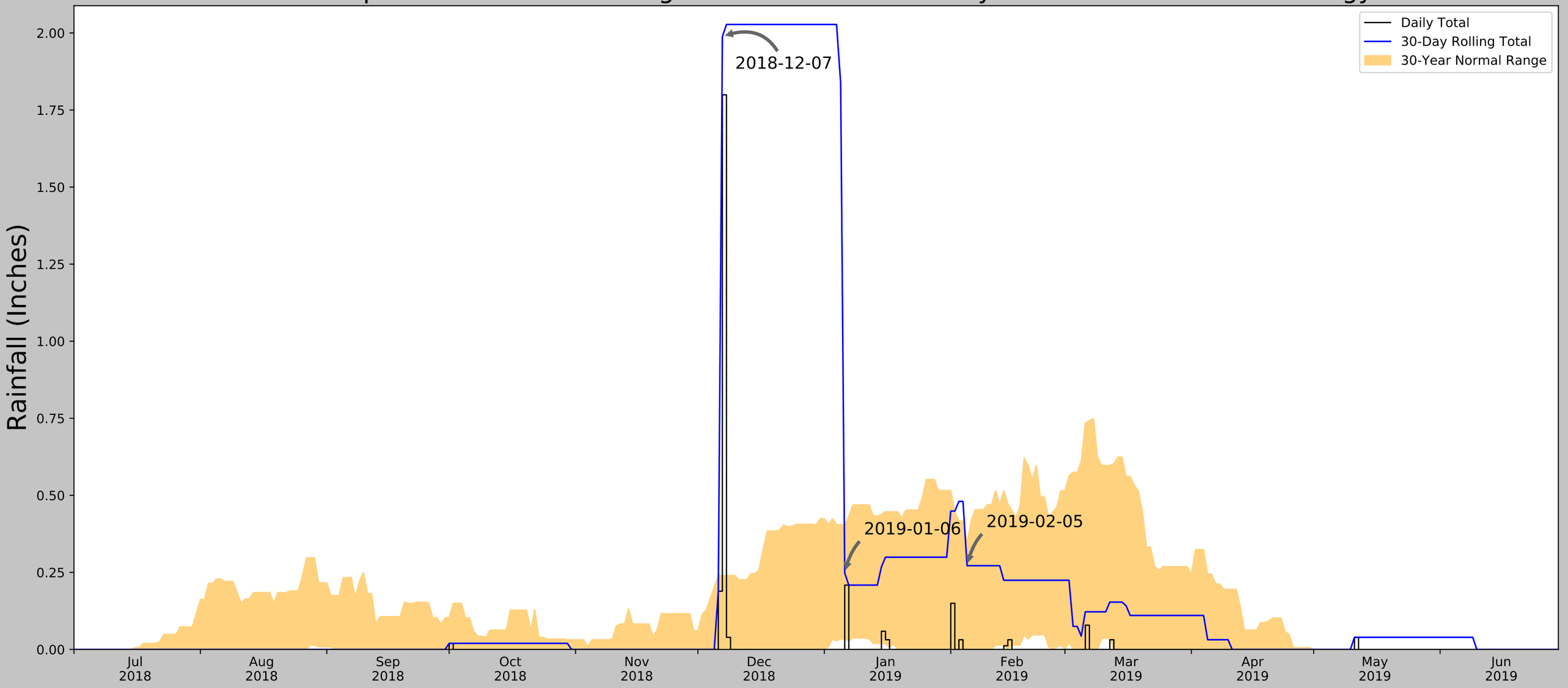
Attachment 2: Table 1 Vegetation Communities/Land Cover Types within the Review Area	
Community or Type	Acres
creosote bush scrub	16.19
fourwing saltbush scrub	50.25
quailbush scrub	3.48
arrow weed thickets	8.88
tamarisk thickets	6.60
common reed marshes	2.46
eucalyptus groves	0.58
cattail marshes	0.14
disturbed habitat	13.13
fallow agriculture	14.96
open water	5.85
developed land	1.63
upland mustards	75.66
Total	**200.52***
*Total acreage varies from sum of cells due to rounding.	

Attachment 2: Table 2 Summary of Aquatic Resources									
Waters ID	Cowardin Code	HGM Code	Area (acre)	Linear Feet	Waters Type	Latitude (dd NAD83)	Longitude (dd NAD83)	Local Waterway	Dominant Vegetation
NWW-01	R2UB	R	5.54	(4,200)	RPW	32.731609	-115.717145	Man-made Canal	unvegetated
NWW-02	R2	R	0.12	(1,300)	RPW	32.732202	-115.718308	Man-made Canal	unvegetated
NWW-03	R2	R	0.31	(975)	RPW	32.731513	-115.714205	Man-made Canal	unvegetated
R2UB = Unconcolidated Bottom, Lower Perennial, Riverine; R2 = Lower Perennial, Riverine; HGM = hydrogeomorphic; R = Riverine; RPW = Relatively Permanent Water									

ATTACHMENT 3

Antecedent Precipitation Tool Results

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	32.731666, -115.718854
Observation Date	2019-02-05
Elevation (ft)	-21.39
Drought Index (PDSI)	Mild wetness
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2019-02-05	0.0	0.345276	0.271654	Normal	2	3	6
2019-01-06	0.033465	0.404724	0.248032	Normal	2	2	4
2018-12-07	0.0	0.240157	1.988189	Wet	3	1	3
Result							Normal Conditions - 13

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days (Normal)	Days (Antecedent)
EL CENTRO 2 SSW	32.7669, -115.5617	-29.856	9.451	8.466	4.333	10859	77
EL CENTRO NAF	32.8167, -115.6833	-41.995	6.228	20.605	2.931	309	13
IMPERIAL CO AP	32.8342, -115.5786	-58.071	10.797	36.681	5.254	26	0
IMPERIAL	32.8489, -115.5667	-63.976	11.988	42.586	5.905	159	0

ATTACHMENT 4

Jurisdictional Waters Data Sheets

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Westside Canal Energy Center City/County: Imperial County Sampling Date: 2/5/2019

Applicant/Owner: ConEdison Clean Energy Businesses State: CA Sampling Point: 1

Investigator(s): Andrew Smisek Section, Township, Range: Section 34, Township 16 South, Range 12 East

Landform (hillslope, terrace, etc.): base of berm Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): D Lat: 32.73210876240 Long: -115.71532588300 Datum: UTM

Soil Map Unit Name: Vint Loamy Very Fine Sand NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? No Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes		No	X	

Remarks: This sample point occurs at the base of a berm within a dense patch of arrow weed north of the Westside Canal and a parallel active irrigation channel.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. *Pluchea sericea*	70	Yes	FACW
2.			
3.			
4.			
5.			
	70 = Total Cover		
Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

Prevalence Index is ≤3.0[1]

Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks: Arrow weed within this patch appears to follow the southern boundaries of an abandoned agriculture field where berms have been constructed north of the canal and irrigation channel.

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	7.5 YR 4/3	80					loamy sand	roots and dark organic inclusions occur as well
6-18	7.5 YR 4/3	90					loamy sand	small silica grains in matrix

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: no hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Westside Canal Energy Center City/County: Imperial County Sampling Date: 2/5/2019

Applicant/Owner: ConEdison Clean Energy Businesses State: CA Sampling Point: 2

Investigator(s): Andrew Smisek Section, Township, Range: Section 34, Township 16 South, Range 12 East

Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): D Lat: 32.73203015400 Long: -115.71529258200 Datum: UTM

Soil Map Unit Name: Vint Loamy Very Fine Sand NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? No Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes		No	X	

Remarks: Sample point occurs in small patch of quailbush north of the Westside Canal and a parallel active irrigation channel.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. *Atriplex lentiformis*	30	Yes	FAC
2. *Pluchea sericea*	2	No	FACW
3.			
4.			
5.			
	32 = Total Cover		
Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

Prevalence Index is ≤3.0[1]

Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks: The vegetation here occurs within an area surrounded by berms and just north of the canal and irrigation channels.

SOIL Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	7.5 YR 4/3	100					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Thin Muck Surface (C7)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Westside Canal Energy Center City/County: Imperial County Sampling Date: 2/5/2019

Applicant/Owner: ConEdison Clean Energy Businesses State: CA Sampling Point: 3

Investigator(s): Andrew Smisek Section, Township, Range: Section 34, Township 16 South, Range 12 East

Landform (hillslope, terrace, etc.): top of bank Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): D Lat: 32.73141170350 Long: -115.71558746800 Datum: UTM

Soil Map Unit Name: Vint Loamy Very Fine Sand NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? No Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes		No	X	

Remarks: Sample point occurs at top of north bank along Westside Canal within a patch of common reed marsh.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. *Phragmites australis*	50	Yes	FACW
2. *Pluchea sericea*	10	No	FACW
3. *Tamarix ramosissima*	2	No	FAC
4.			
5.			
	62 = Total Cover		
Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

Prevalence Index is ≤3.0[1]

Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks: Within patch of common reed marsh which extends down canal bank but stops at water level. Common reed marsh continues along both banks of the canal throughout the survey area.

SOIL Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-5	7.5 YR 4/3	100					sandy clay loam	
5-9	10 YR 6/3	100					sand	
9-18	7.5 YR 4/3	98	5 YR 4/6	2	C	M	sandy clay loam	some redox features observed

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No X

Remarks: Although some redox features were observed, they only occur below 9 inches in depth and the matrix chroma is 3. Does not meet criteria of any hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Thin Muck Surface (C7)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ____ Depth (inches): _____

Water Table Present? Yes ____ No ____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No ____ Depth (inches): _____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrology indicators were observed at the top of the canal bank where common reed marsh occurs.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Westside Canal Energy Center | City/County: Imperial County | Sampling Date: 2/5/2019

Applicant/Owner: ConEdison Clean Energy Businesses | State: CA | Sampling Point: 4

Investigator(s): Andrew Smisek | Section, Township, Range: Section 34, Township 16 South, Range 12 East

Landform (hillslope, terrace, etc.): ditch | Local relief (concave, convex, none): concave | Slope (%): 0-1

Subregion (LRR): D | Lat: 32.73085684430 | Long: -115.71490757200 | Datum: UTM

Soil Map Unit Name: Vint Loamy Very Fine Sand | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No | Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes		No	X	

Remarks: Sample point occurs within a ditch south of the Westside Canal along the boundary of an abandoned agriculture field.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Washingtonia robusta*	3	Yes	FACW
2.			
3.			
4.			
	3	= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1. *Tamarix ramosissima*	40	Yes	FAC
2. *Pluchea sericea*	20	Yes	FACW
3.			
4.			
5.			
	60	= Total Cover	
Herb Stratum (Plot size: ____)			
1. *Cryptantha angustifolia*	5	Yes	NI
2. *Sisymbrium sp.*	5	Yes	NI
3. *Schismus barbatus*	3	No	NI
4.			
5.			
6.			
7.			
8.			
	13	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 87 | % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

____ Prevalence Index is ≤3.0[1]

____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: The saltcedar individuals here are robust and this vegetation parallels the road and ditch along the south side of the canal.

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-18	7.5 YR 4/3	100					sand	organic litter on soil surface, soil moist from 0-9 inches

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: No hyric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Thin Muck Surface (C7)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Westside Canal Energy Center | City/County: Imperial County | Sampling Date: 2/5/2019

Applicant/Owner: ConEdison Clean Energy Businesses | State: CA | Sampling Point: 5

Investigator(s): Andrew Smisek | Section, Township, Range: Section 34, Township 16 South, Range 12 East

Landform (hillslope, terrace, etc.): base of berm | Local relief (concave, convex, none): none | Slope (%): 0-1

Subregion (LRR): D | Lat: 32.72710429080 | Long: | Datum: UTM

Soil Map Unit Name: Meloland Very Fine Sandy Loam | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? No Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?**	**Yes** **No** X
Hydric Soil Present?	Yes	No X		
Wetland Hydrology Present?	Yes	No X		

Remarks: Sample point occurs along the base of a berm on boundary of abandoned agriculture field.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. *Tamarix ramosissima*	30	Yes	FAC
2. *Pluchea sericea*	5	No	FACW
3.			
4.			
5.			
	35 = Total Cover		
Herb Stratum (Plot size:)			
1. *Cryptantha angustifolia*	2	Yes	NI
2. *Sisymbrium sp.*	1	Yes	NI
3.			
4.			
5.			
6.			
7.			
8.			
	3 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum | % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	5	x 2 =	10
FAC species	30	x 3 =	90
FACU species		x 4 =	
UPL species	3	x 5 =	15
Column Totals:	38 (A)		115 (B)

Prevalence Index = B/A = 3.02

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is ≤3.0[1]
- Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No X

Remarks: Tamarisk individuals here appear diminished and stressed. This vegetation extends along the base of the berm. Vegetation does not meet dominance test or prevalence index criteria.

SOIL Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	7.5 YR 4/3	100					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Thin Muck Surface (C7)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Westside Canal Energy Center City/County: Imperial County Sampling Date: 2/5/2019

Applicant/Owner: ConEdison Clean Energy Businesses State: CA Sampling Point: 6

Investigator(s): Andrew Smisek Section, Township, Range: Section 34, Township 16 South, Range 12 East

Landform (hillslope, terrace, etc.): ditch Local relief (concave, convex, none): concave Slope (%): 0-1

Subregion (LRR): D Lat: 32.73194547090 Long: -115.72037306600 Datum: UTM

Soil Map Unit Name: Vint And Indio Very Fine Sandy Loams, Wet NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? No Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No	X	**Is the Sampled Area within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes		No	X	

Remarks: Sample point occurs within a ditch south of the Westside Canal and adjacent road.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. *Pluchea sericea*	50	Yes	FACW
2. *Tamarix ramosissima*	10	Yes	FAC
3.			
4.			
5.			
	60 = Total Cover		
Herb Stratum (Plot size:)			
1. *Sisymbrium sp.*	2	Yes	NI
2. *Cryptantha angustifolia*	1	No	NI
3.			
4.			
5.			
6.			
7.			
8.			
	3 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 97 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

Prevalence Index is ≤3.0[1]

Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks: Arrow weed vegetation continues east-west paralleling the canal, road, and ditch.

SOIL Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	7.5 YR 4/3	100					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Thin Muck Surface (C7)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrology indicators observed.

ATTACHMENT 5

Ordinary High Water Mark Data Sheets

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Westside Canal Battery Storage Project
Project Number: 8888.1
Stream: Westside Canal
Investigator(s): Andrew Smisek
Date: February 5, 2019 **Time:** 1200
Town: Mt. Signal **State:** CA
Photo begin file#: **Photo end file#:**

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details: Where pipeline is exposed due to bank erosion and bank stabilization proposed.

Projection: Mercator **Datum:** WGS84
Coordinates: 32.731609, -115.717145

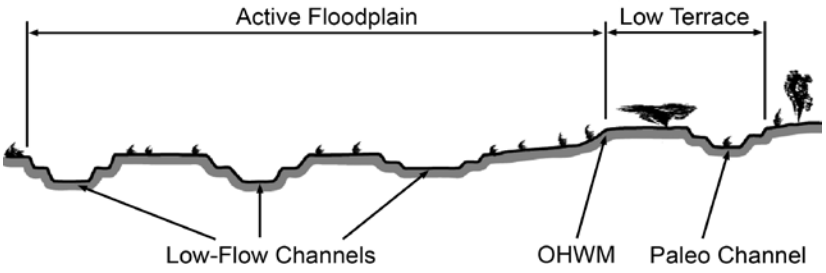
Potential anthropogenic influences on the channel system:
This canal has been manufactured for the purposes of delivering irrigation water to the surrounding agricultural land uses. Any vegetation that may develop within the canal is likely removed as part of regular maintenance. It was build with a natural bottom and steeply sloped banks of mostly rip rap rock.

Brief site description:
This sample transect occurs downstream of a drop structure that controls water flow and water levels within he canal. The active floodplain is approximately 90 feet in width and contains open water with sparse vegetation occurring at the top of the banks.

Checklist of resources (if available):

- [X] Aerial photography
  Dates:
- [ ] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
- [ ] History of recent effective discharges
- [ ] Results of flood frequency analysis
- [ ] Most recent shift-adjusted rating
- [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

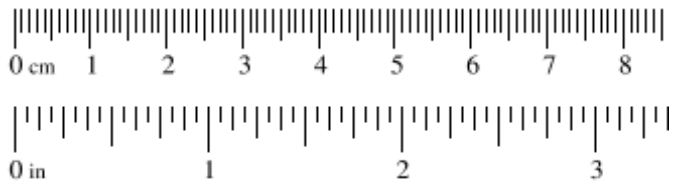


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [X] Mapping on aerial photograph
   - [X] Digitized on computer
   - [X] GPS
   - [ ] Other:

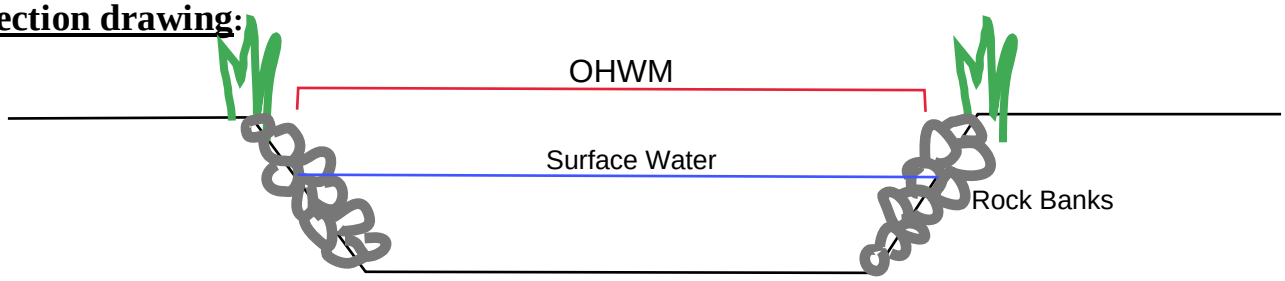
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: 8888.1 **Cross section ID:** 1 **Date:** February 5, 2019 **Time:** 1200

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☒ Break in bank slope
- ☒ Other: surface water
- ☒ Other: water staining

Comments:

The OHWM appears obvious at the water surface level where substantial water staining is present. The water levels within this canal appear to be maintained at a mostly consistent level.

Floodplain unit:

☒ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: 0 % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☒ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☒ Drift and/or debris
- ☒ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☒ Other: surface water
- ☒ Other: water staining
- ☐ Other: _____

Comments:

The active floodplain occurs below the OHWM which appeared obvious at the surface water level where substantial water staining is present. The canal was manufactured to have a bed and bank, and small drift deposits were observed.

Project ID: 8888.1 **Cross section ID:** 1 **Date:** February 5, 2019 **Time:** 1200

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: 35 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Common reed marshes occur as linear strips averaging between 5 and 10 feet in width along the tops of the banks of the Westside Canal, but not below the recorded OHWM.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Westside Canal Battery Storage Project
Project Number: 8888.1
Stream: Secondary Canal
Investigator(s): Andrew Smisek

Date: February 5, 2019 **Time:** 1230
Town: Mt. Signal **State:** CA
Photo begin file#: **Photo end file#:**

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details: Where pipeline is exposed due to bank erosion and bank stabilization proposed.

Projection: Mercator **Datum:** WGS84
Coordinates: 32.732202, -115.718308

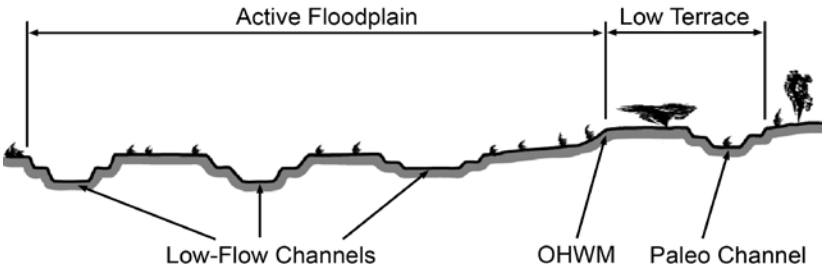
Potential anthropogenic influences on the channel system:
This secondary canal is concrete-lined and has been manufactured for the purposes of delivering irrigation water to the surrounding agricultural land uses. Any vegetation that may develop within the canal is likely removed as part of regular maintenance.

Brief site description:
This secondary canal is fed by the primary Westside Canal, is concrete lined, and approximately 4 feet in width.

Checklist of resources (if available):

- [X] Aerial photography
  Dates:
- [ ] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

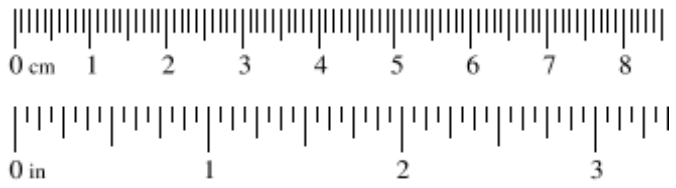


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [X] Mapping on aerial photograph
   - [X] Digitized on computer
   - [X] GPS
   - [ ] Other:

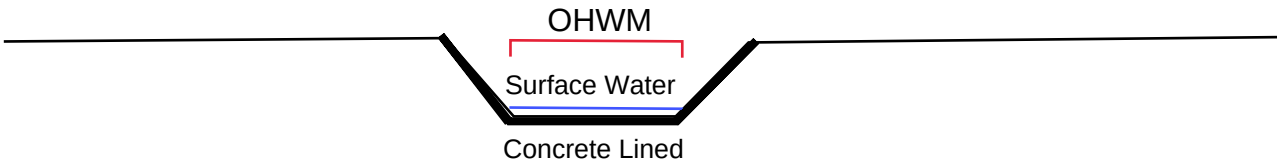
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: 8888.1 **Cross section ID:** 2 **Date:** February 5, 2019 **Time:** 1230

Cross section drawing:



OHWM

GPS point: _____ Surface Water

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☒ Break in bank slope
- ☒ Other: surface water
- ☒ Other: water staining

Comments:

The OHWM appears obvious at the water surface level where substantial water staining is present. The water levels within this secondary canal appear to be maintained at a mostly consistent level.

Floodplain unit:

☒ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: 0 % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☒ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☒ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☒ Other: surface water
- ☒ Other: water staining
- ☐ Other: _____

Comments:

The active floodplain occurs below the OHWM which appeared obvious at the surface water level where substantial water staining is present. The canal was manufactured to have a concrete bed and bank.

Project ID: 8888.1 **Cross section ID:** 2 **Date:** February 5, 2020 **Time:** 1230

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Unvegetated uplands occur outside this concrete lined secondary canal.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Westside Canal Battery Storage Project
Project Number: 8888.1
Stream: Secondary Canal
Investigator(s): Andrew Smisek

Date: February 5, 2019 **Time:** 1300
Town: Mt. Signal **State:** CA
Photo begin file#: **Photo end file#:**

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details: Where pipeline is exposed due to bank erosion and bank stabilization proposed.

Projection: Mercator **Datum:** WGS84
Coordinates: 32.731513, -115.714205

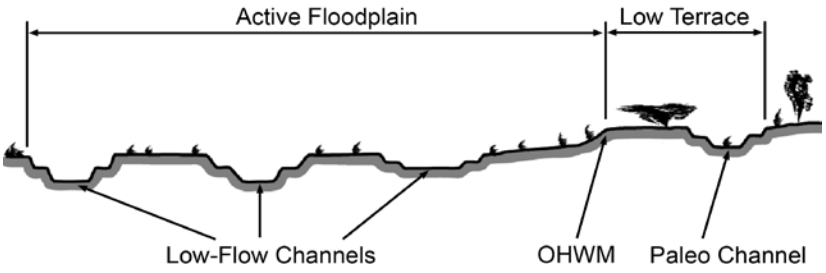
Potential anthropogenic influences on the channel system:
This secondary canal is concrete-lined and has been manufactured for the purposes of delivering irrigation water to the surrounding agricultural land uses. Any vegetation that may develop within the canal is likely removed as part of regular maintenance.

Brief site description:
This secondary canal is fed by the primary Westside Canal, is concrete lined, and approximately 15 feet in width.

Checklist of resources (if available):

- [X] Aerial photography
  Dates:
- [ ] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
- [ ] History of recent effective discharges
- [ ] Results of flood frequency analysis
- [ ] Most recent shift-adjusted rating
- [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

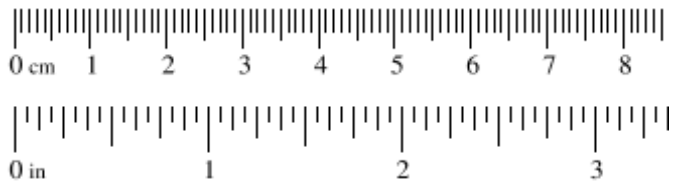


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [X] Mapping on aerial photograph
   - [X] Digitized on computer
   - [X] GPS
   - [ ] Other:

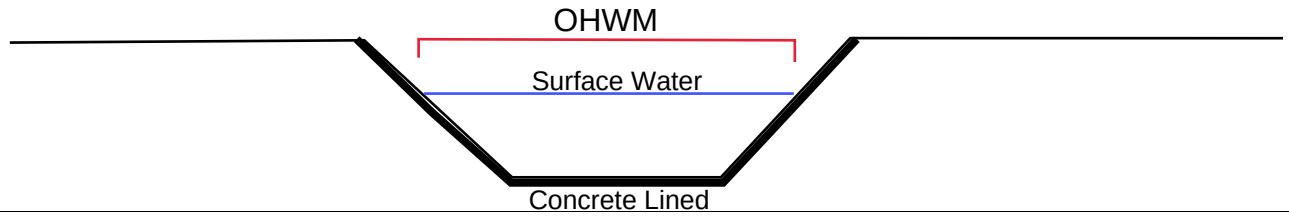
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: 8888.1 **Cross section ID:** 3 **Date:** February 5, 2019 **Time:** 1300

Cross section drawing:



OHWM

GPS point: _____ Surface Water

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☒ Break in bank slope
- ☒ Other: surface water
- ☒ Other: water staining

Comments:

The OHWM appears obvious at the water surface level where substantial water staining is present. The water levels within this secondary canal appear to be maintained at a mostly consistent level.

Floodplain unit: ☒ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: 0 % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☒ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☒ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☒ Other: surface water
- ☒ Other: water staining
- ☐ Other: _____

Comments:

The active floodplain occurs below the OHWM which appeared obvious at the surface water level where substantial water staining is present. The canal was manufactured to have a concrete bed and bank.

Project ID: 8888.1 **Cross section ID:** 3 **Date:** February 5, 2020 **Time:** 1300

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)

☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks ☐ Soil development

☐ Ripples ☐ Surface relief

☐ Drift and/or debris ☐ Other: _____

☐ Presence of bed and bank ☐ Other: _____

☐ Benches ☐ Other: _____

Comments:

Unvegetated uplands occur outside this concrete lined secondary canal.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)

☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks ☐ Soil development

☐ Ripples ☐ Surface relief

☐ Drift and/or debris ☐ Other: _____

☐ Presence of bed and bank ☐ Other: _____

☐ Benches ☐ Other: _____

Comments:

ATTACHMENT 6

Ground Level Color Photographs

PHOTOGRAPH 1
View of Quailbush Scrub in Northern Portion of Survey Area
at Sample Point 2, Facing South.

PHOTOGRAPH 2
View of Arrow Weed Thickets in Northern Portion of Survey Area
at Sample Point 1, Facing North.

PHOTOGRAPH 3
View of Athel Tamarisk Thickets in Southern Portion of Survey Area, Facing North.

PHOTOGRAPH 4
View of Common Reed Marshes Along Westside Canal, Facing West.

PHOTOGRAPH 5
View of East-west Concrete-lined Channel North of the Westside Canal, Facing East.

PHOTOGRAPH 6
View of Westside Canal, Facing West.

PHOTOGRAPH 7
View of North-south Concrete-lined Canal, Facing Northeast

ATTACHMENT 7

References Cited

References Cited

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1976 Mount Signal, California 7.5 Minute Topographic Map.

APPENDIX F – GEOLOGY AND SOILS

Preliminary Geotechnical Investigation

PRELIMINARY GEOTECHNICAL INVESTIGATION

October 29, 2018

Prepared For:

Sempra Renewables
Mr. Jim Pomillo, Manager, Project Development
488 8th Avenue
San Diego, California 92101

Westside Canal Energy Center
Imperial Valley, CA

NV5 PROJECT No.: 1076

NV5 West, Inc.
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Mr. Jim Pomillo
Sempra Renewables
488 8th Avenue
San Diego, California 92101

October 29, 2018
NV5 Project No: 1076

Subject: Preliminary Geotechnical Investigation Report

Project: Westside Canal Energy Center
Imperial Valley, California

Dear Mr. Pomillo:

As requested, NV5 is pleased to present the results of the preliminary geotechnical investigation for the subject project. The purpose of the investigation was to evaluate the subsurface conditions at the proposed Westside Canal Energy Center (WCEC) site located in the Imperial Valley area of Imperial County, California. It is understood that the site encompasses approximately 127 acres located on the south side of the Westside Main Canal, and approximately 2,000 feet north of the existing Imperial Valley Substation. It is understood that the project will include the WCEC Project Substation, the T.O. Interconnection Substation, solar photovoltaic arrays, battery storage, an operations and maintenance facility, and a bridge over the Westside Main Canal which will provide primary site access. Per NV5's proposal for geotechnical engineering services dated August 28, 2018, geotechnical design parameters for the proposed was excluded from the scope of this investigation and will be completed at a later date under a separate proposal. The results of the geotechnical field explorations, laboratory tests, and geotechnical engineering recommendations and conclusions are presented herewith.

Based on the subsurface exploration, subsequent testing of the subsurface soils, and engineering analyses, it was concluded that the construction of the proposed project is geotechnically feasible. The geotechnical information presented herein is intended to assist the project design team and construction contractor in their understanding of the geotechnical factors affecting the proposed project, and the preliminary recommendations will be incorporated into the project design and implemented construction.

The forthcoming project specifications, in particular the earthwork/compaction sections, should be reviewed by NV5 for consistency with this report prior to the bid process in order to avoid possible conflicts, misinterpretations, and inadvertent omissions. It should also be noted, that the applicability and final evaluation of the recommendations presented herein, are contingent upon construction phase field monitoring by NV5, in light of the widely acknowledged importance of geotechnical consultant continuity through the various design, planning and construction stages of a project.

NV5 appreciates the opportunity to provide this geotechnical engineering service for this project and looks forward to continuing its role as your geotechnical engineering consultant.

Respectfully submitted,

NV5 West, Inc.

Gene Custenborder, CEG 1319
Senior Engineering Geologist

REGISTERED GEOLOGIST
GENE CUSTENBORDER
No. 1319
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

Carlos Amante, GE 2724
Director of Geotechnical Services

REGISTERED PROFESSIONAL ENGINEER
CARLOS V. AMANTE
GE 2724
Expires 6/30/2020
GEOTECHNICAL
STATE OF CALIFORNIA

Carl Henderson, PhD, GE 2886
CQA Group Director (San Diego)

REGISTERED PROFESSIONAL ENGINEER
CARL FRANCISCO HENDERSON
No. 2886
GEOTECHNICAL
STATE OF CALIFORNIA

GC/CA/CH:ma

Distribution: (3) Addressee, (1) via email

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APPENDICES

1.0 INTRODUCTION

This report presents results of NV5's preliminary geotechnical investigation for the proposed Westside Canal Energy Center (WCEC) in Imperial Valley, California. The approximate location of the project area is shown on *Figure 1, Site Location Map*. The purpose of this study was to evaluate the subsurface conditions at the project site and to provide preliminary geotechnical recommendations for the design and construction of the proposed facility. This report summarizes the data collected and presents findings, conclusions, and preliminary recommendations.

This report has been prepared for the exclusive use of the client and their consultants to describe the geotechnical factors at the project site which should be considered in the design and construction of the proposed project. In particular, it should be noted that this report has not been prepared from the perspective of a construction bid preparation instrument and should be considered by prospective bidders only as a source of general information subject to interpretation and refinement by their own expertise and experience, particularly with regard to construction feasibility. Contract requirements as set forth by the project plans and specifications will supersede any general observations and specific recommendations presented in this report.

2.0 SCOPE OF SERVICES

NV5's scope of services for this project included the following tasks:

- Review of readily available background data, published geologic maps, topographic maps, seismic hazard maps and literature relevant to the subject site.
- Review of a preliminary project sketch provided by Sempra Renewables.
- Coordinating with entities having an interest in the field exploration activities including Sempra Renewables, the drilling subcontractor (Pacific Drilling), and Underground Service Alert (USA) for mark-out prior to site exploration.
- Conducting a subsurface investigation, which included the drilling, logging, and sampling of seven (7) exploratory borings located within the project area to a maximum depth of approximately 80 feet below ground surface (bgs). The original proposed scope of work included six (6) borings; however, an additional boring (B-1a) was performed adjacent to boring B-1 which was terminated due to drilling contractor's equipment issues. Soil samples obtained from the borings were transported to NV5's in-house laboratory for observation and testing.
- Performing laboratory testing on selected representative bulk and relatively undisturbed soil samples obtained during the field exploration program to evaluate their pertinent geotechnical engineering properties.
- Site electrical resistivity evaluation using the 4-pin Wenner method.
- Performing an assessment of general seismic conditions and geotechnical hazards affecting the area and potential impacts on the subject project.
- Engineering evaluation of the data collected to develop geotechnical design parameters and recommendations for the design of the proposed construction.

- Preparation of this report including reference maps and graphics, presenting findings, conclusions and geotechnical recommendations for the design and construction of the proposed project.

3.0 SITE AND PROJECT DESCRIPTION

The proposed WCEC site is located in the Imperial Valley area of Imperial County, California. The area in the immediate vicinity of the project limits, as shown on the conceptual site layout provided by Sempra Renewables, is relatively flat with a gentle gradient downward to the northeast. A graded agricultural pad in the south-central portion of the project site rests approximately 8 feet above the northern portion of the site. Elevations at the project site range from approximately 3 to 21 feet below mean sea level. The Westside Main Canal lies to the north of the site (refer to *Figure 2, Field Exploration Plan*). The property is currently undeveloped, was graded for agricultural use in the past, and is sparsely vegetated with weeds. Overhead electrical transmission lines and transmission towers are located immediately to the west and south of the site. The transmissions lines extend from the existing Imperial Valley Substation approximately 0.3 miles south of the WCEC.

Based on preliminary information provided by Sempra Renewables, it is understood that the proposed construction includes the WCEC Project Substation, the T.O. Interconnection Substation, solar photovoltaic arrays, battery storage, an operations and maintenance facility, and a bridge over the Westside Main Canal which will provide primary site access. Detailed site layout and construction plans had not been developed as of the date of this report.

4.0 FIELD EXPLORATION PROGRAM

Before starting NV5's field exploration program, Underground Service Alert was notified of the operations for underground utility marking at the locations of exploration. The subsurface conditions were explored from September 17 through October 2, 2018 by drilling, logging, and sampling of seven exploratory borings (B-1 and B-1a through B-6). The borings were drilled to maximum depths ranging between about 20 to 80 feet bgs by Pacific Drilling using a Unimog M-5 hollow stem auger drill rig and a Diedrich D-50 Turbo hollow stem auger and mud-rotary drill rig.

The borings were logged by an NV5 geologist. Representative samples of the soils encountered were obtained for visual soils classification and laboratory testing. The soil conditions encountered in the borings were visually examined, classified, and logged in general accordance with the Unified Soil Classification System (USCS). The logs of the exploratory test borings are presented in *Appendix A, Exploratory Boring Logs*. The approximate locations of the exploratory borings are presented on *Figure 2, Field Exploration Plan*. Subsequent to logging and sampling, the borings were backfilled.

The bulk and relatively undisturbed drive samples of the soils encountered in the borings were tagged in the field and transported to NV5's laboratory for observation and testing. The drive samples were obtained using the California Modified Split Spoon and Standard Penetration Test (SPT) samplers, as described below.

California Modified Split Spoon Sampler

The split barrel drive sampler was driven with a 140-pound hammer allowed to drop freely 30 inches in general accordance with ASTM D1587. The number of blows for the last two of three 6-inch intervals were recorded during sampling and are presented in the logs of borings. The sampler has external and internal diameters of approximately 3.0 and 2.4 inches, respectively, and the inside of the sampler is lined with 1-inch-long brass rings. The relatively undisturbed soil samples within the rings were removed, sealed, and transported to the laboratory for observation and testing.

Standard Penetration Test (SPT) Sampler

A split barrel sampler was driven with a 140-pound hammer allowed to drop freely 30 inches in general accordance with ASTM D1586. The numbers of blows for the last two of three 6-inch intervals were recorded during sampling and are presented in the logs of borings (i.e., N-value). The sampler has external and internal diameters of 2.0 and 1.375 inches, respectively. The soil samples obtained in the interior of the barrel were measured, removed, sealed and transported to the laboratory for observation and testing.

5.0 FIELD RESISTIVITY TESTING

On-site resistivity surveys were conducted from September 20 through September 21, 2018, in general accordance with ASTM Method G57. The locations of the aforementioned tests can be found on *Figure 2, Field Exploration Plan*. The surveys were conducted along two perpendicular lines with readings taken with electrode spacings of 2, 4, 6, 8, 12, 20, 30, 50, 100 and 200 feet. The resistivity testing services were provided by Southwest Geophysics, Inc. under subcontract agreement with NV5. Details of the resistivity surveys and test data are presented in *Appendix B, Field Resistivity Test Data*.

6.0 LABORATORY SOIL TESTING

Laboratory testing was performed on selected representative bulk and relatively undisturbed soil samples obtained from the exploratory borings, to aid in the material classifications and to evaluate engineering properties of the materials encountered (see *Appendix C, Laboratory Test Results*). The following tests were performed:

- In-situ density and moisture content (ASTM D2937 and ASTM D2216);
- Particle size analyses (ASTM D6913, ASTM D2487 and ASTM D1140);
- Direct shear (ASTM D3080);
- Expansion index (ASTM D4829);
- Atterberg Limits (ASTM 4318);
- Thermal Resistivity (ASTM D5334 and IEEE 442);
- R-Value (ASTM D2844); and

- Corrosivity test series including sulfate content, chloride content, pH-value, and resistivity (CTM 417, 422 and 532/643, respectively).

Testing was performed in general accordance with applicable ASTM standards, Institute of Electrical and Electronics Engineers (IEEE) standards, and California Test Methods. A summary of the laboratory testing program and the laboratory test results are presented in *Appendix C*.

7.0 GEOLOGY

7.1 GEOLOGIC SETTING

The project site is located in Imperial County in the southern portion of the Salton Trough, a structural depression within the Colorado Desert geomorphic province. This province is generally a low-lying barren desert basin (in part about 230 feet below mean sea level) dominated by the Salton Sea. The province is a depressed block between active branches of the San Andreas fault system. The fault branches are buried by recent alluvial deposits. The dominant structural features related to the San Andreas fault system consist of northwest-trending faults and fault zones. The major northwest-trending fault zones include the San Jacinto fault, Imperial fault, the Superstition Hills fault, the Elsinore fault and the San Andreas fault. The Salton Trough has been inundated during the Quaternary by an ancient freshwater lake (Lake Cahuilla) which resulted in a sequence of lacustrine (lake) deposits consisting of interbedded sand silt and clay. Remnants of the ancient shorelines of the extinct Lake Cahuilla remain prevalent in the Salton Trough.

7.2 SUBSURFACE CONDITIONS

Geologic materials encountered during the subsurface explorations consisted of natural deposits mapped as Quaternary-aged alluvial deposits and Cahuilla Beds (Qa-Qc, undifferentiated) on published geologic maps. *Figure 3, Regional Geologic Map* presents the general distribution of geologic units in the site area. As encountered in the borings, the soils ranged from tan to brown, dry to wet, stiff to hard lean clay and silt, and medium dense to very dense silty sand and poorly-graded sand with silt. Detailed descriptions of the earth materials encountered are presented on the boring logs in *Appendix A*.

7.3 GROUNDWATER

Groundwater was encountered in the exploratory borings at depths between approximately 9 and 19.1 feet bgs, and indicated in the following Table 1.

Table 1 - Depth to Groundwater as Measured in Each Boring

Boring Number	Depth to Groundwater
B-1	9.5 feet
B-1a	9.0 feet
B-2	12.0 feet
B-3	19.1 feet
B-4	Not encountered
B-5	14.0 feet
B-6	18.0 feet

Groundwater levels may vary due to seasonal fluctuations and factors such as a substantial increase in surface water infiltration from landscape irrigation, agricultural activity, storage facility leaks or unusually heavy precipitation. There is uncertainty in the accuracy of short-term groundwater level measurements, particularly in fine-grained soil. The groundwater level, as reported herein, should not be interpreted to represent an accurate or permanent condition. Seasonal variations in the groundwater levels should be anticipated.

7.4 FAULTS

The numerous faults in southern California include active, potentially active, and inactive faults. As used in this report, the definitions of fault terms are based on those developed for the *Alquist-Priolo Special Studies Zones Act of 1972* and published by the California Division of Mines and Geology (Hart and Bryant, 1997). Active faults are defined as those that have experienced surface displacement within Holocene time (approximately the last 11,000 years) and/or have been included within any of the state-designated Earthquake Fault Zones (previously known as *Alquist-Priolo Special Studies Zones*). Faults are considered potentially active if they exhibit evidence of surface displacement since the beginning of Quaternary time (approximately two million years ago) but not since the beginning of Holocene time. Inactive faults are those that have not had surface movement since the beginning of Quaternary time.

Review of geologic maps and literature pertaining to the general site area indicates that the site is not located within a state-designated Earthquake Fault Zone. Review of the *Earthquake Zones of Required Investigation, Mount Signal Quadrangle, California Geologic Survey, Official Map, dated September 12, 2012* indicates that the project site does not lie within an identified earthquake fault zone (see *Figure 5*). In addition, there are no known major or active faults mapped on the project site. Evidence for active faulting at the site was not observed during the subsurface investigation. The relative location of the site to known active faults in the region is depicted on *Figure 4, Regional Fault Map*. The distance from the site to the projection of traces of surface rupture along major active earthquake fault zones, that could affect the site are listed in the following Table 2.

Table 2 - Distance From the Site to Major Active Faults

Fault Name	Distance From the Site
Route 247 fault zone	1.3 miles
Yuha fault	3.7 miles
North Centinela fault	4.4 miles
Yuha Well fault	5.7 miles
Laguna Salada fault	8.4 miles
Superstition Hills fault	9.7 miles
San Jacinto fault	10.9 miles
Imperial fault	14.7 miles
Elsinore fault	17.2 miles
Elmore Ranch fault	22.3 miles
San Andreas fault	42.7 miles
Earthquake Valley fault	46.9 miles
Algodones fault zone	68.8 miles
Newport Inglewood-Rose Canyon fault	83.9 miles
Palos Verdes-Coronado Bank fault	85.8 miles
Burnt Mountain fault	91.9 miles
Eureka Peak Fault	92.4 miles
Pinto Mountain fault	95.9 miles

8.0 SEISMIC AND GEOTECHNICAL HAZARDS

The principal seismic considerations for most facilities in southern California are damage caused by surface rupturing of fault traces, ground shaking, seismically induced ground settlement and liquefaction. Potential impacts to the project due to faulting, seismicity and other geologic hazards are discussed in the following sections.

8.1 FAULT RUPTURE

The project site is not located within an *Earthquake Fault Zone* delineated by the State of California for the hazard of fault surface rupture. The surface traces of known active or potentially active faults are not known to pass directly through the site. The Alquist-Priolo (AP) mapped Route 247 fault zone is located approximately 1.3 miles to the west but does not trend towards the Site. The Alquist-Priolo (AP) mapped Northern Centinela fault zone is located approximately 3.3 miles to the south and trends towards the Site. It should be noted that ground surface rupture due to a seismic event may occur in areas where no evidence of ground rupture had been previously noted. However, based on the distance to the mapped trace of the faults and the distance to other faults in the vicinity of the site, the potential for damage due to surface rupture due to faulting at the project site is considered low.

8.2 SEISMIC SHAKING

The project site is located in southern California, which is considered a seismically active area, and as such, the seismic hazard most likely to impact the site is ground shaking resulting from an earthquake

along one of the known active faults in the region. The seismic design of the project may be performed using seismic design recommendations in accordance with the 2016 California Building Code (CBC).

Preliminary seismic parameters were developed for the project site based on the 2016 California Building Code (CBC) and ASCE 7-10 guidance document. Using the USGS Ground Motion Parameter Online Calculator (https://earthquake.usgs.gov/designmaps/us/application.php) based on the following site coordinates: Latitude = 32.729506 degrees, and Longitude = -115.715528 degrees. The earthquake hazard level of the Maximum Considered Earthquake (MCE) is defined in ASCE 7-10 as the ground motion having a probability of exceedance of 2 percent in 50 years. The preliminary seismic design parameters for the project site are presented in Table 3 below.

Table 3 - Recommended 2016 CBC Seismic Design Parameters

Design Parameter	Recommended Value	Reference
Seismic Use Group	III	CBC Table 1604.5
Site Class	D	ASCE 7-10 Section 11.4.2
Mapped Spectral Accelerations for short periods, S_S	1.50g	ASCE 7-10 Section 11.4.3
Mapped Spectral Accelerations for 1-sec period, S_1	0.60g	ASCE 7-10 Section 11.4.3
Short-Period Site Coefficient, F_a	1.0	ASCE 7-10 Section 11.4.3
Long-Period Site Coefficient, F_v	1.5	ASCE 7-10 Section 11.4.3
(1) MCE_R (5% damped) spectral response acceleration for short periods adjusted for site class, S_{MS}	1.50g	ASCE 7-10 Section 11.4.3
(1) MCE_R (5% damped) spectral response acceleration at 1-second period adjusted for site class, S_{M1}	0.90g	ASCE 7-10 Section 11.4.3
Design spectral response acceleration (5% damped) at short periods, S_{DS}	1.00g	ASCE 7-10 Section 11.4.3
Design spectral response acceleration (5% damped) at 1-second period, S_{D1}	0.60g	ASCE 7-10 Section 11.4.3
Seismic Design Category	D	ASCE 7-10 Section 11.6
(2) MCE_G Peak Ground Acceleration adjusted for site class effects, PGA_M	0.50g	ASCE 7-10 Section 11.8.3

(1) MCE_R = Risk-adjusted Maximum Considered Earthquake
(2) MCE_G = Geometric-mean Maximum Considered Earthquake

8.3 LIQUEFACTION AND SEISMICALLY-INDUCED SETTLEMENT

Liquefaction and dynamic settlement of soils can be caused by ground shaking during earthquakes. Dynamic settlement due to earthquake shaking can occur in both dry or unsaturated and saturated sands. Research and historical data indicate that loose, relatively clean granular soils are susceptible to liquefaction and dynamic settlement, whereas the stability of the majority of clayey silts, silty clays and clays is not adversely affected by ground shaking. Liquefaction is generally known to occur in saturated loose cohesionless soils at depths shallower than approximately 50 feet. The potential for liquefaction under the same conditions of ground shaking intensity and duration will decrease for sands that are more well-graded, irregular, gritty, coarser and denser. Also, a pronounced decrease in liquefaction potential will occur with the increase in fine-grained (i.e., silt and clay) content and plasticity of the soil. Idriss and Boulanger (2008) have suggested that soils with plasticity index of greater than 7 may be considered non-liquefiable.

The potential consequences of liquefaction to engineered structures include loss of bearing capacity, buoyancy forces on underground structures (including pipelines), increased lateral earth pressures on retaining walls, and lateral spreading.

The project site is underlain by poorly to moderately consolidated alluvial materials. The subsurface exploration program encountered poorly to moderately consolidated alluvial silt, clay and silty sand, along with a relatively shallow ground water table. A simplified liquefaction analysis was performed using the liquefaction triggering analysis procedure proposed by Boulanger and Idriss (2014) and the CGS SP-117 procedures using the Standard Penetration Test (SPT) data from borings B-1/B-1A and B-6, and historical high groundwater level of 5 feet below ground surface. A peak ground acceleration (PGA) of 0.5g for geometric-mean MCE (see Table 2) and earthquake moment magnitude of 6.5 based on the results of deaggregation analysis using the USGS online tools were used in liquefaction analysis. The analysis results are presented in *Appendix D, Liquefaction Analysis Results* and summarized in the following paragraphs. The analyses indicate that minor liquefaction effects are expected at the site due to presence of few isolated saturated medium dense sand layers present between depths of 15 and 50 feet bgs. Secondary effects of liquefaction, including seismic settlement and lateral spreading are discussed below.

- *Seismic Settlement*: Seismically-induced ground settlement can occur with or without liquefaction which results from densification of loose soils as a result of strong seismic ground shaking. Seismic settlement includes both settlement of liquefied soil layers and settlement of non-liquefied, unsaturated, loose sandy sediments. The methods by Ishihara and Yoshimine (1992) to were used estimate liquefaction-induced seismic settlement and Pradel (1998) to estimate dry or unsaturated seismic settlement. The analyses indicate that the site is not susceptible to liquefaction. However, the total seismic settlement expected at the site is on the order of ¼-inch.

- *Lateral Spreading*: Seismically-induced lateral spreading involves primarily lateral movement of earth materials due to ground shaking in conjunction with liquefaction. Lateral spreading can manifest as near-vertical cracks with predominantly horizontal movement of the soil mass involved towards an adjacent open slope face. Lateral spreading occurs when there is widespread liquefaction and a gentle slope, or a free face toward which lateral spreading may occur. The potential for lateral spreading in the area adjacent to the canal free face was analyzed using data from boring B-1/B-1A and the method proposed by Zhang et al. (2004).

The results indicate low potential for lateral spreading due to absence of widespread liquefaction and relatively shallow depth of the canal compared to the depth of liquefiable soil layers.

8.4 LANDSLIDES AND SLOPE INSTABILITY

There are no high or steep natural slopes on or in close proximity to the project site. Based on the investigation, there appears to be no indications of landslides or deep-seated instability at the site. It is NV5's opinion that the potential damage to the planned facilities due to landsliding or slope instability is considered low.

8.5 SUBSIDENCE

The Imperial Valley is a region generally known for historic ground subsidence. The subsidence has been attributed to regional geologic processes and to fluid withdrawal associated with geothermal production. Most of the subsidence is tectonic in nature and the broad Salton Trough basin has been subsiding for at least the past 35 million years. Historic soil subsidence due to groundwater withdrawal associated with geothermal production has also been documented. The subsidence occurs when groundwater (near the surface or in a deep aquifer) is lowered past its historical level. This occurrence results in an increase of effective stress within a soil layer which typically translates into additional soil consolidation. Due to the depth of the reservoir, subsidence is not localized. Considering the distance to the geothermal production areas to the project site, and that ground subsidence in the Imperial Valley is occurring on a regional and not local level ground subsidence at the site is not expected to create significant differential settlement conditions. Therefore, potential for damaging localized differential settlement from fluid withdrawal subsidence is considered low.

8.6 TSUNAMIS, INUNDATION SEICHES, AND FLOODING

The site and surrounding areas are at an approximate elevation of 3 to 21 feet below mean sea level, the site is approximately 92 miles from the Gulf of California. Therefore, tsunamis (seismic sea waves) are not considered a hazard at the site.

The site is not located near to or downslope of, any large body of water that could affect the site in the event of an earthquake-induced failure or seiche (oscillation in a body of water due to earthquake shaking). The Salton Sea is located approximately 25 miles to the north of the site; therefore, seiches are not considered a hazard at the site.

8.7 EXPANSIVE SOILS

Improvements including foundations and slabs in contact with earth materials with a high potential for expansion can be expected to be subject to distress based on the potential for volume change associated with highly expansive soil. Soils such as these should not be relied upon for foundation bearing.

The project site is underlain predominantly by poorly to moderately consolidated alluvial materials consisting of sandy silt to clay, silty sand and poorly-graded sand with silts. Three tested samples of the near-surface silt and clay soils indicate medium to high expansion potential with an Expansion Index (EI) of 54 to 106. These materials are generally considered unsuitable for use as backfill for

structure foundations, retaining walls or pipe bedding. Since site grading will redistribute on-site soils, potential expansive soil properties should be verified at the completion of rough grading.

9.0 CONCLUSIONS AND DESIGN RECOMMENDATIONS

9.1 GENERAL

Based on the available geologic data, known active or potentially active faults with the potential for surface fault rupture are not known to exist beneath the site. Accordingly, the potential for surface rupture at the site due to faulting is considered low during the design life of the proposed structure. Although the site could be subjected to strong ground shaking in the event of an earthquake, this hazard is common in southern California and the effects of ground shaking can be mitigated if the structure is designed and constructed in conformance with current building codes and engineering practices.

The near-surface soils in the upper 3 to 5 feet were found to be generally desiccated and considered moderately compressible. The near-surface soils have an expansion potential that ranges from medium to high. These soils are considered unsuitable for re-use as compacted fill and backfill. To provide a uniform support for the new structures and surface improvements, it is recommended that these materials be overexcavated and replaced with properly compacted, non-expansive granular fill.

Based on the results of field exploration, laboratory testing, and engineering evaluation and analyses, the proposed construction is considered geotechnically feasible, provided the recommendations contained herein are incorporated into the project plans and specifications and implemented during construction.

9.2 EARTHWORK AND GRADING

Site grading should be performed in accordance with the following recommendations and the *Typical Earthwork Guidelines* provided in *Appendix E*. In the event of conflict, the recommendations presented herein supersede those of *Appendix E*.

- Clearing and Grubbing: Prior to grading, the project area should be cleared of significant surface vegetation, demolition rubble, trash, pavement, debris, etc. Any buried organic debris or other unsuitable contaminated material encountered during subsequent excavation and grading work should also be removed. Removed material and debris should be properly disposed of offsite. Holes resulting from removal of buried obstruction which extend below finished site grades should be filled with properly compacted soils. Any utilities within the footprint of planned structural improvements should be appropriately abandoned.

- Site Grading: Areas to receive surface improvements or fill soils should be treated as follows:
    - Removals Below Proposed New Structures: To provide a uniform bearing condition below the new structures and surface improvements, the existing soils underlying the proposed structures should be completely excavated to a minimum depth of 3 feet below the bottom of foundations. The excavation should extend laterally a distance of at least 5 feet beyond the footprint of the proposed structure. The soils exposed in the bottom of the excavation should be moisture conditioned and uniformly recompacted to at least

90 percent of the soils maximum density (based on ASTM D1557). A cut-fill transition condition should not be allowed underlying proposed structures.

- Excavatability: Based on the subsurface exploration, it is anticipated that the on-site soils can be excavated by modern conventional heavy-duty excavating equipment in good operating condition.

- Structural Fill Placement: Areas to receive fill and/or surface improvements should be scarified to a minimum depth of 6 inches, brought to near-optimum moisture conditions, and compacted to at least 90 percent relative compaction, based on laboratory standard ASTM D1557. Fill soils should be brought to within 2 percent over optimum moisture content and compacted in uniform lifts to at least 90 percent relative compaction (ASTM D1557). Rocks with a maximum dimension greater than 4 inches should not be placed in the upper 3 feet of pad grade. The optimum lift thickness to produce a uniformly compacted fill will depend on the size and type of construction equipment used. In general, fill should be placed in uniform lifts not exceeding 8 inches in loose thickness. Placement and compaction of fill should be observed and tested by the geotechnical consultant.

- Graded Slopes: Graded slopes should be constructed at a gradient of 2:1 (H:V) or flatter. To reduce the potential for surface runoff over slope faces, cut slopes should be provided with brow ditches and berms should be constructed at the top of fill slopes.

- Paved Areas, Flatwork and Trash Enclosures: The soils in proposed paved areas, flatwork, and trash enclosures should be excavated to a minimum depth of one (1) foot below the proposed subgrade elevation, moisture conditioned, and uniformly recompact to at least 90 percent of the soils maximum dry density (based on ASTM D1557). This treatment should extend a horizontal distance of at least one (1) foot beyond the outside perimeter.

- Import Soils: Import soils should be sampled and tested for suitability by NV5 prior to delivery to the site. Imported fill materials should consist of clean granular soils free from vegetation, debris, or rocks larger than 3 inches in maximum dimension. The Expansion Index value should not exceed a maximum of 20 (i.e., essentially non-expansive).

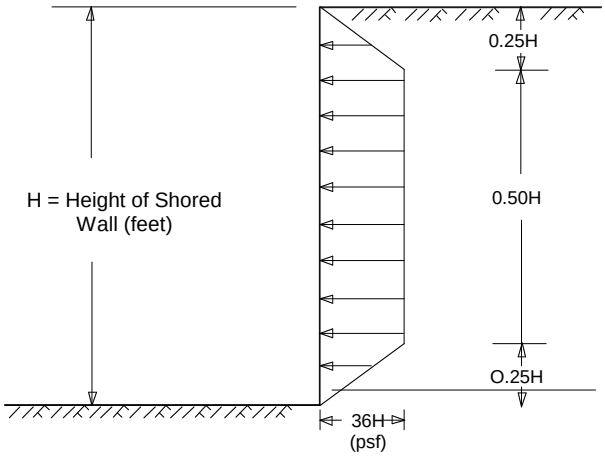
9.3 TEMPORARY EXCAVATIONS AND SHORING

Temporary, shallow excavations with vertical side slopes less than 4 feet high will generally be stable, although there is a potential for localized sloughing. In these soil types, vertical excavations greater than 4 feet high should not be attempted without proper shoring to prevent local instabilities. Stockpiled (excavated) materials should be placed no closer to the edge of a trench excavation than a distance defined by a line drawn upward from the bottom of the trench at an inclination of 1H:1V, but no closer than 4 feet. All trench excavations should be in accordance with Cal-OSHA regulations. For planning purposes, the native soil materials may be considered as Type B, as defined in the current Cal-OSHA soil classification.

Although not anticipated, in the event of possible applicability, temporary shoring may be accomplished by several methods including: hydraulic shores and trench plates; trench boxes; And

soldier piles and lagging. For vertical excavations less than about 15 feet in height, cantilevered shoring may be used. Cantilevered shoring may also be used for deeper excavations; however, the total deflection at the top of the wall should not exceed one-inch. Therefore, shoring of excavations deeper than about 15 feet may need to be accomplished with the aid of tied back earth anchors. The excavation support system should be designed to resist lateral earth pressures of the soil and hydrostatic pressures. Preliminary design of cantilevered temporary shoring, a triangular distribution of lateral earth pressure may be used. It may be assumed that the subgrade soils, with a level surface behind the cantilevered shoring, will exert an equivalent fluid pressure of 37 pcf.

Tied-back or braced shoring should be designed to resist a trapezoidal distribution of lateral earth pressure. The recommended pressure distribution, for the case where the grade is level behind the shoring, is illustrated in the following diagram with the maximum pressure equal to 36H in psf, where H is the height of the shored wall in feet.



Any surcharge (live, including traffic, or dead load) located within a 1H:1V plane drawn upward from the base of the shored excavation should be added to the lateral earth pressures. The vertical loads imposed by existing structures, if any, should be determined by the structural engineer. The lateral load contribution of a uniform surcharge load located across the 1:1 (H:V) zone behind the excavation may be calculated in accordance with *Figure 5, Lateral Surcharge Loads*. Lateral load contributions of surcharges located at a distance behind the shored wall should be provided by NV5 once the load configurations and layouts are known. As a minimum, a 2-ft equivalent soil surcharge is recommended to account for nominal construction loads.

The actual shoring design should be provided by a registered civil engineer in the State of California experienced in the design and construction of shoring under similar conditions. Once the final excavation and shoring plans are complete, the plans and the design should be reviewed by NV5 for conformance with the design intent and geotechnical recommendations. The shoring system should further satisfy requirements of Cal-OSHA.

9.4 DEWATERING

Groundwater was encountered at depths between approximately 9 to 19.1 feet below the existing ground surface. The groundwater table is subject to fluctuations in response to a number of factors. If

necessary, the actual means and methods of any dewatering scheme should be established by a contractor with local experience. It is important to note that temporary dewatering, if necessary, will require a permit and plan that complies with RWQCB regulations. If excessive water is encountered, NV5 should be contacted to provide additional recommendations for temporary construction dewatering. Any cases of localized seepage or heavy precipitation should be monitored during construction. Based on the subsurface exploration the onsite soils maybe considered to be relatively permeable.

9.5 TRENCH BOTTOM STABILITY

The bottom of onsite excavations will likely expose poorly to moderately consolidated alluvial silt, lean clay, silty sand and poorly-graded sand. As long as excavations do not extend below the water table, these soils should provide a suitable base for construction of pipelines. For the design of flexible conduits, a modulus of soil reaction (E'), of 400 pounds per square inch is recommended. If these soils become wet or saturated they may be prone to settlement due to construction activities such as placement and compaction of backfill soils. Buried improvements underlain by these soils could also be damaged or subjected to unacceptable settlement due to subsidence of these soils. If wet or unusually soft conditions are encountered in the trench bottom, the bottom of the excavations will need to be stabilized. A typical stabilization method includes overexcavation of the soft or saturated soil and replacement with properly compacted fill, gravel or lean concrete to form a "mat" or stable working surface in the bottom of the excavation. There are other acceptable methods that can be implemented to mitigate the presence of compressible soils or unstable trench bottom conditions, and specific recommendations for a particular alternative can be discussed based on the actual construction techniques and conditions encountered.

9.6 BACKFILL PLACEMENT AND COMPACTION

The majority of the on-site soils should generally be suitable for use as trench backfill material if free of deleterious materials and brought to near-optimum moisture conditions (either by wetting or drying as-necessary). Trench backfill should be compacted in uniform lifts (not exceeding 6 inches in compacted thickness) by mechanical means to at least 90 percent relative compaction (ASTM D1557). There should be sufficient clearance along the side of the utility pipe or line to allow for compaction equipment. The pipe bedding shall be compacted under the haunches and alongside the pipe.

Imported backfill should consist of granular, non-expansive soil with an Expansion Index (EI) of 20 or less and should not contain any contaminated soil, expansive soil, debris, organic matter, or other deleterious materials. The Sand Equivalent (SE) of the imported material shall be 20 or greater. Import material should be evaluated for suitability by the geotechnical consultant prior to transport to the site.

The upper 12 inches of subgrade soil and all rock base should be compacted to at least 95 percent. The moisture content of the backfill should be maintained within 2 percent of optimum moisture content during compaction. All backfill should be mechanically compacted. Flooding or jetting is not recommended and should not be allowed.

9.7 BUILDING AND SUBSTATION FOUNDATIONS

Foundations for proposed building and substation structures should be founded entirely on at least 3 feet of compacted essentially non-expansive granular fill prepared in accordance with Section 8.2. Recommendations for the design and construction of foundation system are presented below.

9.7.1 Design Parameters

Recommended shallow foundation design parameters are presented in Table 4. Footings should be designed and reinforced in accordance with the recommendations of the structural engineer and should conform to the latest edition of the California Building Code.

Table 4
Geotechnical Design Parameters For Shallow Foundations

Foundation Dimensions	Continuous or spread foundations at least 12 inches in width and embedded at least 18 inches below the lowest adjacent grade. Concrete mat slabs with a minimum thickness of 12 inches should be founded a minimum of 24 inches below the lowest adjacent grade.
Allowable Bearing Capacity (dead-plus-live load)	2,000 pounds per square foot (psf), which may be increased by 300 psf for each additional foot of width and by 100 psf for each additional foot of depth to a maximum of 4,000 psf. This assumes that foundations are founded on at least 3 feet of essentially non-expansive granular fill. A one-third (1/3) increase is allowed for wind or seismic loads.
Reinforcement	Reinforce in accordance with requirements as provided by the project Structural Engineer.
Allowable Coefficient of Friction	0.30 0.10 in the event a vapor barrier is used.
Allowable Lateral Passive Resistance (Equivalent Fluid Pressure)	250 pounds per cubic foot (pcf) per foot of depth. A one-third (1/3) increase in passive resistance value may be used for wind and seismic loads. The total allowable lateral resistance may be taken as the sum of the frictional resistance and the passive resistance, provided that the passive bearing resistance does not exceed one-half (1/2) of the total allowable lateral passive resistance.

Note: The above parameters assume level ground or sloping no steeper than 5H:1V.

9.7.2 Settlement

Estimated settlements will depend on the foundation size and depth, and the loads imposed and the allowable bearing values used for design. For preliminary design purposes, the total static settlement for foundations loaded to accordance with the allowable bearing capacities recommended above is estimated to be less than 1 inch. Differential static settlements are anticipated to be 0.5 inch or less.

9.7.3 Foundation Observation

To verify the presence of satisfactory materials at design elevations, footing excavations should be observed to be clean of loosened soil and debris before placing steel or concrete and probed for soft areas. If soft or loose soils or unsatisfactory materials are encountered, these materials should be removed and may be replaced with a two-sack, sand-cement slurry or structural concrete. Footing excavations should be deepened as necessary to extend into satisfactory bearing materials; however, NV5 should be notified to approve the proposed change.

9.7.4 Interior Concrete Slabs-on-Grade

Interior concrete slabs-on-grade may be supported at grade on compacted fill with very low to low expansion potential. For design of these concrete slabs, a modulus of subgrade reaction (k) of 150 pci may be used. Floor slabs should be designed and reinforced in accordance with the structural engineer's recommendations. NV5 recommends that interior floor slabs be at least 4 inches thick with a water cement ratio of 0.50 or less. Near surface groundwater is not expected and groundwater is not anticipated to adversely impact the structural performance of the floor slabs. However, in areas where slabs will be covered with moisture-sensitive flooring, it is common practice to place a capillary break consisting of at least 4 inches of free draining crushed gravel on the finished subgrade soil that, in turn, is overlain by a flexible sheet membrane, such as Stego Wrap™, Moistop Plus™, or an equivalent meeting the requirements of ASTM E1745-09, that serves as a water and/or moisture vapor retarder. The crushed gravel should be graded so that 100 percent passes the 1-inch sieve and less than 5 percent passes the No. 4 sieve. Care should be taken to properly place, lap, and seal the membrane in accordance with the manufacturer's recommendations to provide a vapor tight barrier. Tears and punctures in the membrane should be completely repaired prior to placement of concrete. The upper 12 inches of subgrade soil located below the vapor retarder should be moisture-conditioned within 2 percent over the optimum moisture content, and compacted to a minimum of 90 percent relative compaction (ASTM D1557).

At a minimum, slabs should be reinforced with No. 4 reinforcing bars spaced at 18 inches on-center, each way, placed in the middle one-third of the section, to help control shrinkage cracking of concrete. Reinforcement should be properly placed and supported on "chairs". Welded wire mesh is not recommended. The concrete reinforcement and joint spacing should conform to the minimum requirements of the American Concrete Institute (ACI) section 302.1R and established by the project structural engineer.

9.7.5 Exterior Concrete Slabs-on-Grade

Exterior concrete flatwork should have a minimum concrete thickness of 4 inches. Concrete slabs should be supported on at least 4 inches of Class 2 aggregate base compacted to at least 95 percent of the maximum dry density. The upper 12 inches of subgrade soil located below the aggregate base

should be moisture-conditioned within 2 percent over the optimum moisture content, and recompacted to a minimum of 90 percent relative compaction (ASTM D1557).

The driveway slab areas and connecting sidewalks should have a minimum concrete thickness of 6 inches. The driveway concrete slab should be underlain by at least 6 inches of Class 2 aggregate base compacted to at least 95 percent of the maximum dry density. The upper 12 inches of subgrade soil located below the aggregate base should be reconditioned to achieve a moisture content within 2 percent over the optimum moisture content, and recompacted to a minimum of 95 percent relative compaction (ASTM D1557).

For exterior concrete flatwork, it is recommended that narrow strip concrete slabs, such as sidewalks, be reinforced with at least No. 3 reinforcing bars placed longitudinally at 36 inches on-center. Wide exterior slabs should be reinforced with at least No. 3 reinforcing bars placed 36 inches on-center, each way. The reinforcement should be extended through the control joints to reduce the potential for differential movement. Control joints should be constructed in accordance with recommendations from the structural engineer or architect.

9.8 SOLAR ARRAY FOUNDATIONS

Solar array panels and attached devices may be supported on short driven steel posts or drilled concrete piers. Preliminary design parameters and recommendations for solar array foundations provided in the following sections.

9.8.1 Driven Steel Posts

Preliminary axial and lateral pile capacities of W6x9 and W6x15 driven steel posts embedded at depths of 6, 8 and 10 feet below ground surface are presented in Table 5. Due to corrosive nature of native soils, special provisions for corrosion protection of the steel posts will be required.

Table 5 – Preliminary Axial and Lateral Capacities of Driven Steel Posts

Parameter	W6x9 Driven Steel Post			W6x15 Driven Steel Post		
Specified Embedment Depth (ft)	6	8	10	6	8	10
Height Above Ground (ft)	4	4	4	4	4	4
Total Length (ft)	10	12	14	10	12	14
Allowable Axial Capacity (kips) for Factor of Safety, FS = 2.5	4.0	5.3	6.6	4.9	6.5	8.1
Allowable Uplift Capacity (kips) for Factor of Safety, FS = 2.5	2.8	3.8	4.7	3.4	4.6	5.7
Lateral Capacity for ½-inch Free-Head Deflection (kips)	1.4	1.4	1.4	2.2	2.2	2.2
Maximum Bending Moment (ft-kips)29.1	6.6	6.6	6.6	10.3	10.3	10.3
Depth to Maximum Bending Moment from Top of Post (ft)	5.0	5.0	5.0	5.15	5.15	5.15

9.8.2 Drilled Concrete Piers

Equation 18-1 in Section 1807.3.2.1 of the 2016 California Building Code provides the formula for minimum embedment depth of a drilled concrete post required to resist lateral loads where no lateral constraint is present at or above the ground surface. The formula for the minimum embedment depth is as follows:

$$d = 0.5\ A\ \{1 + [1 + (4.36\ h/A)]^{1/2}\}$$

where:

d = Embedment depth in *feet* but not over 12 feet for purpose of computing lateral pressure.

A = 2.34 P/(S_1 b)

P = Applied lateral force in *pounds.*

S_1 = Allowable lateral soil bearing pressure as given in Section1806.2 based on a depth of one-third the depth of embedment in *pounds per square foot (psf)*.

b = Diameter of concrete pier in *feet*.

h = Vertical distance in *feet* from ground surface to point of application of "P".

The short pier foundation may be designed using an allowable soil bearing pressure of 2,000 psf when embedded in the native soils.

9.9 RETAINING WALLS

Retaining walls should be designed in accordance with the following recommendations and design parameters presented herein.

- Bearing Capacity - The proposed wall may be supported on continuous footings bearing on dense natural soils or properly compacted fill soils at a minimum depth of 18 inches beneath the lowest adjacent grade. At this depth, footings may be designed for an allowable soil-bearing pressure of 2,000 psf. This value may be increased by one-third for loads of short duration, such as wind or seismic forces.

- Lateral Earth Pressures - Based on laboratory test results and encountered soil conditions, the recommended lateral earth pressures for preliminary design of flexible retaining walls supported on shallow foundations are summarized in the following Table 6.

Table 6 - Recommended Lateral Earth Pressures

Parameter	Recommended Values				
	Level Backfill	5H:1V Slope	4H:1V Slope	3H:1V Slope	2H:1V Slope
Static Active Earth Pressure (P_a)	37H	43H	45H	49H	62H
Static At-Rest Earth Pressure (P_o)	60H	72H	75H	79H	87H
Seismic Earth Pressure (P_e)	23H	26H	27H	30H	38H
Coefficient of Friction (μ) for Lateral Resistance of Footing	0.35	N/A	N/A	N/A	N/A
Passive Earth Pressure (P_p) for Lateral Resistance of Footing	250H	N/A	N/A	N/A	N/A

Notes:

1. All values of height (H) are in feet (ft) and pressure (P) in pounds per square feet (psf).
2. Seismic earth pressure (P_e) is in addition to the static active or at-rest pressure, P_a and P_o which should be distributed as an inverted triangle along the wall height and the resultant of this pressure is an increment of force which should be applied to the back of the wall in the upper one-third (1/3) of the wall height and may also be applied as a reduction of force to the front of the wall in the upper one-third (1/3) of the footing depth.
3. The above pressure values do not include hydrostatic pressures that might be caused by groundwater or water trapped behind the structure.
4. The pressures listed in the table were based on the assumption that backfill soils will be compacted to 90 percent of maximum dry density (per ASTM D1557).
5. The coefficient of friction (μ) should be applied to dead normal (buoyant) loads when evaluating the sliding frictional resistance.
6. A resistance factor of 0.5 has been applied to the passive earth pressure and may be combined with the sliding frictional resistance using a resistance factor of 0.80. Neglect the upper 6 inches for passive pressure unless the surface is contained by a pavement or a slab. The passive earth pressure should not exceed a maximum value of 3,000 psf.
7. In addition to the above-mentioned pressures, retaining walls must be designed to resist horizontal pressures that may be generated by surcharge loads applied at the ground surface such as from uniform loads or vehicle loads. Figure 5 may be used to evaluate these surcharge loads.

- Drainage and Waterproofing - Retaining walls should be properly drained, and if desired, appropriately waterproofed. Adequate backfill drainage is essential to provide a free-drained backfill condition and to reduce the potential for the development of hydrostatic pressure buildup behind walls. Drainage behind the retaining walls may be provided with geosynthetic drainage composite such as TerraDrain, MiraDrain, or equivalent, placed continuously along the back of the wall and connected to a 4-inch-diameter perforated pipe. The pipe should be sloped at least 2 percent and surrounded by 3 cubic feet per foot of ¾-inch crushed rock wrapped in suitable non-woven filter fabric (Mirafi 140N or equivalent) or Caltrans Class 2 permeable granular filter materials without filter fabric. The crushed rock should meet the requirements defined in Section 200-1.2 of the latest edition of the Standard Specification for

Public Works Construction (Greenbook). These drains should be connected to an adequate discharge system.

In lieu of a perforated drainage pipe and connection to an existing drainage system, weep holes or open vertical masonry joints may be provided in the lowest row of block exposed to the air to reduce the buildup of hydrostatic pressure behind the wall. Weep holes should be a minimum of three inches in diameter and provided at intervals of at least every six feet along the wall. Open vertical masonry joints should be provided at a minimum of 32-inch intervals. A continuous gravel fill, a minimum of one cubic foot per foot should be placed behind the weep holes or open masonry joints. The gravel should be wrapped in filter fabric (Mirafi 140N or equivalent). To prevent efflorescence at the face of the wall, the wall may also be appropriately waterproofed. Waterproofing treatments and alternative, suitable wall drainage products are available commercially. Design of waterproofing and its protection during construction should be addressed by the project design professional.

- Retaining Wall Backfill Compaction - Retaining wall backfill material should be non-expansive (E.I. of 20 or less) and free draining. Backfill should be brought to near-optimum moisture conditions and compacted by mechanical means to at least 90 percent relative compaction (ASTM D1557). Care should be taken when using compaction equipment in close proximity to retaining walls so that the walls are not damaged by excessive loading.

9.10 PAVEMENTS

Design of asphalt concrete pavement sections depends primarily on support characteristics (strength) of soil beneath the pavement section and on cumulative traffic loads within the service life of the pavement. Strength of the pavement subgrade is represented by R-value test data. R-value tests were performed on representative samples of the near-surface soil. The results yielded R-values ranging from 5 (lean clay) and 57 (silty sand). A summary of the test is included in Appendix C.

Traffic loads within service life of a pavement are represented by a Traffic Index (TI), which is calculated based on anticipated traffic loads and on the projected number of load repetitions during the design life of the pavement. The design TI value should be verified by the project Civil/Traffic Engineer prior to construction.

Preliminary pavement section recommendations were developed using a design R-value of 5 and maximum Traffic Index (TI) = 6 assumed for light auto parking and drive lanes and TI = 8 for fire lanes. Based on these design parameters, analysis in accordance with California Department of Transportation (Caltrans) Highway Design Manual, and assuming compliance with site preparation recommendations, NV5 recommends the flexible and rigid structural pavement sections presented in the following Table 7.

Table 7 - Recommended Pavement Sections (Design R-value = 5)

Location	Alternative 1		Alternative 2	
	Hot-Mix Asphalt (HMA)	Aggregate Base (AB)	Jointed Plain Portland Cement Concrete (JPCP)	Aggregate Base (AB)
Light Auto Parking and Drive Lanes	4.0	12.0	5.0	4.0
Fire Lanes	8.0	12.0	6.0	4.0

Assuming that the near-surface on-site soils will be thoroughly mixed and compacted during grading operations, it is recommended that R-value testing be performed on representative soil samples after rough grading operations on the upper 2 feet to confirm applicability of the above pavement sections. If the paved areas are to be used during construction, or if the type and frequency of traffic is greater than assumed in the design, the pavement section should be re-evaluated for the anticipated traffic.

The upper 12 inches of subgrade soils should be compacted to a minimum dry density of 95 percent of the material's maximum dry density as determined by the ASTM D1557 test procedure. The aggregate base should conform to Class II aggregate base in accordance with Section 400.2.3 of the 2009 Regional Supplement to Greenbook Standard Specifications for Public Works Construction. The base course should also be compacted to a minimum dry density of 95 percent. Field and laboratory testing should be used to check compaction, aggregate gradation, and compacted thickness.

The asphalt pavement should be compacted to 95 percent of the unit weight as tested in accordance with the Hveem procedure (ASTM D1560). The maximum lift thickness should be 4.0 inches. The asphalt material shall conform to Type III, Class B2 or B3 of the Standard Specifications for Public Works Construction and the supplement. An approved mix design should be submitted 30 days prior to placement. The mix design should include proportions of materials, maximum density and required lay-down temperature range. Field and lab testing should be used to verify oil content, aggregate gradation, compaction, compacted thickness, and lay-down temperature.

Control joints are required for the Portland cement concrete pavement (rigid) at a maximum of 15 feet spacing each way and should be constructed immediately after concrete finishing.

The performance of pavements is highly dependent upon providing positive surface drainage away from the edge of the pavement. The ponding of water on or adjacent to pavement areas will likely cause failure of the subgrade and resultant pavement distress. Where planters are proposed, the perimeter curb should extend at least 6 inches below the subgrade elevation of the adjacent pavement. In addition, experience indicates that even with these provisions, a saturated subgrade condition can develop as a result of increased irrigation, landscaping and surface runoff. A subdrain system should be considered along the perimeter of pavement subgrade areas to reduce the potential of this condition developing. The subdrain system should be designed to intercept irrigation water and surface runoff prior to entry into the pavement subgrade and carry the water to a suitable outlet.

9.11 SOIL CORROSION

The corrosion potential of the on-site materials to steel and buried concrete was evaluated. Laboratory testing was performed on selected soil samples to evaluate pH, minimum resistivity, and chloride and soluble sulfate content. Table 8 below, presents the results of the corrosivity testing.

Table 8 - Corrosivity Test Results

Test Location	Depth (feet)	Material Type	Percent Finer Than No. 200	pH	Minimum Resistivity (ohm-cm)	Water Soluble Sulfate Content (ppm)	Water Soluble Chloride Content (ppm)
B-3	3 - 5	Silty Sand	40.4	9.3	820	420	130
B-6	1 - 3	Fat Clay	Not Tested	8.5	120	2310	2140

General recommendations to address the corrosion potential of the on-site soils are provided below. If additional recommendations are desired, it is recommended that a corrosion specialist be consulted.

Caltrans Corrosion Guidelines dated March 2018 considers a site to be corrosive if one or more of the following conditions exist for the representative soil samples taken at the site:

> *Chloride concentration is 500 ppm or greater, sulfate concentration is 1500 ppm or greater, or the pH is 5.5 or less*

Based on experience and the Caltrans Corrosion Guidelines, some of the site soils are considered corrosive to steel and concrete foundation elements based on sulfate and chloride test results.

As indicated in the 2006 edition (second edition) of "Corrosion Basics - An Introduction", a general guideline for soil resistivity and corrosion-severity ratings is presented in Table 9 below.

Table 9 - Corrosivity Test Results

Soil Resistivity	Corrosivity
<1,000 ohm-cm	Extremely Corrosive
1,000 to 3,000 ohm-cm	Highly Corrosive
3,000 to 5,000 ohm-cm	Corrosive
5,000 to 10,000 ohm-cm	Moderately Corrosive
10,000 to 20,000 ohm-cm	Mildly Corrosive
>20,000 ohm-cm	Essentially Noncorrosive

Soil resistivity is not the only parameter affecting the risk of corrosion damage; and a high soil resistivity will not guarantee the absence of serious corrosion. For example, the American Water Works Association (AWWA) has developed a numerical soil-corrosivity scale, applicable to cast-iron alloys. The soil resistivity test results suggest the potential for soils to be extremely corrosive to ferrous pipes.

Any imported soils should be evaluated for corrosion characteristics if they will be in contact with buried or at-grade structures and appropriate mitigation measures should be included in the structure design. It is recommended that a corrosion specialist be contacted to determine if mitigation measures are necessary.

10.0 DESIGN REVIEW AND CONSTRUCTION MONITORING

Geotechnical review of plans and specifications is of paramount importance in engineering practice. The poor performance of many pipelines has been attributed to inadequate geotechnical review of construction documents. Additionally, observation and testing of the backfill, subgrade and base will be important to the performance of the proposed improvements. The following sections present NV5's recommendations relative to the review of construction documents and the monitoring of construction activities.

10.1 PLANS AND SPECIFICATIONS

The design plans and specifications will be reviewed and approved by NV5 prior to construction, as the geotechnical recommendations may need to be re-evaluated in the light of the actual design configuration. This review is necessary to evaluate whether the recommendations contained in this report and future reports have been properly incorporated into the project plans and specifications.

10.2 CONSTRUCTION MONITORING

Site preparation, removal of unsuitable soils, assessment of imported fill materials, backfill placement, and other earthwork operations should be observed and tested. The substrata exposed during the construction may differ from that encountered in the test borings. Continuous observation by a representative of NV5 during construction allows for evaluation of the soil/rock conditions as they are encountered and allows the opportunity to recommend appropriate revisions where necessary.

11.0 LIMITATIONS

The recommendations and opinions expressed in this report are based on NV5's review of background documents and on information developed during this study. It should be noted that this study did not evaluate the possible presence of hazardous materials on any portion of the site. More detailed limitations of this geotechnical study are presented in the GBC's information bulletin in *Appendix F*.

Due to the limited nature of the field explorations, conditions not observed and described in this report may be present on the site. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluation and laboratory testing can be performed upon request. It should be understood that conditions different from those anticipated in this report may be encountered during the proposed structure construction operations.

Site conditions, including ground-water level, can change with time as a result of natural processes or the activities of man at the subject site or at nearby sites. Changes to the applicable laws, regulations, codes, and standards of practice may occur as a result of government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which NV5 has no control.

NV5's recommendations for this site are, to a high degree, dependent upon appropriate quality control of subgrade preparation, fill/backfill placement, etc. Accordingly, the recommendations are made contingent upon the opportunity for NV5 to observe grading operations and foundation excavations for the proposed construction. If parties other than NV5 are engaged to provide such services, such parties must be notified that they will be required to assume complete responsibility as the geotechnical engineer of record for the geotechnical phase of the project by concurring with the recommendations in this report and/or by providing alternative recommendations.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. NV5 should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document.

NV5 has endeavored to perform this study using the degree of care and skill ordinarily exercised under similar circumstances by reputable geotechnical professionals with experience in this area in similar soil/rock conditions. No other warranty, either expressed or implied, is made as to the conclusions and recommendations contained in this study.

12.0 SELECTED REFERENCES

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FIGURES

Reference: Google Earth 2018

N

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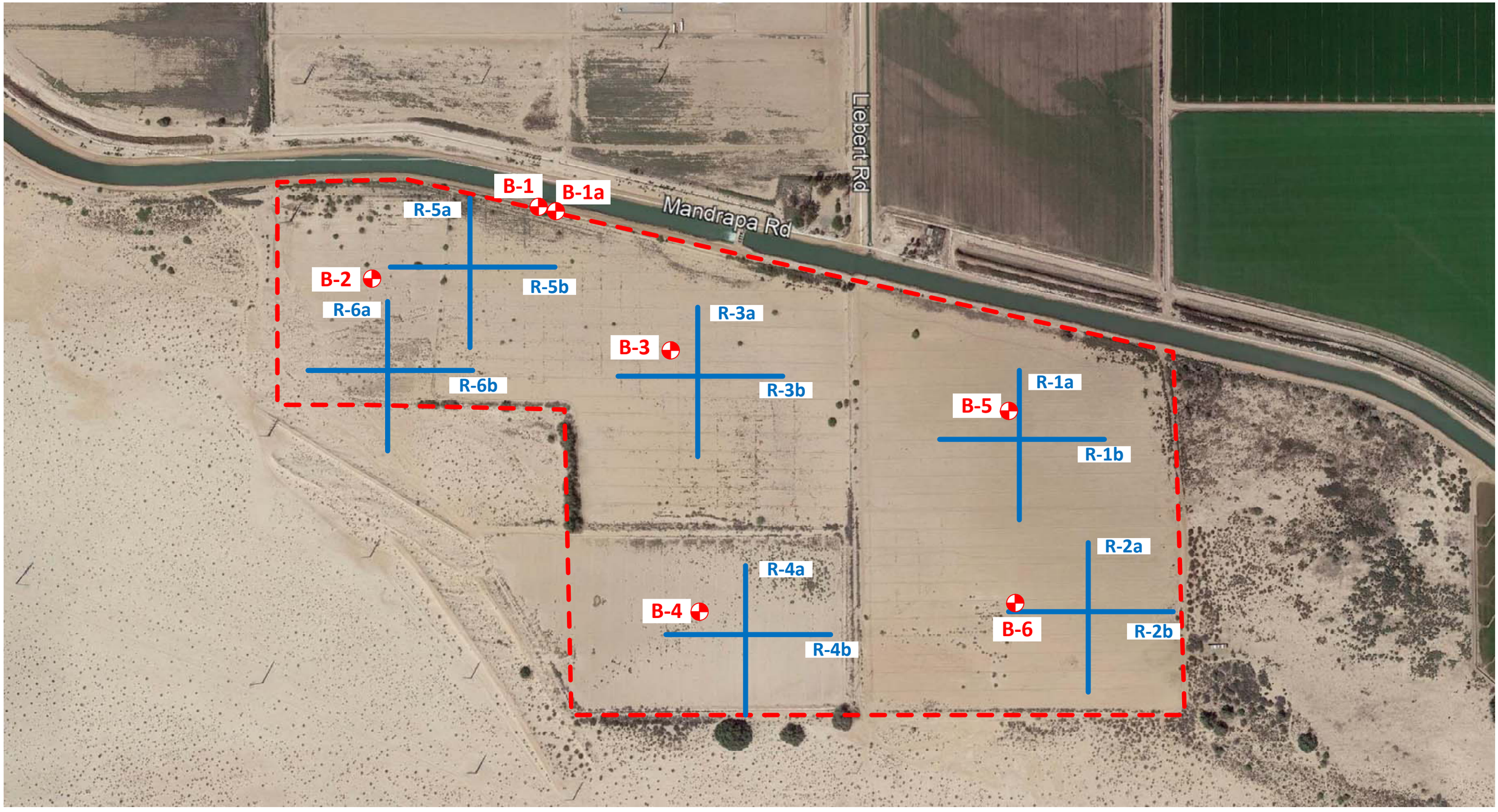
Date: **September 2018**

Site Location Map
Sempra Renewables
Westside Canal Energy Center
Imperial Valley, California

Figure No. 1



Legend:

B-6 — Approximate locations of geotechnical borings

R-6b — Approximate locations of field resistivity tests

Approximate limits of project site

N

0 700 ft 1400 ft

Reference: Google Earth 2018

Not a surveyed map

Not a construction drawing

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Field Exploration Plan
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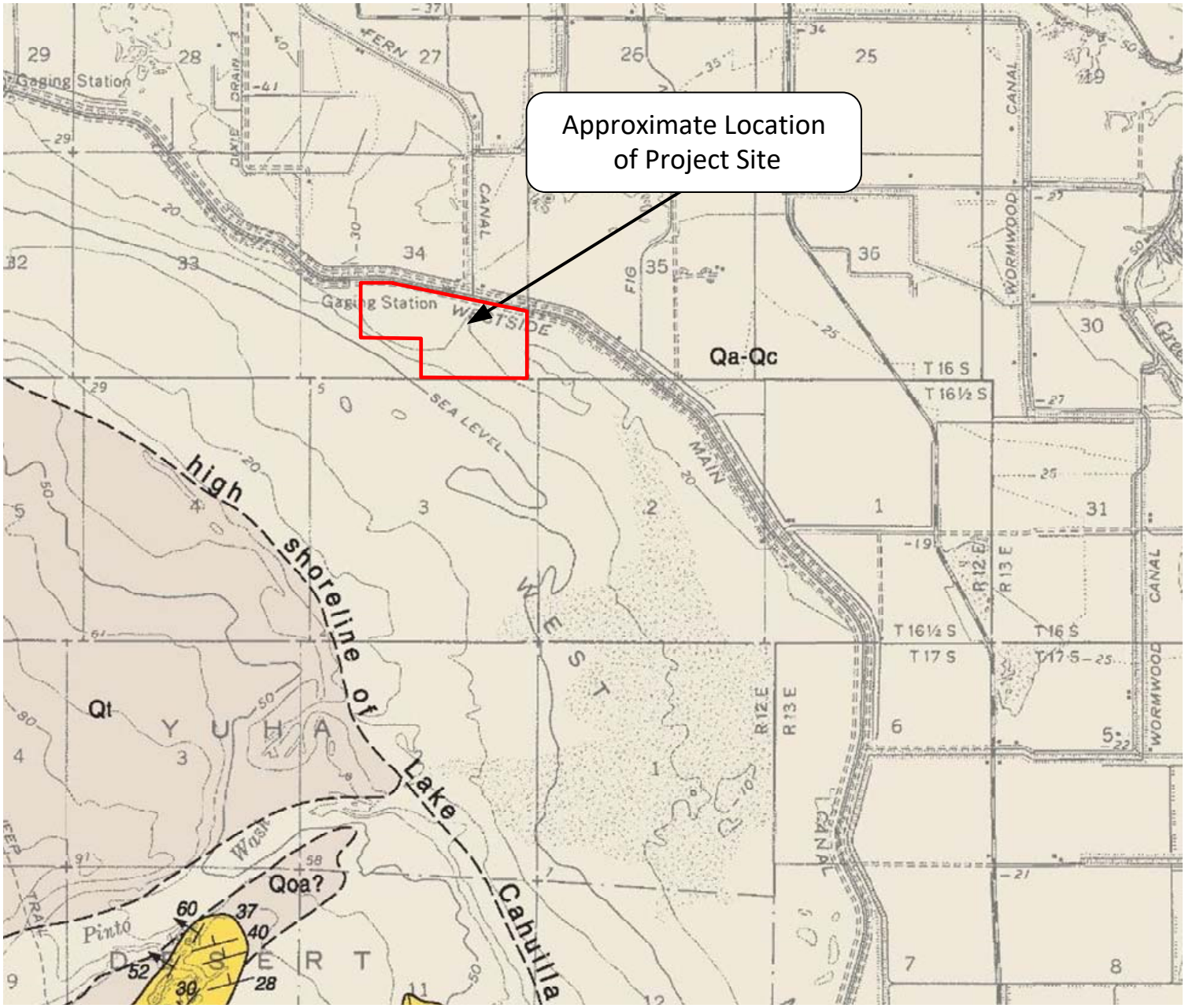
Figure No. 2



DESCRIPTION OF MAP UNITS

Qa	Qa-Qc	Qc	Qt	Qt1
				Qt2

ALLUVIUM

Unconsolidated and undissected surficial sediments of valley fill and floodplains; age, Recent

Qa *Alluvial clay and silt, grading to sandy gravel near mountains*

Qc *Cahuilla Beds, thin series of tan-gray claystones, sands, and gravels deposited in former Lake Cahuilla, fossiliferous,* **Qa-Qc** *where locally undifferentiated from* **Qa** *or* **Qc**

Qt *Terrace deposits, includes* **Qt1**, *younger gravel and sand, locally undifferentiated from* **Qt**, *and* **Qt2**, *boulder to pebble gravel and sand, locally folded and faulted*

Not a surveyed map
Not a construction drawing

Reference: Dibblee, Jr., T.W., Division of Mines and Geology, *Geologic Map of The Coyote Wells & Heber 15 Minute Quadrangles, Imperial County, California, 2008. Map #DF-405, Scale 1:62,500.*

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Regional Geologic Map
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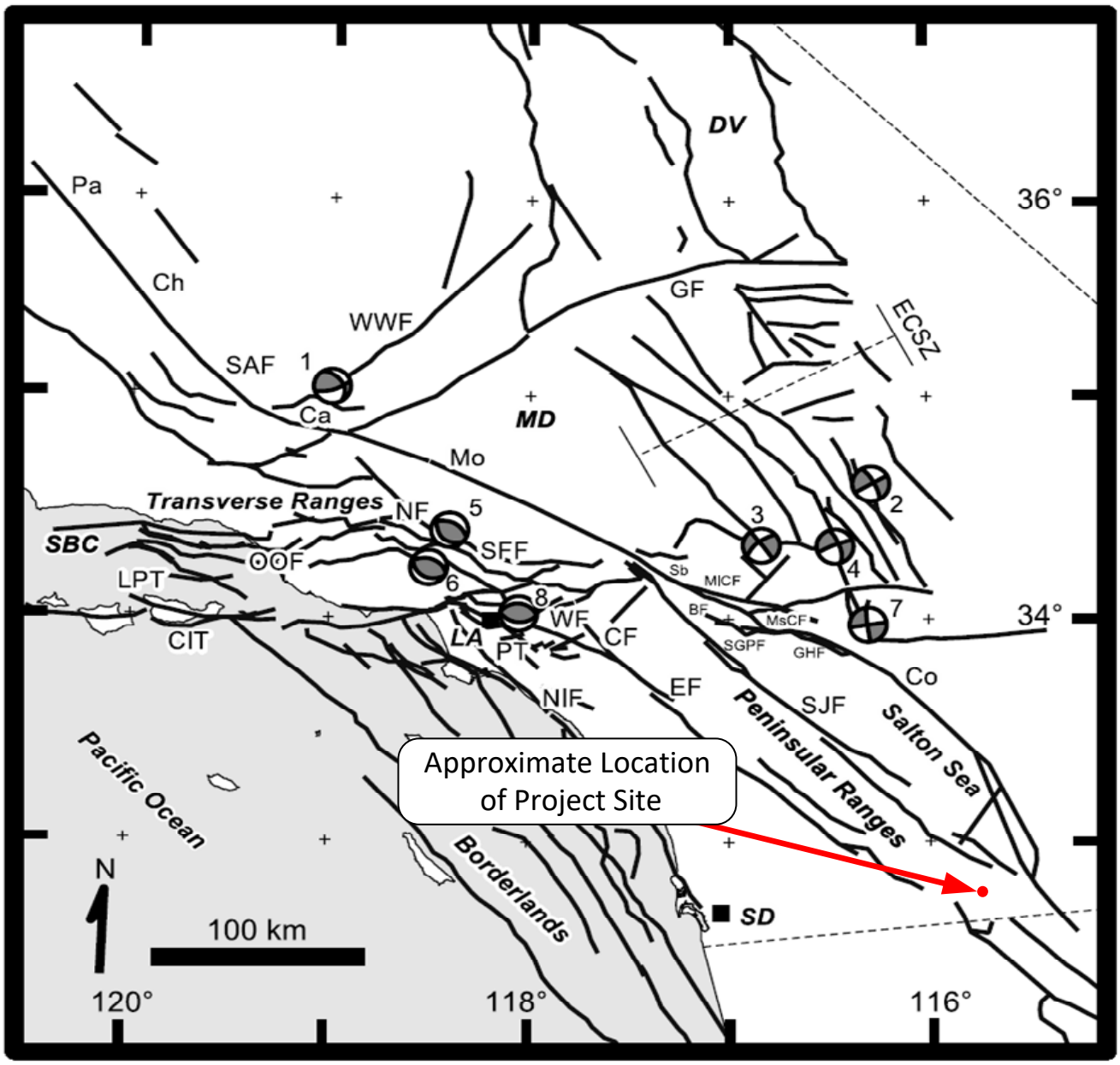
Imperial Valley, California

Figure No. 3



Map of southern California showing the geographic regions, faults and focal mechanisms of the more significant earthquakes. **Regions:** Death Valley, DV; Mojave Desert MD; Los Angeles, LA; Santa Barbara Channel, SBC; and San Diego, SD. **Indicated Faults:** Banning fault, BF; Channel Island thrust, CIT; Chino fault, CF; Eastern California Shear Zone, ECSZ; Elsinore fault, EF; Garlock fault, GF; Garnet Hill fault, GHF; Lower Pitas Point thrust, LPT; Mill Creek fault, MICF; Mission Creek fault, MsCF; Northridge fault, NF; Newport Inglewood fault, NIF; offshore Oak Ridge fault, OOF; Puente Hills thrust, PT; San Andreas fault (sections: Parkfield, Pa; Cholame, Ch; Carrizo; Ca; Mojave, Mo; San Bernardino, Sb; and Coachella, Co); San Fernando fault, SFF; San Gorgonio Pass fault, SGPF; San Jacinto fault, SJF; Whittier fault, WF; and White Wolf fault, WWF. **Earthquake Focal Mechanisms:** 1952 Kern County, 1; 1999 Hector Mine, 2; 1992 Big Bear, 3; 1992 Landers, 4; 1971 San Fernando, 5; 1994 Northridge, 6; 1992 Joshua Tree, 7; and 1987 Whittier Narrows, 8.

N

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Regional Fault Map
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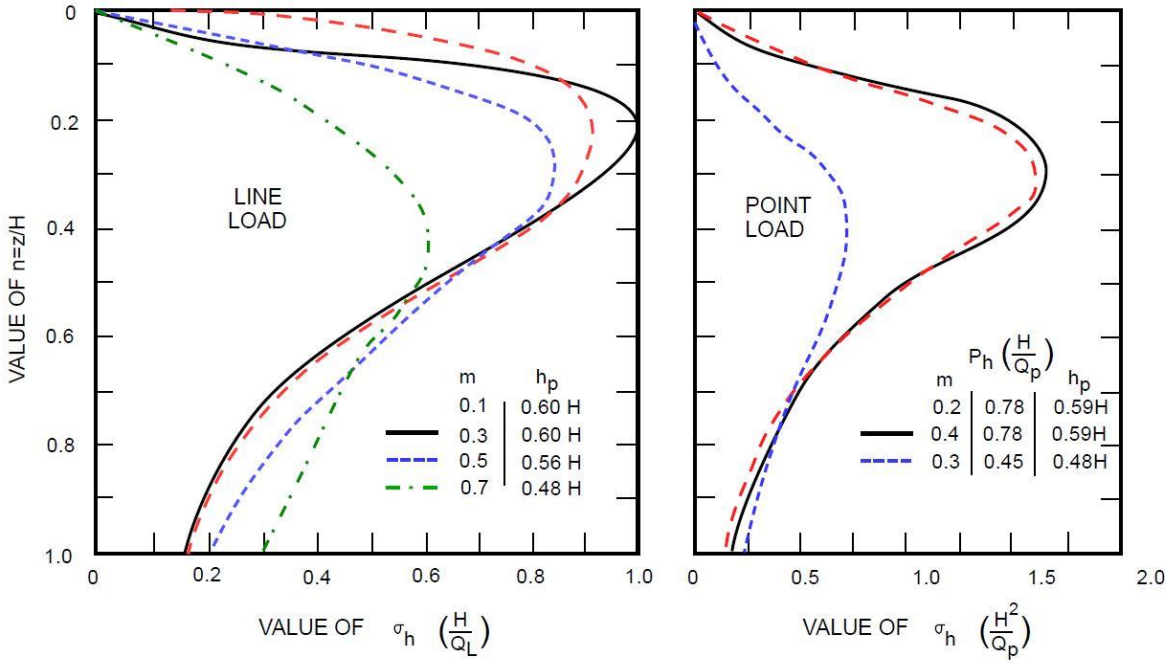
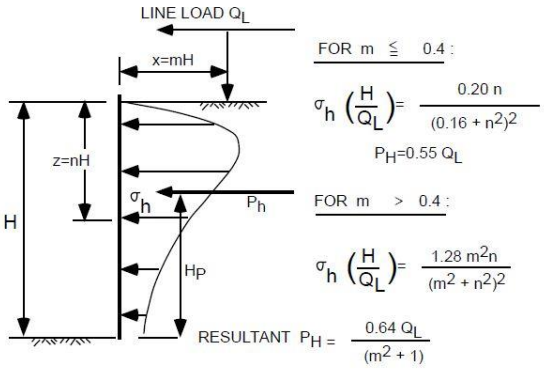
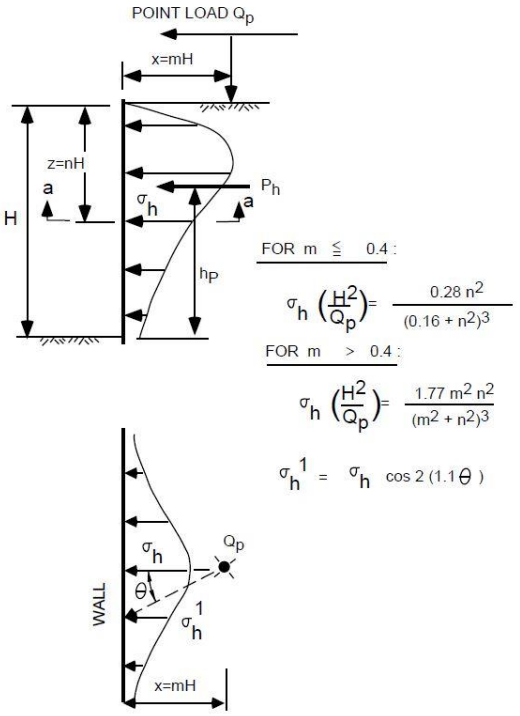
Imperial Valley, California

Figure No. 4





PRESSURE FROM LINE LOAD Q_L
(BOUSSINESQ EQUATION MODIFIED BY EXPERIMENT)



SECTION a ~a
PRESSURE FROM POINT LOAD Q_p
(BOUSSINESQ EQUATION MODIFIED BY EXPERIMENT)

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Lateral Surcharge Loads

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Westside Canal Energy Center
Imperial Valley, California

Figure No. 5

APPENDIX A

Exploratory Boring Logs

Logs of Exploratory Borings

Bulk and relatively undisturbed drive samples were obtained in the field during our subsurface evaluation. The samples were tagged in the field and transported to our laboratory for observation and testing. The drive samples were obtained using the Modified California Sampler (CAL) and Standard Penetration Test (SPT) samplers as described below.

Modified California Split Spoon Sampler

The split barrel drive sampler is driven with a 140-pound hammer allowed to drop freely 30 inches in general accordance with ASTM D1587. The number of blows per foot recorded during sampling is presented in the logs of exploratory borings. The sampler has external and internal diameters of approximately 3.0 and 2.4 inches, respectively, and the inside of the sampler is lined with 1-inch-long brass rings. The relatively undisturbed soil sample within the rings is removed, sealed, and transported to the laboratory for observation and testing.

Standard Penetration Test (SPT) Sampler

The split barrel sampler is driven with a 140-pound hammer allowed to drop freely 30 inches in general accordance with ASTM D1586. The number of blows per foot recorded during sampling is presented in the logs of exploratory borings. The sampler has external and internal diameters of 2.0 and 1.4 inches, respectively. The soil sample obtained in the interior of the barrel is measured, removed, sealed and transported to the laboratory for observation and testing.

SAMPLE/SAMPLER TYPE GRAPHICS

- AUGER SAMPLE
- STANDARD PENETRATION SPLIT SPOON SAMPLER
- BULK / GRAB SAMPLE
- MODIFIED CALIFORNIA SAMPLER
- SHELBY TUBE SAMPLER
- HQ ROCK CORE SAMPLE
- NQ ROCK CORE SAMPLE

GROUNDWATER LEVEL GRAPHICS

- WATER LEVEL (during drilling operations)
- WATER LEVEL (immediately after drilling completion)
- WATER LEVEL (additional levels after drilling completion)
- OBSERVED SEEPAGE

NOTES

- The report and graphics key are an intergral part of these logs. All data and interpretations in this log are subject to the explanations and limitations stated in the report.
- Lines separating strata on the logs represent approximate boundaries only. Actual transitions my be gradual or differ from those shown.
- No warranty is provided as to the continuity of soil or rock conditions between individual sample locations.
- Logs represent general soil or rock conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification System (USCS) designationspresented on the logs were based on visual classification in thefield and were modified where appropriate based on gradation andindex property testing.
- Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5 and 12% passing the No. 200 sieve require dual USCS symbols, ie., GW-GM, GP-GM, GW-GC, GP-GC, GC-GM, SW-SM, SP-SM, SW-SC, SP-SC, SC-SM.
- If sampler is not able to be driven at least 6 inches then Y/X indicates Y number of blows required to drive the identified sampler X inches with a 140 pound hammer falling 30 inches.

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

COARSE GRAINED SOILS (More than half of materials is larger than the #200 sieve)	GRAVELS (More than half of coarse fraction is larger than the #4 sieve)	CLEAN GRAVEL WITH <5% FINES	Cu≥4 and 1≤Cc≤3		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			Cu<4 and/or 1>Cc>3		GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GRAVELS WITH 5 TO 12% FINES	Cu≥4 and 1≤Cc≤3		GW-GM	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
			Cu<4 and/or 1>Cc>3		GW-GC	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
			Cu<4 and/or 1>Cc>3		GP-GM	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
					GP-GC	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
		GRAVELS WITH >12% FINES			GM	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES
					GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
					GC-GM	CLAYEY GRAVELS, GRAVEL-SAND-CLAY-SILT MIXTURES
	SANDS (More than half of coarse fraction is smaller than the #4 sieve)	CLEAN SANDS WITH <5% FINES	Cu≥6 and 1≤Cc≤3		SW	WELL GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
			Cu<6 and/or 1>Cc>3		SP	POORLY-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
		SAND WITH 5 TO 12% FINES	Cu≥6 and 1≤Cc≤3		SW-SM	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
					SW-SC	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
			Cu>6 and/or 1<Cc>3		SP-SM	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
					SP-SC	POORLY-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
		SANDS WITH >12% FINES			SM	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES
					SC	CLAYEY SANDS, SAND-GRAVEL-CLAY MIXTURES
					SC-SM	CLAYEY SANDS, SAND-SILT-CLAY MIXTURES

FINE GRAINED SOILS (More than half of material is smaller than the #200 sieve)	SILTS AND CLAYS (Liquid Limit less than 50)	ML	INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, SILTS WITH SLIGHT PLASTICITY
		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		CL-ML	INORGANIC CLAYS-SILTS OF LOW PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SITLY CLAYS, LEAN CLAYS
		OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (Liquid Limit greater than 50)	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
		CH	INORGANIC CLAYS OF HIGH PLASTICITY FAT CLAYS
		OH	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY

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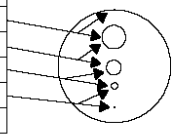
Project No: **1076**
Drawn: **SB**
Date: **September 2018**

Title: **Boring Log Legend**
Project: **Sempra Renewables**
Westside Canal Energy Center
Imperial Valley, California

Chart 1

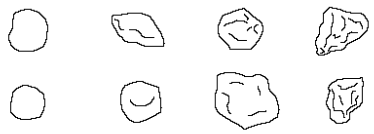
GRAIN SIZE

DESCRIPTION		SIEVE SIZE	GRAIN SIZE	APPROXIMATE SIZE
Boulders		>12 in.	>12 in. (304.8 mm.)	Larger than basketball-sized
Cobbles		3 - 12 in.	3 - 12 in. (76.2 - 304.8 mm.)	Fist-sized to basketball-sized
Gravel	coarse	3/4 - 3 in.	3/4 - 3 in. (19 - 76.2 mm.)	Thumb-sized to fist-sized
	fine	#4 - 3/4 in.	0.19 - 0.75 in. (4.75 - 19 mm.)	Pea-sized to thumb-sized
Sand	coarse	#10 - #4	0.079 - 0.19 in. (2 - 4.75 mm.)	Rock salt-sized to pea-sized
	medium	#40 - #10	0.017 - 0.079 in. (0.43 - 2 mm.)	Sugar-sized to rock salt-sized
	fine	#200 - #40	0.0029 - 0.017 in. (0.074 - 0.43 mm.)	Four-sized to sugar-sized
Fines		Passing #200	<0.0029 in. (0.074 mm.)	Flour-sized and smaller



ANGULARITY

DESCRIPTION	CRITERIA
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces
Subangular	Particles are similar to angular description but have rounded edges
Subrounded	Particles have nearly plane sides but have well-rounded edges
Rounded	Particles have smoothly curved sides and no edges



MUNSELL COLOR

NAME	ABBR
Red	R
Yellow Red	YR
Yellow	Y
Green Yellow	GY
Green	G
Blue Green	BG
Blue	B
Purple Blue	PB
Purple	P
Red Purple	RP
Black	N

PLASTICITY

DESCRIPTION	CRITERIA
Non-plastic	A 1/8-in. (3 mm.) thread cannot be rolled at any water content.
Low (L)	The thread can barely be rolled and the lump or thread cannot be formed when drier than the plastic limit.
Medium (M)	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump or thread crumbles when drier than the plastic limit.
High (H)	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump or thread can be formed without crumbling when drier than the plastic limit.

MOISTURE CONTENT

DESCRIPTION	CRITERIA
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below groundwater table

REACTION WITH HYDROCHLORIC ACID

DESCRIPTION	CRITERIA
None	No visible reaction
Weak	Some reaction, with bubbles forming slowly
Strong	Violet reaction, with bubbles forming immediately

APPARENT/RELATIVE DENSITY - COARSE-GRAINED SOIL

APPARENT DENSITY	SPT-N_{60} (#blows/ft)	MODIFIED CALIFORNIA SAMPLER (#blows/ft)	RELATIVE DENSITY (%)
Very Loose	<4	<5	0 - 15
Loose	4 - 10	6 - 15	15 - 35
Medium Dense	11 - 30	16 - 40	35 - 65
Dense	31 - 50	41 - 70	65 - 85
Very Dense	>50	>71	85 - 100

CONSISTENCY - FINE-GRAINED SOIL

CONSISTENCY	SPT-N_{60} (#blows/0.3m)	CRITERIA
Very Soft	<2	Thumb will penetrate soil more than 1 in. (25 mm.)
Soft	2 - 4	Thumb will penetrate soil about 1 in. (25 mm.)
Medium Stiff	5 - 8	Thumb will indent soil about 1/4-in. (6 mm.)
Stiff	8 - 15	Can be imprinted with considerable thumbnail pres.
Very Stiff	15 - 30	Thumb will not indent soil but readily indented with thumbnail
Hard	>30	Thumbnail will not indent soil

STRUCTURE

DESCRIPTION	CRITERIA
Stratified	Alternating layers of varying material or color with layers at least 1/4-in. (6 mm.) thick, note thickness
Laminated	Alternating layers of varying material or color with layers less than 1/4-in. (6 mm.) thick, note thickness
Fissured	Breaks along definite planes of fracture with little resistance to fracturing
Slickensided	Fracture planes appear polished or glossy, sometimes striated
Blocky	Cohesive soil that can be broken down into smaller angular lumps which resist further breakdown
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness
Homogeneous	Same color and appearance throughout

CEMENTATION

DESCRIPTION	CRITERIA
Weakly	Crumbles or breaks with handling or slight finger pressure
Moderately	Crumbles or breaks with considerable finger pressure
Strongly	Will not crumble or break with finger pressure

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Project No: **1076**
Drawn: **SB**
Date: **September 2018**

Title: **Soil Classification**
Project: **Sempra Renewables**
Westside Canal Energy Center
Imperial Valley, California

Boring Log

Date	Project Number	Project	Boring No.
Started: 9/17/18 Completed: 9/18/18	1076	Westside Canal Energy Center	B-1
Hammer Efficiency: 93 %	Rig Type: Unimog M-5 (Pacific)	Surface Elevation: -21.0'	Logged By: S. Burford
Latitude: 32.731764	Longitude: -115.718873	Location: Near canal	

Sample Type
G - Bulk / Grab Sample
SPT - 2" O.D. 1.5" I.D. Tube Sample
MC - 3 " O.D. 2.4" I.D. Ring Sample
NR - No Recovery
* - Uncorrected Blow Counts

Groundwater

Depth (ft)	Hour	Date
9.5	8:40am	9/17/2018

Groundwater Depth (ft.) / Depth (ft.)	Graphical Log	Sample Taken	Sample ID	Penetration Resistance (Blows per 6 in.)	Moisture Content (%)	Dry Weight (pcf)	Other Tests and Remarks	USCS Class.	Visual Classification
0									[ALLUVIUM (Qa-Qc)] Lean CLAY with Sand (CL): Tan, dry to moist, stiff
			G- 1		20 1		Moisture Content Sieve Analysis Expansion Index		
5			MC- 1	3 8 10	26 1	97 7	Moisture / Density	CL	Stiff, Pocket Penetrometer: 1.75 ton/ft^2
			G- 2						
▼ 10			SPT- 1	3 11 14	25 8		Moisture Content		Very stiff
									13.0' El. -34.0'
			G- 2				Sieve Analysis		Sandy Lean CLAY (CL): moist, hard
15			SPT- 2	6 13 23	22 1		Moisture Content	CL	
									18.0' El. -39.0'
									Silty SAND (SM): Tan, moist, medium dense
20			SPT- 3	2 5 8	21 8		Moisture Content	SM	
									21.5' El. -42.5'

Notes: Drilled using 6" O.D. Hollow Stem Auger. Boring terminated at depth of (21.5'). Backfilled with neat cement. Groundwater measured at 9.5' bgs.

Boring Log

Date	Project Number	Project	Boring No.
Started: 10/2/18 Completed: 10/2/18	1076	Westside Canal Energy Center	B-1a
Hammer Efficiency: 80 %	Rig Type: Diedrich D50 (Pacific)	Surface Elevation: -21.0'	Logged By: S. Burford
Latitude: 32.731760	Longitude: -115.718833	Location: Near canal	

Sample Type
G - Bulk / Grab Sample
SPT - 2" O.D. 1.5" I.D. Tube Sample
MC - 3 " O.D. 2.4" I.D. Ring Sample
NR - No Recovery
* - Uncorrected Blow Counts

Groundwater

Depth (ft)	Hour	Date
9	8:20am	10/2/2018

Groundwater Depth (ft.) / Depth (ft.)	Graphical Log	Sample Taken	Sample ID	Penetration Resistance (Blows per 6 in.)	Moisture Content (%)	Dry Weight (pcf)	Other Tests and Remarks	USCS Class.	Visual Classification
0									[ALLUVIUM (Qa-Qc)] Lean CLAY with Sand and Sandy Lean CLAY (CL): Tan, dry to moist
5									Free drilled down to 15' BGS for first sample
▼ 9								CL	
10									
15			SPT- 1	3 5 7	24 3		Moisture Content		Stiff
18.0'									El. -39.0'
									Silty SAND (SM): Tan, moist
20			SPT- 2	3 7 11	24 8		Moisture Content Sieve (20-26.5)		Medium dense. Switched from Hollow Stem to Mud-Rotary at 20' BGS
								SM	
25			SPT- 3	16 17 20	22 5		Moisture Content		Dense
30									
30.0'									El. -51.0'

Boring Log

Date	Project Number	Project	Boring No.
Started: 10/2/18 Completed: 10/2/18	1076	Westside Canal Energy Center	B-1a
Hammer Efficiency: 80 %	Rig Type: Diedrich D50 (Pacific)	Surface Elevation: -21.0'	Logged By: S. Burford
Latitude: 32.731760	Longitude: -115.718833	Location: Near canal	

Sample Type
G - Bulk / Grab Sample
SPT - 2" O.D. 1.5" I.D. Tube Sample
MC - 3 " O.D. 2.4" I.D. Ring Sample
NR - No Recovery
* - Uncorrected Blow Counts

Groundwater

Depth (ft)	Hour	Date
9	8:20am	10/2/2018

Groundwater Depth (ft.) / Depth (ft.)	Graphical Log	Sample Taken	Sample ID	Penetration Resistance (Blows per 6 in.)	Moisture Content (%)	Dry Weight (pcf)	Other Tests and Remarks	USCS Class.	Visual Classification
30			SPT- 4	15 21 23	22 1		Moisture Content Sieve (30-51 5)		Poorly-graded SAND with Silt (SP-SM): Tan, moist to wet, dense to very dense
35			SPT- 5	13 16 22	22 7		Moisture Content		
40			SPT- 6	13 19 28	22 4		Moisture Content		
45			SPT- 7	18 33 50/5 5	21 4		Moisture Content	SP-SM	
50			SPT- 8	16 21 25	22 4		Moisture Content		
55			SPT- 9	20 33 50/6"	22 0		Moisture Content Sieve (55-76 5)		
60									

Boring Log

Date	Project Number	Project	Boring No.
Started: 10/2/18 Completed: 10/2/18	1076	Westside Canal Energy Center	B-1a
Hammer Efficiency: 80 %	Rig Type: Diedrich D50 (Pacific)	Surface Elevation: -21.0'	Logged By: S. Burford
Latitude: 32.731760	Longitude: -115.718833	Location: Near canal	

Sample Type
G - Bulk / Grab Sample
SPT - 2" O D. 1.5" I.D. Tube Sample
MC - 3 " O.D. 2.4" I D. Ring Sample
NR - No Recovery
* - Uncorrected Blow Counts

Groundwater

Depth (ft)	Hour	Date
9	8:20am	10/2/2018

Groundwater Depth (ft.) / Depth (ft.)	Graphical Log	Sample Taken	Sample ID	Penetration Resistance (Blows per 6 in.)	Moisture Content (%)	Dry Weight (pcf)	Other Tests and Remarks	USCS Class.	Visual Classification
60									
			SPT- 10	13 20 26	23 1		Moisture Content		Poorly-graded SAND with Silt (SP-SM): Tan, moist to wet, dense to very dense
65			SPT- 11	17 30 38	22 0		Moisture Content		
								SP-SM	
70			SPT- 12	18 30 46	21 3		Moisture Content		Traces of gravel encountered from 72-75' BGS
75			SPT- 13	22 32 39	21 2		Moisture Content		
			SPT- 14	16 20 22				CL	79.0' El. -100.0' Lean CLAY (CL): Brown, moist, hard 80.0' El. -101.0'
80									

Notes: Drilled using 6" O.D. Hollow Stem Auger. Boring terminated at depth of (80.0'). Switched to Mud-Rotary drilling at 20' BGS. Backfilled with neat cement. Groundwater measured at 9.0' bgs.

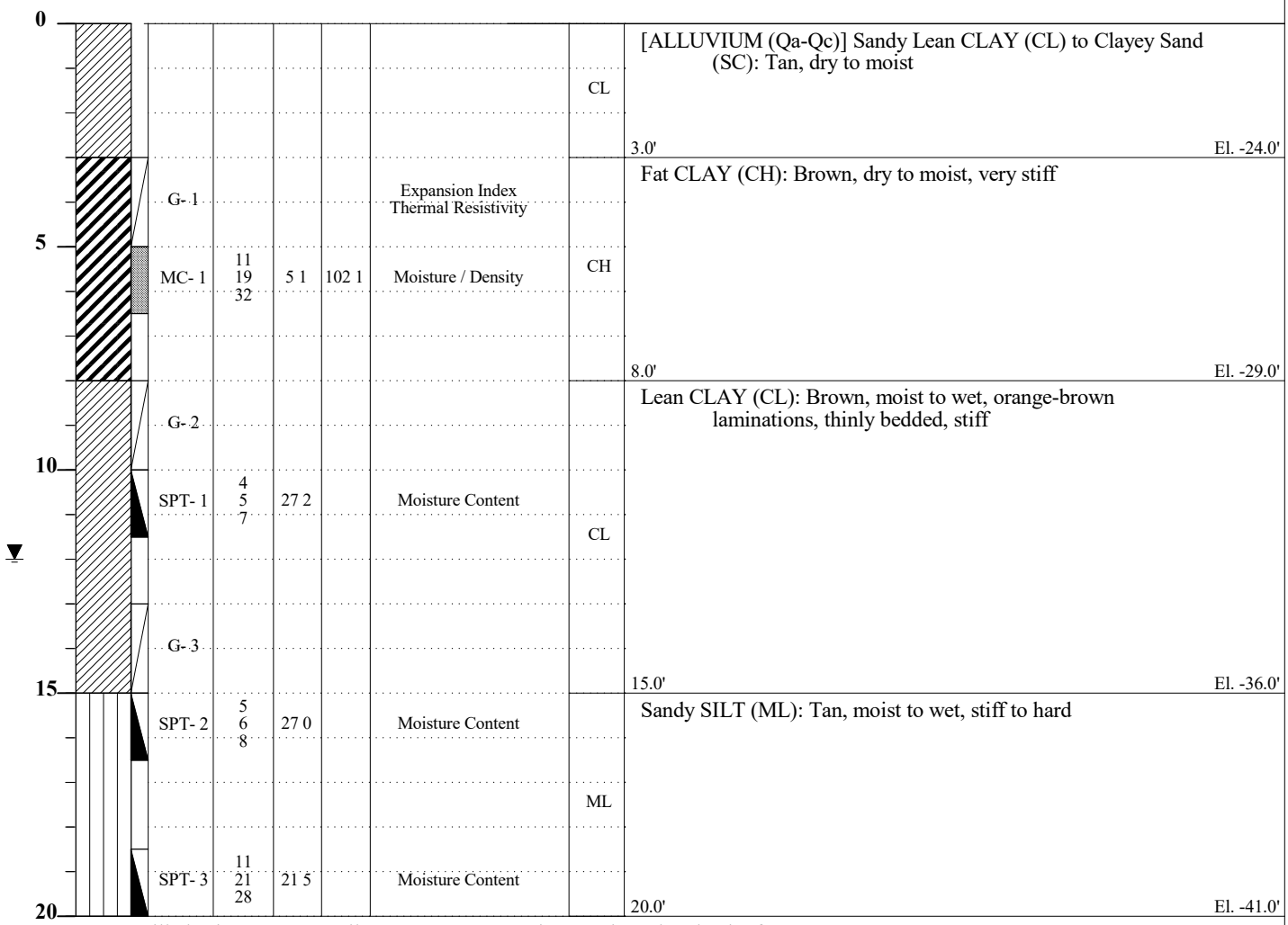
Boring Log

Date	Project Number	Project	Boring No.
Started: 9/17/18 Completed: 9/17/18	1076	Westside Canal Energy Center	B-2
Hammer Efficiency: 93 %	Rig Type: Unimog M-5 (Pacific)	Surface Elevation: -21.0'	Logged By: S. Burford
Latitude: 32.730861	Longitude: -115.721389	Location: Northwest corner	

Sample Type
G - Bulk / Grab Sample
SPT - 2" O.D. 1.5" I.D. Tube Sample
MC - 3 " O.D. 2.4" I.D. Ring Sample
NR - No Recovery
* - Uncorrected Blow Counts

Groundwater

Depth (ft)	Hour	Date
12	2:00pm	9/17/2018



Notes: Drilled using 6" O.D. Hollow Stem Auger. Boring terminated at depth of (20.0'). Backfilled with neat cement. Groundwater measured at 12.0' bgs.

Boring Log

Date	Project Number	Project	Boring No.
Started: 9/18/18 Completed: 9/18/18	1076	Westside Canal Energy Center	B-3
Hammer Efficiency: 93 %	Rig Type: Unimog M-5 (Pacific)	Surface Elevation: -18.0'	Logged By: S. Burford
Latitude: 32.729953	Longitude: -115.717017	Location: North center	

Sample Type
G - Bulk / Grab Sample
SPT - 2" O.D. 1.5" I.D. Tube Sample
MC - 3 " O.D. 2.4" I.D. Ring Sample
NR - No Recovery
* - Uncorrected Blow Counts

Groundwater

Depth (ft)	Hour	Date
19 1	1:30pm	9/18/2018

Groundwater Depth (ft.) / Depth (ft.)	Graphical Log	Sample Taken	Sample ID	Penetration Resistance (Blows per 6 in.)	Moisture Content (%)	Dry Weight (pcf)	Other Tests and Remarks	USCS Class.	Visual Classification
0									[ALLUVIUM (Qa-Qc)] Silty SAND (SM): Tan, dry to moist
			G- 1				Expansion Index No 200 Sieve R Value Thermal Resistivity Corrosivity	SM	
4.5'									El. -22.5'
5			SPT- 1	15 9 11	8 4		Moisture Content	CL	Lean CLAY (CL): Brown, dry to moist, very stiff
7.0'									El. -25.0'
			G- 2					ML	Clayey SILT (ML): Tan, moist
10			MC- 1	19 8 12	20 8	104 2	Moisture / Density		Stiff, Pocket Penetrometer: 1.75 ton/ft^2
12.0'									El. -30.0'
			G- 3						Lean CLAY (CL): Brown, moist, stiff
15			SPT- 2	3 5 8	28 8		Moisture Content	CL	
▼			SPT- 3	3 3 6	26 0		Moisture Content		
20									
20.0'									El. -38.0'

Notes: Drilled using 6" O.D. Hollow Stem Auger. Boring terminated at depth of (20.0'). Backfilled with neat cement. Groundwater measured at 19.1' bgs.

Boring Log

Date	Project Number	Project	Boring No.
Started: 9/18/18 Completed: 9/18/18	1076	Westside Canal Energy Center	B-4
Hammer Efficiency: 93 %	Rig Type: Unimog M-5 (Pacific)	Surface Elevation: -9.0'	Logged By: S. Burford
Latitude: 32.726831	Longitude: -115.716616	Location: South center	

Sample Type
G - Bulk / Grab Sample
SPT - 2" O D. 1.5" I.D. Tube Sample
MC - 3 " O.D. 2.4" I D. Ring Sample
NR - No Recovery
* - Uncorrected Blow Counts

Groundwater

Depth (ft)	Hour	Date

Groundwater Depth (ft.) / Depth (ft.)	Graphical Log	Sample Taken	Sample ID	Penetration Resistance (Blows per 6 in.)	Moisture Content (%)	Dry Weight (pcf)	Other Tests and Remarks	USCS Class.	Visual Classification
0									[ALLUVIUM (Qa-Qc)] Clayey SAND (SC): Tan, moist
			G- 1				Expansion Index Thermal Resistivity	SC	
5			MC- 1	8 13 20	22 3	96 4	Moisture / Density		
									6.5' El. -15.5'
									Lean CLAY (CL): Brown, moist
			G- 2						
10			SPT- 1	5 7 9	26 3		Moisture Content		Stiff
			G- 3					CL	
15			MC- 2	15 15 16	16 6	104 8	Moisture / Density		Very stiff, Pocket Penetrometer: 3.25 ton/ft^2
			SPT- 2	4 4 7	22 9		Moisture Content		Stiff
20									20.0' El. -29.0'

Notes: Drilled using 6" O.D. Hollow Stem Auger. Boring terminated at depth of (20.0'). Backfilled with neat cement. Groundwater not encountered.

Boring Log

Date	Project Number	Project	Boring No.
Started: 10/1/18 Completed: 10/1/18	1076	Westside Canal Energy Center	B-5

Hammer Efficiency: 80 %	Rig Type: Diedrich D50 (Pacific)	Surface Elevation: -20.0'	Logged By: S. Burford
Latitude: 32.729244	Longitude: -115.712156	Location: Northeast corner	

Sample Type
G - Bulk / Grab Sample
SPT - 2" O D. 1.5" I.D. Tube Sample
MC - 3 " O.D. 2.4" I D. Ring Sample
NR - No Recovery
* - Uncorrected Blow Counts

Groundwater

Depth (ft)	Hour	Date
14	12:40pm	10/1/2018

Groundwater Depth (ft.) / Depth (ft.)	Graphical Log	Sample Taken	Sample ID	Penetration Resistance (Blows per 6 in.)	Moisture Content (%)	Dry Weight (pcf)	Other Tests and Remarks	USCS Class.	Visual Classification
0									[ALLUVIUM (Qa-Qc)] Silty SAND (SM): Tan, dry
								SM	
			G- 1		4 6		Moisture Content Expansion Index No 200 Sieve		
5									5.0' El. -25.0'
			MC- 1	1 8 15	11 2	107 9	Moisture / Density		Lean CLAY (CL): Brown, moist
			G- 2					CL	
10									Stiff
			SPT- 1	4 5 8	22 2		Moisture Content		
▼									14.0' El. -34.0'
									Sandy SILT (ML): Tan, wet
15			MC- 2	3 5 7			No Recovery		
			G- 3					ML	
									Hard
			SPT- 2	11 16 25	22 6		Moisture Content		
20									20.0' El. -40.0'

Notes: Drilled using 6" O.D. Hollow Stem Auger. Boring terminated at depth of (20.0'). Backfilled with neat cement. Groundwater measured at 14.0' bgs.

Boring Log

Date	Project Number	Project	Boring No.
Started: 10/1/18 Completed: 10/1/18	1076	Westside Canal Energy Center	B-6
Hammer Efficiency: 80 %	Rig Type: Diedrich D50 (Pacific)	Surface Elevation: -17.0'	Logged By: S. Burford
Latitude: 32.726936	Longitude: -115.712139	Location: Southeast corner	

Sample Type
G - Bulk / Grab Sample
SPT - 2" O.D. 1.5" I.D. Tube Sample
MC - 3 " O.D. 2.4" I.D. Ring Sample
NR - No Recovery
* - Uncorrected Blow Counts

Groundwater

Depth (ft)	Hour	Date
18	9:55am	10/1/2018

Groundwater Depth (ft.) / Depth (ft.)	Graphical Log	Sample Taken	Sample ID	Penetration Resistance (Blows per 6 in.)	Moisture Content (%)	Dry Weight (pcf)	Other Tests and Remarks	USCS Class.	Visual Classification
0			G- 1		8 8		Expansion Index Thermal Resistivity R-Value Corrosivity Moisture Content	CL	[ALLUVIUM (Qa-Qc)] Sandy Lean CLAY (CL): Tan, dry
									2.0' El. -19.0'
									Fat CLAY (CH): Brown, moist to wet
5			MC- 1	7 11 17	24 1	99 5	Moisture / Density Direct Shear		
			G- 2						
10			SPT- 1	3 6 8	25 4		Moisture Content Atterberg Limit		Stiff
			G- 3						
15			MC- 2	2 4 12	29 1	94 3	Moisture / Density	CH	
▼									
20			SPT- 2	6 8 9	29 3		Moisture Content Atterberg Limit		Very stiff
			G- 4						
25			MC- 3	2 2 6	28 1		CAL-3 Disturbed Moisture Content		
			G- 5						
30								SM	29.5' El. -46.5'

Boring Log

Date	Project Number	Project	Boring No.
Started: 10/1/18 Completed: 10/1/18	1076	Westside Canal Energy Center	B-6
Hammer Efficiency: 80 %	Rig Type: Diedrich D50 (Pacific)	Surface Elevation: -17.0'	Logged By: S. Burford
Latitude: 32.726936	Longitude: -115.712139	Location: Southeast corner	

Sample Type
G - Bulk / Grab Sample
SPT - 2" O.D. 1.5" I.D. Tube Sample
MC - 3 " O.D. 2.4" I.D. Ring Sample
NR - No Recovery
* - Uncorrected Blow Counts

Groundwater

Depth (ft)	Hour	Date
18	9:55am	10/1/2018

Groundwater Depth (ft.) / Depth (ft.)	Graphical Log	Sample Taken	Sample ID	Penetration Resistance (Blows per 6 in.)	Moisture Content (%)	Dry Weight (pcf)	Other Tests and Remarks	USCS Class.	Visual Classification
30			SPT- 3	8 14 24	16 8		Moisture Content	SM	Silty SAND (SM): Tan, moist, dense. Water added to borehole at 30' to maintain stability
35			SPT- 4	3 6 7	24 7		Moisture Content Atterberg Limit		36.0' El. -53.0'
								CL	Lean CLAY with Sand (CL): Brown, moist to wet, stiff
									39.0' El. -56.0'
40			SPT- 5	5 9 9	33 1		Moisture Content	ML	Sandy SILT (ML): Tan, wet, very stiff
									41.0' El. -58.0'
								CL	Lean CLAY (CL): Brown, moist to wet
									43.0' El. -60.0'
45			SPT- 6	6 10 11	26 7		Moisture Content Atterberg Limit		Sandy Lean CLAY (CL): Brown, moist to wet Very stiff
								CL	
50			SPT- 7	9 18 31	25 2		Moisture Content		Hard 51.5' El. -68.5'

Notes: Drilled using 6" O.D. Hollow Stem Auger. Boring terminated at depth of (51.5'). Backfilled with neat cement. Groundwater measured at 18.0' bgs.

APPENDIX B

Field Resistivity Test Data

SOUTHWEST
GEOPHYSICS, INC.
YOUR SUBSURFACE SOLUTION

October 5, 2018
Project No. 118487

Mr. Sean Roy
NV5
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Subject: Geophysical Evaluation
Westside Canal Project
El Centro, California

Dear Mr. Sean Roy:

In accordance with your authorization, we have performed geophysical survey services pertaining to the proposed Westside Canal Project located south of the intersection of Liebert Road and Mandrapa Road in El Centro, California (Figure 1). The purpose of our services was to collect in-situ electrical resistivity measurements for use in the design and construction of the proposed project. Our services were conducted on September 20 and September 21, 2018. This report presents the survey methodology, equipment used, analysis, and results.

Our scope of services for the project included collection of electrical resistivity data at the site, compilation of the data collected, and preparation of this data report. Specifically, we conducted two crossing, nearly orthogonal resistivity soundings at six locations (R-1 through R-6) onsite for a total of twelve. The roughly north-south trending lines are given an "a" designation (e.g., R-1a) and the roughly west-east lines are given a "b" designation (e.g., R-1b). Figures 1 and 2 illustrate the approximate sounding locations, and Figures 3a and 3b illustrate the conditions in the study area as viewed from the south and west.

The data were collected in general accordance with ASTM G57 using an Advanced Geosciences, Inc. (AGI) MiniSting earth resistivity meter and four steel electrodes in a Wenner configuration. For each of the locations, soil resistance measurements were collected at several electrode spacings, which were designated by your office, along the two lines with the middle of each sounding generally located at a common center point. The stainless-steel electrodes were hammered into place and the soils surrounding the electrodes were moistened with saline water where necessary.

The results of the electrical resistivity survey are presented in Figures 4a through 4c. The measurements collected along each of the soundings are generally consistent (with slight variations) indicating that the subsurface conditions are fairly uniform with respect to apparent resistivity.

The field services and geophysical analyses presented in this report have been conducted in general accordance with current practice and the standard of care exercised by consultants performing similar tasks in the project area. No warranty, express or implied, is made regarding the conclusions presented in this report. Please also note that our evaluation was limited to measuring in-situ apparent soil resistivity at six locations selected by your office. Southwest Geophysics, Inc. should be contacted if the reader has questions regarding the content, interpretations presented, or completeness of this document. This report is intended exclusively for use by the client. Any use or reuse of this report by parties other than the client is undertaken at said parties' sole risk.

We appreciate the opportunity to be of service on this project. Should you have any questions related to this report, please contact the undersigned at your convenience.

Sincerely,
SOUTHWEST GEOPHYSICS, INC.

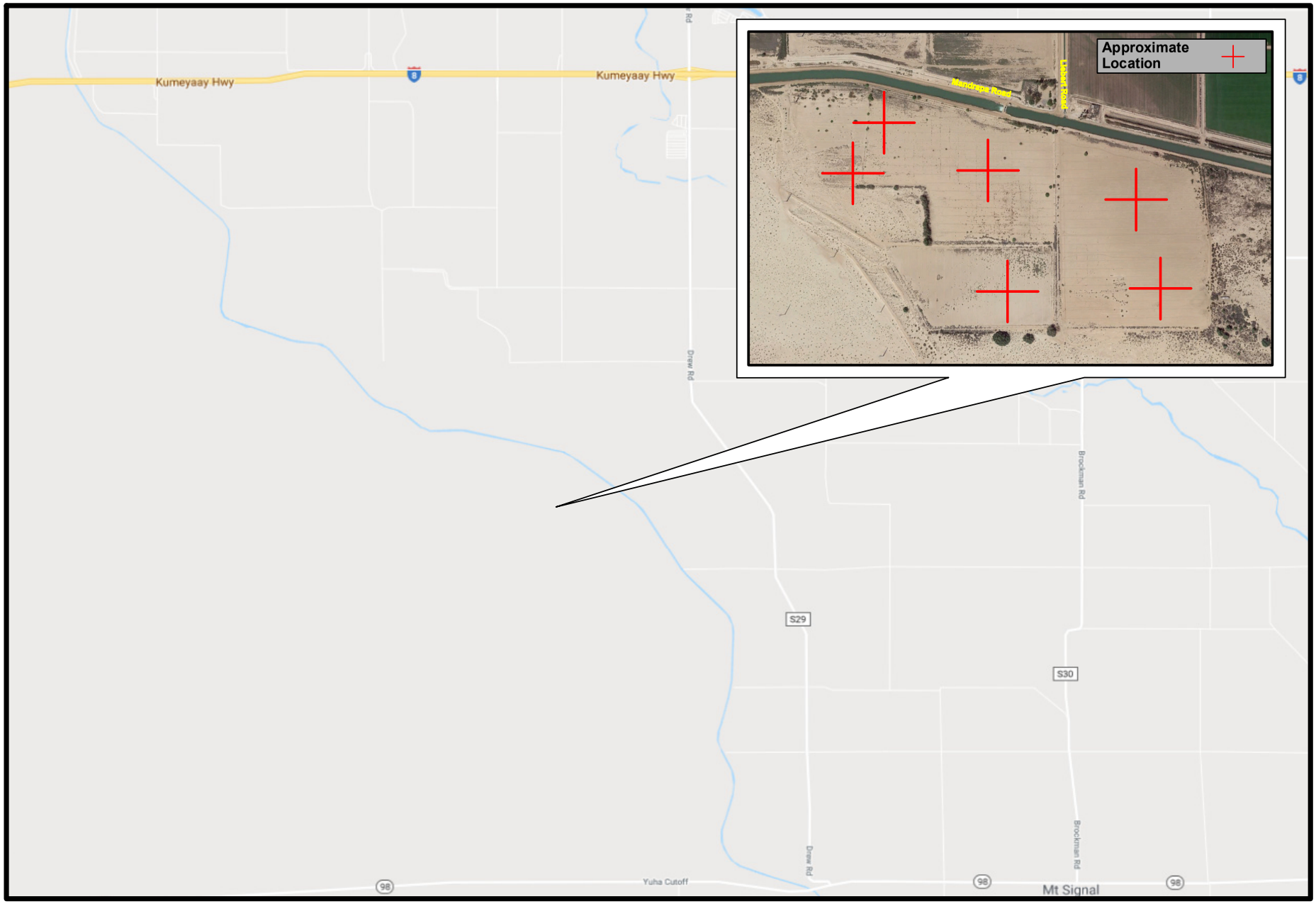
Afrildo Iko Syahrial
Project Geophysicist

Patrick F. Lehrmann, P.G., P.Gp.
Principal Geologist/Geophysicist

ASB/AIS/PFL/pfl

Attachments: Figure 1 – Site Location Map
Figure 2 – Line Location Map
Figure 3a – Site Photographs (R-1 through R-3)
Figure 3b – Site Photographs (R-4 through R-6)
Figure 4a – Electrical Resistivity Results (R-1 and R-2)
Figure 4b – Electrical Resistivity Results (R-3 and R-4)
Figure 4c – Electrical Resistivity Results (R-5 and R-6)

Distribution: Addressee (electronic)



SITE LOCATION MAP

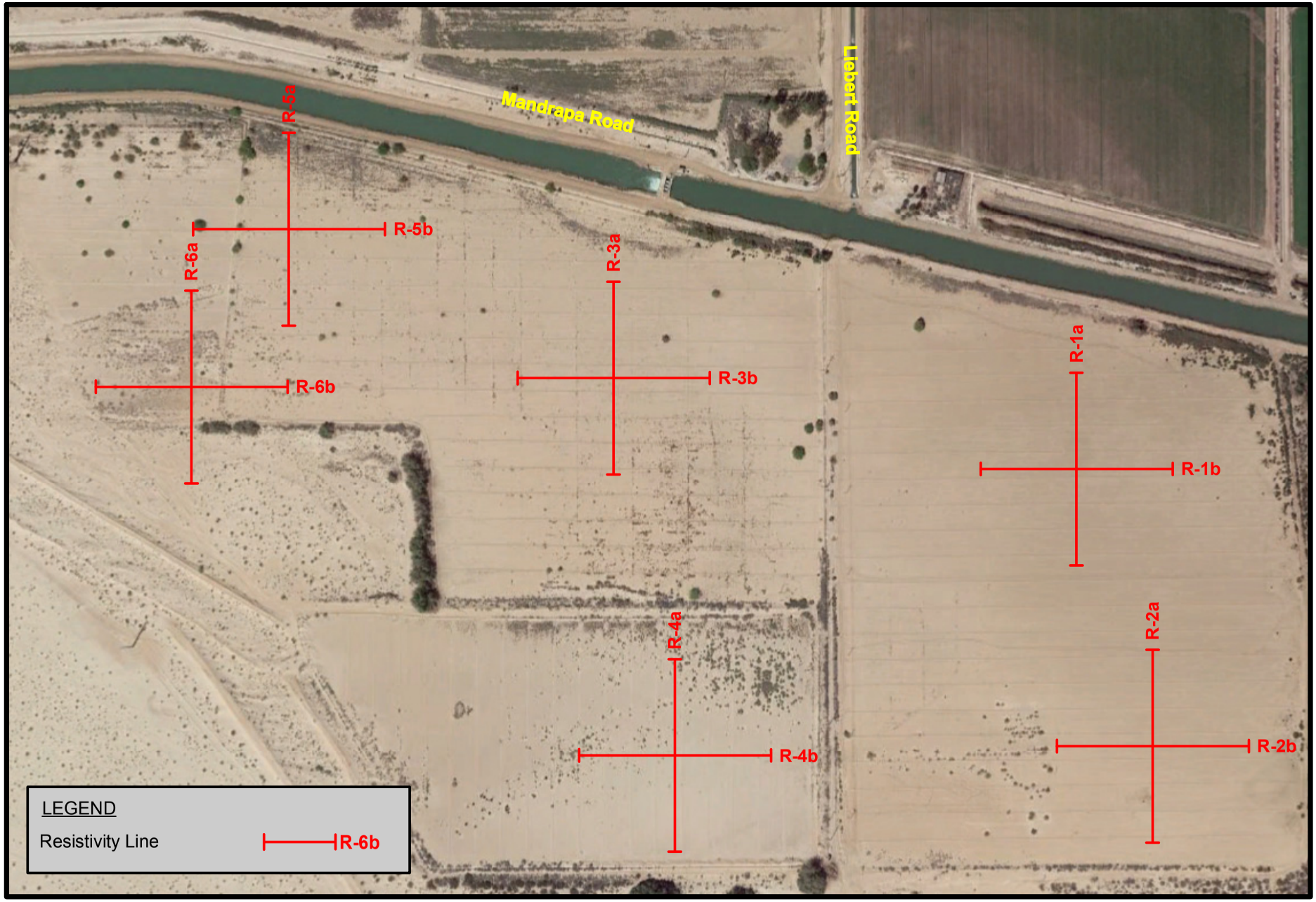
N

Westside Canal
El Centro, California

Project No.: 118487 | Date: 10/18

SOUTHWEST GEOPHYSICS NC

Figure 1



LINE LOCATION MAP

N

Westside Canal
El Centro, California

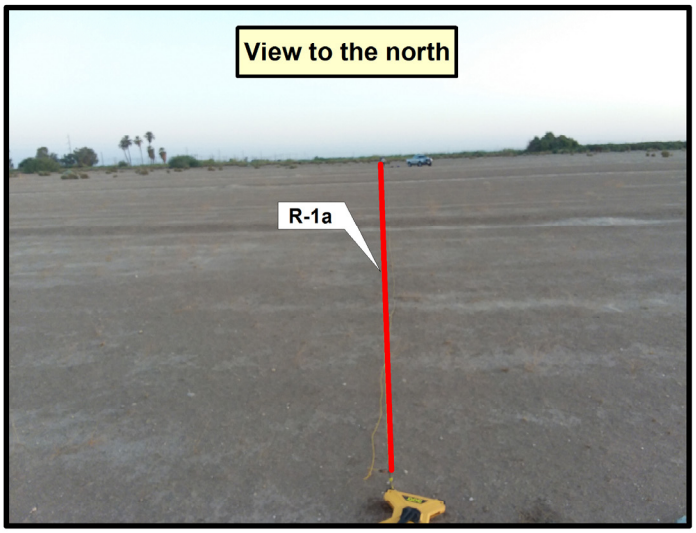
Project No.: 118487 | Date: 10/18

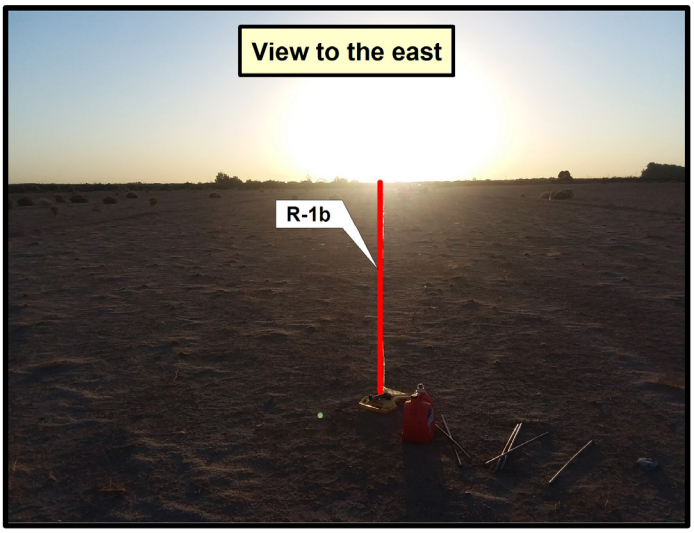
SOUTHWEST GEOPHYSICS INC

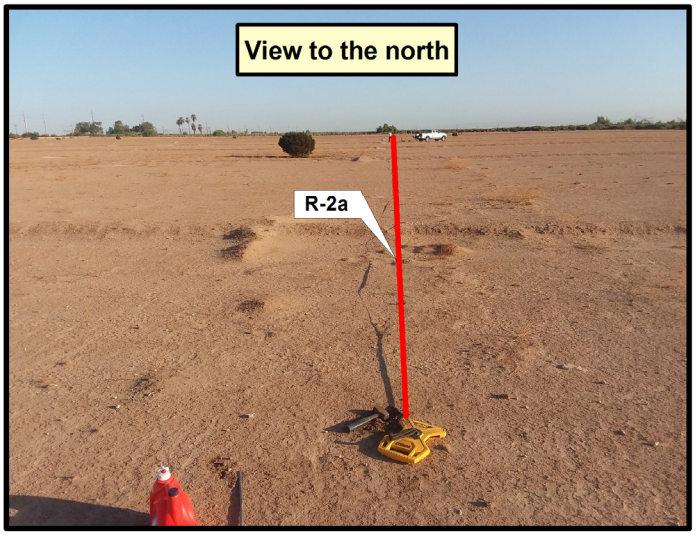
Figure 2

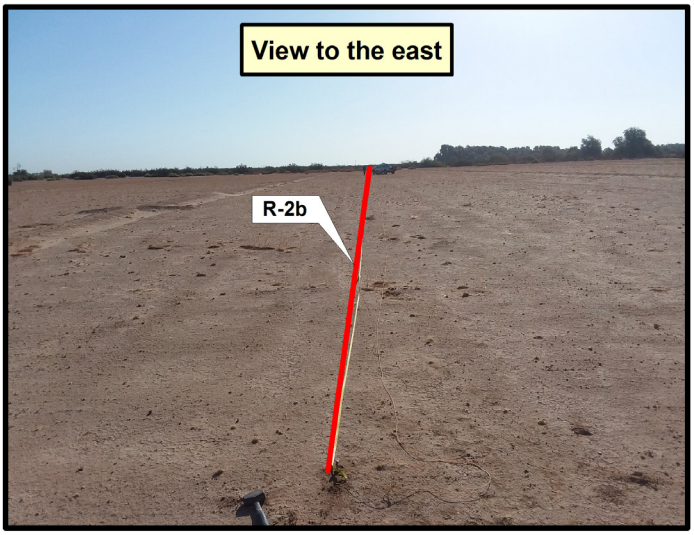
0 400 800

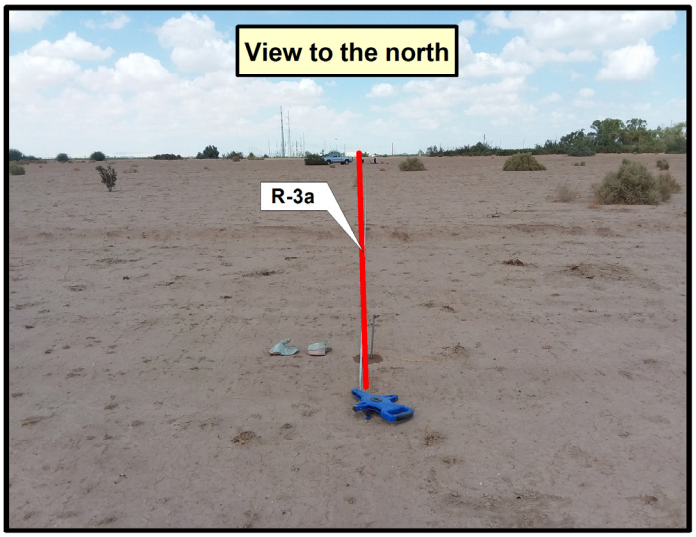
approximate scale in feet

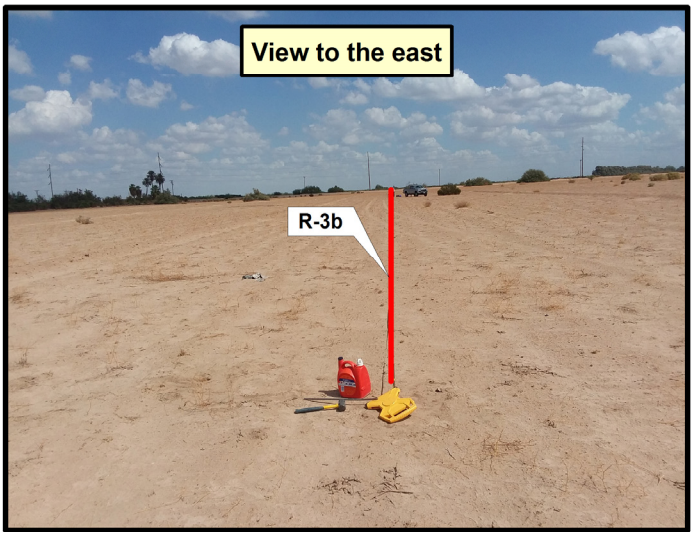












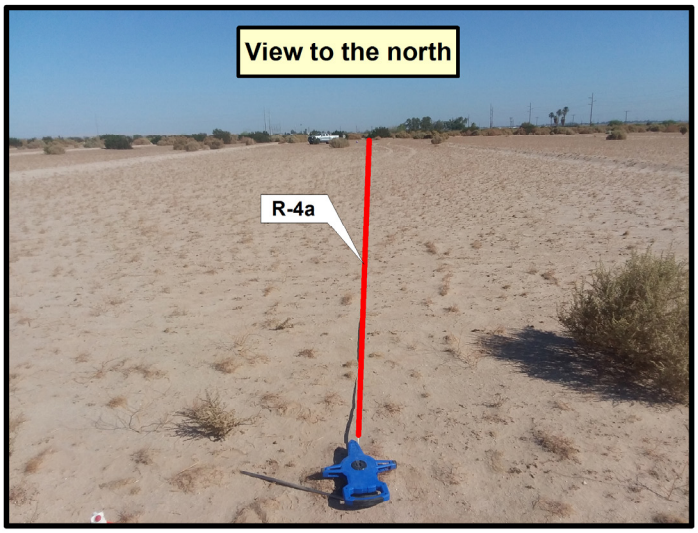
SITE PHOTOGRAPHS

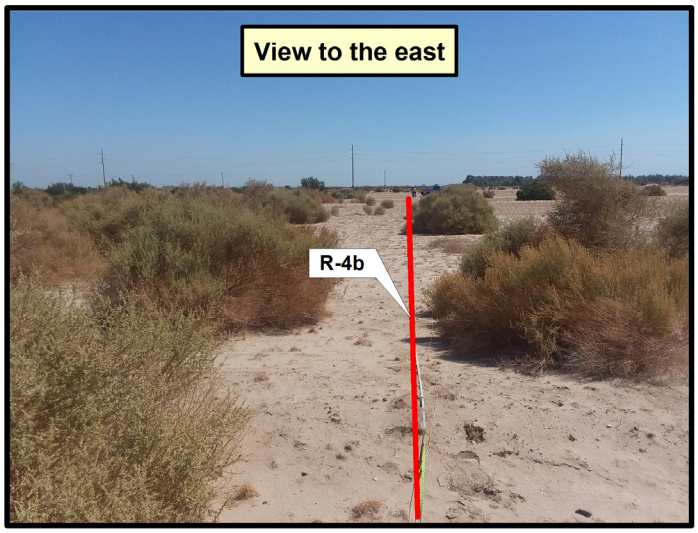
Westside Canal
El Centro, California

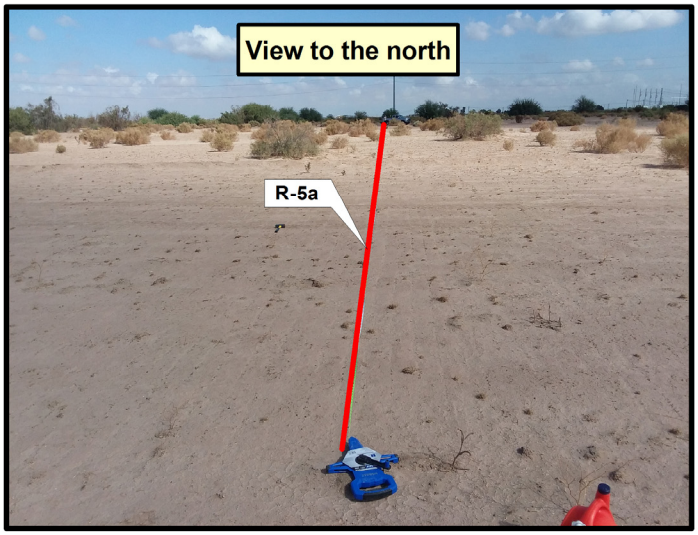
Project No.: 118487 | Date: 10/18

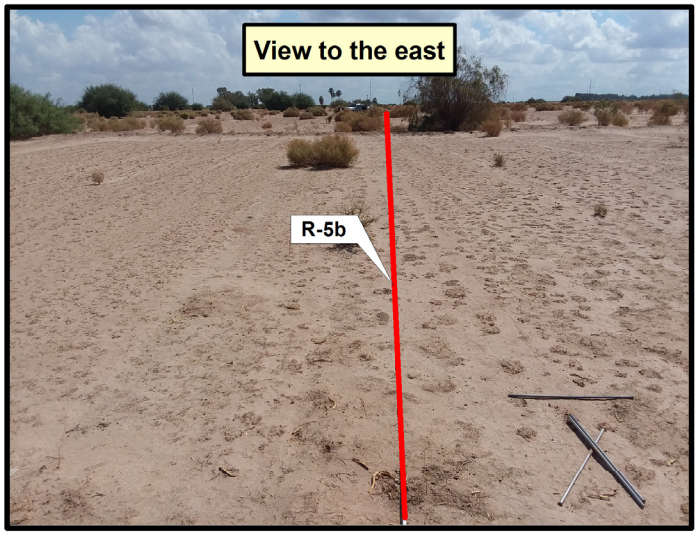
SOUTHWEST GEOPHYSICS INC.

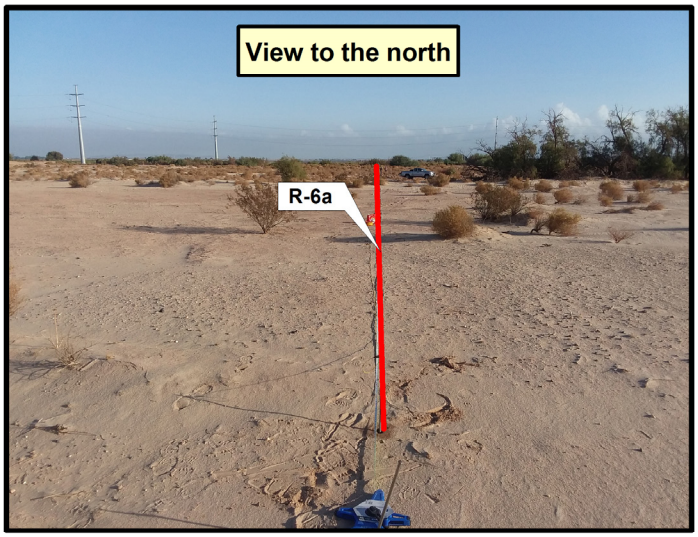
Figure 3a

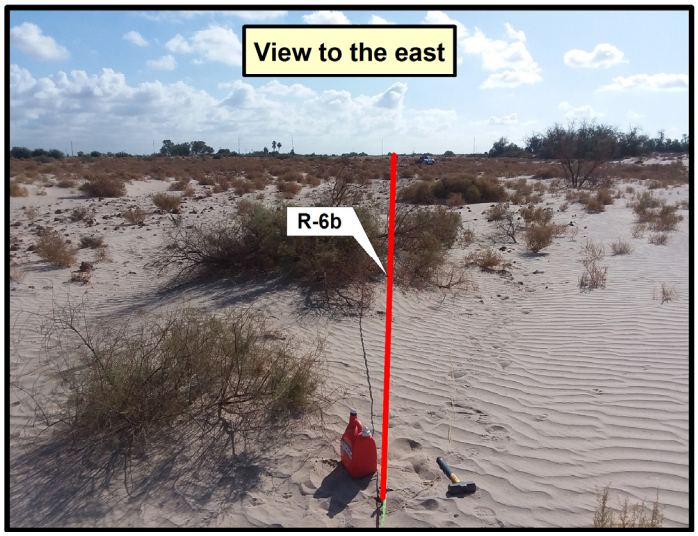












SITE PHOTOGRAPHS

Westside Canal
El Centro, California

Project No.: 118487 | Date: 10/18

SOUTHWEST GEOPHYSICS INC.

Figure 3b

Line No. Orientation	Spacing (ft)	Current (mA)	Resistance (Ohms)	Error (%)	Apparent Resistivity	
					(ohm-cm)	(ohm-ft)
R-1a	2	10	46.62	0.1	17857	586
(N-S)	4	5	23.45	0.0	17964	589
	6	5	16.09	0.0	18489	607
	8	2	20.07	0.1	30749	1009
	12	10	9.27	0.0	21297	699
	20	10	4.19	0.1	16041	526
	30	5	1.98	0.1	11353	372
	50	10	0.41	0.3	3937	129
	100	20	0.10	0.3	1992	65
	200	20	0.04	0.2	1462	48
R-1b	2	20	60.89	0.0	23322	765
(E-W)	4	20	21.69	0.0	16616	545
	6	20	14.32	0.0	16455	540
	8	20	13.32	0.2	20407	670
	12	20	12.12	0.0	27853	914
	20	10	5.77	0.2	22108	725
	30	10	2.11	0.2	12123	398
	50	10	0.38	0.2	3631	119
	100	10	0.13	0.3	2432	80
	200	20	0.05	0.0	1848	61
R-2a	2	5	623.80	0.0	238930	7839
(N-S)	4	10	137.80	0.0	105561	3463
	6	5	105.00	0.0	120652	3958
	8	5	72.01	0.0	110326	3620
	12	5	31.56	0.1	72529	2380
	20	10	4.28	0.0	16382	537
	30	5	1.01	0.1	5809	191
	50	5	0.18	0.1	1696	56
	100	20	0.04	0.3	778	26
	200	20	0.02	0.1	954	31
R-2b	2	5	286.00	0.0	109544	3594
(E-W)	4	5	166.20	0.1	127317	4177
	6	5	87.12	0.0	100107	3284
	8	5	56.30	0.0	86257	2830
	12	10	24.62	0.1	56580	1856
	20	5	7.41	0.0	28374	931
	30	2	1.15	0.3	6630	218
	50	10	0.10	0.1	985	32
	100	10	0.04	0.3	858	28
	200	20	0.03	0.0	1002	33

ELECTRICAL RESISTIVITY RESULTS

Westside Canal
El Centro, California

Project No.: 118487 | Date: 10/18

SOUTHWEST GEOPHYSICS INC.

Figure 4a

Line No. Orientation	Spacing (ft)	Current (mA)	Resistance (Ohms)	Error (%)	Apparent Resistivity	
					(ohm-cm)	(ohm-ft)
R-3a	2	5	30.78	0.2	11789	387
(N-S)	4	5	3.04	0.1	2326	76
	6	10	1.28	0.1	1465	48
	8	10	0.65	0.1	994	33
	12	5	0.34	0.2	778	26
	20	10	0.15	0.1	593	19
	30	10	0.11	0.2	633	21
	50	5	0.07	0.2	715	23
	100	5	0.05	0.2	936	31
	200	5	0.02	0.2	781	26
R-3b	2	20	23.69	0.0	9074	298
(E-W)	4	10	3.25	0.2	2488	82
	6	5	1.13	0.0	1294	42
	8	10	0.67	0.2	1022	34
	12	20	0.35	0.0	801	26
	20	5	0.15	0.3	570	19
	30	10	0.10	0.1	592	19
	50	10	0.08	0.0	765	25
	100	10	0.06	0.2	1109	36
	200	20	0.04	0.1	1476	48
R-4a	2	10	441.00	0.0	168913	5542
(N-S)	4	10	35.51	0.0	27202	892
	6	10	7.00	0.0	8042	264
	8	10	3.64	0.0	5575	183
	12	10	1.50	0.1	3436	113
	20	5	0.57	0.1	2191	72
	30	10	0.27	0.1	1524	50
	50	20	0.09	0.3	859	28
	100	20	0.03	0.1	497	16
	200	50	0.02	0.0	612	20
R-4b	2	5	354.40	0.0	135743	4454
(E-W)	4	5	107.10	0.2	82043	2692
	6	5	15.09	0.0	17339	569
	8	10	5.43	0.0	8322	273
	12	10	1.63	0.1	3748	123
	20	2	0.66	0.1	2514	82
	30	10	0.25	0.0	1444	47
	50	5	0.09	0.1	902	30
	100	20	0.02	0.3	356	12
	200	20	0.02	0.1	582	19

ELECTRICAL RESISTIVITY RESULTS

Westside Canal
El Centro, California

Project No.: 118487 | Date: 10/18

SOUTHWEST GEOPHYSICS INC.

Figure 4b

Line No. Orientation	Spacing (ft)	Current (mA)	Resistance (Ohms)	Error (%)	Apparent Resistivity	
					(ohm-cm)	(ohm-ft)
R-5a	2	20	9.78	0.2	3746	123
(N-S)	4	50	1.57	0.0	1203	39
	6	50	0.49	0.1	559	18
	8	100	0.30	0.1	458	15
	12	50	0.18	0.0	406	13
	20	100	0.13	0.1	508	17
	30	200	0.10	0.1	561	18
	50	200	0.06	0.1	595	20
	100	100	0.03	0.0	656	22
	200	200	0.02	0.0	742	24
R-5b	2	20	8.27	0.0	3166	104
(E-W)	4	20	1.11	0.1	848	28
	6	20	0.57	0.1	650	21
	8	50	0.33	0.1	499	16
	12	50	0.20	0.0	467	15
	20	50	0.13	0.1	483	16
	30	100	0.10	0.1	561	18
	50	50	0.06	0.2	580	19
	100	100	0.03	0.1	629	21
	200	20	0.01	0.1	561	18
R-6a	2	100	2.77	0.0	1062	35
(N-S)	4	200	0.38	0.1	289	9
	6	200	0.22	0.0	247	8
	8	200	0.19	0.1	293	10
	12	500	0.09	0.0	216	7
	20	500	0.05	0.0	204	7
	30	200	0.04	0.1	219	7
	50	500	0.03	0.0	247	8
	100	500	0.02	0.0	329	11
	200	20	0.02	0.0	630	21
R-6b	2	100	2.53	0.1	970	32
(E-W)	4	200	0.68	0.0	522	17
	6	100	0.27	0.0	307	10
	8	200	0.13	0.0	205	7
	12	200	0.08	0.0	182	6
	20	200	0.06	0.1	221	7
	30	500	0.04	0.0	234	8
	50	200	0.03	0.0	257	8
	100	200	0.02	0.1	341	11
	200	200	0.01	0.1	506	17

ELECTRICAL RESISTIVITY RESULTS

Westside Canal
El Centro, California

Project No.: 118487 | Date: 10/18

SOUTHWEST GEOPHYSICS INC.

Figure 4c

APPENDIX C

Laboratory Test Results

SUMMARY OF LABORATORY TEST RESULTS

In-situ Moisture and Density Tests

The in-situ moisture contents and dry densities of selected samples obtained from the test borings were evaluated in general accordance with the latest version of D2216 and D2937 laboratory test methods. The method involves obtaining the moist weight of the sample and then drying the sample to obtain it's dry weight. The moisture content is calculated by taking the difference between the wet and dry weights, dividing it by the dry weight of the sample and expressing the result as a percentage. The results of the in-situ moisture content and density tests are presented in the following table and on the logs of exploratory borings in Appendix A.

RESULTS OF MOISTURE CONTENT AND DENSITY TESTS
(ASTM D2216 and ASTM D2937)

Sample Location	Moisture Content (percent)	Dry Density (pounds per cubic foot)
Boring 1 @ 3 - 5 feet	20.1	Not Tested
Boring 1 @ 5.5 - 6 feet	26.1	97.7
Boring 1 @ 10 - 11.5 feet	25.8	Not Tested
Boring 1 @ 15 - 16.5 feet	22.1	Not Tested
Boring 1 @ 20 – 21.5 feet	21.8	Not Tested
Boring 1a @ 15 – 16.5 feet	24.3	Not Tested
Boring 1a @ 20 - 21.5 feet	24.8	Not Tested
Boring 1a @ 25 - 26.5 feet	22.5	Not Tested
Boring 1a @ 30 - 31.5 feet	22.1	Not Tested
Boring 1a @ 35 - 36.5 feet	22.7	Not Tested
Boring 1a @ 40 - 41.5 feet	22.4	Not Tested
Boring 1a @ 45 - 46.5 feet	21.4	Not Tested
Boring 1a @ 50 - 51.5 feet	22.4	Not Tested
Boring 1a @ 55 - 56.5 feet	22.0	Not Tested
Boring 1a @ 60 - 61.5 feet	23.1	Not Tested
Boring 1a @ 65 - 66.5 feet	22.0	Not Tested
Boring 1a @ 70 - 71.5 feet	21.3	Not Tested
Boring 1a @ 75 - 76.5 feet	21.2	Not Tested

Sample Location	Moisture Content (percent)	Dry Density (pounds per cubic foot)
Boring 2 @ 6 – 6.5 feet	5.1	102.1
Boring 2 @ 10 – 11.5 feet	27.2	Not Tested
Boring 2 @ 15 - 16.5 feet	27.0	Not Tested
Boring 2 @ 18.5 – 20 feet	21.5	Not Tested
Boring 3 @ 5 – 6.5 feet	8.4	Not Tested
Boring 3 @ 11 – 11.5 feet	20.8	104.2
Boring 3 @ 15 - 16.5 feet	28.8	Not Tested
Boring 3 @ 18.5 - 20 feet	26.0	Not Tested
Boring 4 @ 6 - 6.5 feet	22.3	96.4
Boring 4 @ 10 – 11.5 feet	26.3	Not Tested
Boring 4 @ 16 – 16.5 feet	16.6	104.8
Boring 4 @ 18.5 - 20 feet	22.9	Not Tested
Boring 5 @ 3 – 5 feet	4.6	Not Tested
Boring 5 @ 6 - 6.5 feet	11.2	107.9
Boring 5 @ 10 – 11.5 feet	22.2	Not Tested
Boring 5 @ 18.5 – 20 feet	22.6	Not Tested
Boring 6 @ 1 – 3 feet	8.8	Not Tested
Boring 6 @ 6 – 6.5 feet	24.1	99.5
Boring 6 @ 10 – 11.5 feet	25.4	Not Tested
Boring 6 @ 16 – 16.5 feet	29.1	94.3
Boring 6 @ 20 - 21.5 feet	29.3	Not Tested
Boring 6 @ 26 - 26.5 feet	28.1	Not Tested
Boring 6 @ 30 - 31.5 feet	16.8	Not Tested
Boring 6 @ 35 - 36.5 feet	24.7	Not Tested
Boring 6 @ 40 - 41.5 feet	33.1	Not Tested
Boring 6 @ 45 – 46.5 feet	26.7	Not Tested
Boring 6 @ 50 – 51.5 feet	25.2	Not Tested

Classification

Soils were visually and texturally classified in general accordance with the Unified Soil Classification System (ASTM D2487). Soil classifications are indicated on the logs of the exploratory borings presented in Appendix A.

Particle-size Distribution Tests

An evaluation of the grain-size distribution of selected soil samples was performed in general accordance with the latest versions of ASTM D1140 and ASTM D6913 (excluding hydrometer). These test results were utilized in evaluating the soil classifications in accordance with the Unified Soil Classification System. Particle size distribution test results are presented on the laboratory test sheets attached in this appendix.

Expansion Index Tests

Expansion index tests were performed on samples of the on-site soils. The tests were performed in general accordance with ASTM D4829. The results of the tests are presented below and attached in this appendix.

Location	B-1 @ 3' - 5'	B-2 @ 3' - 5'	B-3/B-5 @ 3' - 5'	B-4 @ 3' - 5'	B-6 @ 1' - 3'
Material Type	Tan Lean CLAY with Sand (CL)	Brown Fat CLAY (CH)	Tan Silty SAND (SM)	Tan Clayey SAND (SC)	Brown Fat CLAY (CH)
Source	Native	Native	Native	Native	Native
Initial Moisture Content, %	10.2	10.2	8.3	7.6	11.6
Final Moisture Content, %	20.5	25.9	16.1	17.3	27.8
Dry Density, pcf	109.7	108.4	116.3	118.6	104.5
Initial Saturation, %	51.3	49.7	49.8	48.8	51.1
Expansion Index	50	106	14	54	106
Potential Expansion	LOW	HIGH	VERY LOW	MEDIUM	HIGH

Atterberg Limits

Atterberg limits tests were performed in general accordance with ASTM D4318 on selected soil samples. These tests were useful in classification of the soils. Test results are attached in this appendix and summarized below.

Location	B-6 @ 10 – 11.5 ft	B-6 @ 20 – 21.5 ft	B-6 @ 35 – 36.5 ft	B-6 @ 45 – 46.5
Material Type	Fat CLAY (CH)	Fat CLAY (CH)	Lean CLAY with Sand (CL)	Sandy Lean CLAY (CL)
Liquid Limit	75	66	32	34
Plastic Limit	20	19	14	18
Plasticity Index	55	47	18	16

Thermal Resistivity Tests

Various bulk soil samples were packaged and returned to NV5's in house laboratory for thermal resistivity analysis. The bulk soil samples were placed, remolded and compacted within a 2.4 inch diameter by 6 inch long mold. Testing for thermal resistivity (rho) was completed in general accordance with test methods IEEE 442 and ASTM D5334. The results of the laboratory testing are summarized below and included in this appendix and summarized in the table below.

Sample # and Depth	Soil Description	Remolded & Compacted Dry Density (pcf)	Expansion Index	% Passing the No. 200 Sieve	Thermal Resistivity @ 0% Moisture (Dry) (°C-cm/W	Thermal Resistivity @ 4% Critical Moisture (Wet) (°C-cm/W)	Thermal Resistivity @ Wet Point (°C-cm/W)	Moisture Content @ Wet Point (%)
B2 @ 3-5'	Fay CLAY (CH)	108	106	Not Tested	136	84	71	10.7
B3 @ 3-5'	Silty SAND (SM)	111	14	40.4	145	70	65	5.7
B4 @ 3-5'	Clayey SAND (SC)	110	54	Not Tested	131	77	66	7.2
B6 @ 1-3'	Fat CLAY (CH)	104	106	Not Tested	140	104	75	13.4

Resistance "R" values test

R-Value tests were performed on samples of the on-site soils. The tests were performed in general accordance with California Test Method 301/ ASTM D2844. The result of the tests are presented below and attached in this appendix.

Location	B-3 @ 3 – 5 ft	B-6 @ 1 – 3 ft
"R" Value	57	5
Material Type	Silty SAND (SM)	Fat CLAY (CH)

Direct Shear

A direct shear test was performed on a representative relatively undisturbed sample in general accordance with ASTM D3080 to evaluate the shear strength characteristics of the on-site materials. The test method consists of placing the soil sample in the direct shear device, applying a series of normal stresses, and then shearing the sample at the constant rate of shearing deformation. The shearing force and horizontal displacements are measured and recorded as the soil specimen is sheared. The shearing is continued well beyond the point of maximum stress until the stress reaches a constant or residual value. The results of the tests are presented in the following table and attached in this appendix.

RESULTS OF DIRECT SHEAR TEST
(ASTM D3080)

Location	USCS Classification	Peak Friction (degrees)	Ultimate Friction (degrees)	Peak Cohesion (psf)	Ultimate Cohesion (psf)	Notes
Boring 6 @ 6 - 6.5 ft.	CH	32	29	933	341	Relatively undisturbed

Soil Corrosivity Tests

Water soluble sulfate, chloride, resistivity and pH tests were performed by Clarkson Laboratory and Supply Inc., in general accordance with California Test Methods 643, 417 and 422 to provide an indication of the degree of corrosivity of the subgrade soils at locations tested with regard to concrete and normal grade steel. The results of the tests are presented in the following table and on the laboratory test sheets attached in this appendix.

RESULTS OF CORROSIVITY TESTS
(CTM 417, CTM 422 and CTM 643)

Sample Location	B-3 @3-5 ft	B-6 @1-3 ft
pH	9.3	8.5
Minimum Resistivity (Ohm-cm)	820	120
Water Soluble Sulfates (ppm)	420	2,310
Water Soluble Chlorides (ppm)	130	2,140
Material Type	Silty SAND (SM)	Fat CLAY (CH)
Percent Finer Than No. 200 Sieve	40.4%	Not Tested

Natural Moisture Report

(ASTM D2216)

Date:	October 10, 2018	Job Number:	1076
Client:	Sempra Renewables	Report Number:	6918
Address:	488 8th Avenue	Lab Number:	116882-116894
	San Diego, CA 92101		
Project:	Westside Canal Energy Center		
Project Add:	Imperial Valley, CA		
Sampled By:	Sean Burford		
Date Sampled	10/2/2018		
Date Rcvd:	10/2/2018		

Lab Number	116882	116883	116884	116885	116886
Exploration No.	B-1A	B-1A	B-1A	B-1A	B-1A
Depth, ft.	15-16.5	20-21.5	25-26.5	30-31.5	35-36.5
Moisture Content, %	24.3	24.8	22.5	22.1	22.7

Lab Number	116887	116888	116889	116890	116891
Exploration No.	B-1A	B-1A	B-1A	B-1A	B-1A
Depth, ft.	40-41.5	45-46.5	50-51.5	55-56.5	60-61.5
Moisture Content, %	22.4	21.4	22.4	22.0	23.1

Lab Number	116892	116893	116894		
Exploration No.	B-1A	B-1A	B-1A		
Depth, ft.	65-66.5	70-71.5	75-76.5		
Moisture Content, %	22.0	21.3	21.2		

Respectfully Submitted,
NV5 West, Inc.

Reviewed by:

Carl Henderson, PhD, PE, GE
CQA Group Director

Natural Moisture & Density Report

(ASTM D2216 & ASTM D2937)

Date:	October 11, 2018	Job Number:	1076
Client:	Sempra Renewables	Report Number:	6881
Address:	488 8th Avenue	Lab Number:	116792-116810
	San Diego, CA 92101		
Project:	Westside Canal Energy Center		
Project Add:	Imperial Valley, CA		
Sampled By:	Sean Burford		
Date Sampled	9/17-18/2018		
Date Rcvd:	9/19/2018		

Lab Number	116880	116792	116793	116794	116795
Exploration No.	B1	B1	B1	B1	B1
Depth, ft.	3-5	5.5-6	10-11.5	15-16.5	20-21.5
Moisture Content, %	20.1	26.1	25.8	22.1	21.8
Dry Density, pcf	-	97.7	-	-	-

Lab Number	116797	116798	116799	116800	116802
Exploration No.	B2	B2	B2	B2	B3
Depth, ft.	6-6.5	10-11.5	15-16.5	18.5-20	5-6.5
Moisture Content, %	5.1	27.2	27.0	21.5	8.4
Dry Density, pcf	102.1	-	-	-	-

Lab Number	116803	116804	116805	116807	116808
Exploration No.	B3	B3	B3	B4	B4
Depth, ft.	11-11.5	15-16.5	18.5-20	6-6.5	10-11.5
Moisture Content, %	20.8	28.8	26.0	22.3	26.3
Dry Density, pcf	104.2	-	-	96.4	-

Natural Moisture & Density Report

(ASTM D2216 & D2937)

Date:	October 12, 2018	Job Number:	1076
Client:	Sempra Renewables	Report Number:	6919
Address:	488 8th Avenue	Lab Number:	116895-116909
	San Diego, CA 92101		
Project:	Westside Canal Energy Center		
Project Add:	Imperial Valley, CA		
Sampled By:	Sean Burford		
Date Sampled	10/1/2018		
Date Rcvd:	10/2/2018		

Lab Number	116895	116896	116897	116898	116899
Exploration No.	B5	B5	B5	B5	B6
Depth, ft.	3-5	6-6.5	10-11.5	18.5-20	1-3
Moisture Content, %	4.6	11.2	22.2	22.6	8.8
Dry Density, pcf.	-	107.9	-	-	-

Lab Number	116900	116901	116902	116903	116904
Exploration No.	B6	B6	B6	B6	B6
Depth, ft.	6-6.5	10-11.5	16-16.5	20-21.5	26-26.5
Moisture Content, %	24.1	25.4	29.1	29.3	28.1
Dry Density, pcf.	99.5	-	94.3	-	-

Lab Number	116905	116906	116907	116908	116909
Exploration No.	B6	B6	B6	B6	B6
Depth, ft.	30-31.5	35-36.5	40-41.5	45-46.5	50-51.5
Moisture Content, %	16.8	24.7	33.1	26.7	25.2
Dry Density, pcf.	-	-	-	-	-

Respectfully Submitted,
NV5 West, Inc.

Reviewed by:

Carl Henderson, PhD, PE, GE
CQA Group Director

Lab Number	116809	116810			
Exploration No.	B4	B4			
Depth, ft.	16-16.5	18.5-20			
Moisture Content, %	16.6	22.9			
Dry Density, pcf	104.8	-			

Respectfully Submitted,
NV5 West, Inc.

Reviewed by: 

Carl Henderson, PhD, PE, GE
CQA Group Director

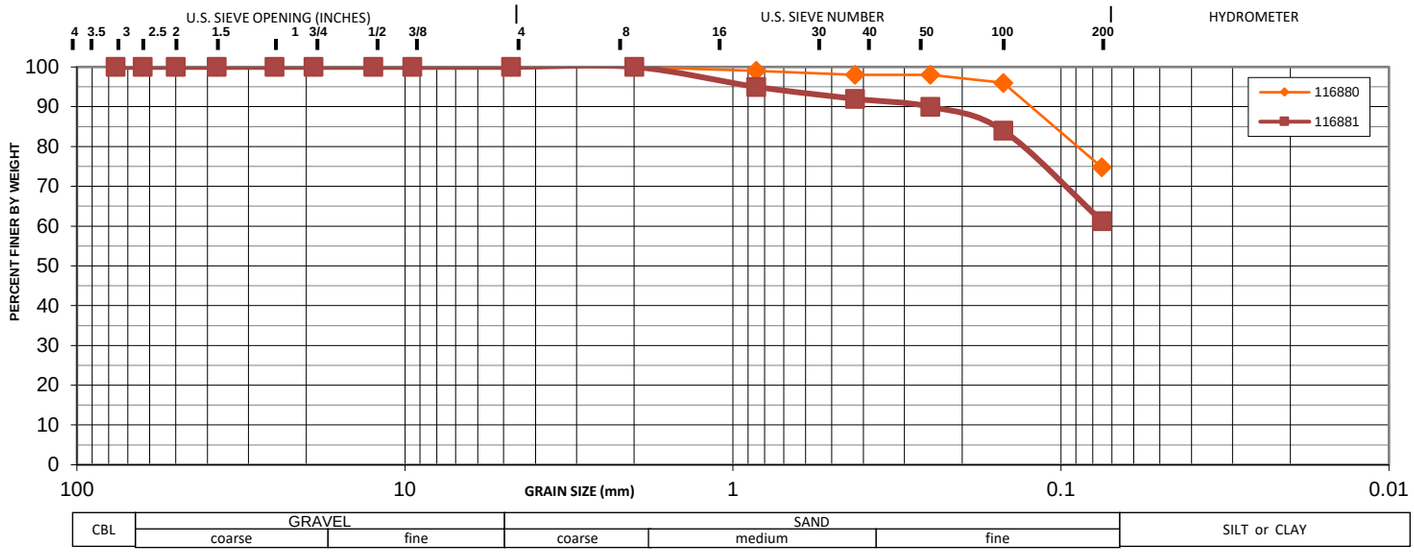
REPORT OF SIEVE ANALYSIS TEST

ASTM D6913 - Soil

Date: October 11, 2018
Client: Sempra Renewables
Address: 488 8th Avenue
San Diego, CA 92101
Project : Westside Canal Energy Center
Project Address: Imperial Valley, CA

Job Number: 1076
Report Number: 6881
Lab Number: 116880-116881

	116880	116881				
Material	Lean CLAY with Sand (CL)	Sandy Lean CLAY (CL)				
Color	Tan	Tan				
Material Source	Native	Native				
Sample Location	B1 @ 3'-5'	B1 @ 13'-15'				
Date Sampled	9/17-18/2018	9/17-18/2018				
Date Submitted	9/19/2018	9/19/2018				
Sampled By	Sean Burford	Sean Burford				
Date Tested	10/3/2018	10/3/2018				
Tested By	Edwin Ocampo	Edwin Ocampo				



Sample ID:	116880	116881				
Sieve Size	% Passing					
76.2mm (3")	100	100				
63mm (2 1/2")	100	100				
50mm (2")	100	100				
37.5mm (1 1/2")	100	100				
25mm (1")	100	100				
19mm (3/4")	100	100				
12.5mm (1/2")	100	100				
9.5mm (3/8")	100	100				
4.75mm (#4)	100	100				
2mm (#10)	100	100				
850µm (#20)	99	95				
425µm (#40)	98	92				
250µm (#60)	98	90				
150 µm (#100)	96	84				
75 um (#200) washµ	74.8	61.3				
Fineness Modulus	0.1	0.3				
Shape (sand & gravel)	N.R.	N.R.				
Hardness (sand & gravel)	N.R.	H&D				
Specific Gravity	2.65	2.65				
Coef. of Curvature (C_C)	N.R.	N.R.				
Coef. of Uniformity (C_U)	N.R.	N.R.				
% Gravel	0	0				
% Sand	25	39				
% Fines	74.8	61.3				
USCS Class:	CL	CL				

Notes: *Hardness: H&D = Hard & Durable; W&F = Weathered & Friable*
N.R.: Not Recorded; N/A: Not Available.

Respectfully Submitted,
NV5 West, Inc.

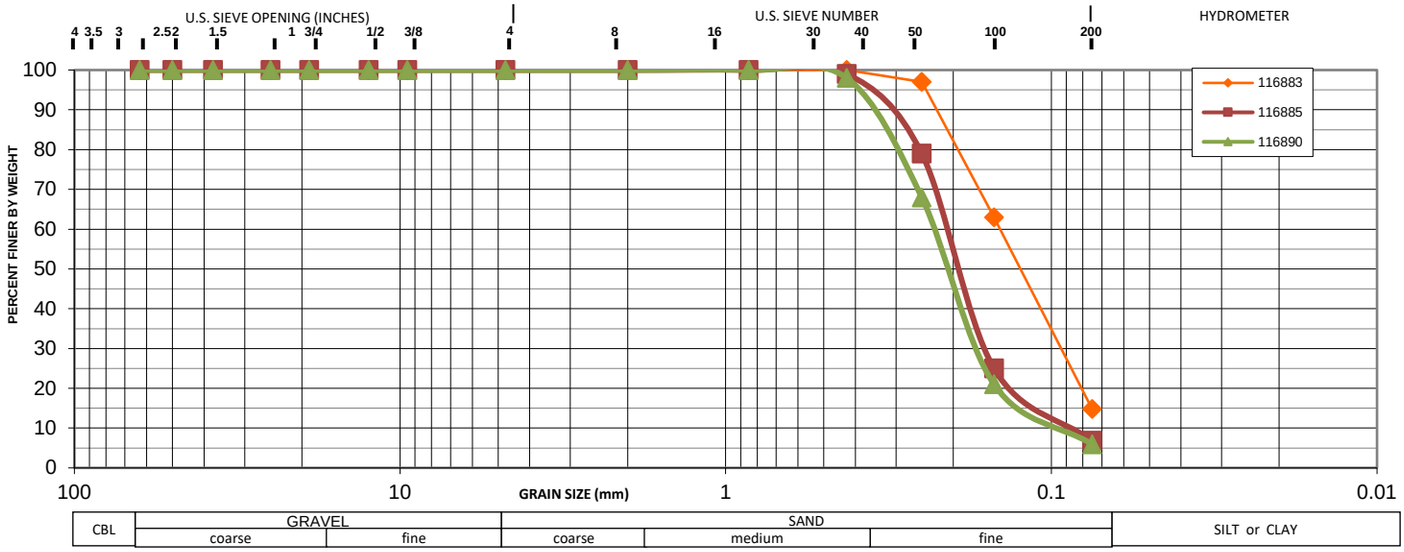
Carl Henderson, PhD, PE, GE
CQA Group Director

REPORT OF SIEVE ANALYSIS TEST

ASTM D6913 - Soil

Date:	October 10, 2018	Job Number:	1076
Client:	Sempra Renewables	Report Number:	6918
Address:	488 8th Avenue San Diego, CA 92101	Lab Number:	116883, 116885, 116890
Project :	Westside Canal Energy Center		
Project Address:	Imperial Valley, CA		

	116883	116885	116890			
Material	Silty SAND (SM)	Poorly-graded SAND with Silt (SP-SM)	Poorly-graded SAND with Silt (SP-SM)			
Color	Tan	Brown	Tan			
Sample Source	Native	Native	Native			
Sample Location	B-1A @ 20'-21.5' & 25'-26.5'	B-1A @ 30'-31.5' to 50'-51.5'	B-1A @ 55'-56.5' to 75'-76.5'			
Date Sampled	10/2/2018	10/2/2018	10/2/2018			
Date Submitted	10/2/2018	6/29/2018	6/29/2018			
Sampled By	Sean Burford	Sean Burford	Sean Burford			
Date Tested	10/4/2018	10/8/2018	10/8/2018			
Tested By	Edwin Ocampo	Edwin Ocampo	Edwin Ocampo			



Sample ID:	116883	116885	116890			
Sieve Size	% Passing					
63mm (2 1/2")	100	100	100			
50mm (2")	100	100	100			
37.5mm (1 1/2")	100	100	100			
25mm (1")	100	100	100			
19mm (3/4")	100	100	100			
12.5mm (1/2")	100	100	100			
9.5mm (3/8")	100	100	100			
4.75mm (#4)	100	100	100			
2mm (#10)	100	100	100			
850µm (#20)	100	100	100			
425µm (#40)	100	99	98			
250µm (#60)	97	79	68			
150 µm (#100)	63	25	21			
75 um (#200) washµ	14.8	6.8	6.0			
Fineness Modulus	0.4	0.8	0.8			
Shape (sand & gravel)	N.R.	N.R.	Round			
Hardness (sand & gravel)	N.R.	H&D	N.R.			
Specific Gravity	2.65	2.65	2.65			
Coef. of Curvature (C_C)	N.R.	N.R.	N.R.			
Coef. of Uniformity (C_U)	N.R.	N.R.	N.R.			
% Gravel	0	0	0			
% Sand	85	93	94			
% Fines	14.8	6.8	6.0			
USCS Class:	SM	SP-SM	SP-SM			

Notes: *Hardness: H&D = Hard & Durable; W&F = Weathered & Friable*
N.R.: Not Recorded; N/A: Not Available.

Respectfully Submitted,
NV5 West, Inc.

Carl Henderson, PhD, PE, GE
CQA Group Director

Material Finer Than 75-µm (No.200) Sieve in Soils by Washing

(ASTM D1140)

Date:	October 18, 2018	Job Number:	1076
Client:	Sempra Renewables	Report Number:	6948
Address:	488 8th Avenue	Lab Number:	117009
	San Diego, CA 92101		
Project:	Westside Canal Energy Center		
Project Add:	Imperial Valley, CA		
Sampled By:	Sean Burford		
Date Sampled	10/17/2018		
Date Rcvd:	10/17/2018		

Lab Number	117009
Sample No.	B3 & B5
Depth, ft.	3'-5'
Source	Native
Material Type	Brown Silty SAND (SM)
% Finer Than 75-µm	40.4

Respectfully Submitted,
NV5 West, Inc.

Reviewed by:

Carl Henderson, PhD, PE, GE
CQA Group Director

Expansion Index Test Report

(ASTM D4829)

Date:	October 11, 2018	Job Number:	1076
Client:	Sempra Renewables	Report Number:	6881
Address:	488 8th Avenue	Lab Number:	116796-11806
	San Diego, CA 92101		
Project:	Westside Canal Energy Center		
Project Add:	Imperial Valley, CA		
Sampled By:	Sean Burford		
Date Sampled	9/17-18/2018		
Date Rcvd:	9/19/2018		

Lab Number	116796	116806
Location	B2 @ 3'-5'	B4 @ 3'-5'
Material Type	Brown Fat CLAY (CH)	Tan Clayey SAND (SC)
Source	Native	Native
Initial Moisture Content, %	10.2	7.6
Final Moisture Content, %	25.9	17.3
Dry Density, pcf	108.4	118.6
Initial Saturation, %	49.7	48.8
Expansion Index	**106**	**54**
Potential Expansion	**HIGH**	**MEDIUM**

Respectfully Submitted,
NV5 West, Inc.

Carl Henderson, PhD, PE, GE
CQA Group Director

Expansion Index Test Report

(ASTM D4829)

Date:	October 12, 2018	Job Number:	1076
Client:	Sempra Renewables	Report Number:	6919
Address:	488 8th Avenue	Lab Number:	116899
	San Diego, CA 92101		
Project:	Westside Canal Energy Center		
Project Add:	Imperial Valley, CA		
Sampled By:	Sean Burford		
Date Sampled	10/1/2018		
Date Rcvd:	10/2/2018		

Lab Number	116899
Location	B6 @ 1'-3'
Material Type	Brown Fat CLAY (CH)
Source	Native
Initial Moisture Content, %	11.6
Final Moisture Content, %	27.8
Dry Density, pcf	104.5
Initial Saturation, %	51.1
Expansion Index	**106**
Potential Expansion	**HIGH**

Respectfully Submitted,
NV5 West, Inc.

Carl Henderson, PhD, PE, GE
CQA Group Director

Expansion Index Test Report

(ASTM D4829)

Date:	October 18, 2018	Job Number:	1076
Client:	Sempra Renewables	Report Number:	6948
Address:	488 8th Avenue	Lab Number:	117008-117009
	San Diego, CA 92101		
Project:	Westside Canal Energy Center		
Project Add:	Imperial Valley, CA		
Sampled By:	Sean Burford		
Date Sampled	10/17/2018		
Date Rcvd:	10/17/2018		

Lab Number	117008	117009
Location	B1 @ 3'-5'	B3/B5 @ 3'-5' Mixture
Material Type	Tan Lean CLAY with Sand (CL)	Tan Silty SAND (SM)
Source	Native	Native
Initial Moisture Content, %	10.2	8.3
Final Moisture Content, %	20.5	16.1
Dry Density, pcf	109.7	116.3
Initial Saturation, %	51.3	49.8
Expansion Index	**50**	**14**
Potential Expansion	**LOW**	**VERY LOW**

Respectfully Submitted,
NV5 West, Inc.

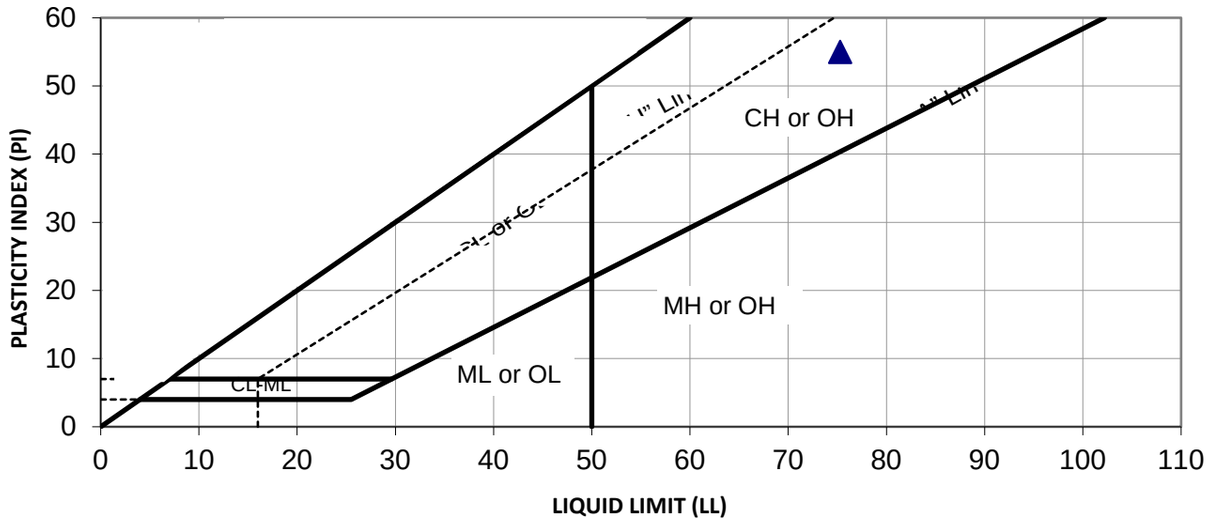
Carl Henderson, PhD, PE, GE
CQA Group Director

REPORT OF LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX TESTS

(ASTM 4318)

Date:	October 12, 2018	Job Number:	1076
Client:	Sempra Renewables	Report Number:	6919
Address:	488 8th Avenue	Lab Number:	116901
	San Diego, CA 92101		

Project:	Westside Canal Energy Center
Project Address:	Imperial Valley, CA
Material:	Brown Fat CLAY (CH)
Location:	B6 @ 10'-11.5'
Date Sampled:	10/1/2018
Date Submitted:	10/2/2018
Sampled By:	Sean Burford
Date Tested:	10/8/2018



SUMMARY OF TEST RESULTS

SAMPLE ID	SOURCE /LOCATION DEPTH	%>#40	TEST RESULT			USCS	
			LL	PL	PI	Class	Group Name
116901	B6 @ 10'-11.5'	NR	**75**	**20**	**55**	CH	Fat CLAY

Reviewed By: _____

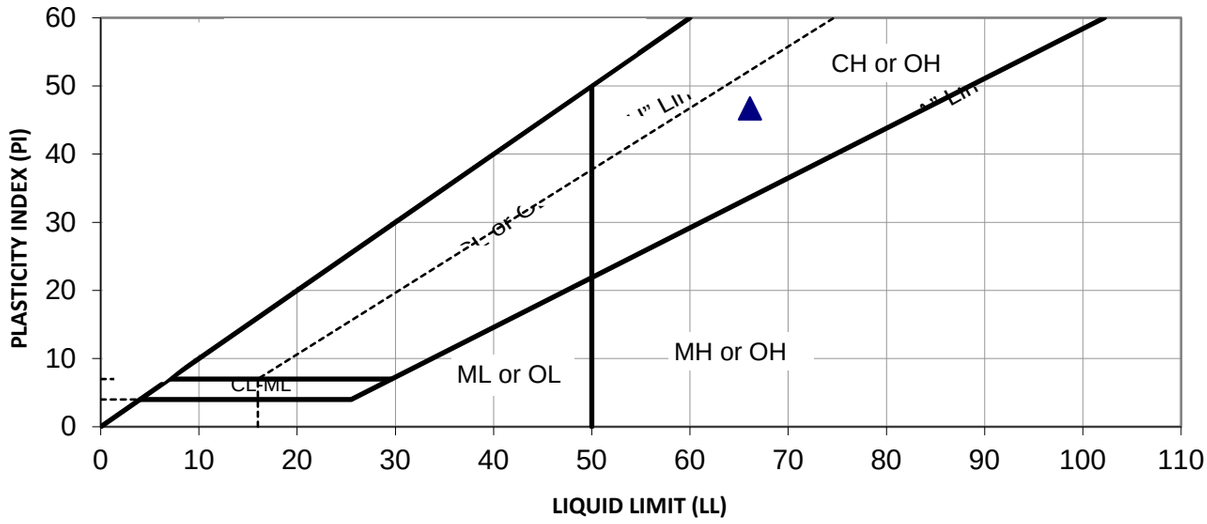
Carl Henderson, PhD, PE, GE
CQA Group Director

REPORT OF LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX TESTS

(ASTM 4318)

Date:	October 12, 2018	Job Number:	1076
Client:	Sempra Renewables	Report Number:	6919
Address:	488 8th Avenue	Lab Number:	116903
	San Diego, CA 92101		

Project:	Westside Canal Energy Center
Project Address:	Imperial Valley, CA
Material:	Brown Fat CLAY (CH)
Location:	B6 @ 20'-21.5'
Date Sampled:	10/1/2018
Date Submitted:	10/2/2018
Sampled By:	Sean Burford
Date Tested:	10/9/2018



SUMMARY OF TEST RESULTS

SAMPLE ID	SOURCE /LOCATION DEPTH	%>#40	TEST RESULT			USCS	
			LL	PL	PI	Class	Group Name
116903	B6 @ 20'-21.5'	NR	**66**	**19**	**47**	CH	Fat CLAY

Reviewed By: _____

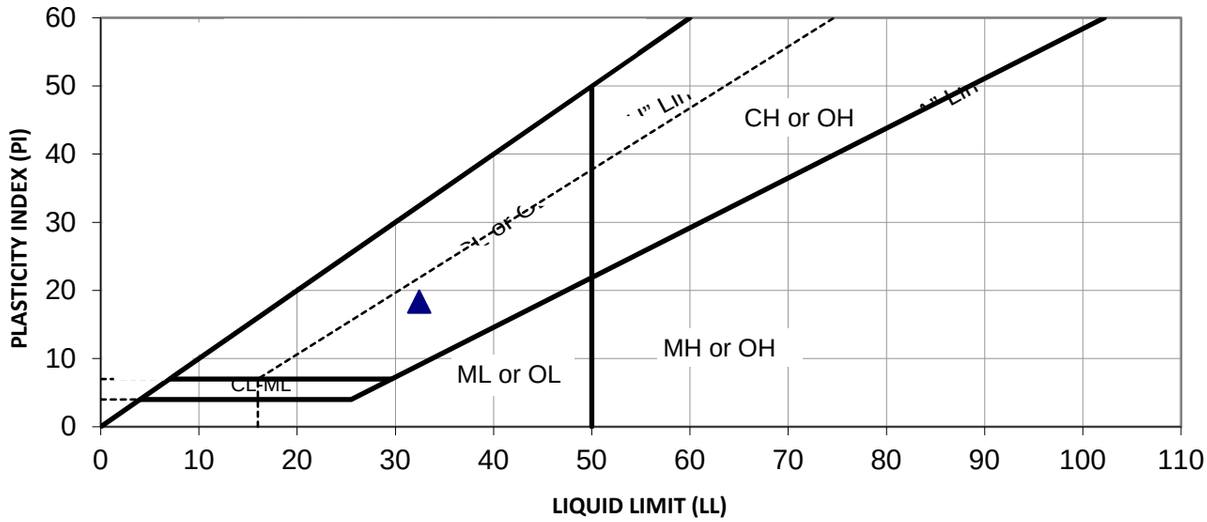
Carl Henderson, PhD, PE, GE
CQA Group Director

REPORT OF LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX TESTS

(ASTM 4318)

Date:	October 12, 2018	Job Number:	1076
Client:	Sempra Renewables	Report Number:	6919
Address:	488 8th Avenue	Lab Number:	116906
	San Diego, CA 92101		

Project:	Westside Canal Energy Center
Project Address:	Imperial Valley, CA
Material:	Brown Lean CLAY with Sand (CL)
Location:	B6 @ 35'-36.5'
Date Sampled:	10/1/2018
Date Submitted:	10/2/2018
Sampled By:	Sean Burford
Date Tested:	10/9/2018



SUMMARY OF TEST RESULTS

SAMPLE ID	SOURCE /LOCATION DEPTH	%>#40	TEST RESULT			USCS	
			LL	PL	PI	Class	Group Name
116906	B6 @ 35'-36.5'	NR	**32**	**14**	**18**	CL	Lean CLAY with Sand

Reviewed By: _____

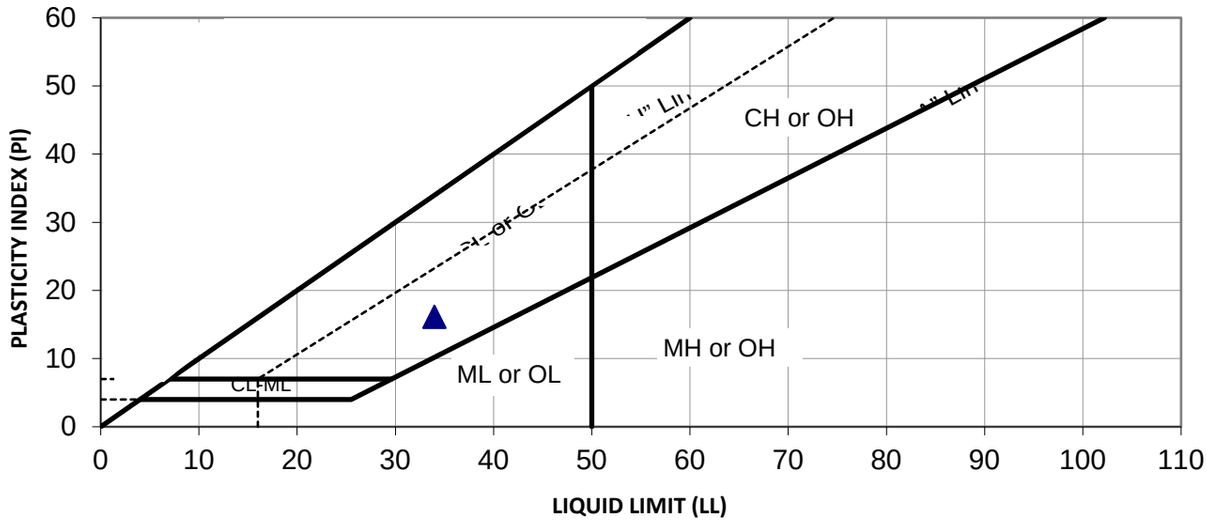
Carl Henderson, PhD, PE, GE
CQA Group Director

REPORT OF LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX TESTS

(ASTM 4318)

Date:	October 12, 2018	Job Number:	1076
Client:	Sempra Renewables	Report Number:	6919
Address:	488 8th Avenue	Lab Number:	116908
	San Diego, CA 92101		

Project:	Westside Canal Energy Center
Project Address:	Imperial Valley, CA
Material:	Brown Sandy Lean CLAY (CL)
Location:	B6 @ 45'-46.5'
Date Sampled:	10/1/2018
Date Submitted:	10/2/2018
Sampled By:	Sean Burford
Date Tested:	10/5/2018



SUMMARY OF TEST RESULTS

SAMPLE ID	SOURCE /LOCATION DEPTH	%>#40	TEST RESULT			USCS	
			LL	PL	PI	Class	Group Name
116908	B6 @ 45'-46.5'	NR	**34**	**18**	**16**	CL	Sandy Lean CLAY

Reviewed By: _____

Carl Henderson, PhD, PE, GE
CQA Group Director

Client Name: Sempra Renewables

Project: Westside Canal Energy Center

Report Date: 10/11/2018
NV5 Project No.: 1076
Lab Number: 116796
Location: B2 @ 3'-5'

Test Material Description: Soils Thermal Sample #1 (1 of 1), 2.4" x6"
Test Material: Brown Fat CLAY (CH)
Sample Date: 9/17-18/18

Test Description	Test Method	# of Cylinders
Thermal Resistivity Measurement	IEEE 442 / ASTM D5334	1

Probe Type: TR1
Ambient Temperature: 21.6 °C

Results:

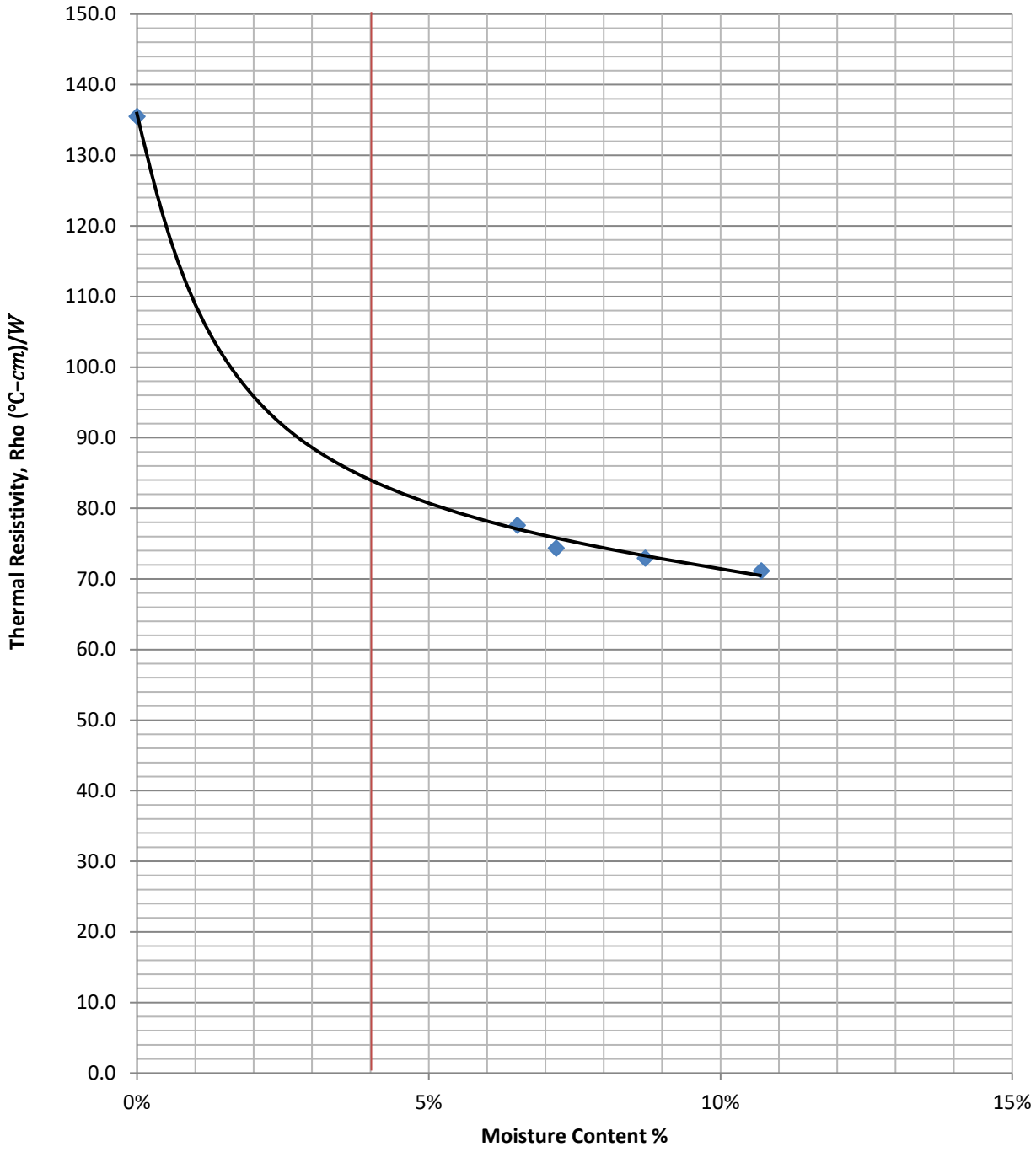
Dry Density (pcf)	Tested Max. Thermal Resistivity at 0% Moisture (°C-cm/W)	Max. Thermal Resistivity at 4% Critical Moisture (°C-cm/W)	Tested Thermal Resistivity at Wet Point (°C-cm/W)
108	136	84	71

Note: The accuracy of TR-1 Probe is ±10%

Respectfully submitted,
NV5

Carl Henderson, PhD,PE,GE
CQA GrouP Director

Thermal Resistivity Dryout Curve



Westside Canal Energy Project

Lab Number: 116796
B2 @ 3'-5'

Client Name: Sempra Renewables

Project: Westside Canal Energy Center

Report Date: 10/11/2018
NV5 Project No.: 1076
Lab Number: 116801
Location: B3 @ 3'-5'

Test Material Description: Soils Thermal Sample #1 (1 of 1), 2.4" x6"
Test Material: Tan Silty SAND (SM)
Sample Date: 9/17-18/18

Test Description	Test Method	# of Cylinders
Thermal Resistivity Measurement	IEEE 442 / ASTM D5334	1

Probe Type: TR1
Ambient Temperature: 21.6 °C

Results:

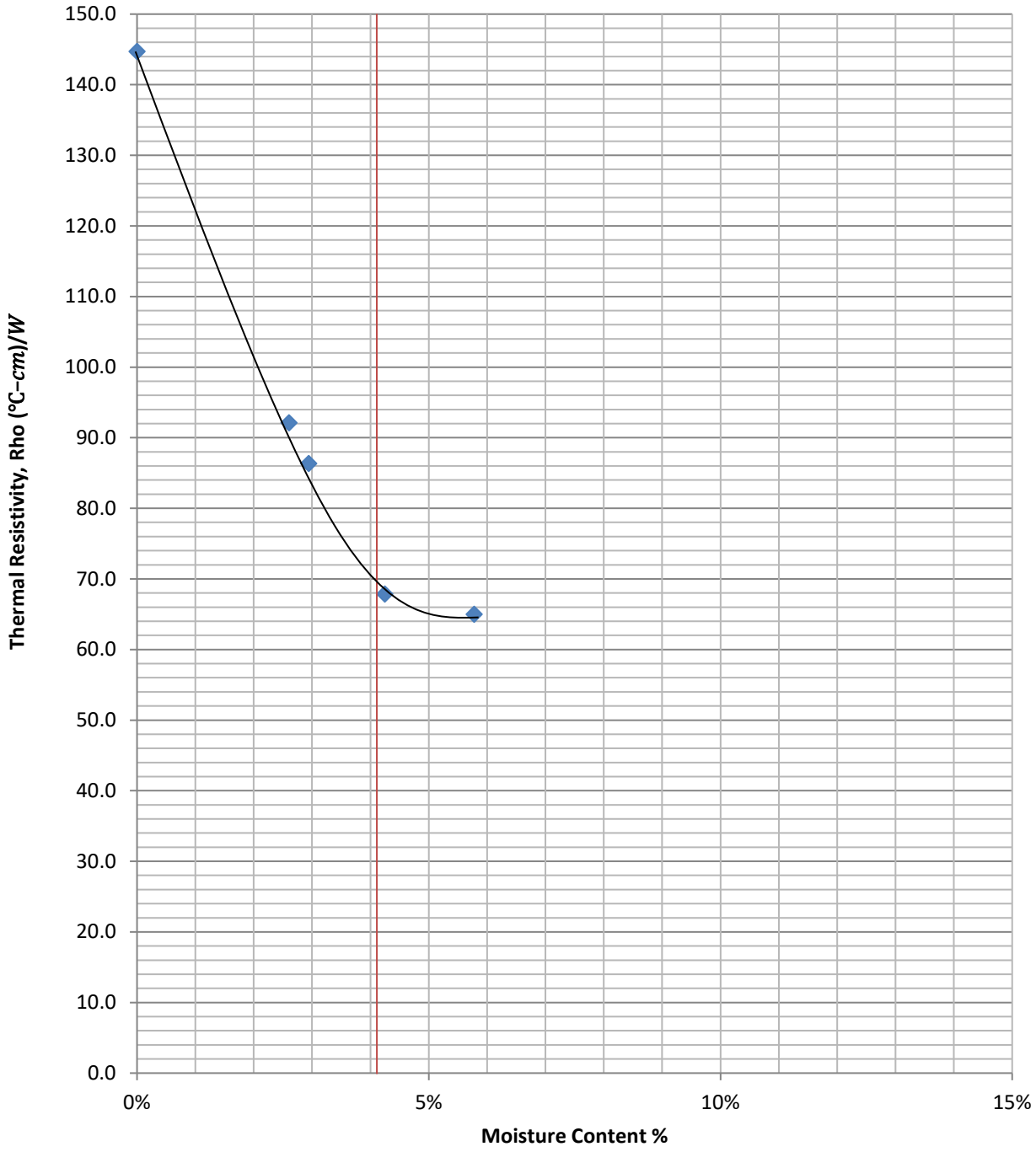
Dry Density (pcf)	Tested Max. Thermal Resistivity at 0% Moisture (°C-cm/W)	Max. Thermal Resistivity at 4% Critical Moisture (°C-cm/W)	Tested Thermal Resistivity at Wet Point (°C-cm/W)
111	145	70	65

Note: The accuracy of TR-1 Probe is ±10%

Respectfully submitted,
NV5

Carl Henderson, PhD,PE,GE
CQA GrouP Director

Thermal Resistivity Dryout Curve



Westside Canal Energy Project

Lab Number: 116801
B3 @ 3'-5'

Client Name: Sempra Renewables

Project: Westside Canal Energy Center

Report Date: 10/11/2018
NV5 Project No.: 1076
Lab Number: 116806
Location: B4 @ 3'-5'

Test Material Description: Soils Thermal Sample #1 (1 of 1), 2.4" x6"
Test Material: Tan Clayey SAND (SC)
Sample Date: 9/17-18/18

Test Description	Test Method	# of Cylinders
Thermal Resistivity Measurement	IEEE 442 / ASTM D5334	1

Probe Type: TR1
Ambient Temperature: 21.6 °C

Results:

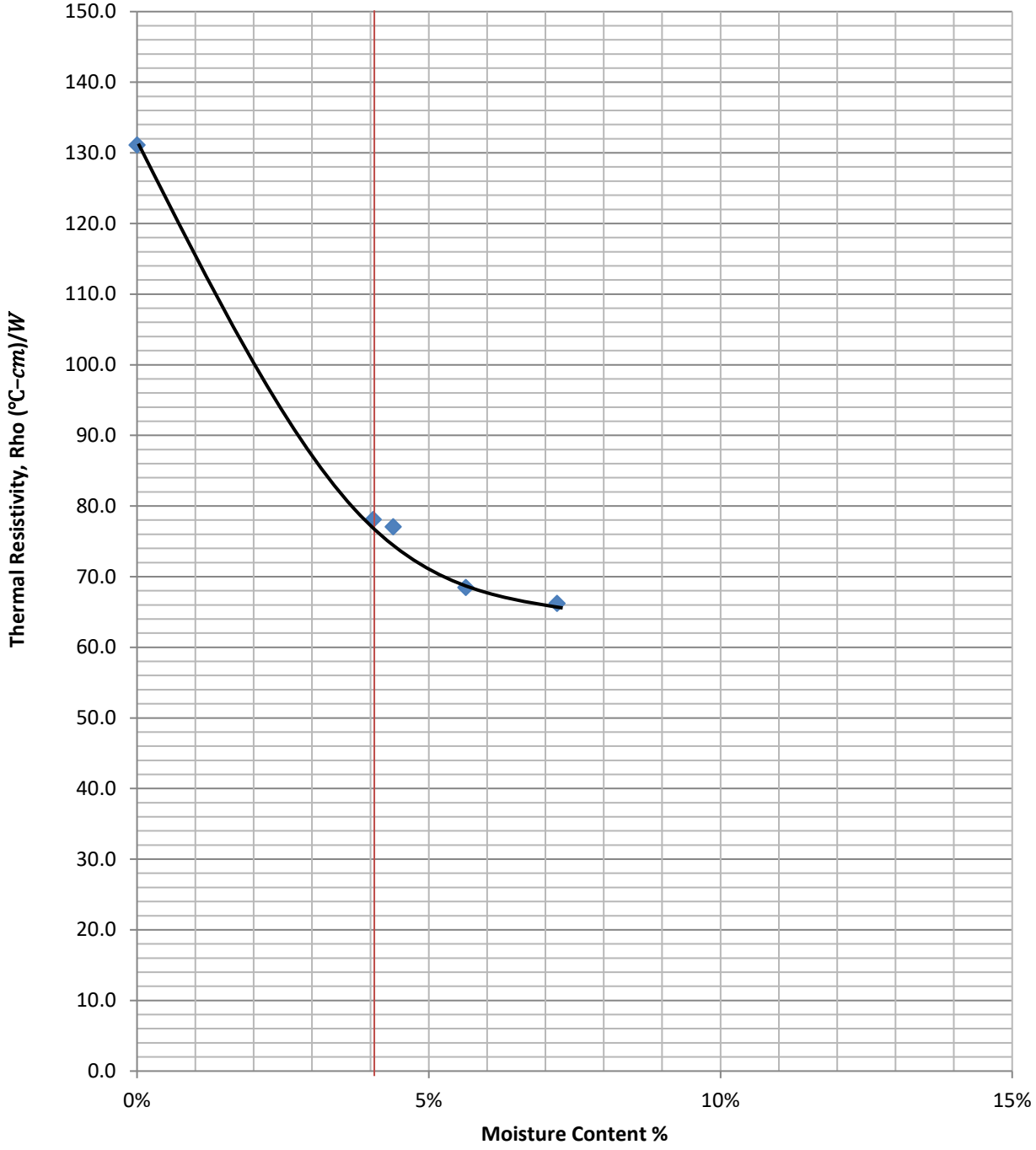
Dry Density (pcf)	Tested Max. Thermal Resistivity at 0% Moisture (°C-cm/W)	Max. Thermal Resistivity at 4% Critical Moisture (°C-cm/W)	Tested Thermal Resistivity at Wet Point (°C-cm/W)
110	131	77	66

Note: The accuracy of TR-1 Probe is ±10%

Respectfully submitted,
NV5

Carl Henderson, PhD,PE,GE
CQA GrouP Director

Thermal Resistivity Dryout Curve



Westside Canal Energy Project

Lab Number: 116806
B4 @ 3'-5'

Client Name: Sempra Renewables

Project: Westside Canal Energy Center

Report Date: 10/18/2018

NV5 Project No.: 1076

Lab Number: 116899

Location: B6 @ 1'-3'

Test Material Description: Soils Thermal Sample #1 (1 of 1), 2.4" x6"

Test Material: Brown Fat CLAY (CH)

Sample Date: 9/17-18/18

Test Description	Test Method	# of Cylinders
Thermal Resistivity Measurement	IEEE 442 / ASTM D5334	1

Probe Type: TR1

Ambient Temperature: 21.6 °C

Results:

Dry Density (pcf)	Tested Max. Thermal Resistivity at 0% Moisture (°C-cm/W)	Max. Thermal Resistivity at 4% Critical Moisture (°C-cm/W)	Tested Thermal Resistivity at Wet Point (°C-cm/W)
104	140	104	75

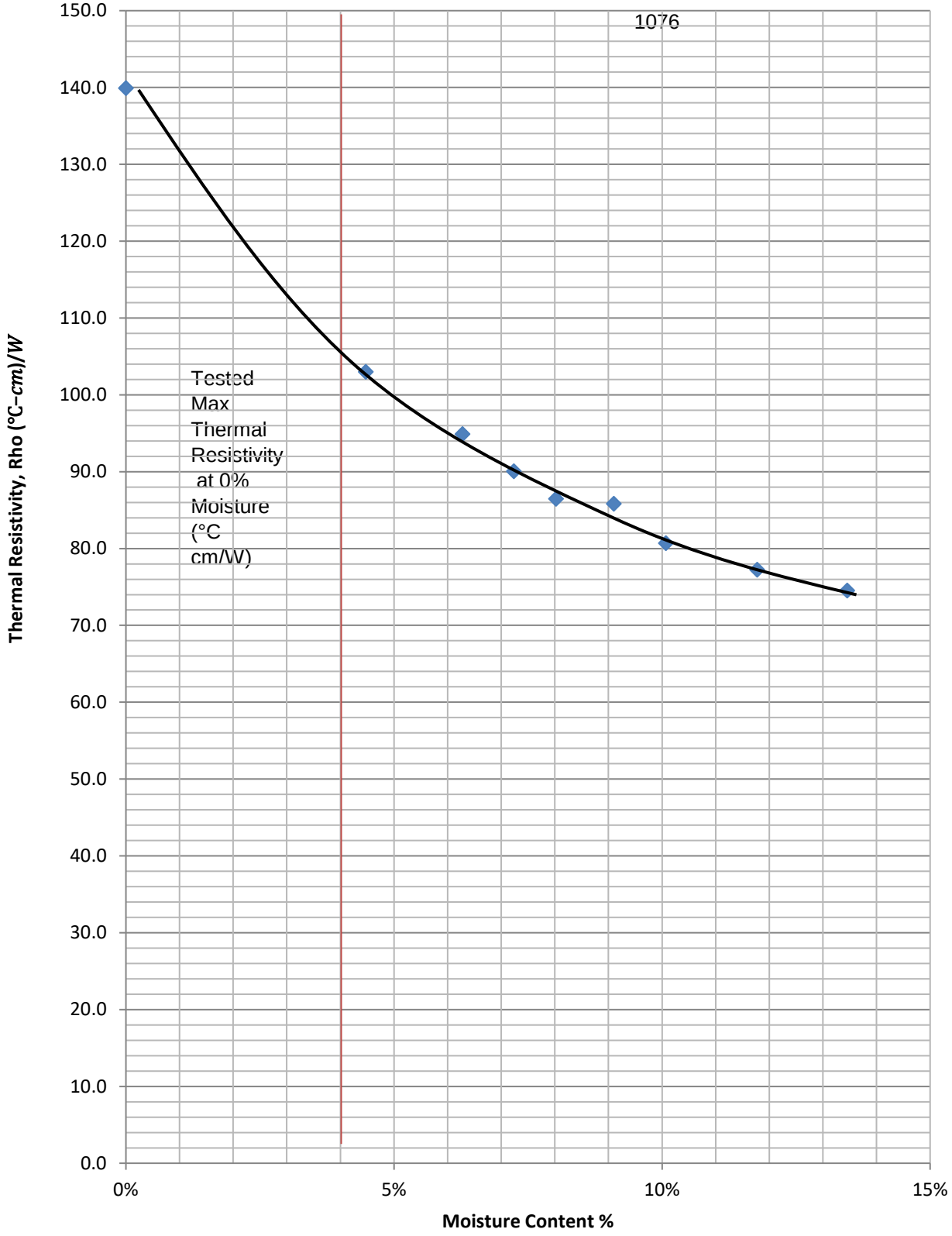
Note: The accuracy of TR-1 Probe is ±10%

Respectfully submitted,

NV5

Carl Henderson, PhD,PE,GE
CQA Group Director

Thermal Resistivity Dryout Curve



RESISTANCE "R" VALUE TEST

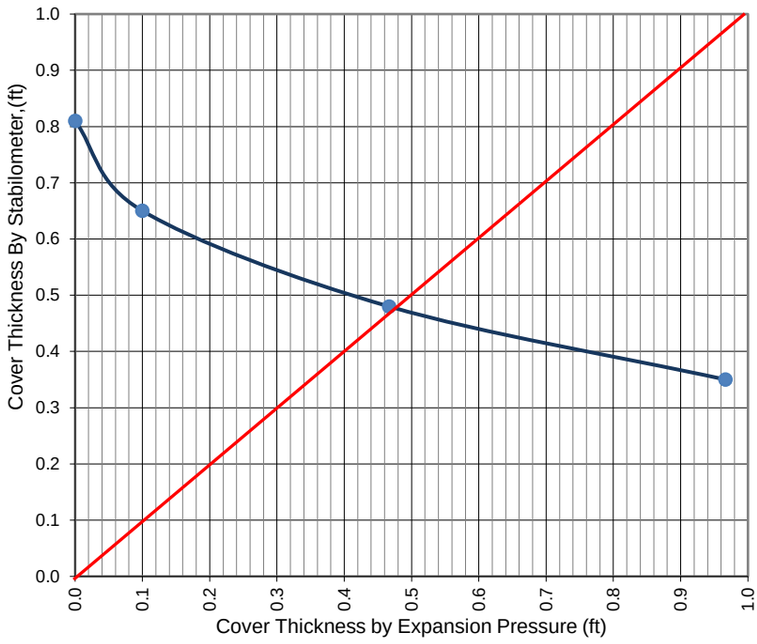
(CTM301 Caltrans / ASTM D2844)

Date:	10/11/2018	Job Number:	1076
Client:	Sempra Renewables	Report Number:	6881
Address:	488 8th Avenue San Diego, CA 92101	Lab Number:	116801
Project :	Westside Canal Energy Center		
Project Address :	Imperial Valley, CA		

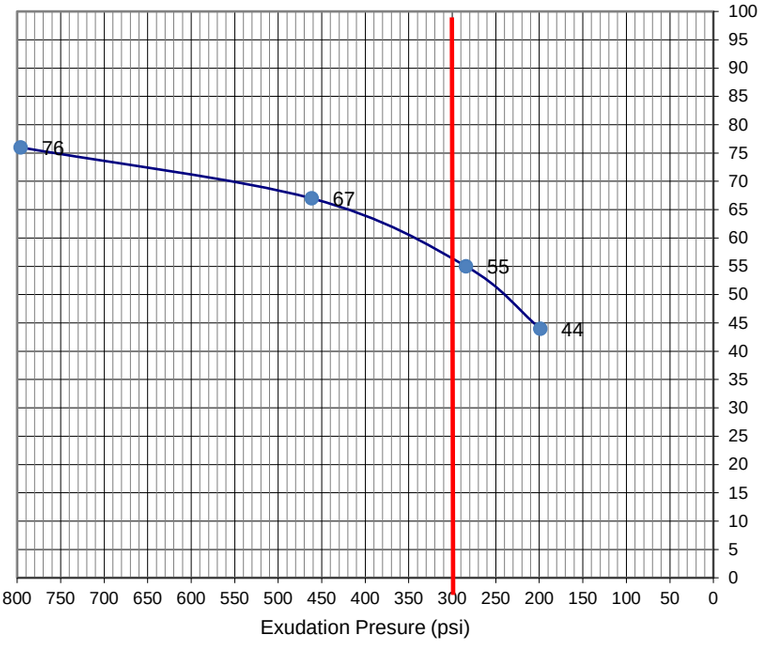
Material:	Tan Silty SAND (SM)
Material Source:	Native
Location:	B3 @ 3'-5'
Sampled By:	Sean Burford
Date Sampled:	9/17-18/2108
Date Received:	9/19/2018

Tested By: Noah Regalado

EXPANSION PRESSURE CHART



EXUDATION PRESSURE CHART



TEST SPECIMEN	A	B	C	D
COMP. FOOT PRESSURE, psi	350	350	350	350
INITIAL MOISTURE %	1.1	1.1	1.1	1.1
MOISTURE @ COMPACTION %	7.8	8.3	8.7	9.1
DRY DENSITY, pcf	128.4	128.8	128.5	128.8
EXUDATION PRESSURE, psi	796	462	284	199
STABILOMETER VALUE 'R'	76	67	55	44

R-VALUE BY EXUDATION	57
R-VALUE BY EXPANSION	67
R-VALUE AT EQUILIBRIUM	**57**

Respectfully Submitted,

NV5 West, Inc.

Reviewed By: Carl Henderson

Carl Henderson, PhD, PE, GE
CQA Group Director

RESISTANCE "R" VALUE TEST

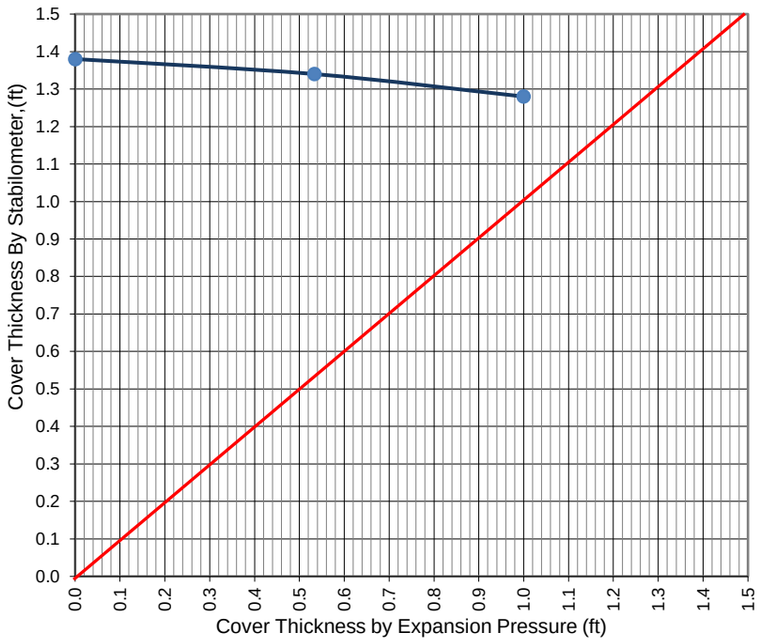
(CTM301 Caltrans / ASTM D2844)

Date:	10/12/2018	Job Number:	1076
Client:	Sempra Renewables	Report Number:	6919
Address:	488 8th Avenue San Diego, CA 92101	Lab Number:	116899
Project :	Westside Canal Energy Center		
Project Address :	Imperial Valley, CA		

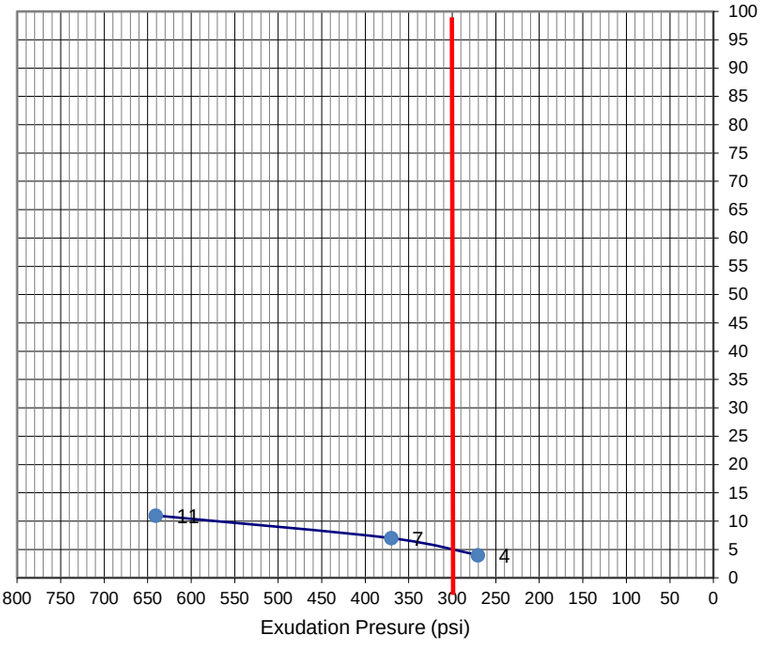
Material:	Brown Fat CLAY (CH)
Material Source:	Native
Location:	B6 @ 1'-3'
Sampled By:	Sean Burford
Date Sampled:	10/1/2018
Date Received:	10/2/2018

Tested By: Noah Regalado

EXPANSION PRESSURE CHART



EXUDATION PRESSURE CHART



TEST SPECIMEN	A	B	C	D
COMP. FOOT PRESSURE, psi	105	90	70	
INITIAL MOISTURE %	7.2	7.2	7.2	
MOISTURE @ COMPACTION %	18.0	21.5	23.3	
DRY DENSITY, pcf	110.3	103.5	100.2	
EXUDATION PRESSURE, psi	641	370	271	
STABILOMETER VALUE 'R'	11	7	4	

R-VALUE BY EXUDATION	5
R-VALUE BY EXPANSION	0
R-VALUE AT EQUILIBRIUM	**5**

Respectfully Submitted,

NV5 West, Inc.

Reviewed By: Carl Henderson

Carl Henderson, PhD, PE, GE
CQA Group Director

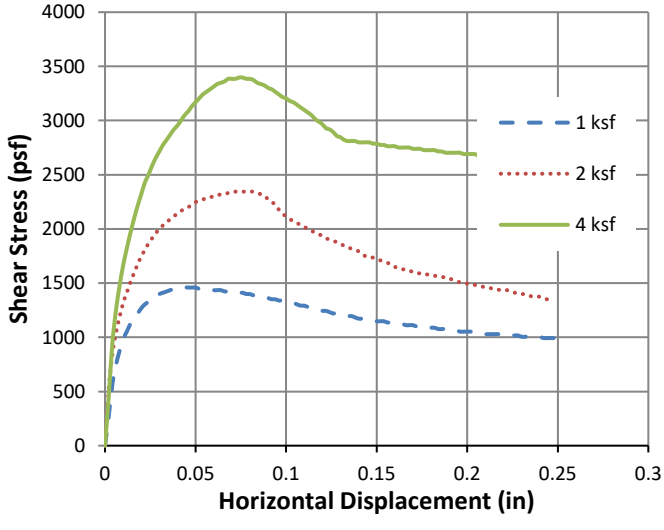
DIRECT SHEAR TEST (ASTM D3080)

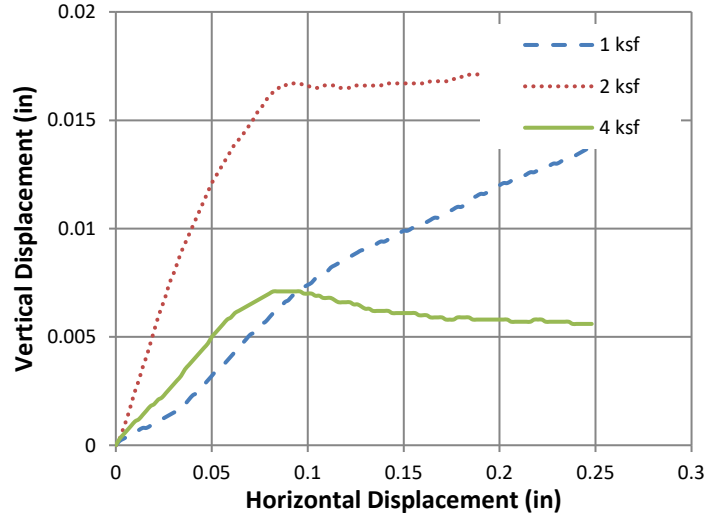
Project No.	**1076**	Date:	**10/12/2018**
Client:	**Sempra Renewables**	Report No.:	**6919**
Proj. Name:	**Westside Canal Energy Center**	Lab No.:	**116900**
Location:	**Imperial Valley, CA**	Date Rcvd:	**10/2/2018**
Sample date:	**10/1/2018** Sample Location: **6'-6.5'** Boring No. **B6**	Test Date:	**10/8/2018**

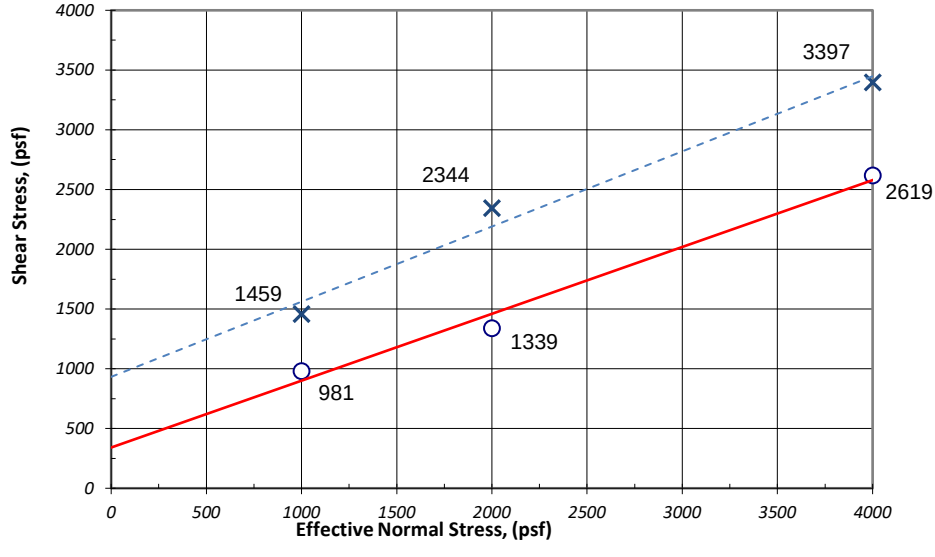
TEST DATA:

	Sample ID:	1 ksf	2 ksf	4 ksf
Initial	Water Content (%)	24.1	24.1	24.1
	Dry Density	99.8	99.4	100.1
	Saturation (%)	75.9	75.3	76.4
Final	Water Content (%)	33.4	29.9	30.2
	Dry Density	96.9	97.9	98.1
	Saturation (%)	99.4	90.7	92.0
Normal Stress (psf)		1000	2000	4000
Ultimate Shear Stress (psf)		981	1339	2619
Peak Shear Stress (psf)		1459	2344	3397

Sample Type:	Relatively Undisturbed Sample
Description:	Fat CLAY (CH)
Color:	Brown
Tested By:	Darrel Delgado







Peak Cohesion, C'(psf): **933**	Ultimate Cohesion, C'(psf): **341**
Peak Friction,Φ' (deg): **32**	Ultimate Friction,Φ' (deg): **29**

NV5
15092 Avenue of Science, Ste 200
San Diego CA 92128
p. 858 385 0500 f. 858 715 5810

Respectfully Submitted,
NV5 West, Inc.

Carl Henderson, PhD, PE, GE
CQA Group Director

L A B O R A T O R Y R E P O R T

Telephone (619) 425-1993 Fax 425-7917 Established 1928

C L A R K S O N L A B O R A T O R Y A N D S U P P L Y I N C.
350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
A N A L Y T I C A L A N D C O N S U L T I N G C H E M I S T S

Date: October 3, 2018
Purchase Order Number: 18-0476
Sales Order Number: 41787
Account Number: NV5-SD

To:
--
NV5 West Inc
15092 Avenue of Science #200
San Diego, CA 92128
Attention: Michelle Albrecht

Laboratory Number: SO7038 Customers Phone: 858-715-5800
Fax: 858-715-5810
Sample Designation:
--
One soil sample received on 10/02/18 at 1:00pm,
taken from Westside Canal Energy Project Lab#116801
Report#6881 marked as B-3,3-5'.

Analysis By California Test 643, 1999, Department of Transportation
Division of Construction, Method for Estimating the Service Life of
Steel Culverts.

pH 9.3

Water Added (ml)	Resistivity (ohm-cm)
10	2200
5	1100
5	980
5	820
5	820
5	850
5	850
5	870

28 years to perforation for a 16 gauge metal culvert.
37 years to perforation for a 14 gauge metal culvert.
51 years to perforation for a 12 gauge metal culvert.
65 years to perforation for a 10 gauge metal culvert.
79 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate Calif. Test 417 0.042% (420ppm)

Water Soluble Chloride Calif. Test 422 0.013% (130ppm)

Laura Torres
LT/ilv

L A B O R A T O R Y R E P O R T

Telephone (619) 425-1993 Fax 425-7917 Established 1928

C L A R K S O N L A B O R A T O R Y A N D S U P P L Y I N C.
350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
A N A L Y T I C A L A N D C O N S U L T I N G C H E M I S T S

Date: October 10, 2018
Purchase Order Number: 18-0478
Sales Order Number: 41838
Account Number: NV5-SD

To:
--
NV5 West Inc
15092 Avenue of Science #200
San Diego, CA 92128
Attention: Michelle Albrecht

Laboratory Number: SO7049 Customers Phone: 858-715-5800
Fax: 858-715-5810
Sample Designation:
--
One soil sample received on 10/05/18 at 1:00pm,
taken on from Westside Canal Energy Project
marked as Lab#116899 Report#6919 B-6@1-3'.

Analysis By California Test 643, 1999, Department of Transportation
Division of Construction, Method for Estimating the Service Life of
Steel Culverts.

pH 8.5

Water Added (ml)	Resistivity (ohm-cm)
10	1800
5	550
5	170
5	130
5	120
5	120
5	130
5	150

13 years to perforation for a 16 gauge metal culvert.
17 years to perforation for a 14 gauge metal culvert.
23 years to perforation for a 12 gauge metal culvert.
29 years to perforation for a 10 gauge metal culvert.
36 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate Calif. Test 417 0.231% (2310ppm)

Water Soluble Chloride Calif. Test 422 0.214% (2140ppm)

Laura Torres
LT/ilv

APPENDIX D

Liquefaction Analysis Results

SIMPLIFIED LIQUEFACTION HAZARDS ASSESSMENT USING STANDARD PENETRATION TEST (SPT) DATA

PROJECT INFORMATION	
Project Name	Westside Canal Energy Center
Project No.	1076
Project Location	Imperial Valley, California
Analyzed By	Carlos Amante
Reviewed By	Carl Henderson

SELECTED METHODS OF ANALYSIS	
Analysis Description	Analysis for Borings B-1/B-1a
Triggering of Liquefaction	Boulanger-Idriss (2014)
Severity of Liquefaction	LPI: Liquefaction Potential Index based on Iwasaki et al. (1978)
Seismic Compression Settlement (Dry/Unsaturated Soil)	Pradel (1998)
Liquefaction-Induced Settlement (Saturated Soil)	Ishihara and Yoshimine (1992)
Liquefaction-Induced Lateral Spreading	Zhang et al. (2004)
Residual Shear Strength of Liquefied Soil	Idriss and Boulanger (2008)

SEISMIC DESIGN PARAMETERS	
Earthquake Moment Magnitude, M_w	6.50
Peak Ground Acceleration, A_{max}	0.50 g
Required Factor of Safety, FS	1.20

BORING DATA AND SITE CONDITIONS	
Boring No.	B-1/B-1A
Ground Surface Elevation	-21.0 feet
Proposed Grade Elevation	-21.0 feet
GWL Depth Measured During Test	9.0 feet
GWL Depth Used in Design	5.0 feet
Borehole Diameter	6.0 inches
Hammer Weight	140.0 pounds
Hammer Drop	30.0 inches
Hammer Energy Efficiency Ratio, ER (%)	80.0 %
Hammer Distance to Ground Surface	5.0 feet
Topographic Site Condition:	TSC3 (Level Ground with Nearby Free Face)
- Ground Slope, S (%)	<<= Leave this blank
- Free Face Distance to Height Ratio, (L/H)	1.00 <<= Enter (L/H) Enter H =>> 10.0 feet
Average Total Unit Weight of New Fill	120.0 pcf

INPUT SOIL PROFILE DATA

Depth to Top of Soil Layer (feet)	Depth to Bottom of Soil Layer (feet)	Material Type USCS Group Symbol (ASTM D2487)	Liquefaction Screening *Susceptible Soil? (Y, N)*	Total Unit Weight γ_t (pcf)	Field SPT Blow Count N_{field} (blows/ft)	Type of Soil Sampler	Fines Content FC (%)
0.0	10.00	CL	N	120.0			
10.0	15.00	CL	N	120.0			
15.0	18.00	CL	N	120.0			
18.0	25.00	SM	Y	120.0	18.0	SPT1	15.0
25.0	30.00	SM	Y	120.0	37.0	SPT1	15.0
30.0	35.00	SP-SM	Y	120.0	44.0	SPT1	7.0
35.0	40.00	SP-SM	Y	120.0	38.0	SPT1	7.0
40.0	45.00	SP-SM	Y	120.0	47.0	SPT1	7.0
45.0	50.00	SP-SM	Y	120.0	83.0	SPT1	7.0
50.0	55.00	SP-SM	Y	120.0	46.0	SPT1	6.0
55.0	60.00	SP-SM	Y	120.0	83.0	SPT1	6.0
60.0	65.00	SP-SM	Y	120.0	46.0	SPT1	6.0

SIMPLIFIED LIQUEFACTION HAZARDS ASSESSMENT USING STANDARD PENETRATION TEST (SPT) DATA

PROJECT INFORMATION

Project Name	Westside Canal Energy Center
Project No.	1076
Project Location	Imperial Valley, California
Analyzed By	Carlos Amante
Reviewed By	Carl Henderson

SEISMIC DESIGN PARAMETERS

Earthquake Moment Magnitude, M_w	6 50
Peak Ground Acceleration, A_{max}	0 50 g
Required Factor of Safety, FS	1 20

BORING DATA AND SITE CONDITIONS

Boring No.	B-1/B-1A
Ground Surface Elevation	-21 0 feet
Proposed Grade Elevation	-21 0 feet
GWL Depth Measured During Test	9 0 feet
GWL Depth Used in Design	5 0 feet
Borehole Diameter	6 0 inches
Hammer Weight	140 0 pounds
Hammer Drop	30 0 inches
Hammer Energy Efficiency Ratio, ER	80 0 %
Hammer Distance to Ground Surface	5 0 feet
Topographic Site Condition:	TSC3 (Level Ground with Nearby Free Face)
- Ground Slope, S	N/A
- Free Face (L/H) Ratio	1 0 H = 10 feet
Average Total Unit Weight of New Fill	120 0 pcf

SUMMARY OF RESULTS

Severity of Liquefaction:

Total Thickness of Liquefiable Soils, H_{liq}: 7 00 feet (cumulative total thickness in the upper 65 feet)

Liquefaction Potential Index (LPI): 1 50 *** (Low risk, with minor liquefaction effects)

Seismic Ground Settlements:	**Analysis Method**	**Upper 30 feet**	**Upper 50 feet**	**Upper 65 feet**	
Seismic Compression Settlement:	Pradel (1998)	0 00 inches	0 00 inches	0 00 inches	(Dry/Unsaturated Soils)
Liquefaction-Induced Settlement:	Ishihara and Yoshimine (1992)	0 28 inches	0 28 inches	0 28 inches	(Saturated Soils)
Total Seismic Settlement:		0 28 inches	0 28 inches	0 28 inches	

Seismic Lateral Displacements:	**Analysis Method**	**Upper 30 feet**	**Upper 50 feet**	**Upper 65 feet**	
Cyclic Lateral Displacement:	Tokimatsu and Asaka (1998)	0 25 inches	0 25 inches	0 25 inches	(During Ground Shaking)
Lateral Spreading Displacement:	Zhang et al (2004)	0 00 inches	0 00 inches	0 00 inches	(After Ground Shaking)

NOTES AND REFERENCES

\+ This method of analysis is based on observed seismic performance of level ground sites using correlation with normalized and fines-corrected SPT blow count, $(N_1)_{60cs} = f\{(N_1)_{60}, FC\}$ where $(N_1)_{60} = N_{field}\, C_N\, C_E\, C_B\, C_R\, C_S$

++ Liquefaction susceptibility screening is performed to identify soil layers assessed to be non-liquefiable based on laboratory test results using the criteria proposed by Cetin and Seed (2003), Bray and Sancio (2006), or Idriss and Boulanger (2008)

* FS_{liq} = Factor of Safety against liquefaction = (CRR/CSR), where CRR = $CRR_{7\ 5}$ MSF K_σ K_α, MSF = Magnitude Scaling Factor, $K_\sigma = f[(N_1)_{60}, \sigma'_{vo}]$, K_α =1 0, (level ground), CSR = Cyclic Stress Ratio = 0 65 A_{max} $(\sigma_{vo}/\sigma'_{vo})$ r_d, and $CRR_{7\ 5}$ = Cyclic Resistance Ratio is a function of $(N_1)_{60cs}$ and corrected for an earthquake magnitude M_w of 7 5

** Residual strength values of liquefied soils are based on correlation with post-earthquake, normalized and fines-corrected SPT blow count derived by Idriss and Boulanger (2008)

*** Based on Iwasaki et al (1978) and Toprak and Holzer (2003)

\+ Reference: Boulanger, R W and Idriss, I M (2014), "CPT and SPT Based Liquefaction Triggering Procedures," University of California Davis, Center for Geotechnical Modeling Report No UCD/CGM-14/01, 1-134

INPUT SOIL PROFILE DATA

Bottom of Soil Layer Elevation (feet)	Soil Depth During Test (feet)	Material Type USCS Group Symbol (ASTM D2487)	Liquefaction Susceptibility Screening ++ Susceptible Soil? (Y/N)	Total Soil Unit Weight γ_t (pcf)	Field SPT Blow Count N_{field} (blows/ft)	Type of Soil Sampler	Fines Content FC (%)
-31 0	5 0	CL	N	120 0			
-36 0	12 5	CL	N	120 0			
-39 0	16 5	CL	N	120 0			
-46 0	21 5	SM	Y	120 0	18 0	SPT1	15 0
-51 0	27 5	SM	Y	120 0	37 0	SPT1	15 0
-56 0	32 5	SP-SM	Y	120 0	44 0	SPT1	7 0
-61 0	37 5	SP-SM	Y	120 0	38 0	SPT1	7 0
-66 0	42 5	SP-SM	Y	120 0	47 0	SPT1	7 0
-71 0	47 5	SP-SM	Y	120 0	83 0	SPT1	7 0
-76 0	52 5	SP-SM	Y	120 0	46 0	SPT1	6 0
-81 0	57 5	SP-SM	Y	120 0	83 0	SPT1	6 0
-86 0	62 5	SP-SM	Y	120 0	46 0	SPT1	6 0

LIQUEFACTION TRIGGERING ANALYSIS BASED ON R.W. BOULANGER AND I.M. IDRISS (2014) METHOD +

Total Vert. Stress (Design) σ_{vo} (psf)	Effective Vert. Stress (Design) σ'_{vo} (psf)	SPT Corr. For Vert. Stress C_N	SPT Corr. For Hammer Energy C_E	SPT Corr. For Borehole Size C_B	SPT Corr. For Rod Length C_R	SPT Corr. For Sampling Method C_S	Corrected SPT Blow Count N_{60}	Normalized SPT Blow Count $(N_1)_{60}$	Fines Corrected SPT Blow Count $(N_1)_{60cs}$	Shear Stress Reduction Coefficient r_d	Correction for High Overburden Stress K_σ	Cyclic Stress Ratio CSR	Cyclic Resistance Ratio CRR	Factor of Safety * FS_{liq}	Liquefaction Analysis Results	Residual Shear Strength ** S_r (psf)	Seismic Porewater Pressure Ratio r_u (%)	Cumulative Seismic Settlement (inches)	Cumulative Cyclic Lateral Displacement (inches)	Cumulative Lateral Spreading Displacement (inches)
600 0	444 0									0 989		0 434			NL: Clay rich Soil			0 28	0 25	0 00
1500 0	1032 0									0 953		0 450			NL: Clay rich Soil			0 28	0 25	0 00
1980 0	1262 4									0 932		0 475			NL: Clay rich Soil			0 28	0 25	0 00
2580 0	1550 4	1 043	1 333	1 050	0 950	1 000	23 9	25 0	28 2	0 902	1 017	0 488	0 535	1 095	LIQUEFY	449 1	81 4	0 28	0 25	0 00
3300 0	1896 0	0 983	1 333	1 050	0 950	1 000	49 2	48 4	51 6	0 865	0 979	0 489			NL: Dense Soil			0 00	0 00	0 00
3900 0	2184 0	0 963	1 333	1 050	1 000	1 000	61 6	59 3	59 5	0 832	0 941	0 483			NL: Dense Soil			0 00	0 00	0 00
4500 0	2472 0	0 927	1 333	1 050	1 000	1 000	53 2	49 3	49 5	0 799	0 908	0 473			NL: Dense Soil			0 00	0 00	0 00
5100 0	2760 0	0 928	1 333	1 050	1 000	1 000	65 8	61 0	61 2	0 766	0 877	0 460			NL: Dense Soil			0 00	0 00	0 00
5700 0	3048 0	1 028	1 333	1 050	1 000	1 000	116 2	119 5	119 6	0 734	0 850	0 446			NL: Dense Soil			0 00	0 00	0 00
6300 0	3336 0	0 888	1 333	1 050	1 000	1 000	64 4	57 2	57 2	0 703	0 825	0 432			NL: Dense Soil			0 00	0 00	0 00
6900 0	3624 0	1 041	1 333	1 050	1 000	1 000	116 2	121 0	121 0	0 673	0 802	0 417			NL: Dense Soil			0 00	0 00	0 00
7500 0	3912 0	0 855	1 333	1 050	1 000	1 000	64 4	55 0	55 1	0 646	0 780	0 402			NL: Dense Soil			0 00	0 00	0 00

SIMPLIFIED LIQUEFACTION HAZARDS ASSESSMENT USING STANDARD PENETRATION TEST (SPT) DATA

PROJECT INFORMATION	
Project Name	Westside Canal Energy Center
Project No.	1076
Project Location	Imperial Valley, California
Analyzed By	Carlos Amante
Reviewed By	Carl Henderson

SEISMIC DESIGN PARAMETERS	
Earthquake Moment Magnitude, M_w	6 50
Peak Ground Acceleration, A_{max}	0 50 g
Required Factor of Safety, FS	1 20

BORING DATA AND SITE CONDITIONS		
Boring No.	B-1/B-1A	
Ground Surface Elevation	-21 0 feet	
Proposed Grade Elevation	-21 0 feet	
GWL Depth Measured During Test	9 0 feet	
GWL Depth Used in Design	5 0 feet	
Borehole Diameter	6 0 inches	
Hammer Weight	140 0 pounds	
Hammer Drop	30 0 inches	
Hammer Energy Efficiency Ratio, ER	80 0 %	
Hammer Distance to Ground Surface	5 0 feet	
Topographic Site Condition:	TSC3 (Level Ground with Nearby Free Face)	
- Ground Slope, S	N/A	
- Free Face (L/H) Ratio	1 0	H = 10 feet
Average Total Unit Weight of New Fill	120 0 pcf	

SUMMARY OF RESULTS

Severity of Liquefaction:

Total Thickness of Liquefiable Soils, H_{liq}: 7 00 feet (cumulative total thickness in the upper 65 feet)

Liquefaction Potential Index (LPI): 1 50 *** (Low risk, with minor liquefaction effects)

Seismic Ground Settlements:	Analysis Method	Upper 30 feet	Upper 50 feet	Upper 65 feet	
Seismic Compression Settlement:	Pradel (1998)	0 00 inches	0 00 inches	0 00 inches	(Dry/Unsaturated Soils)
Liquefaction-Induced Settlement:	Ishihara and Yoshimine (1992)	0 28 inches	0 28 inches	0 28 inches	(Saturated Soils)
Total Seismic Settlement:		0 28 inches	0 28 inches	0 28 inches	

Seismic Lateral Displacements:	Analysis Method	Upper 30 feet	Upper 50 feet	Upper 65 feet	
Cyclic Lateral Displacement:	Tokimatsu and Asaka (1998)	0 25 inches	0 25 inches	0 25 inches	(During Ground Shaking)
Lateral Spreading Displacement:	Zhang et al (2004)	0 00 inches	0 00 inches	0 00 inches	(After Ground Shaking)

NOTES AND REFERENCES

\+ This method of analysis is based on observed seismic performance of level ground sites using correlation with normalized and fines-corrected SPT blow count, $(N_1)_{60cs} = f\{(N_1)_{60}, FC\}$ where $(N_1)_{60} = N_{field}\, C_N\, C_E\, C_B\, C_R\, C_S$

++ Liquefaction susceptibility screening is performed to identify soil layers assessed to be non-liquefiable based on laboratory test results using the criteria proposed by Cetin and Seed (2003), Bray and Sancio (2006), or Idriss and Boulanger (2008)

* FS_{liq} = Factor of Safety against liquefaction = (CRR/CSR), where $CRR = CRR_{7.5}\, MSF\, K_\sigma\, K_\alpha$, MSF = Magnitude Scaling Factor, $K_\sigma = f[(N_1)_{60}, \sigma'_{vo}]$, $K_\alpha = 1.0$, (level ground), CSR = Cyclic Stress Ratio = $0.65\, A_{max}\, (\sigma_{vo}/\sigma'_{vo})\, r_d$, and $CRR_{7.5}$ = Cyclic Resistance Ratio is a function of $(N_1)_{60cs}$ and corrected for an earthquake magnitude M_w of 7.5

** Residual strength values of liquefied soils are based on correlation with post-earthquake, normalized and fines-corrected SPT blow count derived by Idriss and Boulanger (2008)

*** Based on Iwasaki et al (1978) and Toprak and Holzer (2003)

\+ Reference: Boulanger, R W and Idriss, I M (2014), "CPT and SPT Based Liquefaction Triggering Procedures," University of California Davis, Center for Geotechnical Modeling Report No UCD/CGM-14/01, 1-134

INPUT SOIL PROFILE DATA								LIQUEFACTION TRIGGERING ANALYSIS BASED ON R.W. BOULANGER AND I.M. IDRISS (2014) METHOD +																								
Bottom of Soil Layer Elevation (feet)	Soil Depth During Test (feet)	Material Type USCS Group Symbol (ASTM D2487)	Liquefaction Susceptibility Screening ++ Susceptible Soil? (Y/N)	Total Soil Unit Weight γ_t (pcf)	Field SPT Blow Count N_{field} (blows/ft)	Type of Soil Sampler	Fines Content FC (%)	Total Vert. Stress (Design) σ_{vo} (psf)	Effective Vert. Stress (Design) σ'_{vo} (psf)	SPT Corr. For Vert. Stress C_N	SPT Corr. For Hammer Energy C_E	SPT Corr. For Borehole Size C_B	SPT Corr. For Rod Length C_R	SPT Corr. For Sampling Method C_S	Corrected SPT Blow Count N_{60}	Normalized SPT Blow Count $(N_1)_{60}$	Fines Corrected SPT Blow Count $(N_1)_{60cs}$	Shear Stress Reduction Coefficient r_d	Correction for High Overburden Stress K_σ	Cyclic Stress Ratio CSR	Cyclic Resistance Ratio CRR	Factor of Safety * FS_{liq}	Liquefaction Analysis Results	Residual Shear Strength ** S_r (psf)	Seismic Porewater Pressure Ratio r_u (%)	Cumulative Seismic Settlement (inches)	Cumulative Cyclic Lateral Displacement (inches)	Cumulative Lateral Spreading Displacement (inches)

REFERENCES:

1 Boulanger, R W and Idriss, I M (2014), "CPT and SPT Based Liquefaction Triggering Procedures," University of California Davis, Center for Geotechnical Modeling Report No UCD/CGM-14/01, 1-134

2 Bray, J D , and Sancio, R B (2006) "Assessment of the liquefaction susceptibility of fine-grained soils," Journal of Geotechnical and Geoenvironmental Engineering, ASCE 132 (9), 1165-1177

3 Cetin, K O and Seed, R B , et al (2004), "Standard penetration test-based probabilistic and deterministic assessment of seismic soil liquefaction potential," Journal of Geotechnical and Geoenvironmental Engineering, ASCE 130 (12), 1314-1340

4 Idriss, I M and Boulanger, R W (2008), "Soil Liquefaction During Earthquakes", Earthquake Engineering Research Institute (EERI), Monograph MNO-12

5 Ishihara, K and Yoshimine, M (1992), "Evaluation of settlements in sand deposits following liquefaction during earthquakes," Soils and Foundations, Japanese Geotechnical Society, 32 (1), 173-188

6 Iwasaki, T , et al (1978), "A practical method for assessing soil liquefaction potential based on case studies at various sites in Japan," Proceedings Of 3rd International Conference of Microzonation, San Francisco, 885-896

7 Olson, S M and Johnson, C I (2008), "Analyzing Liquefaction-Induced Lateral Spreads Using Strength Ratios," Journal of Geotechnical and Geoenvironmental Engineering, ASCE 134 (8), 1035-1049

8 Pradel, D (1998), "Procedure to Evaluate Earthquake-Induced Settlements in Dry Sandy Soils," Journal of Geotechnical Engineering, ASCE 124 (4), pp 364-368

9 Seed, R B and Harder, L F (1990), "SPT-based analysis of cyclic pore pressure generation and undrained residual strength, Proceedings Of Seed Memorial Symposium, Vancouver, B C , 351-376

10 Tokimatsu, K and Seed, H B (1987), "Evaluation of settlements in sands due to earthquake shaking," Journal of Geotechnical Engineering, ASCE 113 (GT8), 861-878

11 Tokimatsu, K and Asaka, Y (1998), "Effects of liquefaction-induced ground displacementson pile performance in the 1995 Hyogoken-Nambu Earthquake," Soils and Foundations, Special Issue, Japan Geotechnical Society, 163-177

12 Tonkin & Taylor (2013), "Liquefaction Vulnerability Study," Report prepared for the Earthquake Commission (EQC), February, T&T Report No 520 20 0200

13 Toprak, S and Holzer, T L (2003), "Liquefaction Potential Index: Field Assessment," Journal of Geotechnical and Geoenviromental Engineering, ASCE 129 (4), 315-322

14 Youd, T L, Idriss, I M , et al (2001), "Liquefaction resistance of soils: summary report from the 1996 NCEER and 1998 NCEER/NSF Workshops", Journal of Geotechnical and Geoenvironmental Engineering, ASCE 127 (10), 817-833

15 Zhang, G, Robertson, P K and Brachman, R W I (2004), "Estimating liquefaction-induced lateral displacement using the standard penetration test or cone penetration test," Journal of Geotechnical and Geoenvironmental Engineering, ASCE 130 (8), 861-871

SIMPLIFIED LIQUEFACTION HAZARDS ASSESSMENT USING STANDARD PENETRATION TEST (SPT) DATA

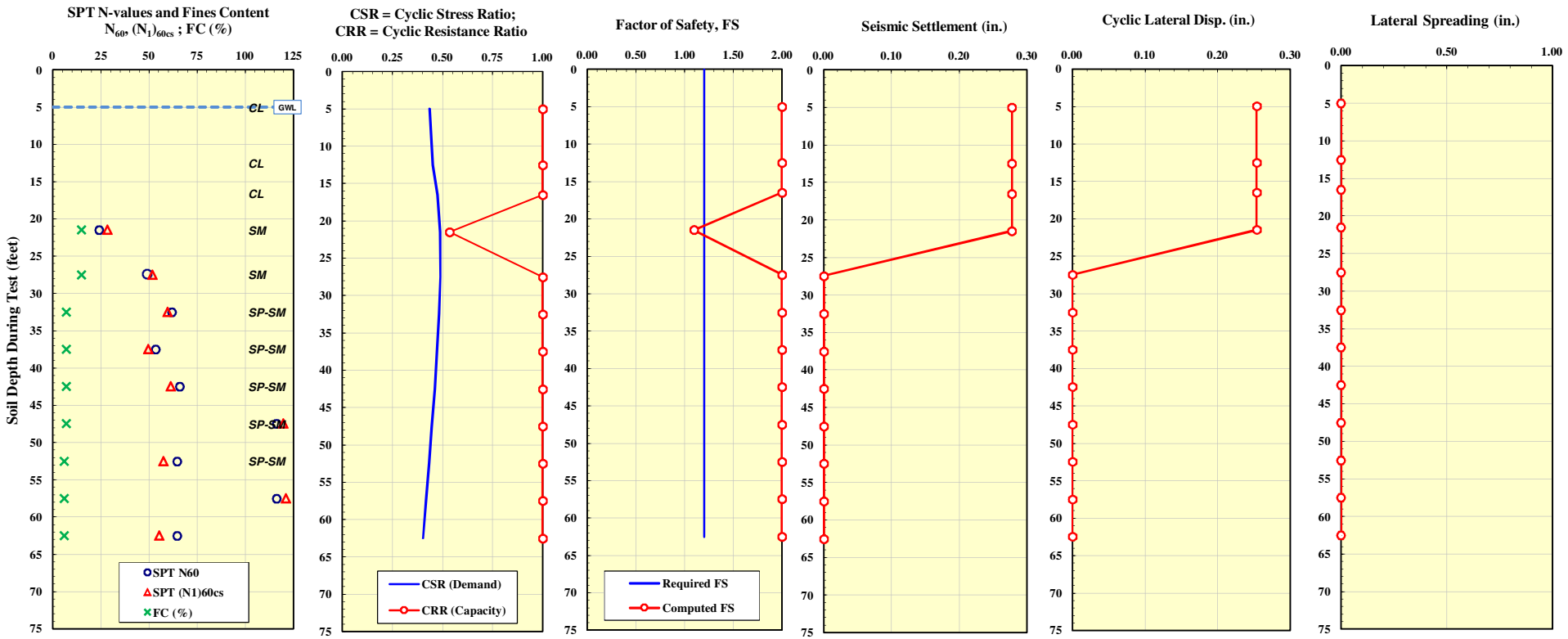
PROJECT INFORMATION	
Project Name	Westside Canal Energy Center
Project No.	1076
Project Location	Imperial Valley, California
Analyzed By	Carlos Amante
Reviewed By	Carl Henderson

TOPOGRAPHIC CONDITIONS	
Ground Slope, S	N/A
Free Face (L/H) Ratio	1.00

GROUNDWATER LEVEL DATA	
GWL Depth Measured During Test	9.00 feet
GWL Depth Used in Design	5.00 feet

BORING DATA	
Boring No.	B-1/B-1A
Ground Surface Elevation	-21.00 feet
Proposed Grade Elevation	-21.00 feet
Borehole Diameter	6.00 inches
Hammer Weight	140.00 pounds
Hammer Drop	30.00 inches
Hammer Energy Efficiency Ratio, ER	80.00 %
Hammer Distance to Ground Surface	5.00 feet

SEISMIC DESIGN PARAMETERS	
Earthquake Moment Magnitude, M_w	6.50
Peak Ground Acceleration, A_{max}	0.50 g
Required Factor of Safety, FS	1.20



Analysis Methods Used ==>>

Liquefaction Triggering:
Boulanger-Idriss (2014)

Seismic Settlements:
Above GWL: Pradel (1998)
Below GWL: Ishihara and Yoshimine (1992)

Cyclic Lateral Displacements:
Above GWL: Pradel (1998)
Below GWL: Tokimatsu and Asaka (1998)

Lateral Spreading:
Zhang et al. (2004)

SIMPLIFIED LIQUEFACTION HAZARDS ASSESSMENT USING STANDARD PENETRATION TEST (SPT) DATA

PROJECT INFORMATION	
Project Name	Westside Canal Energy Center
Project No.	1076
Project Location	Imperial Valley, California
Analyzed By	Carlos Amante
Reviewed By	Carl Henderson

SELECTED METHODS OF ANALYSIS	
Analysis Description	Analysis for Boring B-6
Triggering of Liquefaction	Boulanger-Idriss (2014)
Severity of Liquefaction	LPI: Liquefaction Potential Index based on Iwasaki et al. (1978)
Seismic Compression Settlement (Dry/Unsaturated Soil)	Pradel (1998)
Liquefaction-Induced Settlement (Saturated Soil)	Ishihara and Yoshimine (1992)
Liquefaction-Induced Lateral Spreading	Zhang et al. (2004)
Residual Shear Strength of Liquefied Soil	Idriss and Boulanger (2008)

SEISMIC DESIGN PARAMETERS	
Earthquake Moment Magnitude, M_w	6.50
Peak Ground Acceleration, A_{max}	0.50 g
Required Factor of Safety, FS	1.20

BORING DATA AND SITE CONDITIONS	
Boring No.	B-6
Ground Surface Elevation	-17.0 feet
Proposed Grade Elevation	-17.0 feet
GWL Depth Measured During Test	18.0 feet
GWL Depth Used in Design	5.0 feet
Borehole Diameter	6.0 inches
Hammer Weight	140.0 pounds
Hammer Drop	30.0 inches
Hammer Energy Efficiency Ratio, ER (%)	80.0 %
Hammer Distance to Ground Surface	5.0 feet
Topographic Site Condition:	TSC1 (Level Ground with No Nearby Free Face)
- Ground Slope, S (%)	<<= Leave this blank
- Free Face Distance to Height Ratio, (L/H)	<<= Leave this blank Set H to zero =>> 0.0 feet
Average Total Unit Weight of New Fill	120.0 pcf

INPUT SOIL PROFILE DATA

Depth to Top of Soil Layer (feet)	Depth to Bottom of Soil Layer (feet)	Material Type USCS Group Symbol (ASTM D2487)	Liquefaction Screening *Susceptible Soil? (Y, N)*	Total Unit Weight γ_t (pcf)	Field SPT Blow Count N_{field} (blows/ft)	Type of Soil Sampler	Fines Content FC (%)
0.0	2.00	CL	N	120.0			
2.0	10.00	CH	N	120.0			
10.0	15.00	CH	N	120.0			
15.0	20.00	CH	N	120.0			
20.0	25.00	CH	N	120.0			
25.0	29.50	CH	N	120.0			
29.5	36.00	SM	Y	120.0	38.0	SPT1	15.0
36.0	39.00	CL	N	120.0			
39.0	41.00	ML	N	120.0			
41.0	43.00	CL	N	120.0			
43.0	50.00	CL	N	120.0			
50.0	51.50	CL	N	120.0			

SIMPLIFIED LIQUEFACTION HAZARDS ASSESSMENT USING STANDARD PENETRATION TEST (SPT) DATA

PROJECT INFORMATION

Project Name	Westside Canal Energy Center
Project No.	1076
Project Location	Imperial Valley, California
Analyzed By	Carlos Amante
Reviewed By	Carl Henderson

SEISMIC DESIGN PARAMETERS

Earthquake Moment Magnitude, M_w	6 50
Peak Ground Acceleration, A_{max}	0 50 g
Required Factor of Safety, FS	1 20

BORING DATA AND SITE CONDITIONS

Boring No.	B-6
Ground Surface Elevation	-17 0 feet
Proposed Grade Elevation	-17 0 feet
GWL Depth Measured During Test	18 0 feet
GWL Depth Used in Design	5 0 feet
Borehole Diameter	6 0 inches
Hammer Weight	140 0 pounds
Hammer Drop	30 0 inches
Hammer Energy Efficiency Ratio, ER	80 0 %
Hammer Distance to Ground Surface	5 0 feet
Topographic Site Condition:	TSC1 (Level Ground with No Nearby Free Face)
- Ground Slope, S	0 0 %
- Free Face (L/H) Ratio	N/A H = 0 feet
Average Total Unit Weight of New Fill	120 0 pcf

SUMMARY OF RESULTS

Severity of Liquefaction:

Total Thickness of Liquefiable Soils, H_{liq}: 0 00 feet (cumulative total thickness in the upper 65 feet)

Liquefaction Potential Index (LPI): 0 00 *** (Very low risk, with no surface manifestation of liquefaction)

Seismic Ground Settlements:	**Analysis Method**	**Upper 30 feet**	**Upper 50 feet**	**Upper 65 feet**	
Seismic Compression Settlement:	Pradel (1998)	0 00 inches	0 00 inches	0 00 inches	(Dry/Unsaturated Soils)
Liquefaction-Induced Settlement:	Ishihara and Yoshimine (1992)	0 00 inches	0 00 inches	0 00 inches	(Saturated Soils)
Total Seismic Settlement:		0 00 inches	0 00 inches	0 00 inches	

Seismic Lateral Displacements:	**Analysis Method**	**Upper 30 feet**	**Upper 50 feet**	**Upper 65 feet**	
Cyclic Lateral Displacement:	Tokimatsu and Asaka (1998)	0 00 inches	0 00 inches	0 00 inches	(During Ground Shaking)
Lateral Spreading Displacement:	Zhang et al (2004)	0 00 inches	0 00 inches	0 00 inches	(After Ground Shaking)

NOTES AND REFERENCES

\+ This method of analysis is based on observed seismic performance of level ground sites using correlation with normalized and fines-corrected SPT blow count, $(N_1)_{60cs} = f\{(N_1)_{60}, FC\}$ where $(N_1)_{60} = N_{field}\, C_N\, C_E\, C_B\, C_R\, C_S$

++ Liquefaction susceptibility screening is performed to identify soil layers assessed to be non-liquefiable based on laboratory test results using the criteria proposed by Cetin and Seed (2003), Bray and Sancio (2006), or Idriss and Boulanger (2008)

* FS_{liq} = Factor of Safety against liquefaction = (CRR/CSR), where $CRR = CRR_{7.5}\, MSF\, K_\sigma\, K_\alpha$, MSF = Magnitude Scaling Factor, $K_\sigma = f[(N_1)_{60}, \sigma'_{vo}]$, $K_\alpha = 1.0$, (level ground), CSR = Cyclic Stress Ratio = $0.65\, A_{max}\, (\sigma_{vo}/\sigma'_{vo})\, r_d$, and $CRR_{7.5}$ = Cyclic Resistance Ratio is a function of $(N_1)_{60cs}$ and corrected for an earthquake magnitude M_w of 7.5

** Residual strength values of liquefied soils are based on correlation with post-earthquake, normalized and fines-corrected SPT blow count derived by Idriss and Boulanger (2008)

*** Based on Iwasaki et al (1978) and Toprak and Holzer (2003)

+ Reference: Boulanger, R W and Idriss, I M (2014), "CPT and SPT Based Liquefaction Triggering Procedures," University of California Davis, Center for Geotechnical Modeling Report No UCD/CGM-14/01, 1-134

INPUT SOIL PROFILE DATA

Bottom of Soil Layer Elevation (feet)	Soil Depth During Test (feet)	Material Type USCS Group Symbol (ASTM D2487)	Liquefaction Susceptibility Screening ++ Susceptible Soil? (Y/N)	Total Soil Unit Weight γ_t (pcf)	Field SPT Blow Count N_{field} (blows/ft)	Type of Soil Sampler	Fines Content FC (%)
-19 0	1 0	CL	N	120 0			
-27 0	6 0	CH	N	120 0			
-32 0	12 5	CH	N	120 0			
-37 0	17 5	CH	N	120 0			
-42 0	22 5	CH	N	120 0			
-46 5	27 3	CH	N	120 0			
-53 0	32 8	SM	Y	120 0	38 0	SPT1	15 0
-56 0	37 5	CL	N	120 0			
-58 0	40 0	ML	N	120 0			
-60 0	42 0	CL	N	120 0			
-67 0	46 5	CL	N	120 0			
-68 5	50 8	CL	N	120 0			

LIQUEFACTION TRIGGERING ANALYSIS BASED ON R.W. BOULANGER AND I.M. IDRISS (2014) METHOD +

Total Vert. Stress (Design) σ_{vo} (psf)	Effective Vert. Stress (Design) σ'_{vo} (psf)	SPT Corr. For Vert. Stress C_N	SPT Corr. For Hammer Energy C_E	SPT Corr. For Borehole Size C_B	SPT Corr. For Rod Length C_R	SPT Corr. For Sampling Method C_S	Corrected SPT Blow Count N_{60}	Normalized SPT Blow Count $(N_1)_{60}$	Fines Corrected SPT Blow Count $(N_1)_{60cs}$	Shear Stress Reduction Coefficient r_d	Correction for High Overburden Stress K_σ	Cyclic Stress Ratio CSR	Cyclic Resistance Ratio CRR	Factor of Safety * FS_{liq}	Liquefaction Analysis Results	Residual Shear Strength ** S_r (psf)	Seismic Porewater Pressure Ratio r_u (%)	Cumulative Seismic Settlement (inches)	Cumulative Cyclic Lateral Displacement (inches)	Cumulative Lateral Spreading Displacement (inches)
120 0	120 0									1 000		0 325			NL: Dry Soil			0 00	0 00	0 00
720 0	564 0									0 985		0 408			NL: Clay rich Soil			0 00	0 00	0 00
1500 0	1032 0									0 953		0 450			NL: Clay rich Soil			0 00	0 00	0 00
2100 0	1320 0									0 926		0 479			NL: Clay rich Soil			0 00	0 00	0 00
2700 0	1608 0									0 896		0 489			NL: Clay rich Soil			0 00	0 00	0 00
3270 0	1881 6									0 866		0 489			NL: Clay rich Soil			0 00	0 00	0 00
3930 0	2198 4	0 902	1 333	1 050	1 000	1 000	53 2	48 0	51 3	0 831	0 877	0 483			NL: Dense Soil			0 00	0 00	0 00
4500 0	2472 0									0 799		0 473			NL: Clay rich Soil			0 00	0 00	0 00
4800 0	2616 0									0 783		0 467			NL: Clay rich Soil			0 00	0 00	0 00
5040 0	2731 2									0 770		0 462			NL: Clay rich Soil			0 00	0 00	0 00
5580 0	2990 4									0 741		0 449			NL: Clay rich Soil			0 00	0 00	0 00
6090 0	3235 2									0 714		0 437			NL: Clay rich Soil			0 00	0 00	0 00

SIMPLIFIED LIQUEFACTION HAZARDS ASSESSMENT USING STANDARD PENETRATION TEST (SPT) DATA

PROJECT INFORMATION	
Project Name	Westside Canal Energy Center
Project No.	1076
Project Location	Imperial Valley, California
Analyzed By	Carlos Amante
Reviewed By	Carl Henderson

SEISMIC DESIGN PARAMETERS	
Earthquake Moment Magnitude, M_w	6 50
Peak Ground Acceleration, A_{max}	0 50 g
Required Factor of Safety, FS	1 20

BORING DATA AND SITE CONDITIONS		
Boring No.	B-6	
Ground Surface Elevation	-17 0 feet	
Proposed Grade Elevation	-17 0 feet	
GWL Depth Measured During Test	18 0 feet	
GWL Depth Used in Design	5 0 feet	
Borehole Diameter	6 0 inches	
Hammer Weight	140 0 pounds	
Hammer Drop	30 0 inches	
Hammer Energy Efficiency Ratio, ER	80 0 %	
Hammer Distance to Ground Surface	5 0 feet	
Topographic Site Condition:	TSC1 (Level Ground with No Nearby Free Face)	
- Ground Slope, S	0 0 %	
- Free Face (L/H) Ratio	N/A	H = 0 feet
Average Total Unit Weight of New Fill	120 0 pcf	

SUMMARY OF RESULTS

Severity of Liquefaction:

Total Thickness of Liquefiable Soils, H_{liq}: 0 00 feet (cumulative total thickness in the upper 65 feet)

Liquefaction Potential Index (LPI): 0 00 *** (Very low risk, with no surface manifestation of liquefaction)

Seismic Ground Settlements:	Analysis Method	Upper 30 feet	Upper 50 feet	Upper 65 feet	
Seismic Compression Settlement:	Pradel (1998)	0 00 inches	0 00 inches	0 00 inches	(Dry/Unsaturated Soils)
Liquefaction-Induced Settlement:	Ishihara and Yoshimine (1992)	0 00 inches	0 00 inches	0 00 inches	(Saturated Soils)
Total Seismic Settlement:		0 00 inches	0 00 inches	0 00 inches	

Seismic Lateral Displacements:	Analysis Method	Upper 30 feet	Upper 50 feet	Upper 65 feet	
Cyclic Lateral Displacement:	Tokimatsu and Asaka (1998)	0 00 inches	0 00 inches	0 00 inches	(During Ground Shaking)
Lateral Spreading Displacement:	Zhang et al (2004)	0 00 inches	0 00 inches	0 00 inches	(After Ground Shaking)

NOTES AND REFERENCES

\+ This method of analysis is based on observed seismic performance of level ground sites using correlation with normalized and fines-corrected SPT blow count, $(N_1)_{60cs} = f\{(N_1)_{60}, FC\}$ where $(N_1)_{60} = N_{field}\, C_N\, C_E\, C_B\, C_R\, C_S$

++ Liquefaction susceptibility screening is performed to identify soil layers assessed to be non-liquefiable based on laboratory test results using the criteria proposed by Cetin and Seed (2003), Bray and Sancio (2006), or Idriss and Boulanger (2008)

* FS_{liq} = Factor of Safety against liquefaction = (CRR/CSR), where $CRR = CRR_{7.5}\, MSF\, K_\sigma\, K_\alpha$, MSF = Magnitude Scaling Factor, $K_\sigma = f[(N_1)_{60}, \sigma'_{vo}]$, $K_\alpha = 1\ 0$, (level ground), CSR = Cyclic Stress Ratio = $0\ 65\, A_{max}\, (\sigma_{vo}/\sigma'_{vo})\, r_d$, and $CRR_{7.5}$ = Cyclic Resistance Ratio is a function of $(N_1)_{60cs}$ and corrected for an earthquake magnitude M_w of 7 5

** Residual strength values of liquefied soils are based on correlation with post-earthquake, normalized and fines-corrected SPT blow count derived by Idriss and Boulanger (2008)

*** Based on Iwasaki et al (1978) and Toprak and Holzer (2003)

\+ Reference: Boulanger, R W and Idriss, I M (2014), "CPT and SPT Based Liquefaction Triggering Procedures," University of California Davis, Center for Geotechnical Modeling Report No UCD/CGM-14/01, 1-134

INPUT SOIL PROFILE DATA

Bottom of Soil Layer Elevation (feet)	Soil Depth During Test (feet)	Material Type USCS Group Symbol (ASTM D2487)	Liquefaction Susceptibility Screening ++ Susceptible Soil? (Y/N)	Total Soil Unit Weight γ_t (pcf)	Field SPT Blow Count N_{field} (blows/ft)	Type of Soil Sampler	Fines Content FC (%)

LIQUEFACTION TRIGGERING ANALYSIS BASED ON R.W. BOULANGER AND I.M. IDRISS (2014) METHOD +

Total Vert. Stress (Design) σ_{vo} (psf)	Effective Vert. Stress (Design) σ'_{vo} (psf)	SPT Corr. For Vert. Stress C_N	SPT Corr. For Hammer Energy C_E	SPT Corr. For Borehole Size C_B	SPT Corr. For Rod Length C_R	SPT Corr. For Sampling Method C_S	Corrected SPT Blow Count N_{60}	Normalized SPT Blow Count $(N_1)_{60}$	Fines Corrected SPT Blow Count $(N_1)_{60cs}$	Shear Stress Reduction Coefficient r_d	Correction for High Overburden Stress K_σ	Cyclic Stress Ratio CSR	Cyclic Resistance Ratio CRR	Factor of Safety * FS_{liq}	Liquefaction Analysis Results	Residual Shear Strength ** S_r (psf)	Seismic Porewater Pressure Ratio r_u (%)	Cumulative Seismic Settlement (inches)	Cumulative Cyclic Lateral Displacement (inches)	Cumulative Lateral Spreading Displacement (inches)

REFERENCES:

1 Boulanger, R W and Idriss, I M (2014), "CPT and SPT Based Liquefaction Triggering Procedures," University of California Davis, Center for Geotechnical Modeling Report No UCD/CGM-14/01, 1-134

2 Bray, J D , and Sancio, R B (2006) "Assessment of the liquefaction susceptibility of fine-grained soils," Journal of Geotechnical and Geoenvironmental Engineering, ASCE 132 (9), 1165-1177

3 Cetin, K O and Seed, R B , et al (2004), "Standard penetration test-based probabilistic and deterministic assessment of seismic soil liquefaction potential," Journal of Geotechnical and Geoenvironmental Engineering, ASCE 130 (12), 1314-1340

4 Idriss, I M and Boulanger, R W (2008), "Soil Liquefaction During Earthquakes", Earthquake Engineering Research Institute (EERI), Monograph MNO-12

5 Ishihara, K and Yoshimine, M (1992), "Evaluation of settlements in sand deposits following liquefaction during earthquakes," Soils and Foundations, Japanese Geotechnical Society, 32 (1), 173-188

6 Iwasaki, T , et al (1978), "A practical method for assessing soil liquefaction potential based on case studies at various sites in Japan," Proceedings Of 3rd International Conference of Microzonation, San Francisco, 885-896

7 Olson, S M and Johnson, C I (2008), "Analyzing Liquefaction-Induced Lateral Spreads Using Strength Ratios," Journal of Geotechnical and Geoenvironmental Engineering, ASCE 134 (8), 1035-1049

8 Pradel, D (1998), "Procedure to Evaluate Earthquake-Induced Settlements in Dry Sandy Soils," Journal of Geotechnical Engineering, ASCE 124 (4), pp 364-368

9 Seed, R B and Harder, L F (1990), "SPT-based analysis of cyclic pore pressure generation and undrained residual strength, Proceedings Of Seed Memorial Symposium, Vancouver, B C , 351-376

10 Tokimatsu, K and Seed, H B (1987), "Evaluation of settlements in sands due to earthquake shaking," Journal of Geotechnical Engineering, ASCE 113 (GT8), 861-878

11 Tokimatsu, K and Asaka, Y (1998), "Effects of liquefaction-induced ground displacementson pile performance in the 1995 Hyogoken-Nambu Earthquake," Soils and Foundations, Special Issue, Japan Geotechnical Society, 163-177

12 Tonkin & Taylor (2013), "Liquefaction Vulnerability Study," Report prepared for the Earthquake Commission (EQC), February, T&T Report No 520 20 0200

13 Toprak, S and Holzer, T L (2003), "Liquefaction Potential Index: Field Assessment," Journal of Geotechnical and Geoenviromental Engineering, ASCE 129 (4), 315-322

14 Youd, T L, Idriss, I M , et al (2001), "Liquefaction resistance of soils: summary report from the 1996 NCEER and 1998 NCEER/NSF Workshops", Journal of Geotechnical and Geoenvironmental Engineering, ASCE 127 (10), 817-833

15 Zhang, G, Robertson, P K and Brachman, R W I (2004), "Estimating liquefaction-induced lateral displacement using the standard penetration test or cone penetration test," Journal of Geotechnical and Geoenvironmental Engineering, ASCE 130 (8), 861-871

SIMPLIFIED LIQUEFACTION HAZARDS ASSESSMENT USING STANDARD PENETRATION TEST (SPT) DATA

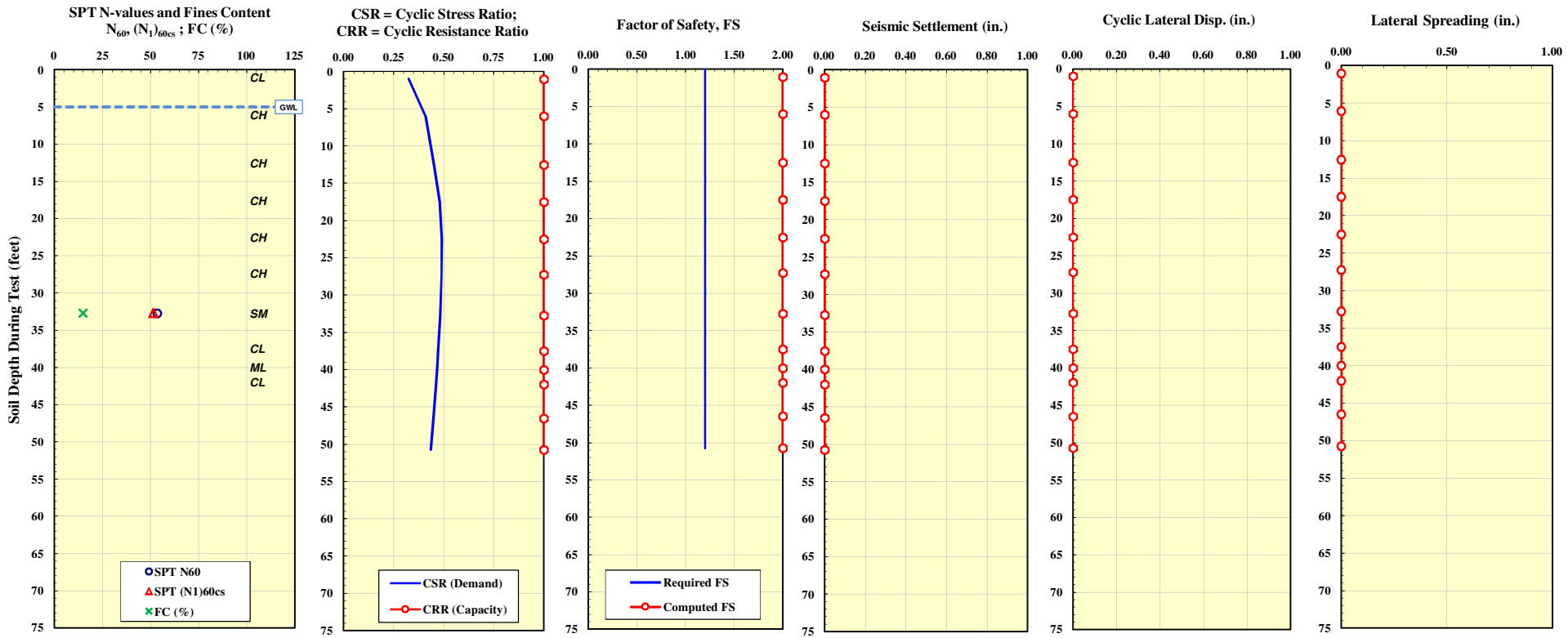
PROJECT INFORMATION	
Project Name	Westside Canal Energy Center
Project No.	1076
Project Location	Imperial Valley, California
Analyzed By	Carlos Amante
Reviewed By	Carl Henderson

TOPOGRAPHIC CONDITIONS	
Ground Slope, S	0.00 %
Free Face (L/H) Ratio	N/A

GROUNDWATER LEVEL DATA	
GWL Depth Measured During Test	18.00 feet
GWL Depth Used in Design	5.00 feet

BORING DATA	
Boring No.	B-6
Ground Surface Elevation	-17.00 feet
Proposed Grade Elevation	-17.00 feet
Borehole Diameter	6.00 inches
Hammer Weight	140.00 pounds
Hammer Drop	30.00 inches
Hammer Energy Efficiency Ratio, ER	80.00 %
Hammer Distance to Ground Surface	5.00 feet

SEISMIC DESIGN PARAMETERS	
Earthquake Moment Magnitude, M_w	6.50
Peak Ground Acceleration, A_{max}	0.50 g
Required Factor of Safety, FS	1.20



Analysis Methods Used ==>>

Liquefaction Triggering:
Boulanger-Idriss (2014)

Seismic Settlements:
Above GWL: Pradel (1998)
Below GWL: Ishihara and Yoshimine (1992)

Cyclic Lateral Displacements:
Above GWL: Pradel (1998)
Below GWL: Tokimatsu and Asaka (1998)

Lateral Spreading:
Zhang et al. (2004)

APPENDIX E

Typical Earthwork Guidelines

TYPICAL EARTHWORK GUIDELINES

1. GENERAL

These guidelines and the standard details attached hereto are presented as general procedures for earthwork construction for sites having slopes less than 10 feet high. They are to be utilized in conjunction with the project grading plans. These guidelines are considered a part of the geotechnical report, but are superseded by recommendations in the geotechnical report in the case of conflict. Evaluations performed by the consultant during the course of grading may result in new recommendations which could supersede these specifications and/or the recommendations of the geotechnical report. It is the responsibility of the contractor to read and understand these guidelines as well as the geotechnical report and project grading plans.

1.1. The contractor shall not vary from these guidelines without prior recommendations by the geotechnical consultant and the approval of the client or the client's authorized representative. Recommendations by the geotechnical consultant and/or client shall not be considered to preclude requirements for approval by the jurisdictional agency prior to the execution of any changes.

1.2. The contractor shall perform the grading operations in accordance with these specifications, and shall be responsible for the quality of the finished product notwithstanding the fact that grading work will be observed and tested by the geotechnical consultant.

1.3. It is the responsibility of the grading contractor to notify the geotechnical consultant and the jurisdictional agencies, as needed, prior to the start of work at the site and at any time that grading resumes after interruption. Each step of the grading operations shall be observed and documented by the geotechnical consultant and, where needed, reviewed by the appropriate jurisdictional agency prior to proceeding with subsequent work.

1.4. If, during the grading operations, geotechnical conditions are encountered which were not anticipated or described in the geotechnical report, the geotechnical consultant shall be notified immediately and additional recommendations, if applicable, may be provided.

1.5. An as-graded report shall be prepared by the geotechnical consultant and signed by a registered engineer and registered engineering geologist. The report documents the geotechnical consultants' observations, and field and laboratory test results, and provides conclusions regarding whether or not earthwork construction was performed in accordance with the geotechnical recommendations and the grading plans. Recommendations for foundation design, pavement design, subgrade treatment, etc., may also be included in the as-graded report.

1.6. For the purpose of evaluating quantities of materials excavated during grading and/or locating the limits of excavations, a licensed land surveyor or civil engineer shall be retained.

2. SITE PREPARATION

Site preparation shall be performed in accordance with the recommendations presented in the following sections.

2.1. The client, prior to any site preparation or grading, shall arrange and attend a pre-grading meeting between the grading contractor, the design engineer, the geotechnical consultant, and representatives of appropriate governing authorities, as well as any other involved parties. The parties shall be given two working days notice.

2.2. Clearing and grubbing shall consist of the substantial removal of vegetation, brush, grass, wood, stumps, trees, tree roots greater than 1/2-inch in diameter, and other deleterious materials from the areas to be graded. Clearing and grubbing shall extend to the outside of the proposed excavation and fill areas.

2.3. Demolition in the areas to be graded shall include removal of building structures, foundations, reservoirs, utilities (including underground pipelines, septic tanks, leach fields, seepage pits, cisterns, etc.), and other manmade surface and subsurface improvements, and the backfilling of mining shafts, tunnels and surface depressions. Demolition of utilities shall include capping or rerouting of pipelines at the project perimeter, and abandonment of wells in accordance with the requirements of the governing authorities and the recommendations of the geotechnical consultant at the time of demolition.

2.4. The debris generated during clearing, grubbing and/or demolition operations shall be removed from areas to be graded and disposed of off site at a legal dump site. Clearing, grubbing, and demolition operations shall be performed under the observation of the geotechnical consultant.

2.5. The ground surface beneath proposed fill areas shall be stripped of loose or unsuitable soil. These soils may be used as compacted fill provided they are generally free of organic or other deleterious materials and evaluated for use by the geotechnical consultant. The resulting surface shall be evaluated by the geotechnical consultant prior to proceeding. The cleared, natural ground surface shall be scarified to a depth of approximately 8 inches, moisture conditioned, and compacted in accordance with the specifications presented in Section 5 of these guidelines.

3. REMOVALS AND EXCAVATIONS

Removals and excavations shall be performed as recommended in the following sections.

3.1. Removals

3.1.1. Materials which are considered unsuitable shall be excavated under the observation of the geotechnical consultant in accordance with the recommendations contained herein. Unsuitable materials include, but may not be limited to, dry, loose, soft, wet, organic, compressible natural soils, fractured, weathered, soft bedrock, and undocumented or otherwise deleterious fill materials.

3.1.2. Materials deemed by the geotechnical consultant to be unsatisfactory due to moisture conditions shall be excavated in accordance with the recommendations of the geotechnical consultant, watered or dried as needed, and mixed to generally uniform moisture content in accordance with the specifications presented in Section 5 of this document.

3.2. Excavations

3.2.1. Temporary excavations no deeper than 4 feet in firm fill or natural materials may be made with vertical side slopes. To satisfy California Occupational Safety and Health Administration (CAL OSHA) requirements, any excavation deeper than 4 feet shall be shored or laid back at a 1:1 inclination or flatter, depending on material type, if construction workers are to enter the excavation.

4. COMPACTED FILL

Fill shall be constructed as specified below or by other methods recommended by the geotec1mical consultant. Unless otherwise specified, fill soils shall be compacted to 90 percent relative compaction, as evaluated in accordance with ASTM Test Method D 1557.

4.1. Prior to placement of compacted fill, the contractor shall request an evaluation of the exposed ground surface by the geotechnical consultant. Unless otherwise recommended, the exposed ground surface shall then be scarified to a depth of approximately 8 inches and watered or dried, as needed, to achieve a generally uniform moisture content at or near the optimum moisture content. The scarified materials shall then be compacted to 90 percent relative compaction. The evaluation of compaction by the geotechnical consultant shall not be considered to preclude any requirements for observation or approval by governing agencies. It is the contractor's responsibility to notify the geotechnical consultant and the appropriate governing agency when project areas are ready for observation, and to provide reasonable time for that review.

4.2. Excavated on-site materials which are in general compliance with the recommendations of the geotechnical consultant may be utilized as compacted fill provided they are generally free of organic or other deleterious materials and do not contain rock fragments greater than 6 inches in dimension. During grading, the contractor may encounter soil types other than those analyzed during the preliminary geotechnical study. The geotechnical consultant shall be consulted to evaluate the suitability of any such soils for use as compacted fill.

4.3. Where imported materials are to be used on site, the geotechnical consultant shall be notified three working days in advance of importation in order that it may sample and test the materials from the proposed borrow sites. No imported materials shall be delivered for use on site without prior sampling, testing, and evaluation by the geotechnical consultant.

4.4. Soils imported for on-site use shall preferably have very low to low expansion potential (based on UBC Standard 18-2 test procedures). Lots on which expansive soils may be exposed at grade shall be undercut 3 feet or more and capped with very low to low expansion potential fill. In the event expansive soils are present near the ground surface, special design and construction considerations shall be utilized in general accordance with the recommendations of the geotechnical consultant.

4.5. Fill materials shall be moisture conditioned to near optimum moisture content prior to placement. The optimum moisture content will vary with material type and other factors. Moisture conditioning of fill soils shall be generally uniform in the soil mass.

4.6. Prior to placement of additional compacted fill material following a delay in the grading operations, the exposed surface of previously compacted fill shall be prepared to receive fill. Preparation may include scarification, moisture conditioning, and recompaction.

4.7. Compacted fill shall be placed in horizontal lifts of approximately 8 inches in loose thickness. Prior to compaction, each lift shall be watered or dried as needed to achieve near optimum moisture condition, mixed, and then compacted by mechanical methods, using sheepsfoot rollers, multiple-wheel pneumatic-tired rollers, or other appropriate compacting rollers, to the specified relative compaction. Successive lifts shall be treated in a like manner until the desired finished grades are achieved.

4.8. Fill shall be tested in the field by the geotechnical consultant for evaluation of general compliance with the recommended relative compaction and moisture conditions. Field density testing shall conform to ASTM D 1556-00 (Sand Cone method), D 2937-00 (Drive-Cylinder method), and/or D 2922-96 and D 3017-96 (Nuclear Gauge method). Generally, one test shall be provided for approximately every 2 vertical feet of fill placed, or for approximately every 1000 cubic yards of fill placed. In addition, on slope faces one or more tests shall be taken for approximately every 10,000 square feet of slope face and/or approximately every 10 vertical feet of slope height. Actual test intervals may vary as field conditions dictate. Fill found to be out of conformance with the grading recommendations shall be removed, moisture conditioned, and compacted or otherwise handled to accomplish general compliance with the grading recommendations.

4.9. The contractor shall assist the geotechnical consultant by excavating suitable test pits for removal evaluation and/or for testing of compacted fill.

4.10. At the request of the geotechnical consultant, the contractor shall "shut down" or restrict grading equipment from operating in the area being tested to provide adequate testing time and safety for the field technician.

4.11. The geotechnical consultant shall maintain a map with the approximate locations of field density tests. Unless the client provides for surveying of the test locations, the locations shown by the geotechnical consultant will be estimated. The geotechnical consultant shall not be held responsible for the accuracy of the horizontal or vertical locations or elevations.

4.12. Grading operations shall be performed under the observation of the geotechnical consultant. Testing and evaluation by the geotechnical consultant does not preclude the need for approval by or other requirements of the jurisdictional agencies.

4.13. Fill materials shall not be placed, spread or compacted during unfavorable weather conditions. When work is interrupted by heavy rains, the filling operation shall not be resumed until tests indicate that moisture content and density of the fill meet the project specifications. Regrading of the near-surface soil may be needed to achieve the specified moisture content and density.

4.14. Upon completion of grading and termination of observation by the geotechnical consultant, no further filling or excavating, including that planned for footings, foundations, retaining walls or other features, shall be performed without the involvement of the geotechnical consultant.

4.15. Fill placed in areas not previously viewed and evaluated by the geotechnical consultant may have to be removed and recompacted at the contractor's expense. The depth and extent of removal of the unobserved and undocumented fill will be decided based upon review of the field conditions by the geotechnical consultant.

4.16. Off-site fill shall be treated in the same manner as recommended in these specifications for on-site fills. Off-site fill subdrains temporarily terminated (up gradient) shall be surveyed for future locating and connection.

5. OVERSIZED MATERIAL

Oversized material shall be placed in accordance with the following recommendations.

5.1. During the course of grading operations, rocks or similar irreducible materials greater than 6 inches in dimension (oversized material) may be generated. These materials shall not be placed within the compacted fill unless placed in general accordance with the recommendations of the geotechnical consultant.

5.2. Where oversized rock (greater than 6 inches in dimension) or similar irreducible material is generated during grading, it is recommended, where practical, to waste such material off site, or on site in areas designated as "nonstructural rock disposal areas." Rock designated for disposal areas shall be placed with sufficient sandy soil to generally fill voids. The disposal area shall be capped with a 5-foot thickness of fill which is generally free of oversized material.

5.3. Rocks 6 inches in dimension and smaller may be utilized within the compacted fill, provided they are placed in such a manner that nesting of rock is not permitted. Fill shall be placed and compacted over and around the rock. The amount of rock greater than ¾-inch in dimension shall generally not exceed 40 percent of the total dry weight of the fill mass, unless the fill is specially designed and constructed as a "rock fill."

5.4. Rocks or similar irreducible materials greater than 6 inches but less than 4 feet in dimension generated during grading may be placed in windrows and capped with finer materials in accordance with the recommendations of the geotechnical consultant and the approval of the governing agencies. Selected native or imported granular soil (Sand Equivalent of 30 or higher) shall be placed and flooded over and around the windrowed rock such that voids are filled. Windrows of oversized materials shall be staggered so that successive windrows of oversized materials are not in the same vertical plane. Rocks greater than 4 feet in dimension shall be broken down to 4 feet or smaller before placement, or they shall be disposed of off site.

6. SLOPES

The following sections provide recommendations for cut and fill slopes.

6.1. Cut Slopes

6.1.1. The geotechnical consultant shall observe cut slopes during excavation. The geotechnical consultant shall be notified by the contractor prior to beginning slope excavations.

6.1.2. If, during the course of grading, adverse or potentially adverse geotechnical conditions are encountered in the slope which were not anticipated in the preliminary evaluation report, the geotechnical consultant shall evaluate the conditions and provide appropriate recommendations.

6.2. Fill Slopes

6.2.1. When placing fill on slopes steeper than 5:1 (horizontal:vertical), topsoil, slope wash, colluvium, and other materials deemed unsuitable shall be removed. Near-horizontal keys and near-vertical benches shall be excavated into sound bedrock or fine fill material, in accordance with the recommendation of the geotechnical consultant. Keying and benching shall be accomplished. Compacted fill shall not be placed in an area subsequent to keying and benching until the area has been observed by the geotechnical consultant. Where the natural gradient of a slope is less than 5:1, benching is generally not recommended. However, fill shall not be placed on compressible or otherwise unsuitable materials left on the slope face.

6.2.2. Within a single fill area where grading procedures dictate two or more separate fills, temporary slopes (false slopes) may be created. When placing fill adjacent to a temporary slope, benching shall be conducted in the manner described in Section 7.2. A 3-foot or higher near-vertical bench shall be excavated into the documented fill prior to placement of additional fill.

6.2.3. Unless otherwise recommended by the geotechnical consultant and accepted by the Building Official, permanent fill slopes shall not be steeper than 2:1 (horizontal:vertical). The height of a fill slope shall be evaluated by the geotechnical consultant.

6.2.4. Unless specifically recommended otherwise, compacted fill slopes shall be overbuilt and cut back to grade, exposing firm compacted fill. The actual amount of overbuilding may vary as field conditions dictate. If the desired results are not achieved, the existing slopes shall be overexcavated and reconstructed in accordance with the recommendations of the geotechnical consultant. The degree of overbuilding may be increased until the desired compacted slope face condition is achieved. Care shall be taken by the contractor to provide mechanical compaction as close to the outer edge of the overbuilt slope surface as practical.

6.2.5. If access restrictions, property line location, or other constraints limit overbuilding and cutting back of the slope face, an alternative method for compaction of the slope face may be attempted by conventional construction procedures including backrolling at intervals of 4 feet or less in vertical slope height, or as dictated by the capability of the available equipment, whichever is less. Fill slopes shall be backrolled utilizing a conventional sheepsfoot-type roller. Care shall be taken to maintain the specified moisture conditions and/or reestablish the same, as needed, prior to backrolling.

6.2.6. The placement, moisture conditioning and compaction of fill slope materials shall be done in accordance with the recommendations presented in Section 5 of these guidelines.

6.2.7. The contractor shall be ultimately responsible for placing and compacting the soil out to the slope face to obtain a relative compaction of 90 percent as evaluated by ASTM D 1557 and a moisture content in accordance with Section 5. The geotechnical consultant shall perform field moisture and density tests at intervals of one test for approximately every 10,000 square feet of slope.

6.2.8. Backdrains shall be provided in fill as recommended by the geotechnical consultant.

6.3. Top-of-Slope Drainage

6.3.1. For pad areas above slopes, positive drainage shall be established away from the top of slope. This may be accomplished utilizing a berm and pad gradient of 2 percent or steeper at the top-of-slope areas. Site runoff shall not be permitted to flow over the tops of slopes.

6.3.2. Gunite-lined brow ditches shall be placed at the top of cut slopes to redirect surface runoff away from the slope face where drainage devices are not otherwise provided.

6.4. Slope Maintenance

6.4.1. In order to enhance surficial slope stability, slope planting shall be accomplished at the completion of grading. Slope plants shall consist of deep-rooting, variable root depth, drought-tolerant vegetation. Native vegetation is generally desirable. Plants native to semiarid and mid areas may also be appropriate. Large-leafed ice plant should not be used on slopes. A landscape architect shall be consulted regarding the actual types of plants and planting configuration to be used.

6.4.2. Irrigation pipes shall be anchored to slope faces and not placed in trenches excavated into slope faces. Slope irrigation shall be maintained at a level just sufficient to support plant growth. Property owners shall be made aware that over watering of slopes is detrimental to slope stability. Slopes shall be monitored regularly and broken sprinkler heads and/or pipes shall be repaired immediately.

6.4.3. Periodic observation of landscaped slope areas shall be planned and appropriate measures taken to enhance growth of landscape plants.

6.4.4. Graded swales at the top of slopes and terrace drains shall be installed and the property owners notified that the drains shall be periodically checked so that they may be kept clear. Damage to drainage improvements shall be repaired immediately. To reduce siltation, terrace drains shall be constructed at a gradient of 3 percent or steeper, in accordance with the recommendations of the project civil engineer.

6.4.5. If slope failures occur, the geotechnical consultant shall be contacted immediately for field review of site conditions and development of recommendations for evaluation and repair.

7. TRENCH BACKFILL

The following sections provide recommendations for backfilling of trenches.

7.1. Trench backfill shall consist of granular soils (bedding) extending from the trench bottom to 1 foot or more above the pipe. On-site or imported fill which has been evaluated by the geotechnical consultant may be used above the granular backfill. The cover soils directly in contact with the pipe shall be classified as having a very low expansion potential, in accordance with UBC Standard 18-2, and shall contain no rocks or chunks of hard soil larger than 3/4-inch in diameter.

7.2. Trench backfill shall, unless otherwise recommended, be compacted by mechanical means to 90 percent relative compaction as evaluated by ASTM D 1557. Backfill soils shall be placed in loose lifts 8-inches thick or thinner, moisture conditioned, and compacted in accordance with the recommendations of Section 5 of these guidelines. The backfill shall be tested by the geotechnical consultant at vertical intervals of approximately 2 feet of backfill placed and at spacings along the trench of approximately 100 feet in the same lift.

7.3. Jetting of trench backfill materials is generally not a recommended method of densification, unless the on-site soils are sufficiently free-draining and provisions have been made for adequate dissipation of the water utilized in the jetting process.

7.4. If it is decided that jetting may be utilized, granular material with a sand equivalent greater than 30 shall be used for backfilling in the areas to be jetted. Jetting shall generally be considered for trenches 2 feet or narrower in width and 4 feet or shallower in depth. Following jetting operations, trench backfill shall be mechanically compacted to the specified compaction to finish grade.

7.5. Trench backfill which underlies the zone of influence of foundations shall be mechanically compacted to 90 percent or greater relative compaction, as evaluated by ASTM D 1557-02. The zone of influence of the foundations is generally defined as the roughly triangular area within the limits of a 1:1 (horizontal:vertical) projection from the inner and outer edges of the foundation, projected down and out from both edges.

7.6. Trench backfill within slab areas shall be compacted by mechanical means to a relative compaction of 90 percent, as evaluated by ASTM D 1557. For minor interior trenches, density testing may be omitted or spot testing may be performed, as deemed appropriate by the geotechnical consultant.

7.7. When compacting soil in close proximity to utilities, care shall be taken by the grading contractor so that mechanical methods used to compact the soils do not damage the utilities. If the utility contractors indicate that it is undesirable to use compaction equipment in close proximity to a buried conduit, then the grading contractor may elect to use light mechanical compaction equipment or, with the approval of the geotechnical consultant, cover the conduit with clean granular material. These granular materials shall be jetted in place to the top of the conduit in accordance with the recommendations of Section 8.4 prior to initiating mechanical compaction procedures. Other methods of utility trench compaction may also be appropriate, upon review by the geotechnical consultant and the utility contractor, at the time of construction.

7.8. Clean granular backfill and/or bedding materials are not recommended for use in slope areas unless provisions are made for a drainage system to mitigate the potential for buildup of seepage forces or piping of backfill materials.

7.9. The contractor shall exercise the specified safety precautions, in accordance with OSHA Trench Safety Regulations, while conducting trenching operations. Such precautions include shoring or laying back trench excavations at 1:1 or flatter, depending on material type, for trenches in excess of 5 feet in depth. The geotechnical consultant is not responsible for the safety of trench operations or stability of the trenches.

8. DRAINAGE

The following sections provide recommendations pertaining to site drainage.

8.1. Roof, pad, and slope drainage shall be such that it is away from slopes and structures to suitable discharge areas by nonerodible devices (e.g., gutters, downspouts, concrete swales, etc.).

8.2. Positive drainage adjacent to structures shall be established and maintained. Positive drainage may be accomplished by providing drainage away from the foundations of the structure at a gradient of 2 percent or steeper for a distance of 5 feet or more outside the building perimeter, further maintained by a graded swale leading to an appropriate outlet, in accordance with the recommendations of the project civil engineer and/or landscape architect.

8.3. Surface drainage on the site shall be provided so that water is not permitted to pond. A gradient of 2 percent or steeper shall be maintained over the pad area and drainage patterns shall be established to remove water from the site to an appropriate outlet.

8.4. Care shall be taken by the contractor during grading to preserve any berms, drainage terraces, interceptor swales or other drainage devices of a permanent nature on or adjacent to the property. Drainage patterns established at the time of finish grading shall be maintained for the life of the project. Property owners shall be made very clearly aware that altering drainage patterns may be detrimental to slope stability and foundation performance.

9. SITE PROTECTION

The site shall be protected as outlined in the following sections.

9.1. Protection of the site during the period of grading shall be the responsibility of the contractor unless other provisions are made in writing and agreed upon among the concerned parties. Completion of a portion of the project shall not be considered to preclude that portion or adjacent areas from the need for site protection, until such time as the project is finished as agreed upon by the geotechnical consultant, the client, and the regulatory agency.

9.2. The contractor is responsible for the stability of temporary excavations. Recommendations by the geotechnical consultant pertaining to temporary excavations are made in consideration of stability of the finished project and, therefore, shall not be considered to preclude the responsibilities of the contractor. Recommendations by the geotechnical consultant shall also not be considered to preclude more restrictive requirements by the applicable regulatory agencies.

9.3. Precautions shall be taken during the performance of site clearing, excavation, and grading to protect the site from flooding, ponding, or inundation by surface runoff. Temporary provisions shall be made during the rainy season so that surface runoff is away from and off the working site. Where low areas cannot be avoided, pumps shall be provided to remove water as needed during periods of rainfall.

9.4. During periods of rainfall, plastic sheeting shall be used as needed to reduce the potential for unprotected slopes to become saturated. Where needed, the contractor shall install check dams, desilting basins, riprap, sandbags or other appropriate devices or methods to reduce erosion and provide recommended conditions during inclement weather.

9.5. During periods of rainfall, the geotechnical consultant shall be kept informed by the contractor of the nature of remedial or precautionary work being performed on site (e.g., pumping, placement of sandbags or plastic sheeting, other labor, dozing, etc.).

9.6. Following periods of rainfall, the contractor shall contact the geotechnical consultant and arrange a walk-over of the site in order to visually assess rain-related damage. The geotechnical consultant may also recommend excavation and testing in order to aid in the evaluation. At the request of the geotechnical consultant, the contractor shall make excavations in order to aid in evaluation of the extent of rain-related damage.

9.7. Rain or irrigation related damage shall be considered to include, but may not be limited to, erosion, silting, saturation, swelling, structural distress, and other adverse conditions noted by the geotechnical consultant. Soil adversely affected shall be classified as "Unsuitable Material" and shall be subject to overexcavation and replacement with compacted fill or to other remedial grading as recommended by the geotechnical consultant.

9.8. Relatively level areas where saturated soils and/or erosion gullies exist to depths greater than 1 foot shall be overexcavated to competent materials as evaluated by the geotechnical consultant. Where adverse conditions extend to less than 1 foot in depth, saturated and/or eroded materials may be processed in-place. Overexcavated or in-place processed materials shall be moisture conditioned and compacted in accordance with the recommendations provided in Section 5. If the desired results are not achieved, the affected materials shall be overexcavated, moisture conditioned, and compacted until the specifications are met.

9.9. Slope areas where saturated soil and/or erosion gullies exist to depths greater than 1 foot shall be overexcavated and replaced as compacted fill in accordance with the applicable specifications. Where adversely affected materials exist to depths of I foot or less below proposed finished grade, remedial grading by moisture conditioning in-place and compaction in accordance with the appropriate specifications may be attempted. If the desired results are not achieved, the affected materials shall be overexcavated, moisture conditioned, and compacted until the specifications are met. As conditions dictate, other slope repair procedures may also be recommended by the geotechnical consultant.

9.10. During construction, the contractor shall grade the site to provide positive drainage away from structures and to keep water from ponding adjacent to structures. Water shall not be allowed to damage adjacent properties. Positive drainage shall be maintained by the contractor until permanent drainage and erosion reducing devices are installed in accordance with project plans.

APPENDIX F

GBC - Important Information About This Geotechnical-Engineering Report

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical- engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply this report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by*: the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly

problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold- prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical- engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you GBC-Member geotechnical engineer for more information.

GEOTECHNICAL BUSINESS COUNCIL
of the Geoprofessional Business Association

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
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NV5

Delivering Solutions
Improving Lives

APPENDIX G – GREENHOUSE GAS EMISSIONS

Greenhouse Gas Analysis for the Westside Canal Storage Project

RECON

Greenhouse Gas Analysis for the Westside Canal Battery Storage Project Imperial County, California

Prepared for
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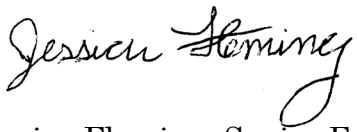
RECON Number 8888-1
March 23, 2021



Jessica Fleming, Senior Environmental Specialist

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FIGURES

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TABLES

ATTACHMENT

Acronyms and Abbreviations

AB	Assembly Bill
APCD	Air Pollution Control District
APN	Assessor Parcel Number
AQMD	Air Quality Monitoring District
BAU	Business-as-usual
BLM	Bureau of Land Management
BTM	behind-the-meter
CAFE	Corporate Average Fuel Economy
CAISO	California Independent Service Operator
CalEEMod	California Emissions Estimator Model
CalGreen	California Green Building Standards Code
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CH_4	methane
CO_2	carbon dioxide
CO_2E	carbon dioxide equivalent
County	County of Imperial
EO	Executive Order
GHG	greenhouse gas
GWP	Global Warming Potential
HVAC	heating, ventilation, and air conditioning
IID	Imperial Irrigation District
IV Substation	Imperial Valley Substation
I-8	Interstate 8
SR-98	State Route 98
kV	kilovolt
MMT	million metric ton
mpg	miles per gallon
MPO	Metropolitan Planning Organization
MT	metric ton
MW	megawatt
MWh	megawatt per hour
N_2O	nitrous oxide
O&M	operations and maintenance
Project	Westside Canal Battery Storage Project
Project Proponent	Westside Canal Battery Storage, LLC
PV	photovoltaic
RPS	Renewable Portfolio Standard
RTP	Regional Transportation Plan
SB	Senate Bill
SCAG	Southern California Association of Governments
SCS	Sustainable Communities Strategy
U.S. EPA	U.S. Environmental Protection Agency

Executive Summary

This report provides the results of the greenhouse gas (GHG) emissions analysis performed for the proposed Westside Canal Battery Storage Project (Project) in Imperial County, California. The Project site consists of approximately 148 acres of agriculturally-zoned land located in the unincorporated Mount Signal area of the County, approximately 8.0 miles southwest of the city of El Centro (Assessor Parcel Numbers [APNs] 051-350-010 and 051-350-011). The Project site is located approximately one-third mile north of the Imperial Valley Substation (IV Substation) and directly south of the intersection of Liebert Road and the Imperial Irrigation District's (IID) Westside Main Canal. The Project site is bounded by the Westside Main Canal to the north, Bureau of Land Management lands to the south and west, and vacant private land to the east. The Campo Verde solar generation facility is located north of the Project site, across the Westside Main Canal.

The two Project parcels are proposed for development as a utility-scale energy storage complex. The Project would also utilize portions of two parcels located north of the Westside Main Canal (APN 051-350-019 owned by IID and APN 051-350-018 owned by a private landowner) for site access and as a temporary construction staging area. The Project would also access a small portion of APN 051-350-009 within an IID easement for connection to the existing IID Campo Verde – Imperial Valley 230 kilovolt (kV) radial gen-tie line during the construction of a switching station on the Project site.

This analysis evaluates the significance of the Project in accordance with the California Environmental Quality Act and guidance from the Imperial County Air Pollution Control District (APCD). The Project was evaluated to determine if it would (1) significantly contribute to cumulative statewide GHG emissions, or (2) conflict with regulations, plans, and policies aimed at reducing GHG emissions. Project emissions were calculated using the California Emissions Estimator Model Version 2016.3.2.

No GHG emission significance threshold has been adopted by the Imperial County APCD. Project GHG emissions were evaluated against the Antelope Valley Air Quality Management District (AQMD) and Mojave Desert APCD screening level of 100,000 short tons of carbon dioxide (CO_2E) (90,718 metric tons [MT] CO_2E). As calculated in this analysis, construction and operation of the Project would generate a maximum total of 83,370 MT CO_2E annually. A majority of the emissions (98.8 percent) would be associated with the Project's battery system energy losses and auxiliary load[1], which includes heating, ventilation, and air conditioning units necessary to control the temperature of the battery components, battery energy losses, inverter and transformer efficiencies, and alternating current and direct current wire losses. Therefore, Project GHG emissions would be less than the applicable screening threshold and impacts would be less than significant.

[1]Auxiliary load refers to electrical energy used to operate auxiliary equipment associated with the battery storage facility.

The Project would reduce these emissions by installing behind-the-meter[2] solar photovoltaic (PV) on the Project site to the extent feasible. The on-site solar PV would potentially offset 2,761 to 5,522 MT CO_2E per year of the Project's GHG emissions.

The Project would serve as an integral component of the State's overarching renewable energy strategy to utilize 100 percent renewable energy by 2045 by providing necessary energy storage. By assisting the State's effort to reach this goal, the Project would contribute towards a statewide net decrease in use of fossil fuel and GHG emissions. Therefore, the Project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emission of GHGs, and impacts would be less than significant.

1.0 Introduction

1.1 Purpose of the Report

This report evaluates the significance of greenhouse gas (GHG) emissions associated with the proposed Westside Canal Battery Storage Project (Project). This report characterizes existing conditions at the Project site and in the region, identifies applicable rules and regulations, and assesses impacts related to GHG emissions associated with construction and operation of the Project.

1.2 Understanding Global Climate Change

Global climate change is a change in the average weather of the earth, which can be measured by wind patterns, storms, precipitation, and temperature. The earth's climate is in a state of constant flux with periodic warming and cooling cycles. Extreme periods of cooling are termed "ice ages," which may then be followed by extended periods of warmth. For most of the earth's geologic history, these periods of warming and cooling have been the result of many complicated interacting natural factors that include: volcanic eruptions that spew gases and particles (dust) into the atmosphere; the amount of water, vegetation, and ice covering the earth's surface; subtle changes in the earth's orbit; and the amount of energy released by the sun (sun cycles). However, since the beginning of the Industrial Revolution around 1750, the average temperature of the earth has been increasing at a rate that is faster than can be explained by natural climate cycles alone.

With the Industrial Revolution came an increase in the combustion of carbon-based fuels such as wood, coal, oil, natural gas, and biomass. Industrial processes have also created emissions of substances not found in nature. This in turn has led to a marked increase in the emissions of gases shown to influence the world's climate. These gases, termed "greenhouse" gases, influence the amount of heat trapped in the earth's atmosphere. Because recently observed increased concentrations of GHGs in the atmosphere are related to increased emissions resulting from human activity, the current cycle of "global warming" is generally believed to be largely due to human activity. Of late, the issue of global warming or global

[2]Behind-the-meter generation refers to energy that is generated on-site for on-site use.

climate change has arguably become the most important and widely debated environmental issue in the United States and the world. Because it is the collective of human actions taking place throughout the world that contributes to climate change, it is quintessentially a global or cumulative issue.

1.3 Greenhouse Gases of Primary Concern

There are numerous GHGs, both naturally occurring and manmade. Each GHG has variable atmospheric lifetime and global warming potential (GWP). The atmospheric lifetime of the gas is the average time a molecule stays stable in the atmosphere. Most GHGs have long atmospheric lifetimes, staying in the atmosphere hundreds or thousands of years. GWP is a measure of the potential for a gas to trap heat and warm the atmosphere. Although GWP is related to its atmospheric lifetime, many other factors including chemical reactivity of the gas also influence GWP. GWP is reported as a unitless factor representing the potential for the gas to affect global climate relative to the potential of carbon dioxide (CO_2). Because CO_2 is the reference gas for establishing GWP, by definition its GWP is 1. Although methane (CH_4) has a shorter atmospheric lifetime than CO_2, it has a 100-year GWP of 25; this means that CH_4 has 25 times more effect on global warming than CO_2 on a molecule-by-molecule basis.

The GWP is officially defined as "[T]he cumulative radiative forcing—both direct and indirect effects—integrated over a period of time from the emission of a unit mass of gas relative to some reference gas" (U.S. Environmental Protection Agency [U.S. EPA] 2010). GHG emissions estimates are typically represented in terms of metric tons (MT) of CO_2 equivalent (CO_2E). CO_2E emissions are the product of the amount of each gas by its GWP. The effects of several GHGs may be discussed in terms of MT CO_2E and can be summed to represent the total potential of these gases to warm the global climate. Table 1 summarizes some of the most common GHGs.

All of the gases in Table 1 are produced by both biogenic (natural) and anthropogenic (human) sources. These are the GHGs of primary concern in this analysis. CO_2 would be emitted by the Project due to the combustion of fossil fuels in vehicles (including construction), from electricity consumption for battery system losses, auxiliary loads, water use, and from solid waste disposal. Smaller amounts of CH_4 and nitrous oxide (N_2O) would be emitted from these activities.

Table 1 Global Warming Potentials and Atmospheric Lifetimes			
Gas	Atmospheric Lifetime (years)	100-year GWP	20-year GWP
Carbon dioxide (CO_2)	50–200	1	1
Methane (CH_4)*	12.4	28	84
Nitrous oxide (N_2O)	121	265	264
HFC-23	222	12,400	10,800
HFC-32	5.2	677	2,430
HFC-125	28.2	3,170	6,090
HFC-134a	13.4	1,300	3,710
HFC-143a	47.1	4,800	6,940
HFC-152a	1.5	138	506
HFC-227ea	38.9	3,350	5,360
HFC-236fa	242	8,060	6,940
HFC-43-10mee	16.1	1,650	4,310
CF_4	50,000	6,630	4,880
C_2F_6	10,000	11,100	8,210
C_3F_8	2,600	8,900	6,640
C_4F_{10}	2,600	9,200	6,870
c-C_4F_8	3,200	9,540	7,110
C_5F_{12}	4,100	8,550	6,350
C_6F_{14}	3,100	7,910	5,890
SF_6	3,200	23,500	17,500
SOURCE: Intergovernmental Panel on Climate Change 2014.			

2.0 Project Description

Westside Canal Battery Storage, LLC (Project Proponent), a subsidiary of Con Edison Clean Energy Businesses, is proposing to develop, design, construct, own, operate, and maintain the Westside Canal Battery Storage Project (Project), a utility-scale energy storage complex with a capacity of up to 2,000 megawatts (MW). The Project would store energy generation from the electrical grid, and optimally discharge that energy back into the grid as firm, reliable generation and/or grid services.

The Project would be comprised of lithium-ion battery and/or flow battery energy storage facilities, a behind-the-meter solar energy facility, a new on-site 230 kilovolt (kV) loop-in switching station, a 34.5 kV to 230 kV substation, underground electrical cables, and permanent vehicular access to and from the site over a proposed bridge spanning Imperial Irrigation District's (IID's) Westside Main Canal. The proposed loop-in switching station would connect the Project to the existing IID Campo Verde – Imperial Valley 230 kV radial gen-tie line, which connects to the Imperial Valley Substation (IV Substation) and the California Independent System Operator (CAISO), approximately one-third mile south of the Project site. The Project Proponent has submitted the necessary Interconnection Request Applications to the CAISO and IID.

The Project would complement both the existing operational renewable energy facilities, as well as those planned for future development in Imperial County (County), and would support the broader southern California bulk electric transmission system by serving as a firm, dispatchable resource.

The Project is pursuing the following objectives:

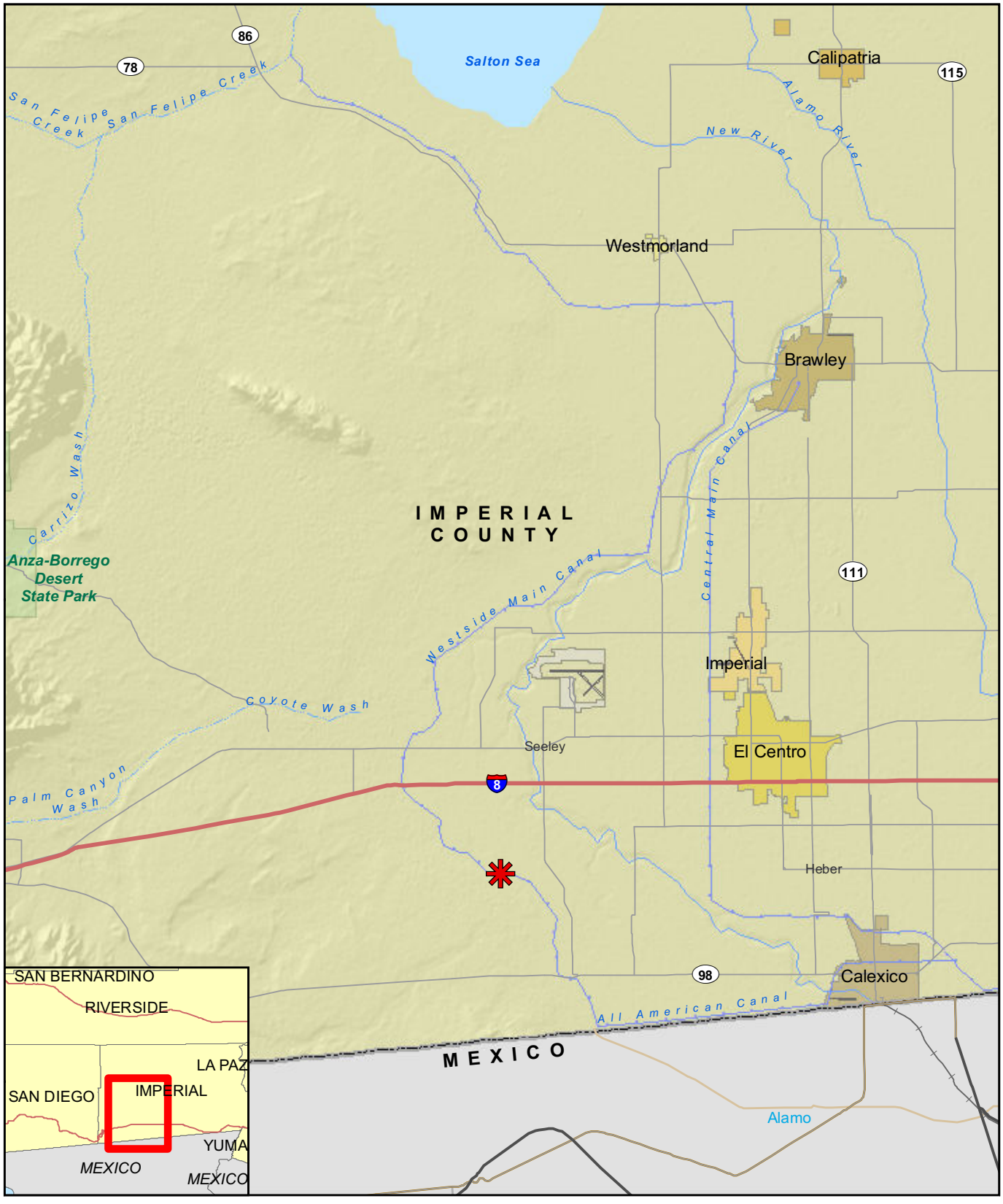
- To receive grid energy during beneficial market and operational periods and store that energy for dispatch when the customer (i.e., a load-serving entity) deems it to be more valuable.
- To be a valuable resource in allowing the customer and system operators to manage the effect of intermittent renewable generation on the grid and create reliable, dispatchable generation upon demand.
- To utilize available land that has not been used for agricultural production for more than 15 years and enhance the site location by providing for permanent vehicular access.

2.1 Project Location

The Project would be located in the unincorporated Mount Signal area of the County, approximately 8.0 miles southwest of the city of El Centro and approximately 5.3 miles north of the U.S.-Mexico border. Figure 1 shows the regional location of the Project. The Project site is comprised of two parcels owned by the Project Proponent, Assessor Parcel Number (APN) 051-350-010 and APN 051-350-011, totaling approximately 148 acres. These parcels have limited access corridors for vehicular traffic and are considered less desirable for agricultural production, as reflected by the last 15 years during which no farming activity has occurred.

The Project site is approximately one-third mile north of the IV Substation and directly south of the intersection of Liebert Road and the IID's Westside Main Canal. The Project site is bounded by the Westside Main Canal to the north, Bureau of Land Management (BLM) lands to the south and west, and vacant private land to the east. The Campo Verde solar generation facility is located north of the Project site, across the Westside Main Canal. Figure 2 shows an aerial photograph of the Project site and the above-mentioned nearby facilities.

The two Project parcels are proposed for development as a utility-scale energy storage complex. The Project would also utilize portions of two parcels located north of the Westside Main Canal (APN 051-350-019 owned by IID and APN 051-350-018 owned by a private landowner) for site access and as a temporary construction staging area. The Project would also access a small portion of APN 051-350-009 within an IID easement for connection to the existing IID Campo Verde – Imperial Valley 230 kV radial gen-tie line during the construction of a substation on the Project site. The total proposed Project development footprint, encompassing both temporary and permanent impacts, would be approximately 163 acres.



Project Location

FIGURE 1
Regional Location

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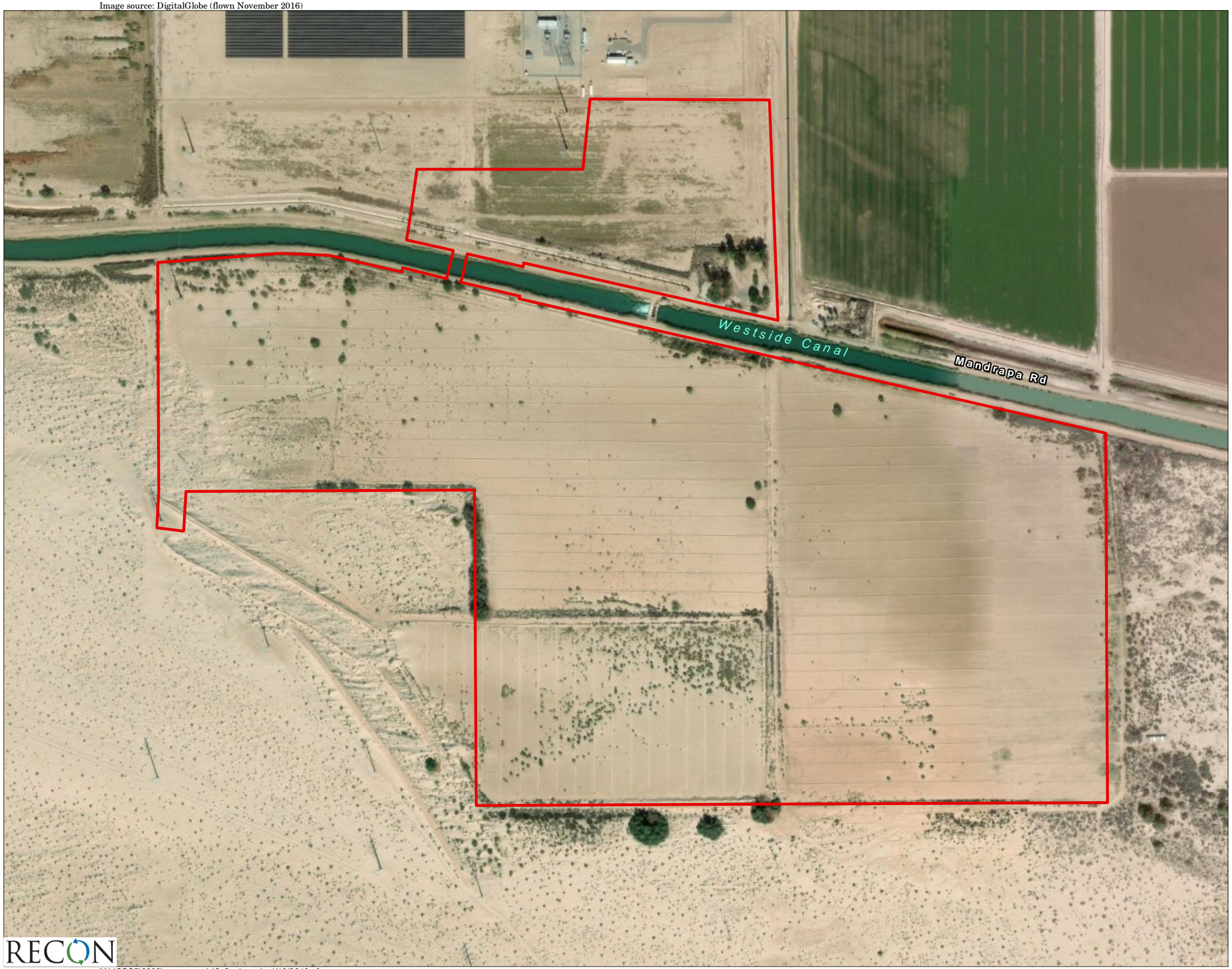
Image source: DigitalGlobe (flown November 2016)



Project Boundary

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FIGURE 2
Project Location on
Aerial Photograph

2.2 Project Components

Figure 3a shows the conceptual site plan for the Project with a representation of the various energy storage technologies, behind-the-meter ground- and roof-mounted solar, common facilities within the Project site, and permanent vehicular access to the Project site. The actual configuration of the Project would depend on the size of individual phases, and the type of battery technology deployed. Specific Project components are described below.

2.2.1 Phasing and Schedule

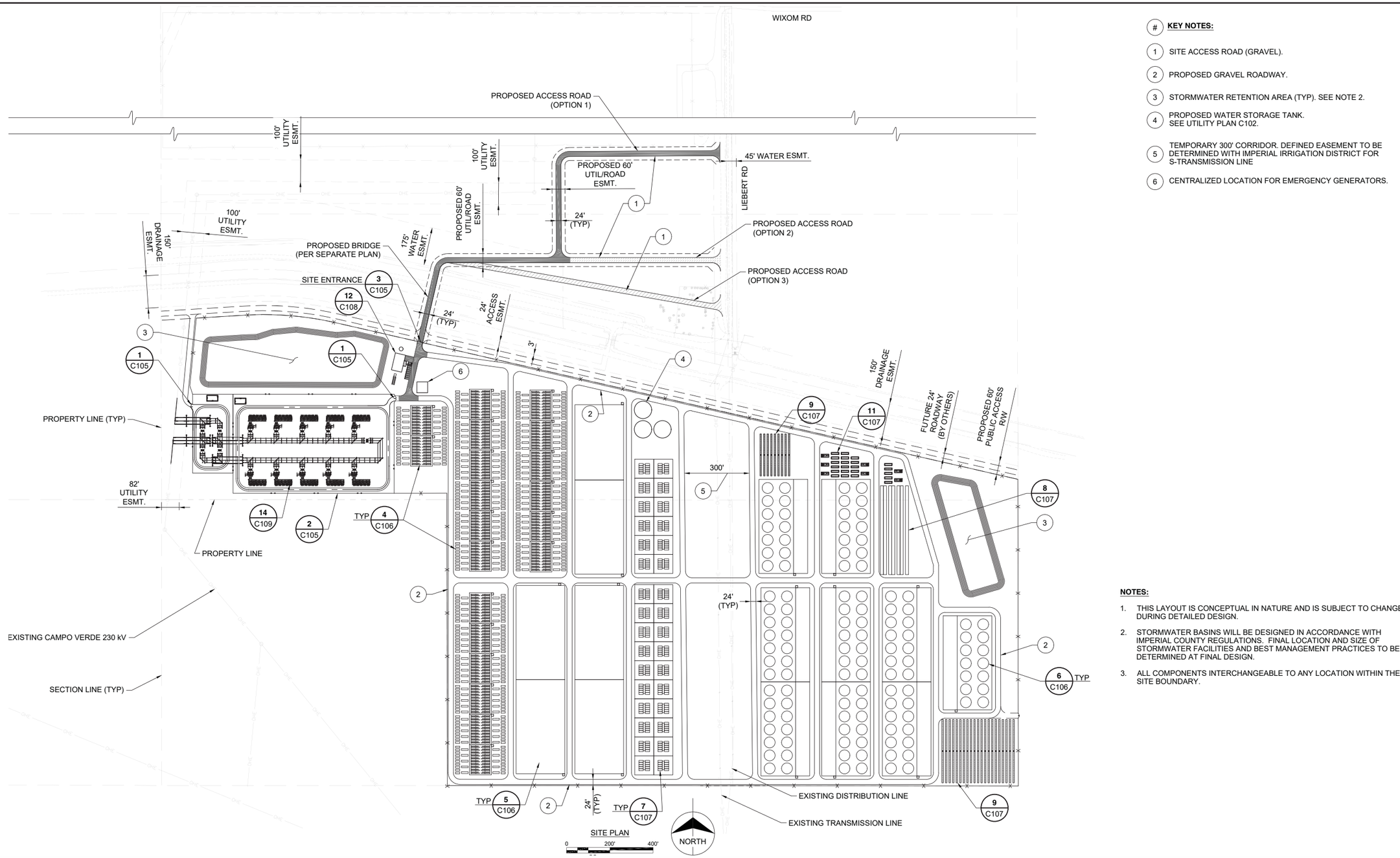
The Project would be constructed in three to five phases over a 10-year period, with each phase ranging from approximately 25 MW up to 400 MW per phase. Depending on the size of the battery system for a given phase, construction and commissioning (approval to operate) is anticipated to take approximately 6 to 12 months. For the purposes of this analysis, the applicant has assumed that construction activities would last for approximately 32 months to complete the full Project build-out.

Construction of the 100 to 200 MW first phase would include roads, a permanent clear-span bridge across the Westside Main Canal, the Operations and Maintenance (O&M) facilities, water connections and watermains, storm water retention, switching station and Project substation, legal permanent vehicle access, as well as the first energy storage facility. To access the Project site, construction workers would travel along Interstate 8 (I-8) and head 4.6 miles south to the Project site, and would utilize the IID Fern Check Bridge as a temporary pedestrian bridge until the permanent bridge is constructed. During peak construction activities, approximately 200 workers and approximately 30 daily deliveries would be required. It is anticipated that construction of the first phase would begin in 2021.

It is anticipated that each subsequent phase would be constructed within one to two years of each other, with the timing and size of each phase dependent on market conditions and the applicant's ability to secure commercial contracts with prospective customers. With the Project being built in phases, the necessary infrastructure, such as water mains, retention ponds, and access roads, would be built out to serve the Project phases from west to east and expanded over time to serve each phase. These subsequent phases would require improvements such as additional substation equipment, water main and site road extension, but would not require construction of additional common facilities which would be completed during the first phase. The total nameplate (or rated capacity) capacity of the Project at full build-out (all phases completed) would be approximately 2,000 MW.

Construction activities during all Project phases would only occur Monday through Friday, between the hours of 7:00 a.m. and 7:00 p.m. or Saturday between the hours of 9:00 a.m. and 5:00 p.m., excluding holidays, per County Ordinance.

Map Source: Burns McDonnell



KEY NOTES:

1. SITE ACCESS ROAD (GRAVEL).
2. PROPOSED GRAVEL ROADWAY.
3. STORMWATER RETENTION AREA (TYP). SEE NOTE 2.
4. PROPOSED WATER STORAGE TANK. SEE UTILITY PLAN C102.
5. TEMPORARY 300' CORRIDOR. DEFINED EASEMENT TO BE DETERMINED WITH IMPERIAL IRRIGATION DISTRICT FOR S-TRANSMISSION LINE
6. CENTRALIZED LOCATION FOR EMERGENCY GENERATORS.

NOTES:

1. THIS LAYOUT IS CONCEPTUAL IN NATURE AND IS SUBJECT TO CHANGE DURING DETAILED DESIGN.
2. STORMWATER BASINS WILL BE DESIGNED IN ACCORDANCE WITH IMPERIAL COUNTY REGULATIONS. FINAL LOCATION AND SIZE OF STORMWATER FACILITIES AND BEST MANAGEMENT PRACTICES TO BE DETERMINED AT FINAL DESIGN.
3. ALL COMPONENTS INTERCHANGEABLE TO ANY LOCATION WITHIN THE SITE BOUNDARY.

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FIGURE 3a
Site Plan

2.2.2 Common Components

As shown on the site plan (see Figure 3a), the northwest area of the Project serves as the location for the common facilities, which include the switching station and Project substation and the O&M facilities. A summary of the common facilities is presented below:

- 230 kV loop-in switching station
  - Connection to Campo Verde – Imperial Valley 230 kV radial transmission line
  - Located on applicant property
- Project substation
- O&M facilities
- Project parking
- Storm water retention basins
- Fencing and gates
- Interior access roads

Industrial buildings, warehouses, engineered containers, and/or electrolyte storage tanks would be the primary structures needed to house the main Project components. Other components to be located on the Project site and adjacent to the proposed buildings, warehouses, containers, and tanks include the following:

- Inverters, transformers, power distribution panels
- Underground water-main loop for Project operation and fire prevention
- Underground cable to connect to Project substation
- Project site access roads (unpaved/crushed rock)
- Fire water storage tanks
- Above ground water storage tanks
- Heating, Ventilation, and Air Conditioning (HVAC) units
- Ground-mounted or roof-mounted photovoltaic (PV) arrays
- Emergency backup generator(s)

2.2.2.1 O&M Facilities

The O&M facilities are expected to be the only manned facility on the site. It would include up to approximately 20 full-time employees depending upon the number of phases and type of energy storage facility constructed. O&M employees would work typical weekday hours but may work extended hours, including weekends and 24 hours a day, depending upon the operations and maintenance needs. No offices or staffed control centers would be located within the storage-specific warehouses/buildings. For sanitary waste, the Project would include a septic leach field to be located near the O&M facilities. The proposed O&M facilities would also require an HVAC unit.

2.2.2.2 Permanent Vehicle Access

There are no circulation element roadways in the immediate vicinity of the Project site. The nearest freeways are I-8, located 4.6 miles north of the Project site, and State Route

98 (SR-98), located 5.2 miles south of the Project site. Drew Road, a two-lane collector, is located 1.3 miles east of the Project site. All other roadways in the immediate vicinity of the Project site are rural roadways. All roadways that would be used to access the Project site from I-8 are currently paved, except for the portion of Liebert Road south of Wixom Road. However, this segment would be paved or graveled prior to Project operation.

The Project is surrounded by private landowners to the east, BLM land to the south and west, and IID maintenance roads and Westside Main Canal to the north. Due to the Project site having no direct vehicular access routes, the applicant is proposing to construct roads on both the north and south sides of the Westside Main Canal on private land, and a new clear-span Imperial County-specified bridge over the Westside Main Canal.

The permanent new clear-span County-specified bridge would span the Westside Main Canal to connect to a proposed access road easement on the north side of the Westside Main Canal. The north side proposed access road would ultimately connect the Project to county road (CR) Liebert Road.

Construction of the permanent clear-span bridge spanning the IID's Westside Main Canal requires the Project Proponent to have access to both the north side and the south of the Canal to perform the necessary construction activities. In addition to being necessary to facilitate construction of the new permanent clear-span bridge, access from the south side of the Canal would allow the Project Proponent to commence construction on the first phase of the Project simultaneously, thereby shortening the duration of construction and potentially minimizing the associated impacts. The Project Proponent is evaluating various options for temporary construction access, including accessing the Project site from the south side of the Westside Main Canal off SR-98, as well as options involving access from the north side of the Westside Main Canal from I-8.

Option 1 would use the existing San Diego Gas & Electric maintenance road off Highway 98, which extends approximately 4.4 miles to the IV Substation. Option 1 would then continue along an existing 1.2-mile-long dirt access road that leads north, then east, outside the western and northern boundaries of the substation. Option 1 then continues northwest along an existing dirt access road that parallels two power lines until the access road connects with the western edge of the Project. The existing dirt road was constructed for the construction and maintenance of the existing Campo Verde – Imperial Valley gen-tie line. Option 2 would use the existing IID Westside Main Canal access road. The selected temporary access option would be used until construction of the permanent bridge is completed. Both temporary construction access routes are presented in Figure 3b.

Map Source: conEdison Development

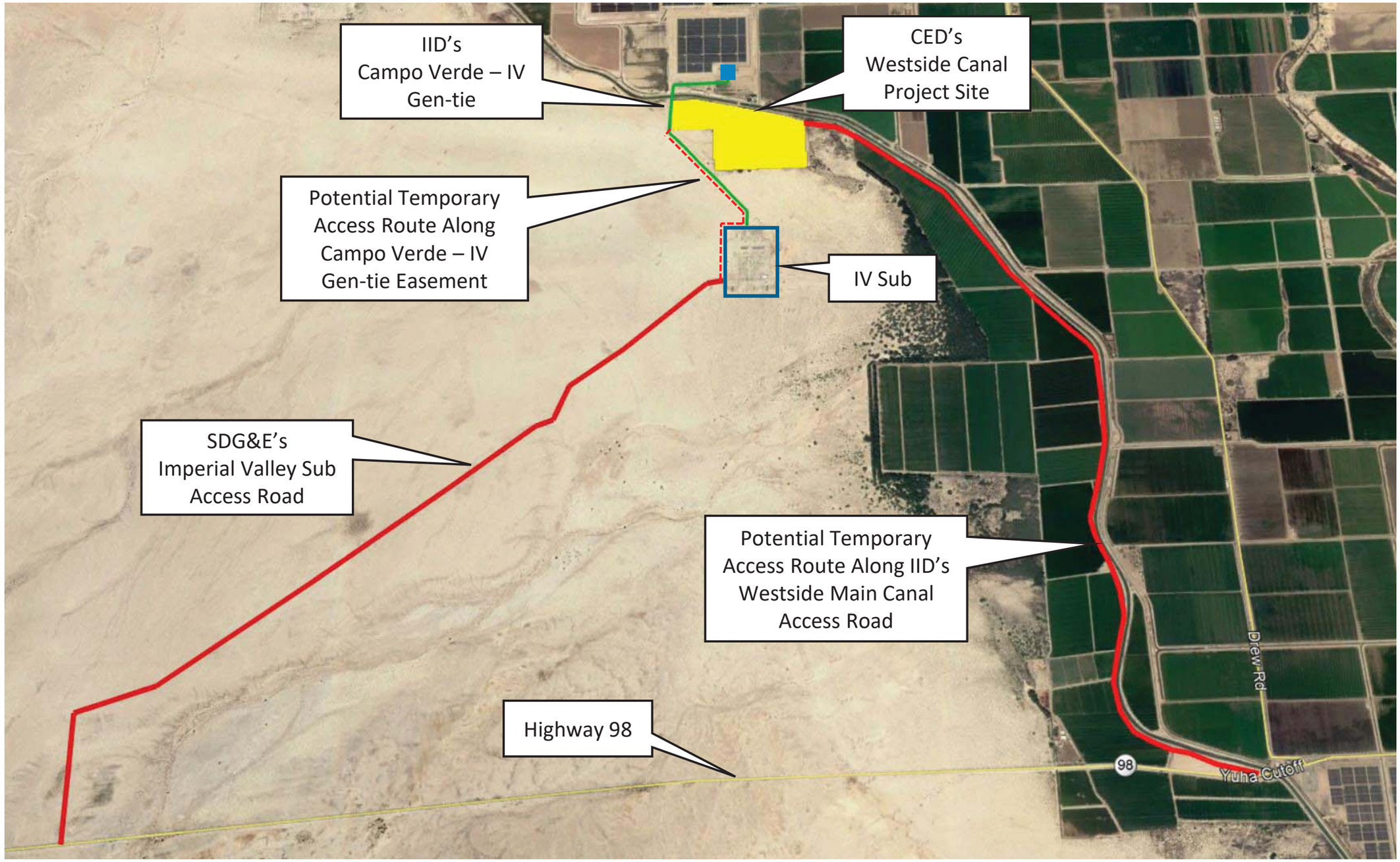

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FIGURE 3b
Temporary Construction Access Routes

2.2.3 Battery Storage Components

The first phase of site construction would consist of either a lithium-ion battery storage facility or a flow battery storage facility. This first phase would be dependent on the first commercial contract awarded to the applicant by a customer. Large industrial buildings, warehouses, and/or containers to house the storage equipment, including battery cells, modules, racks, and controls for lithium-ion technologies, would be needed. For flow battery technologies, cell stack modules, pumps, and controls may be installed inside industrial buildings or pre-engineered outdoor enclosures. Electrolyte storage tanks and associated piping may be located indoors or outdoors, depending on the technology.

2.2.3.1 Battery Modules Technology

a. Energy Storage

Energy storage is the capture of energy produced at one time for use at a later time. A device that stores energy is generally called an accumulator or battery. Energy storage involves converting energy from forms that are difficult to store to more conveniently or economically storable forms. For the purpose of grid connected energy storage, electrical energy will be stored in the form of chemical energy in lithium-ion and/or flow batteries. Energy storage technology may be centralized or may be distributed throughout the plant. Due to requirements for energy storage, the Project components such as the switching station, substation, transformers, and inverters would be energized at all times with the potential to charge or discharge.

b. Lithium-Ion Battery

A lithium-ion battery is a type of rechargeable battery in which lithium ions move from the negative electrode through an electrolyte to the positive electrode during discharge, and back when charging. Lithium-ion batteries use an intercalated lithium compound as the material at the positive electrode and typically graphite at the negative electrode. The batteries have a high energy density, no memory effect and low self-discharge.

c. Flow Battery

A flow battery is a rechargeable fuel cell in which an electrolyte containing one or more dissolved electroactive elements flows through an electrochemical cell that reversibly converts chemical energy directly to electricity. Additional electrolyte is stored externally, generally in tanks, and is usually pumped through the cell (or cells) of the reactor, although gravity feed systems are also known to be used. Flow batteries can be rapidly "recharged" by replacing the electrolyte liquid while simultaneously recovering the spent material for re-energization. Many flow batteries use carbon felt electrodes due to its low cost and adequate electrical conductivity.

2.2.3.2 Backup Generators

The Project would include emergency backup generator(s) to supply auxiliary power to the facility during rare events in which the entire facility or portions of the facility are disconnected from the electrical grid. The Project would use a hybrid approach to emergency backup power supply. Rather than relying exclusively on backup generators, the hybrid approach involves dedicating a portion of the battery storage system capacity as a source of emergency backup power. The reserved battery storage capacity would be approximately 3 to 4 percent of the size of the constructed battery storage system. This hybrid approach would also rely on the use of on-site, behind-the-meter (BTM) solar power generation to supplement the facility's backup power supply needs. Additionally, propane-fueled generators would augment the backup battery storage capacity and the BTM solar power generation.

The generators would be sized to accommodate control systems and HVAC system loads for equipment protection. Approximately 1.25 MW of backup power generation would be needed for every 100 MW of installed battery storage capacity. Each propane-fueled generator would have a capacity of 150 kilowatts or larger. The purpose of the generators would be to provide system safety for events in which the transmission interconnection and the on-site solar generation system are not available, by supplying the battery HVAC system to maintain battery safety and warranty temperature parameters.

The propane-fueled generators would be installed in a central location near the common facilities or distributed among individual buildings or containers. The generators would be periodically tested (monthly) to maintain backup capability in the event of a grid outage. All generators would be subject to Imperial County APCD review and permitting requirements.

2.2.4 Solar Facility Components

Photovoltaic solar cells, also called PV cells, convert sunlight directly into electricity. PV gets its name from the process of converting light (photons) to electricity (voltage), which is called the PV effect. The panels are mounted at a fixed angle facing south, or they can be mounted on a tracking device that follows the sun, allowing them to capture the most sunlight. Many solar panels combined together to create one system is called a solar array. On-site, behind-the-meter, PV solar generation would serve as station auxiliary power and be deployed throughout the Project site.

2.3 Site Security

A six-foot-tall fence (e.g., chain-link) topped with one-foot-tall barbed wire would be installed around the entire Project site for safety and in order to control access. The switching station and each substation proposed on the site plan would also have fences installed around its perimeter. A camera-equipped call button would be installed at the front entry gate to the site which would be monitored from the Project's O&M facilities. Throughout the site at various points, security cameras may be installed to monitor other areas of the Project site. During the construction of each Project phase, the applicant would have on-site security personnel between dusk and dawn and during hours of non-active construction.

2.4 Interconnection Options

The proposed point of interconnection for the Project is the IV Substation 230 kV bus. As reflected in the conceptual site plan, to achieve this, the applicant plans to build a new loop-in switching station on the Project site and connect to the existing IID Campo Verde –Imperial Valley 230 kV radial gen-tie line. This existing gen-tie line ultimately connects to the IV Substation one-third mile south of the Project site. This location would serve as the Project's point of interconnection to the CAISO grid. The applicant has submitted the necessary Interconnection Request Applications to the CAISO and IID.

2.5 Existing and Proposed Utility Easements

2.5.1 Existing Easements

The Project site (APNs 051-350-10 and 051-350-011) has three major easements lying across the site. The first is for overhead collector transmission circuits and utility facilities, as well as access. This is for the IID Campo Verde – Imperial Valley 230 kV transmission line easement, which lies inside and along the west property line and runs north/south.

The second major easement is a prescriptive easement for an overhead transmission circuit and a utility distribution line that runs north and south and lies directly in the center of the Project site. The IID transmission line within this prescriptive easement is known as the S-Transmission line (S-Line). The third major easement lies along the north property line. This easement was granted to IID for the purposes of the existing Westside Main Canal and appropriate infrastructure and operation and maintenance roads adjacent to the Westside Main Canal.

2.5.2 Proposed Easements

The applicant and IID are in the process of determining the width of this S-Line easement to create a non-exclusive easement. This easement would also include the existing distribution line that lies within the easement. Until this new easement agreement is in place, the applicant has planned for a 300-foot temporary corridor on the Project site plan (centerline of 300-foot corridor is the S-Line) to allow the IID energy engineering team to design and implement an appropriate new easement. Once the width and location of the new easement is determined, all other areas not part of the new S-Line easement lying within the 300-foot corridor will become part of the Project site.

2.6 Project Operation

Operation of the Project would require routine maintenance and security. It is anticipated that the Project would employ a plant manager and an O&M manager, as well as the addition of a facility manager once the complex deploys approximately 500 MW of generation. The complex will also employ staff technicians, with at least one additional technician for every approximately 250 MW of capacity.

Operation of the Project at full build-out would require up to approximately 20 full-time employees depending upon the number of phases and type of energy storage facility constructed. The Project may require fewer full-time equivalent employees, but 20 was assumed to provide a conservative estimate. O&M employees would work typical weekday hours but may work extended hours, including weekends and 24 hours a day, depending upon the operations and maintenance needs. Assuming two one-way trips per employee, the Project would be anticipated to generate up to 40 trips per day from all maintenance and security personnel.

Figure 3a shows the conceptual site plan for the Project with a representation of lithium-ion buildings and containers as well as flow buildings and containers. The components that make up the energy storage systems and common facilities require various preventative maintenance and at times corrective maintenance. The O&M staff would maintain the Project in accordance with manufacturer and industry best practice maintenance schedules and requirements. Depending on the technology selected for the energy storage component, the substation and transmission lines as well as the behind-the-meter solar inverters and transformers would be energized at all times.

2.7 Discretionary Actions

2.7.1 General Plan Amendment and Rezone

The Project proposes a General Plan Amendment and Rezone to change the land use designation and zoning for the Project site from Agriculture (A3) to Industrial. The Industrial zoning would be limited to Energy Production/Use.

2.7.2 Development Agreement

The applicant may pursue a development agreement with the County of Imperial for this Project.

3.0 Existing Conditions

3.1 Land Use Environment

The Project site was previously graded and used as farmland and has been fallow for more than 15 years. The General Plan land use designation and zoning for the Project site and all surrounding parcels to the north and east is Agriculture (A3). The General Plan land use designation for parcels to the south and west are designated open space/recreation areas; zoning does not apply to these BLM lands. The Campo Verde solar generation facility is located north of the Project site and agricultural uses are located northeast of the Project site. Parcels farther north of the Project site also include a mix of agricultural uses and solar generation facilities. The parcel immediately east of the Project site is undeveloped. BLM land south and west of the Project site is generally undeveloped, relatively flat, and barren.

The IV Substation is located approximately one-third mile south of the southern property line of the site.

3.2 State Greenhouse Gas Emissions

The California Air Resources Board (CARB) performs statewide GHG inventories. The inventory is divided into nine broad sectors of economic activity: agriculture, commercial, electricity generation, forestry, high GWP emitters, industrial, recycling and waste, residential, and transportation. Emissions are quantified in million metric tons (MMT) of CO_2E. Table 2 shows the estimated statewide GHG emissions for the years 1990 and 2017.

Table 2
California GHG Emissions by Sector in 1990 and 2017

Sector	1990[1] Emissions in MMT CO_2E (% total)[2]	2017[3] Emissions in MMT CO_2E (% total)[2]
Electricity Generation	110.5 (25.7%)	62.6 (14.8%)
Transportation	150.6 (35.0%)	174.3 (41.1%)
Industrial	105.3 (24.4%)	101.1 (23.8%)
Commercial	14.4 (3.4%)	23.3 (5.5%)
Residential	29.7 (6.9%)	30.4 (7.2%)
Agriculture & Forestry	18.9 (4.4%)	32.4 (7.6%)
Not Specified	1.3 (0.3%)	--
TOTAL[4]	**430.7**	**424.1**

SOURCE: CARB 2007 and 2019.
[1]1990 data was obtained from the CARB 2007 source and are based on IPCC fourth assessment report GWPs.
[2]Percentages may not total 100 due to rounding.
[3]2017 data was retrieved from the CARB 2019 source and are based on IPCC fourth assessment report GWPs.
[4]Totals may vary due to independent rounding.

As shown in Table 2, statewide GHG source emissions totaled about 430.7 MMT CO_2E in 1990, and 424.1 MMT CO_2E in 2017. Many factors affect year-to-year changes in GHG emissions, including economic activity, demographic influences, environmental conditions such as drought, and the impact of regulatory efforts to control GHG emissions. However, transportation-related emissions consistently contribute the most GHG emissions, followed by electricity generation and industrial emissions.

4.0 Regulatory Framework

In response to rising concern associated with increasing GHG emissions and global climate change impacts, several plans and regulations have been adopted at the international, national, and state levels with the aim of reducing GHG emissions. The following is a discussion of the federal, state, and local plans and regulations most applicable to the Project.

4.1 Federal Regulations

The federal government, U.S. EPA, and other federal agencies have many federal level programs and projects to reduce GHG emissions. In June 2012, the Council on Environmental Quality (CEQ) revised the Federal Greenhouse Gas Accounting and Reporting Guidance originally issued in October 2010. The CEQ guidance identifies ways in which federal agencies can improve consideration of GHG emissions and climate change for federal actions. The guidance states that National Environmental Policy Act documents should provide decision makers with relevant and timely information and should consider (1) GHG emissions of a Proposed Action and alternative actions, and (2) the relationship of climate change effects to a Proposed Action or alternatives. Specifically, if a Proposed Action would be reasonably anticipated to cause direct emissions of 25,000 MT CO_2E GHG emissions on an annual basis, agencies should consider this as an indicator that a quantitative assessment may be meaningful to decision makers and the public (CEQ 2012).

4.1.1 U.S. Environmental Protection Agency

The U.S. EPA has many federal level programs and projects to reduce GHG emissions. The U.S. EPA provides technical expertise and encourages voluntary reductions from the private sector. One of the voluntary programs applicable to the Project is the Energy Star program.

Energy Star is a joint program of U.S. EPA and the U.S. Department of Energy, which promotes energy efficient products and practices. Tools and initiatives include the Energy Star Portfolio Manager, which helps track and assess energy and water consumption across an entire portfolio of buildings, and the Energy Star Most Efficient 2020, which provides information on exceptional products which represent the leading edge in energy efficient products in the year 2020 (U.S. EPA 2020a).

The U.S. EPA also collaborates with the public sector, including states, tribes, localities and resource managers, to encourage smart growth, sustainability preparation, and renewable energy and climate change preparation. These initiatives include the Clean Energy – Environment State Partnership Program, the Climate Ready Water Utilities Initiative, the Climate Ready Estuaries Program, and the Sustainable Communities Partnership (U.S. EPA 2020b).

4.1.2 Corporate Average Fuel Economy Standards

The federal Corporate Average Fuel Economy (CAFE) standards determine the fuel efficiency of certain vehicle classes in the U.S. The first phase of the program applied to passenger cars, new light-duty trucks, and medium-duty passenger cars with model years 2012 through 2016 and required these vehicles to achieve a standard equivalent to 35.5 miles per gallon (mpg). The second phase of the program applies to model years 2017 through 2025 and increased the standards to 54.5 mpg. Separate standards were also established for medium- and heavy-duty vehicles. The first phase applied to model years 2014 through 2018 and the second phase applies to model years 2018 through 2027. With improved gas mileage, fewer gallons of

transportation fuel would be combusted to travel the same distance, thereby reducing nationwide GHG emissions associated with vehicle travel.

4.2 State Regulations

The State of California has adopted a number of plans and regulations aimed at identifying statewide and regional GHG emissions caps, GHG emissions reduction targets, and actions and timelines to achieve the target GHG reductions.

4.2.1 Executive Orders and Statewide GHG Emission Targets

S-3-05

This Executive Order (EO) established the following GHG emission reduction targets for the State of California:

- by 2010, reduce GHG emissions to 2000 levels;
- by 2020, reduce GHG emissions to 1990 levels; and
- by 2050, reduce GHG emissions to 80 percent below 1990 levels.

This EO also directs the secretary of the California Environmental Protection Agency to oversee the efforts made to reach these targets, and to prepare biannual reports on the progress made toward meeting the targets and on the impacts to California related to global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry. With regard to impacts, the report shall also prepare and report on mitigation and adaptation plans to combat the impacts. The first Climate Action Team Assessment Report was produced in March 2006, and has been updated every two years.

B-30-15

This EO, issued on April 29, 2015, establishes an interim GHG emission reduction goal for the state of California by 2030 of 40 percent below 1990 levels. This EO also directed all state agencies with jurisdiction over GHG emitting sources to implement measures designed to achieve the new interim 2030 goal, as well as the pre-existing, long-term 2050 goal identified in EO S-3-05. Additionally, this EO directed CARB to update its Climate Change Scoping Plan to address the 2030 goal.

4.2.2 California Global Warming Solutions Act

In response to EO S-3-05, the California Legislature passed AB 32, the California Global Warming Solutions Act of 2006, and thereby enacted Sections 38500–38599 of the California Health and Safety Code. The heart of AB 32 is its requirement that CARB establish an emissions cap and adopt rules and regulations that would reduce GHG emissions to 1990 levels by 2020. AB 32 also required CARB to adopt a plan by January 1, 2009 indicating how

emission reductions would be achieved from significant GHG sources via regulations, market mechanisms, and other actions.

In 2008, CARB estimated that annual statewide GHG emissions were 427 MMT CO_2E in 1990 and would reach 596 MMT CO_2E by 2020 under a business as usual (BAU) condition (CARB 2008). To achieve the mandate of AB 32, CARB determined that a 169 MMT CO_2E (or approximate 28.5 percent) reduction in BAU emissions was needed by 2020. In 2010, CARB prepared an updated 2020 forecast to account for the recession and slower forecasted growth. CARB determined that the economic downturn reduced the 2020 BAU by 55 MMT CO_2E; as a result, achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7 (not 28.5) percent from the 2020 BAU. California has been on track to achieve 1990 levels, and based on the GHG inventories shown in Table 2, achieved the goal by 2017.

Approved in September 2016, SB 32 updates the California Global Warming Solutions Act of 2006 and enacts EO B-30-15. Under SB 32, the state would reduce its GHG emissions to 40 percent below 1990 levels by 2030. In implementing the 40 percent reduction goal, CARB is required to prioritize emissions reductions to consider the social costs of the emissions of GHGs; where "social costs" is defined as "an estimate of the economic damages, including, but not limited to, changes in net agricultural productivity; impacts to public health; climate adaptation impacts, such as property damages from increased flood risk; and changes in energy system costs, per metric ton of greenhouse gas emission per year."

4.2.3 Climate Change Scoping Plan

As directed by the California Global Warming Solutions Act of 2006, in 2008, CARB adopted the Climate Change Scoping Plan: A Framework for Change (Scoping Plan), which identifies the main strategies California will implement to achieve the GHG reductions necessary to reduce forecasted BAU emissions in 2020 to the state's historic 1990 emissions level (CARB 2008). In November 2017, CARB released the 2017 Climate Change Scoping Plan Update, the Strategy for Achieving California's 2030 Greenhouse Gas Target (2017 Scoping Plan; CARB 2017). The 2017 Scoping Plan identifies state strategies for achieving the state's 2030 interim GHG emissions reduction target codified by Senate Bill (SB) 32. Measures under the 2017 Scoping Plan Scenario build on existing programs such as the Low Carbon Fuel Standard, Advanced Clean Cars Program, Renewables Portfolio Standard (RPS), Sustainable Communities Strategy, Short-Lived Climate Pollutant Reduction Strategy, and the Cap-and-Trade Program. Additionally, the 2017 Scoping Plan proposes new policies to address GHG emissions from natural and working lands.

4.2.4 Cap-and-Trade Program

The California Cap-and-Trade Program began in January 2013 and is authorized to continue until the end of 2030. The program is a market-based regulation that is designed to reduce GHG emissions associated with major sources by setting a firm cap on overall GHG emissions from covered entities and gradually reducing that cap over time. The program defines major sources as facilities that generate more than 25,000 MT CO_2E per year, which includes many

electricity generators, refineries, cement production facilities, oil and gas production facilities, glass manufacturing facilities, and food processing plants. Each entity covered by the program is allocated specific GHG emission allowances and is able to buy or sell additional offset credits to other major sources-covered entities. Thus, the program employs market mechanisms to cost-effectively reduce overall GHG emissions. Throughout the program's duration, CARB continues to adjust the overall GHG emissions cap to achieve emission levels consistent with 2020 statewide GHG emission reduction targets established by AB 32 and the 2030 statewide GHG emission reduction targets established by SB 32.

4.2.5 Regional Emissions Targets—SB 375

SB 375, the 2008 Sustainable Communities and Climate Protection Act, was signed into law in September 2008 and requires CARB to set regional targets for reducing passenger vehicle GHG emissions in accordance with the Original Scoping Plan. The purpose of SB 375 is to align regional transportation planning efforts, regional GHG emissions reduction targets and fair-share housing allocations under state housing law. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy to address GHG reduction targets from cars and light-duty trucks in the context of that MPO's Regional Transportation Plan (RTP).

The Southern California Association of Governments (SCAG) adopted the 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy, A Plan for Mobility, Accessibility, Sustainability and a High Quality of Life (2016 RTP/SCS) in April 2016. The main goal of the 2016 RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental and public health goals. CARB's targets for the SCAG region call for an 8 percent reduction in GHG emissions per capita from automobiles and light-duty trucks compared to 2005 levels by 2020, and a 19 percent reduction by 2035. The overarching strategy of the 2016 RTP/SCS is create more compact communities in existing urban areas, providing neighborhoods with efficient and plentiful public transit, abundant and safe opportunities to walk, bike and pursue other forms of active transportation, and preserving more of the region's remaining natural lands.

Pursuant to Government Code Section 65080(b)(2)(K), a Sustainable Communities Strategy does not: (i) regulate the use of land; (ii) supersede the land use authority of cities and counties; or (iii) require that a City's or County's land use policies and regulations, including those in a general plan, be consistent with it. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process.

4.2.6 Renewables Portfolio Standard

The RPS promotes diversification of the state's electricity supply and decreased reliance on fossil fuel energy sources. Renewable energy includes (but is not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas. Originally adopted in 2002 with a goal to achieve a 20 percent renewable energy mix by 2020 (referred

to as the "Initial RPS"), the goal has been accelerated and increased by EOs S-14-08 and S-21-09 to a goal of 33 percent by 2020. In April 2011, SB 2 (1X) codified California's 33 percent RPS goal. SB 350 (2015) increased California's renewable energy mix goal to 50 percent by year 2030. SB 100 (2018) further increased the standard set by SB 350 establishing the RPS goal of 44 percent by the end of 2024, 52 percent by the end of 2027, and 60 percent by 2030. This bill also states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100 percent of retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045.

4.2.7 Assembly Bill 341 – Solid Waste Diversion

The Commercial Recycling Requirements mandate that businesses (including public entities) that generate 4 cubic yards or more of commercial solid waste per week and multi-family residential with five units or more arrange for recycling services. Businesses can take one or any combination of the following in order to reuse, recycle, compost, or otherwise divert solid waste from disposal. Additionally, Assembly Bill (AB) 341 mandates that 75 percent of the solid waste generated be reduced, recycled, or composted by 2020.

4.2.8 California Code of Regulations, Title 24 – California Building Code

The California Code of Regulations, Title 24, is referred to as the California Building Code, or CBC. It consists of a compilation of several distinct standards and codes related to building construction, including plumbing, electrical, interior acoustics, energy efficiency, handicap accessibility, and so on. Of particular relevance to GHG reductions are the CBC's energy efficiency and green building standards as outlined below.

Title 24, Part 6 – Energy Efficiency Standards

The California Code of Regulations, Title 24, Part 6 is the California Energy Efficiency Standards for Residential and Nonresidential Buildings (also known as the California Energy Code). This code, originally enacted in 1978, establishes energy efficiency standards for residential and non-residential buildings in order to reduce California's energy consumption. The Energy Code is updated periodically to incorporate and consider new energy-efficient technologies and methodologies as they become available, and incentives in the form of rebates and tax breaks are provided on a sliding scale for buildings achieving energy efficiency above the minimum standards.

The current version of the Energy Code, known as 2019 Title 24, or the 2019 Energy Code, became effective January 1, 2020. The Energy Code provides mandatory energy-efficiency measures as well as voluntary tiers for increased energy efficiency. The California Energy Commission (CEC), in conjunction with the California Public Utilities Commission, has adopted a goal that all new residential and commercial construction achieve zero net energy by 2020 and 2030, respectively

New construction and major renovations must demonstrate their compliance with the current Energy Code through submission and approval of a Title 24 Compliance Report to the local building permit review authority and the CEC. The compliance reports must demonstrate a building's energy performance through use of CEC approved energy performance software that shows iterative increases in energy efficiency given the selection of various heating, ventilation, and air conditioning; sealing; glazing; insulation; and other components related to the building envelope.

Title 24, Part 11 – California Green Building Standards

The California Green Building Standards Code, referred to as CALGreen, was added to Title 24 as Part 11 first in 2009 as a voluntary code, which then became mandatory effective January 1, 2011 (as part of the 2010 CBC). The 2016 CALGreen institutes mandatory minimum environmental performance standards for all ground-up new construction of non-residential and residential structures. Local jurisdictions must enforce the minimum mandatory Green Building Standards and may adopt additional amendments for stricter requirements.

The mandatory standards require:

- Outdoor water use requirements as outlined in local water efficient landscaping ordinances or current Model Water Efficient Landscape Ordinance standards, whichever is more stringent;
- Requirements for water conserving plumbing fixtures and fittings;
- 65 percent construction/demolition waste diverted from landfills;
- Infrastructure requirements for electric vehicle charging stations;
- Mandatory inspections of energy systems to ensure optimal working efficiency; and
- Requirements for low-pollutant emitting exterior and interior finish materials such as paints, carpets, vinyl flooring, and particleboards.

Similar to the reporting procedure for demonstrating Energy Code compliance in new buildings and major renovations, compliance with the CALGreen mandatory requirements must be demonstrated through completion of compliance forms and worksheets.

4.3 Local Regulations

4.3.1 Imperial County General Plan

The Imperial County General Plan Renewable Energy and Transmission Element was adopted in October 2015. As stated in the element, the benefits of renewable energy development include reduction in potential GHG by displacing fossil-fuel-generated electricity with renewable energy, which does not add to the greenhouse effect; contribution towards meeting the state's RPS mandate; and minimization of impacts to local communities, agriculture and sensitive resources (Imperial County 2015).

5.0 Significance Criteria and Analysis Methodology

5.1 Determining Significance

The California Natural Resources Agency maintains State of California Environmental Quality Act (CEQA) Guidelines to assist lead agencies in developing significance thresholds for assessing potentially significant environmental impacts. According to CEQA Guidelines Appendix G Environmental Checklist, implementation of the Project would have significant environmental impacts on GHG emissions if it would:

1) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

2) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emission of GHGs.

As stated in the CEQA Guidelines, these questions are "intended to encourage thoughtful assessment of impacts and do not necessarily represent thresholds of significance" (Title 14, Division 6, Chapter 3 Guidelines for Implementation of the CEQA, Appendix G, Environmental Checklist Form). The CEQA Guidelines encourage lead agencies to adopt regionally specific thresholds of significance. When adopting these thresholds, the amended Guidelines allow lead agencies to consider thresholds of significance adopted or recommended by other public agencies, or recommended by experts, provided that the thresholds are supported by substantial evidence.

The Project site is in the Salton Sea Air Basin. The Imperial County APCD is responsible for regulating air quality within the Imperial County portion of the Salton Sea Air Basin. No GHG emission significance threshold has been adopted by the County or the Imperial County APCD for land development projects. Thus, in the absence of a threshold of significance for GHG emissions that has been adopted in a public process following environmental review, this analysis considers guidance promulgated by other agencies.

The County is a member of SCAG. SCAG is comprised of several different counties including Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties. Air districts responsible for managing air quality within the SCAG boundaries include the South Coast Air Quality Management District (AQMD), the Mojave Desert APCD, Ventura County APCD, and the Antelope Valley AQMD.

Due to the climate and land use patterns, the Antelope Valley AQMD and Mojave Desert APCD are air districts that are most similar to the Imperial County APCD's jurisdiction. The Antelope Valley AQMD is within the northern part of Los Angeles County, and the Mojave Desert APCD contains San Bernardino County's high desert region and Riverside County's Palo Verde Valley region. These jurisdictions are in inland desert regions with rural land use patterns; with a substantial number large-scale agricultural, warehousing/distribution,

industrial, and military operations. Additionally, both of these agencies have adopted GHG thresholds for use in CEQA analysis. As outlined in the Antelope Valley AQMD's 2016 *California Environmental Quality Act (CEQA) and Federal Conformity Guidelines and Mojave Desert APCD's 2016 California Environmental Quality Act (CEQA) and Federal Conformity Guidelines,* the two air districts both recommend use of a GHG emissions significance threshold of 100,000 short tons of CO_2E per year (90,718 MT CO_2E). Projects with emissions that exceed this threshold are required to incorporate mitigation sufficient to reduce emissions to less than this significance threshold or must incorporate all feasible mitigation.

This recommended significance threshold is consistent with the federal trigger level for GHG emissions "subject to regulation" under the U.S. EPA's Clean Air Act Title V Permitting requirements (40 Code of Federal Regulations 70.2). Additionally, as Imperial County APCD Title IX Regulations are based on Clean Air Act Title V Permitting requirements, this recommended significance threshold is also consistent with local Imperial County APCD Rule 900–Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal Clean Air Act Amendments of 1990 and Rule 904–Prevention of Significant Deterioration Permit Program.

In the absence of adopted GHG significance thresholds, the threshold of 90,718 MT CO_2E is an appropriate CEQA significance threshold for the assessment of GHG emissions for the purposes of this Project.

5.2 Calculation Methodology

Implementation of the Project would result in GHG emissions associated with the construction and operation of the Project. GHG emissions were calculated using California Emissions Estimator Model (CalEEMod) Version 2016.3.2 (California Air Pollution Control Officers Association 2017). The CalEEMod program is a tool used to estimate emissions resulting from land development projects in the state of California.

CalEEMod estimates parameters such as the type and amount of construction equipment required, trip generation, and utility consumption based on the size and type of each specific land use using data collected from surveys performed in South Coast AQMD. Where available, parameters were modified to reflect Project-specific data.

5.2.1 Construction Emissions

Construction activities emit GHGs primarily though combustion of fuels (mostly diesel) in the engines of off-road construction equipment and through combustion of diesel and gasoline in on-road construction vehicles and the commute vehicles of the construction workers. Smaller amounts of GHGs are also emitted through the energy use embodied in water use for fugitive dust control.

Construction emissions are calculated for construction activity based on the construction equipment profile and other factors determined as needed to complete all phases of

construction. Based on Guidance from the South Coast AQMD, total construction GHG emissions resulting from a project should be amortized over a period of 30 years and added to operational GHG emissions to account for their contribution to GHG emissions over the lifetime of a project (South Coast AQMD 2009).

The Project would be constructed in three to five phases over a 10-year period. For the purposes of this CEQA analysis, it was assumed that construction activities would last for a total of approximately 32 months to complete the full Project build-out. Construction of the access road from the north of the Project site, the bridge over the IID canal, and common facilities (including site grading and infrastructure, O&M building construction and substation construction) on the Project site south of the IID canal would occur simultaneously in order to reduce the overall construction schedule. This first phase of construction is anticipated to last for 12 months. Total construction of the subsequent battery storage phases is anticipated to last for 20 months. Construction emissions were calculated assuming construction activities would begin in 2021 and last for 32 consecutive months. This is conservative because if sequential construction activities were to occur at a later date, emissions would be less since construction equipment gets cleaner over time due to statewide rules and regulations.

In order to begin construction on the Project site prior to completion of the bridge, construction equipment would be hauled to the Project site. The Project Proponent is evaluating various options for temporary construction access, including accessing the Project site from the south side of the Westside Main Canal off SR-98, as well as options involving access from the north side of the Westside Main Canal from I-8. Under access Option 1, all construction equipment and material deliveries would access the site from the south along the 5.6-mile unpaved road until completion of the access road and bridge north of the Project site. The first 4.4 miles of the access road is an existing unpaved service road consisting of well compacted dirt and crushed rock, and the last 1.2 miles is an unpaved dirt road that would be covered with construction mats. To access the Project site, construction workers would travel along I-8 and head 4.6 miles south to the Project site, and would utilize the IID Fern Check Bridge as a pedestrian bridge until the permanent bridge is constructed. A majority of this worker access route is paved, and the last approximately 0.3 mile is an unpaved dirt road. Under access Option 2, all material deliveries would access the site using the IID Westside Main Canal access road. As the Option 1 distance is longer than Option 2, emissions were calculated using access Option 1. During peak construction activities, approximately 200 workers and 30 daily deliveries would be required. Table 3 summarizes the anticipated construction schedule and equipment.

CalEEMod calculates emissions of all pollutants from construction equipment using emission factors from CARB's off-road diesel equipment emission factors database, OFFROAD 2011 (CARB 2011). Consistent with CARB requirements, all equipment was assumed to meet CARB Tier 3 In-Use Off-Road Diesel Engine Standards.

Table 3
Anticipated Construction Schedule and Equipment

Construction Equipment	Phase 1 (12 months)			Phases 2–5 (20 months)	Horse-power	Load Factor
	Bridge	Substation	Battery Storage	Battery Storage		
Wheeled Loader	--	--	1	1	97	0.37
Scraper	--	--	1	1	367	0.48
Grader	--	--	1	1	187	0.41
Dozer	--	--	1	1	247	0.40
Excavator	--	--	1	1	158	0.38
Backhoe	1	1	1	1	97	0.37
Rollers	1	1	1	1	80	0.38
Forklift	1	1	1	1	89	0.20
Crane	--	3	3	3	231	0.29
Skid Steer	--	1	2	2	97	0.37
Water Truck[1]	--	--	1	1	402	0.38
Drill Rig	1	--	--	--	221	0.50

NOTE: Each construction activity would also require a number of pick-up trucks. Emissions associated with pick-up trucks are included in the worker commute calculations.
[1]Water truck modeled as off-highway truck.

Water would be used for fugitive dust control during construction activities. Typically, water use would have indirect GHG emissions associated with it. These emissions are a result of the energy used to supply, treat, and distribute water. However, during all construction activities, the water truck would get water directly from the IID canal immediately adjacent to the Project site, and therefore, there would be not be any emissions associated with transporting water to the Project site.

5.2.2 Mobile Emissions

CalEEMod calculates mobile source emissions using emission factors derived from CARB's motor vehicle emission inventory program, EMFAC2014 (CARB 2014). Operation of the Project would require up to 20 employees. Assuming two one-way trips per employee, the Project would be anticipated to generate up to 40 trips per day. A 20-mile trip length was modeled.

5.2.3 Energy Use Emissions

Energy use emissions typically include indirect GHG emissions associated with the generation of electricity from off-site fossil fuel power plants that supply energy to the CAISO electricity grid. A majority of the Project's energy demand would be associated with the battery system energy losses and auxiliary load necessary to operate the battery storage system. The battery system energy losses and auxiliary load includes energy needed to power HVAC units to control the temperature of the battery components, battery energy losses, inverter and transformer energy losses, and AC and DC wire losses. Based on modeling provided by the Project Proponent, it is estimated that 676,059 megawatts per hour (MWh) annually would be required due to battery system energy losses and to serve the required auxiliary power needs. This is based on full build-out of a 2,000 MW capacity lithium-ion

battery storage facility. Lithium-ion technology has the highest demand for auxiliary load due to greater HVAC needs.

A majority of the Project's operational GHG emissions would be associated with the Project's battery system energy losses and auxiliary load. The auxiliary load associated with Li-ion and flow battery technologies is largely attributed to the operation of HVAC systems. Battery system energy losses include battery energy losses, inverter and transformer losses, and AC and DC wire losses. The Project's battery system and auxiliary load would be served primarily by CAISO. GHG emissions associated with the battery system energy losses and auxiliary load were calculated using an emissions rate of 0.428 MT CO_2E MWh as identified in CAISO's Greenhouse Gas Emission Tracking Methodology (CAISO 2016). This emission rate was assigned by CARB and is established in Section 95111(b)(1) of CARB's February 2014 update to the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions. This rate was established in 2014 when only 22.77 percent of California's total system power was comprised of renewable energy sources. As of 2018, 32.35 percent of California's total system power was derived from renewable sources, and with the approval of SB 100, 100 percent of California's total system power will be derived from renewable sources by the year 2045.

The emissions rate of 0.428 MT CO_2E per MWh assigned by CARB in 2014 does not reflect the State's renewable resources targets established in SB 100 (see Section 4.2.6). Thus, the analysis adjusts the assigned emission rate proportionally to the RPS target schedule established in SB 100. Table 4 summarizes the RPS schedule targets.

Table 4
CAISO GHG Emission Rates

RPS Target	Target Date	GHG Emission Rate (MT CO_2E per MWh)
22.77%*	February 2014	0.428
33%	December 31, 2020	0.2953
44%	December 31, 2024	0.2215
50%	December 31, 2026	0.1949
52%	December 31, 2027	0.1874
60%	December 31, 2030	0.1624
100%	December 31, 2045	0.0975
*Actual 2014 renewables percentage		

As discussed in Section 2.2.1 above, the Project would be constructed in three to five phases over a 10-year period, with each phase ranging from approximately 25 MW up to 400 MW per phase. The total nameplate (or rated capacity) capacity of the Project at full build-out (all phases completed) would be approximately 2,000 MW. Energy-related GHG emissions were calculated through 2045 as project phases would be constructed and RPS goals reached. Table 5 summarizes the total energy-related GHG emissions.

Table 5 Energy-Related GHG Emissions						
	2022	2024	2026	2028	2030	2045
Capacity (MW)	100	300	600	1,000	1,500	2,000
Duration (hours)	4	4	4	4	4	4
Energy (MWh)	400	1,200	2,400	4,000	6,000	8,000
Round-Trip Efficiency*	81%	81%	81%	81%	81%	81%
Charge Energy (MWh)	493	1,478	2,956	4,926	7,389	9,852
Energy Usage (MWh)	93	278	556	926	1,389	1,852
Annual Cycle (Days)	365	365	365	365	365	365
Annual Loss (MWh)	33,803	101,409	202,818	338,030	507,044	676,059
Emission Rate (MT CO_2E per MWh)	0.2953	0.2215	0.1949	0.1874	0.1624	0.0975
GHG Emissions (MT CO_2E)	9,982	22,462	39,529	63,347	82,344	65,916
*Round-trip efficiency is the energy put into the storage system that can be retrieved.						

It should be noted that these calculations are a conservative estimate for the Project's battery system losses and auxiliary load because they assume that only the Li-ion battery technology would be used for the full buildout capacity (2,000 MW) of the Project and that no technological advancements that would reduce the round-trip efficiency would occur over the 40-year life of the Project. Certain flow battery technologies have significantly lower demand for temperature control (HVAC) than the Li-ion technology.

The Project would also install behind-the-meter solar PV facilities to offset as much of the battery system auxiliary loads as feasible. The installed capacity would depend on a number of factors including the amount of available space (rooftop and ground), and other economic and technological considerations. The energy-related GHG emissions that would be offset by the Project's behind-the-meter solar PV systems were calculated using CAISO emissions factors, and it is estimated that a range of 17,000 to 34,000 MWh would be produced annually at full build-out. This energy production equates to installed solar PV capacity ranging from 6 to 12 MW at full build-out.

5.2.4 Area Source Emissions

An area source is any non-permitted stationary source of emission. Common area sources include fireplaces, natural gas used in space and water heating, consumer products, architectural coatings, dust from farming operations, landscaping equipment, and small combustion equipment such as boilers or backup generators. The Project does not include measurable amounts of fireplace use, natural gas use, consumer products, architectural coatings, or other area sources.

Routine weed abatement and landscape maintenance would occur as needed. The Project site is bounded by roads, agricultural uses, and solar generation facilities. As the Project is not adjacent to natural lands, landscaping maintenance for maintaining a fire-clearing zone would be minimal and would result in less than measurable emissions.

5.2.5 Water and Wastewater Emissions

Water usage for the O&M facilities and personnel would be less than 10,000 gallons per day. Potable water would be delivered to the project site from a third-party water supplier that would require a maximum of two truck deliveries per month. Therefore, emissions associated with potable water deliver would be negligeable. Additionally, approximately 1,000,000 gallons of water would be stored on site in storage tanks for fire suppression. The water use of a project has indirect GHG emissions associated with it. These emissions are a result of the energy used to supply, distribute, and treat water. Water use emissions are estimated based on regional efficiency factors for water supply, treatment, and distribution.

5.2.6 Solid Waste Emissions

The disposal of solid waste produces GHG emissions from anaerobic decomposition in landfills, incineration, and transportation of waste. Energy storage facilities are not known to generate substantial quantities of biodegradable waste. Some amount of solid waste would be generated by employees and maintenance staff at the maintenance and operations building. The amount of solid waste generated was modeled using standard generation rates for light industrial uses.

5.2.7 Propane-Fueled Emergency Generator Emissions

As discussed in Section 2.2.3.2, the Project would include propane-fueled emergency backup generators to augment the backup battery storage capacity, as well as BTM solar power generation during rare events in which the entire facility, or portions of the facility, are disconnected from the electrical grid. The generators would be periodically tested (monthly) to maintain backup capability in the event of a grid emergency. Emissions due to emergency generator testing were calculated using emission factors provided in the generator specifications. The Project would include up to 20 propane-fueled generators. The exact testing schedule is not known at this time. For the purposes of the GHG emission calculations, it was assumed that each of the 20 generators would be tested once per month for a total operation time of two hours each per month. This results in a total annual operation time of 480 hours. GHG emissions were calculated using U.S. EPA AP-42 emission factors and a fuel consumption rate of approximately 23 gallons per hour, based on specifications for a representative propane-fueled generator. This calculation determined that generator testing would result in total annual emissions of 62 MT CO_2E.

6.0 GHG Impact Analysis

1. *Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.*

Table 6 provides a summary of the GHG emissions generated by the Project construction, battery system energy losses and auxiliary load (worst-case), operations, and emergency propane-fueled generator testing. GHG emission calculations are contained in Attachment 1.

Table 6 Worst-Case Annual GHG Emissions	
Emission Source	GHG Emissions (MT CO_2E)
Construction	
Total Construction	5,687
Amortized Construction	190
Operation	
Maximum Battery Energy Losses and Auxiliary Load	82,344
Emergency Propane-Fueled Generators (Testing)	62
Mobile	741
Area Sources	<1
Water Use	30
Solid Waste Disposal	3
Total Operation	83,181
Total Construction and Operation	83,370
Significance Threshold	*90,718*
SOURCE: Attachment 1. NOTE: Totals may vary due to independent rounding.	

As shown in Table 6, maximum annual GHG emissions would total 83,370 MT CO_2E. A majority of the emissions (98.8 percent) would be associated with the Project's battery system losses and auxiliary load. Therefore, Project GHG emissions would be less than the applicable screening threshold and impacts would be less than significant.

The Project would reduce these emissions by providing solar PV on the Project site to the extent feasible. As discussed in Section 5.2.3, it is estimated that a range of 17,000 to 34,000 MWh would be produced annually by on-site solar PV at full build-out. As with energy-related emissions, the GHG off-set emissions associated with on-site solar depends on the state's progress towards RPS goals. As discussed in Section 2.2.1, the Project would be constructed over a 10-year period. GHG off-set emissions were calculated assuming an RPS target of 60 percent by year 2030. For informational purposes, the energy offset associated with on-site solar PV was calculated and is summarized in Table 7.

Table 7 Solar PV GHG Emission Off-Set	
Solar PV Electricity Generation (MWh/year)	Off-Set GHG Emissions (MT CO_2E/year)
17,000	2,761
34,000	5,522

As shown in Table 7, on-site solar PV would offset 2,761 to 5,522 MT CO_2E per year of the Project's GHG emissions. The installation of more solar PV would not be feasible due to spaces requirements.

2. *Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emission of GHGs.*

EO S-3-05 and B-30-15 establish the GHG emission reduction policy of the Executive Branch for the state. AB 32 codified the 2020 goal of EO S-3-05 and launched the Original Scoping Plan (CARB 2008) that outlined the reduction measures needed to reach these goals. As noted, the State has achieved the 2020 goal. SB 32 codified the 2030 goal of B-30-15 and directed CARB to prepare a subsequent update to the Scoping Plan.

Subsequent to the adoption of AB 32 and the development of the Original Scoping Plan, several state agencies, including CARB, CEC, California Public Utilities Commission, Department of Resources Recycling and Recovery, California Department of Transportation, California Department of Forestry and Fire, the Department of Water Resources, the Department of Food and Agriculture, and the Department of Goods and Services have developed regulatory and incentive programs to reduce GHG emissions statewide. Policies related to the California Department of Food and Agriculture and California Department of Forestry and Fire are primarily related to the agriculture business and forest and rangeland management.

As shown in Table 6 above, the Project's annual GHG emissions would be less than the screening threshold of 90,718 MT CO_2E per year. Additionally, the Project would support the State's goal to increase use of renewable energy. In September 2018, the California Legislature passed SB 100, which set a goal that "renewable energy resources and zero-carbon resources supply 100 percent of retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045." As California procures increasing amounts of renewable energy to meet the goals of SB 100, the state will need to deploy a significant amount of energy storage capability. Renewable energy resources such as wind and solar generate electricity intermittently. Energy storage allows utilities and system operators to manage the effect of intermittent renewable generation on the grid and create reliable, dispatchable generation upon demand. Energy storage also allows excess solar energy produced during the day to be stored and dispatched optimally during peak evening hours or other periods of high demand. The Project would therefore serve as an integral component of the State's overarching renewable energy strategy that would reduce use of fossil fuel and associated GHG emissions by providing necessary energy storage. The Project would assist the State's goal of utilizing 100 percent renewable energy by 2045, which would result in a net decrease in use of fossil fuel and GHG emissions. Therefore, the Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emission of GHGs, and impacts would be less than significant.

7.0 Conclusions and Recommendations

This report evaluates the significance of GHG emissions associated with the Project using criteria from the California Natural Resources Agency State CEQA Guidelines and GHG emission screening levels from the South Coast AQMD's Interim CEQA GHG Significance Thresholds for Stationary Sources, Rules, and Plans.

No GHG emissions significance threshold has been adopted by the Imperial County APCD. Project GHG emissions were evaluated against the Antelope Valley AQMD and Mojave Desert APCD screening level of 100,000 short tons of CO_2E (90,718 MT CO_2E). As shown in Table 6, annual GHG emissions would total 83,370 MT CO_2E. A majority of the emissions (98.8 percent) would be associated with the Project's battery system losses and auxiliary load, which includes HVAC units necessary to control the temperature of the battery components, battery energy losses, inverter and transformer efficiencies, and AC and DC wire loses. Therefore, Project GHG emissions would be less than the applicable screening threshold and impacts would be less than significant.

The Project would reduce these emissions by providing behind-the-meter solar PV on the Project site to the extent feasible. On-site solar PV would potentially off-set 2,761 to 5,522 MT CO_2E per year of the Project's GHG emissions.

The Project would serve as an integral component of the State's overarching renewable energy strategy to utilize 100 percent renewable energy by 2045 by providing necessary energy storage. By assisting the State's effort to reach this goal, the Project would contribute towards a statewide net decrease in the use of fossil fuel and GHG emissions. Therefore, the Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emission of GHGs, and impacts would be less than significant.

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ATTACHMENT 1

GHG Emission Calculations

GHG EMISSION SUMMARY

Source	**MT CO2E**	**% of Total**
Construction		
Total	5,687	
Amortized Over 30 Years	190	0.2%
Operation		
Auxiliary Load Electricity	82,344	98.8%
Emergency Generator Testing	62	0.1%
Mobile	741	0.9%
Area	0	0.0%
Water	30	0.0%
Waste	3	0.0%
Total Operation	83,181	99.8%
Total Gross Emission	83,370	100.0%

Auxiliary Load Electricity Emissions
Li-Ion Energy Usage

Year	2020* (full buildout)	2022	2024	2026	2028	2030	2045
Capacity (MW)	2000	100	300	600	1000	1500	2000
Duration (h)	4	4	4	4	4	4	4
Energy (MWh)	8000	400	1200	2400	4000	6000	8000
RTE	81%	81%	81%	81%	81%	81%	81%
Charge Energy (MWh)	9,852	493	1,478	2,956	4,926	7,389	9,852
Energy Usage (MWh)	1,852	93	278	556	926	1,389	1,852
Annual Cycles	365	365	365	365	365	365	365
Annual Loss (MWh)	676,059	33,803	101,409	202,818	338,030	507,044	676,059
Emissions Rate	0.4280	0.2953	0.2215	0.1949	0.1874	0.1624	0.0975
MT CO2E	289,353	9,982	22,462	39,529	63,347	82,344	65,916

*Uses Emissions Rate of 0.428 for full buildout

% RPS Target	Target Date	Emmissions Rate
0.2277	1-Feb-14	0.428
0.3300	31-Dec-20	0.2953
0.4400	31-Dec-24	0.2215
0.5000	31-Dec-26	0.1949
0.5200	31-Dec-27	0.1874
0.6000	31-Dec-30	0.1624
1.0000	31-Dec-45	0.0975

On-Site Renewable Energy Calculation

	2030
Solar PV Electricity Generation (MWh/year)	17,000
GHG Emission Rate	0.1624
GHG Emissions	2,760.80
Solar PV Electricity Generation (MWh/year)	34,000
GHG Emission Rate	0.1624
GHG Emissions	5,521.60

Construction Emissions

Year	MT CO2E
2021	2,372.80
2022	1,998.29
2023	1,316.19
Total	5,687.27
Amortized Over 30 Years	189.58

AP-42 Emission Factor		lb/1,000 gal	
Fuel Type	CO2	CH4	N2O
Propane	12,500	0.2	0.9

Fuel Consumption Rate

Load		
50%	11.72	gal/hr
100%	22.57	gal/hr

# of Generators	20	generators
Testing time per month per generator	2	hours
Total testing hours per month	40	hours
Total testing hours per year	480	hours
Annual Fuel Consumption	10,834	gallons

GHG Emissions

CO2		
Annual CO2 Emissions	135,420.00	lbs
Annual CO2 Emissions	61.43	MT
GWP	1	

CH4		
Annual CH4 Emissions	27.08	lbs
Annual CH4 Emissions	0.01	MT
GWP	28	

N2O		
Annual N2O Emissions	0.02	lbs
Annual N2O Emissions	0.00	MT
GWP	265	

Total MT CO2E	61.77	MT CO2E/Year

Source:
AP42 Section 1.5 Liquefied Petroleum Gas Combustion, update July 2008 (epa.gov)

Generac Commercial QT15068GVAC Series 150kW Standby Generator 120/208V 3-PhaseLP SCAQMD Compliant (electricgeneratorsdirect.com)

8888 Westside Canal Energy Center

Imperial County APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	5.00	1000sqft	1.00	5,000.00	0
Unrefrigerated Warehouse-No Rail	500.00	1000sqft	147.00	500,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	12
Climate Zone	15			**Operational Year**	2022
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	956.99	**CH4 Intensity (lb/MWhr)**	0.022	**N2O Intensity (lb/MWhr)**	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Energy intensity factors reduced to reflect RPS 2020 mandate (956.99, 0.022, 0.005)

Land Use - 5,000 sf O&M Building
500,000 sf storage warehouses
148 acres

Construction Phase - Construction schedule per applicant

Off-road Equipment - Project equipment list

Off-road Equipment - Project equipment list

Off-road Equipment - Project equipment list

Off-road Equipment - Project equipment list

Off-road Equipment - Project equipment list
Off-road Equipment - Construciton equipment list

Off-road Equipment - Project equipment list

Trips and VMT - Max 200 workers, 30 deliveries
Trip length increased to 20 miles

On-road Fugitive Dust - Workers - last 0.3 miles of 20 mile trip would be dirt road (98.5% paved)
Materials - 4.4 miles of 20 miles trip over service road (78% paved or construction mats)
Service road silt content = 4.3%
Access road dust emissions calculated separately

Grading - 148 acres

Vehicle Trips - 20 full time employees

Road Dust - Workers - last 0.3 miles of 20 mile trip would be gravel (98.5% paved)

Energy Use - No storage warehouse heating
Warehouse lighting included in aux load calculations

Water And Wastewater - 10,000 gallons per day (3,650,000 per year)
1,000,000 stored for fire protection

Construction Off-road Equipment Mitigation - Tier 3 engines per CARB regulations
Water exposed grading areas
Water unpaved roads (61% reduction due to water applied rather than soil stabilizer reduction of 84%)

Operational Off-Road Equipment -

Stationary Sources - Emergency Generators and Fire Pumps -

Architectural Coating - O&M Building only

Solid Waste - No additional solid waste generated by storage warehouses

Area Coating -

Table Name	Column Name	Default Value	New Value
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tblArchitecturalCoating	ConstArea_Nonresidential_Interior	457,500.00	7,500.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
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tblConstructionPhase	NumDays	3,100.00	130.00
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tblConstructionPhase	NumDays	220.00	5.00

8888 Westside Canal Energy Center - Imperial County APCD Air District, Annual

tblConstructionPhase	NumDays	3,100.00	434.00
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tblEnergyUse	NT24E	0.82	0.00
tblEnergyUse	NT24NG	0.03	0.00
tblEnergyUse	T24E	0.37	0.00
tblEnergyUse	T24NG	2.00	0.00
tblGrading	AcresOfGrading	0.00	148.00
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tblOnRoadDust	HaulingPercentPave	50.00	78.00
tblOnRoadDust	HaulingPercentPave	50.00	78.00
tblOnRoadDust	HaulingPercentPave	50.00	78.00

tblOnRoadDust	HaulingPercentPave	50.00	98.50
tblOnRoadDust	MaterialSiltContent	8.50	4.30
tblOnRoadDust	MaterialSiltContent	8.50	4.30
tblOnRoadDust	MaterialSiltContent	8.50	4.30
tblOnRoadDust	MaterialSiltContent	8.50	4.30
tblOnRoadDust	MaterialSiltContent	8.50	4.30
tblOnRoadDust	MaterialSiltContent	8.50	4.30
tblOnRoadDust	MeanVehicleSpeed	40.00	15.00
tblOnRoadDust	MeanVehicleSpeed	40.00	15.00
tblOnRoadDust	MeanVehicleSpeed	40.00	15.00
tblOnRoadDust	MeanVehicleSpeed	40.00	15.00
tblOnRoadDust	MeanVehicleSpeed	40.00	15.00
tblOnRoadDust	MeanVehicleSpeed	40.00	15.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	78.00
tblOnRoadDust	VendorPercentPave	50.00	78.00
tblOnRoadDust	VendorPercentPave	50.00	78.00
tblOnRoadDust	VendorPercentPave	50.00	78.00
tblOnRoadDust	VendorPercentPave	50.00	98.50
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	98.50
tblOnRoadDust	WorkerPercentPave	50.00	98.50
tblOnRoadDust	WorkerPercentPave	50.00	98.50
tblOnRoadDust	WorkerPercentPave	50.00	98.50
tblOnRoadDust	WorkerPercentPave	50.00	98.50
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	1270.9	956.99

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tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblRoadDust	RoadPercentPave	50	98.5
tblSolidWaste	SolidWasteGenerationRate	282.00	0.00
tblTripsAndVMT	VendorTripLength	8.90	20.00
tblTripsAndVMT	VendorTripLength	8.90	20.00
tblTripsAndVMT	VendorTripLength	8.90	20.00
tblTripsAndVMT	VendorTripLength	8.90	20.00
tblTripsAndVMT	VendorTripLength	8.90	20.00
tblTripsAndVMT	VendorTripLength	8.90	20.00
tblTripsAndVMT	VendorTripNumber	0.00	12.00
tblTripsAndVMT	VendorTripNumber	50.00	0.00
tblTripsAndVMT	VendorTripNumber	50.00	60.00
tblTripsAndVMT	VendorTripNumber	50.00	60.00
tblTripsAndVMT	WorkerTripLength	7.30	20.00
tblTripsAndVMT	WorkerTripLength	7.30	20.00
tblTripsAndVMT	WorkerTripLength	7.30	20.00
tblTripsAndVMT	WorkerTripLength	7.30	20.00
tblTripsAndVMT	WorkerTripLength	7.30	20.00
tblTripsAndVMT	WorkerTripLength	7.30	20.00
tblTripsAndVMT	WorkerTripNumber	5.00	10.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	128.00	0.00
tblTripsAndVMT	WorkerTripNumber	128.00	400.00
tblTripsAndVMT	WorkerTripNumber	26.00	0.00
tblTripsAndVMT	WorkerTripNumber	128.00	400.00
tblVehicleTrips	CC_TL	5.00	20.00
tblVehicleTrips	CC_TL	5.00	0.00

tblVehicleTrips	CNW_TL	8.90	20.00
tblVehicleTrips	CNW_TL	8.90	0.00
tblVehicleTrips	CW_TL	6.70	20.00
tblVehicleTrips	CW_TL	6.70	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.32	40.00
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	0.68	40.00
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	6.97	40.00
tblVehicleTrips	WD_TR	1.68	0.00
tblWater	IndoorWaterUseRate	1,156,250.00	3,650,000.00
tblWater	IndoorWaterUseRate	69,375,000.00	0.00
tblWater	OutdoorWaterUseRate	0.00	1,000,000.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	1.6141	12.3798	11.3488	0.0264	20.7747	0.4946	21.2692	2.2027	0.4552	2.6579	0.0000	2,360.3130	2,360.3130	0.4994	0.0000	2,372.7976
2022	1.2184	8.1399	9.0782	0.0221	8.8214	0.2962	9.1176	1.0318	0.2726	1.3044	0.0000	1,989.3210	1,989.3210	0.3588	0.0000	1,998.2899
2023	0.7535	4.7078	5.7381	0.0146	5.9035	0.1717	6.0753	0.6905	0.1580	0.8485	0.0000	1,310.2940	1,310.2940	0.2357	0.0000	1,316.1876
Maximum	**1.6141**	**12.3798**	**11.3488**	**0.0264**	**20.7747**	**0.4946**	**21.2692**	**2.2027**	**0.4552**	**2.6579**	**0.0000**	**2,360.3130**	**2,360.3130**	**0.4994**	**0.0000**	**2,372.7976**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.9887	9.3123	13.6907	0.0264	8.5989	0.3722	8.9711	0.9930	0.3717	1.3648	0.0000	2,360.3114	2,360.3114	0.4994	0.0000	2,372.7959
2022	0.8499	6.8092	10.7475	0.0221	3.9996	0.2502	4.2498	0.5529	0.2497	0.8026	0.0000	1,989.3199	1,989.3199	0.3588	0.0000	1,998.2888
2023	0.5415	4.2942	6.9447	0.0146	2.6767	0.1659	2.8425	0.3700	0.1656	0.5356	0.0000	1,310.2933	1,310.2933	0.2357	0.0000	1,316.1869
Maximum	**0.9887**	**9.3123**	**13.6907**	**0.0264**	**8.5989**	**0.3722**	**8.9711**	**0.9930**	**0.3717**	**1.3648**	**0.0000**	**2,360.3114**	**2,360.3114**	**0.4994**	**0.0000**	**2,372.7959**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**33.63**	**19.07**	**-19.94**	**0.00**	**56.97**	**18.10**	**55.94**	**51.18**	**11.16**	**43.81**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-4-2021**	**4-3-2021**	2.5135	1.8657
2	**4-4-2021**	**7-3-2021**	3.9528	2.9463
3	**7-4-2021**	**10-3-2021**	3.8142	2.7923
4	**10-4-2021**	**1-3-2022**	3.6421	2.6456
5	**1-4-2022**	**4-3-2022**	2.3165	1.8964
6	**4-4-2022**	**7-3-2022**	2.3425	1.9177
7	**7-4-2022**	**10-3-2022**	2.3682	1.9388
8	**10-4-2022**	**1-3-2023**	2.3581	1.9350
9	**1-4-2023**	**4-3-2023**	2.0205	1.7893
10	**4-4-2023**	**7-3-2023**	2.0480	1.8143
11	**7-4-2023**	**9-30-2023**	1.3278	1.1763
		Highest	3.9528	2.9463

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.1848	4.0000e-005	4.6500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0200e-003	9.0200e-003	2.0000e-005	0.0000	9.6200e-003
Energy	8.8000e-004	7.9600e-003	6.6900e-003	5.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	30.6987	30.6987	6.7000e-004	2.7000e-004	30.7972
Mobile	0.1656	1.3219	2.7038	8.0100e-003	8.6862	5.6000e-003	8.6918	0.9594	5.2800e-003	0.9647	0.0000	740.2800	740.2800	0.0408	0.0000	741.2989
Waste						0.0000	0.0000		0.0000	0.0000	1.2585	0.0000	1.2585	0.0744	0.0000	3.1180
Water						0.0000	0.0000		0.0000	0.0000	1.1580	25.4532	26.6112	0.1195	2.9400e-003	30.4757
Total	**2.3513**	**1.3299**	**2.7151**	**8.0600e-003**	**8.6862**	**6.2300e-003**	**8.6925**	**0.9594**	**5.9100e-003**	**0.9654**	**2.4165**	**796.4409**	**798.8574**	**0.2354**	**3.2100e-003**	**805.6994**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.1848	4.0000e-005	4.6500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0200e-003	9.0200e-003	2.0000e-005	0.0000	9.6200e-003
Energy	8.8000e-004	7.9600e-003	6.6900e-003	5.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	30.6987	30.6987	6.7000e-004	2.7000e-004	30.7972
Mobile	0.1656	1.3219	2.7038	8.0100e-003	8.6862	5.6000e-003	8.6918	0.9594	5.2800e-003	0.9647	0.0000	740.2800	740.2800	0.0408	0.0000	741.2989
Waste						0.0000	0.0000		0.0000	0.0000	1.2585	0.0000	1.2585	0.0744	0.0000	3.1180
Water						0.0000	0.0000		0.0000	0.0000	1.1580	25.4532	26.6112	0.1195	2.9400e-003	30.4757
Total	**2.3513**	**1.3299**	**2.7151**	**8.0600e-003**	**8.6862**	**6.2300e-003**	**8.6925**	**0.9594**	**5.9100e-003**	**0.9654**	**2.4165**	**796.4409**	**798.8574**	**0.2354**	**3.2100e-003**	**805.6994**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Common Facilities - Acess Road	Site Preparation	1/4/2021	2/5/2021	5	25	
2	Common Facilities - Substation	Grading	2/8/2021	12/31/2021	5	235	
3	Common Facilities - Bridge Construction	Building Construction	2/8/2021	8/6/2021	5	130	
4	Battery Storage 1	Building Construction	2/8/2021	12/31/2021	5	235	
5	O&M Building - Architectural Coating	Architectural Coating	12/27/2021	12/31/2021	5	5	
6	Battery Storage 2-5	Building Construction	1/3/2022	8/31/2023	5	434	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 7,500; Non-Residential Outdoor: 2,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Common Facilities - Acess Road	Graders	1	8.00	187	0.41
Common Facilities - Acess Road	Rubber Tired Dozers	0	8.00	247	0.40
Common Facilities - Acess Road	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Common Facilities - Substation	Bore/Drill Rigs	0	8.00	221	0.50
Common Facilities - Substation	Cranes	3	8.00	231	0.29
Common Facilities - Substation	Excavators	0	8.00	158	0.38
Common Facilities - Substation	Forklifts	1	8.00	89	0.20
Common Facilities - Substation	Graders	0	8.00	187	0.41
Common Facilities - Substation	Off-Highway Trucks	1	8.00	402	0.38
Common Facilities - Substation	Rollers	1	8.00	80	0.38

Common Facilities - Substation	Rubber Tired Dozers	0	8.00	247	0.40
Common Facilities - Substation	Scrapers	0	8.00	367	0.48
Common Facilities - Substation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Common Facilities - Bridge Construction	Bore/Drill Rigs	1	8.00	221	0.50
Common Facilities - Bridge Construction	Cranes	0	7.00	231	0.29
Common Facilities - Bridge Construction	Forklifts	1	8.00	89	0.20
Common Facilities - Bridge Construction	Rollers	1	8.00	80	0.38
Common Facilities - Bridge Construction	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Common Facilities - Bridge Construction	Welders	0	8.00	46	0.45
Battery Storage 1	Cranes	3	8.00	231	0.29
Battery Storage 1	Excavators	1	8.00	158	0.38
Battery Storage 1	Forklifts	1	8.00	89	0.20
Battery Storage 1	Generator Sets	0	8.00	84	0.74
Battery Storage 1	Graders	1	8.00	187	0.41
Battery Storage 1	Off-Highway Trucks	1	8.00	402	0.38
Battery Storage 1	Pumps	0	8.00	84	0.74
Battery Storage 1	Rollers	1	8.00	80	0.38
Battery Storage 1	Rubber Tired Dozers	1	8.00	247	0.40
Battery Storage 1	Scrapers	1	8.00	367	0.48
Battery Storage 1	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Battery Storage 1	Welders	0	8.00	46	0.45
O&M Building - Architectural Coating	Air Compressors	1	8.00	78	0.48
Battery Storage 2-5	Cranes	3	8.00	231	0.29
Battery Storage 2-5	Excavators	1	8.00	158	0.38
Battery Storage 2-5	Forklifts	1	8.00	89	0.20
Battery Storage 2-5	Generator Sets	0	8.00	84	0.74

Battery Storage 2-5	Graders	1	8.00	187	0.41
Battery Storage 2-5	Off-Highway Trucks	1	8.00	402	0.38
Battery Storage 2-5	Pumps	0	8.00	84	0.74
Battery Storage 2-5	Rollers	1	8.00	80	0.38
Battery Storage 2-5	Rubber Tired Dozers	1	8.00	247	0.40
Battery Storage 2-5	Scrapers	1	8.00	367	0.48
Battery Storage 2-5	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Battery Storage 2-5	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Common Facilities - Access Road	2	10.00	12.00	0.00	20.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Common Facilities - Substation	8	0.00	0.00	0.00	20.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Common Facilities - Bridge Construction	4	0.00	0.00	0.00	20.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Battery Storage 1	14	400.00	60.00	0.00	20.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
O&M Building - Architectural Coating	1	0.00	0.00	0.00	20.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Battery Storage 2-5	14	400.00	60.00	0.00	20.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Common Facilities - Acess Road - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.5900e-003	0.0000	1.5900e-003	1.7000e-004	0.0000	1.7000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.0000e-003	0.0978	0.0503	1.2000e-004		3.7400e-003	3.7400e-003		3.4400e-003	3.4400e-003	0.0000	10.6887	10.6887	3.4600e-003	0.0000	10.7752
Total	**8.0000e-003**	**0.0978**	**0.0503**	**1.2000e-004**	**1.5900e-003**	**3.7400e-003**	**5.3300e-003**	**1.7000e-004**	**3.4400e-003**	**3.6100e-003**	**0.0000**	**10.6887**	**10.6887**	**3.4600e-003**	**0.0000**	**10.7752**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.1000e-004	0.0222	6.2300e-003	9.0000e-005	2.7600e-003	8.0000e-005	2.8500e-003	8.0000e-004	8.0000e-005	8.8000e-004	0.0000	8.6570	8.6570	2.6000e-004	0.0000	8.6635
Worker	1.3900e-003	1.2500e-003	0.0108	2.0000e-005	1.8900e-003	1.0000e-005	1.9000e-003	5.0000e-004	1.0000e-005	5.1000e-004	0.0000	1.4948	1.4948	1.1000e-004	0.0000	1.4975
Total	**2.3000e-003**	**0.0235**	**0.0170**	**1.1000e-004**	**4.6500e-003**	**9.0000e-005**	**4.7500e-003**	**1.3000e-003**	**9.0000e-005**	**1.3900e-003**	**0.0000**	**10.1518**	**10.1518**	**3.7000e-004**	**0.0000**	**10.1610**

3.2 Common Facilities - Acess Road - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.2000e-004	0.0000	6.2000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.9800e-003	0.0609	0.0732	1.2000e-004		3.0100e-003	3.0100e-003		3.0100e-003	3.0100e-003	0.0000	10.6887	10.6887	3.4600e-003	0.0000	10.7751
Total	**2.9800e-003**	**0.0609**	**0.0732**	**1.2000e-004**	**6.2000e-004**	**3.0100e-003**	**3.6300e-003**	**7.0000e-005**	**3.0100e-003**	**3.0800e-003**	**0.0000**	**10.6887**	**10.6887**	**3.4600e-003**	**0.0000**	**10.7751**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.1000e-004	0.0222	6.2300e-003	9.0000e-005	2.7600e-003	8.0000e-005	2.8500e-003	8.0000e-004	8.0000e-005	8.8000e-004	0.0000	8.6570	8.6570	2.6000e-004	0.0000	8.6635
Worker	1.3900e-003	1.2500e-003	0.0108	2.0000e-005	1.8900e-003	1.0000e-005	1.9000e-003	5.0000e-004	1.0000e-005	5.1000e-004	0.0000	1.4948	1.4948	1.1000e-004	0.0000	1.4975
Total	**2.3000e-003**	**0.0235**	**0.0170**	**1.1000e-004**	**4.6500e-003**	**9.0000e-005**	**4.7500e-003**	**1.3000e-003**	**9.0000e-005**	**1.3900e-003**	**0.0000**	**10.1518**	**10.1518**	**3.7000e-004**	**0.0000**	**10.1610**

3.3 Common Facilities - Substation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0785	0.0000	0.0785	8.4700e-003	0.0000	8.4700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2982	3.1380	2.0118	4.8000e-003		0.1420	0.1420		0.1307	0.1307	0.0000	421.9701	421.9701	0.1365	0.0000	425.3820
Total	**0.2982**	**3.1380**	**2.0118**	**4.8000e-003**	**0.0785**	**0.1420**	**0.2205**	**8.4700e-003**	**0.1307**	**0.1391**	**0.0000**	**421.9701**	**421.9701**	**0.1365**	**0.0000**	**425.3820**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Common Facilities - Substation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0306	0.0000	0.0306	3.3000e-003	0.0000	3.3000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1178	2.3820	2.8259	4.8000e-003		0.1123	0.1123		0.1123	0.1123	0.0000	421.9696	421.9696	0.1365	0.0000	425.3815
Total	**0.1178**	**2.3820**	**2.8259**	**4.8000e-003**	**0.0306**	**0.1123**	**0.1429**	**3.3000e-003**	**0.1123**	**0.1156**	**0.0000**	**421.9696**	**421.9696**	**0.1365**	**0.0000**	**425.3815**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Common Facilities - Bridge Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0497	0.5214	0.4799	1.0800e-003		0.0263	0.0263		0.0242	0.0242	0.0000	95.2366	95.2366	0.0308	0.0000	96.0066
Total	**0.0497**	**0.5214**	**0.4799**	**1.0800e-003**		**0.0263**	**0.0263**		**0.0242**	**0.0242**	**0.0000**	**95.2366**	**95.2366**	**0.0308**	**0.0000**	**96.0066**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Common Facilities - Bridge Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0268	0.5580	0.6861	1.0800e-003		0.0297	0.0297		0.0297	0.0297	0.0000	95.2365	95.2365	0.0308	0.0000	96.0065
Total	**0.0268**	**0.5580**	**0.6861**	**1.0800e-003**		**0.0297**	**0.0297**		**0.0297**	**0.0297**	**0.0000**	**95.2365**	**95.2365**	**0.0308**	**0.0000**	**96.0065**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Battery Storage 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.6545	7.0794	4.4325	9.7000e-003		0.3141	0.3141		0.2890	0.2890	0.0000	852.4977	852.4977	0.2757	0.0000	859.3906
Total	**0.6545**	**7.0794**	**4.4325**	**9.7000e-003**		**0.3141**	**0.3141**		**0.2890**	**0.2890**	**0.0000**	**852.4977**	**852.4977**	**0.2757**	**0.0000**	**859.3906**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0428	1.0435	0.2926	4.2900e-003	13.7771	3.9100e-003	13.7810	1.3898	3.7300e-003	1.3935	0.0000	406.8777	406.8777	0.0123	0.0000	407.1863
Worker	0.5231	0.4712	4.0586	6.2500e-003	6.9128	4.1200e-003	6.9169	0.8030	3.8000e-003	0.8068	0.0000	562.0393	562.0393	0.0402	0.0000	563.0435
Total	**0.5659**	**1.5147**	**4.3512**	**0.0105**	**20.6899**	**8.0300e-003**	**20.6980**	**2.1927**	**7.5300e-003**	**2.2003**	**0.0000**	**968.9170**	**968.9170**	**0.0525**	**0.0000**	**970.2297**

3.5 Battery Storage 1 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2380	4.7688	5.7313	9.7000e-003		0.2189	0.2189		0.2189	0.2189	0.0000	852.4967	852.4967	0.2757	0.0000	859.3896
Total	**0.2380**	**4.7688**	**5.7313**	**9.7000e-003**		**0.2189**	**0.2189**		**0.2189**	**0.2189**	**0.0000**	**852.4967**	**852.4967**	**0.2757**	**0.0000**	**859.3896**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0428	1.0435	0.2926	4.2900e-003	5.4399	3.9100e-003	5.4438	0.5618	3.7300e-003	0.5655	0.0000	406.8777	406.8777	0.0123	0.0000	407.1863
Worker	0.5231	0.4712	4.0586	6.2500e-003	3.1231	4.1200e-003	3.1273	0.4266	3.8000e-003	0.4304	0.0000	562.0393	562.0393	0.0402	0.0000	563.0435
Total	**0.5659**	**1.5147**	**4.3512**	**0.0105**	**8.5630**	**8.0300e-003**	**8.5711**	**0.9884**	**7.5300e-003**	**0.9959**	**0.0000**	**968.9170**	**968.9170**	**0.0525**	**0.0000**	**970.2297**

3.6 O&M Building - Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0348					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.3000e-004	5.0900e-003	6.0600e-003	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.8511	0.8511	6.0000e-005	0.0000	0.8525
Total	**0.0355**	**5.0900e-003**	**6.0600e-003**	**1.0000e-005**		**3.1000e-004**	**3.1000e-004**		**3.1000e-004**	**3.1000e-004**	**0.0000**	**0.8511**	**0.8511**	**6.0000e-005**	**0.0000**	**0.8525**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 O&M Building - Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0348					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0000e-004	4.5200e-003	6.1100e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	0.8511	0.8511	6.0000e-005	0.0000	0.8525
Total	**0.0350**	**4.5200e-003**	**6.1100e-003**	**1.0000e-005**		**3.2000e-004**	**3.2000e-004**		**3.2000e-004**	**3.2000e-004**	**0.0000**	**0.8511**	**0.8511**	**6.0000e-005**	**0.0000**	**0.8525**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Battery Storage 2-5 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.6318	6.6068	4.6717	0.0107		0.2882	0.2882		0.2651	0.2651	0.0000	943.6125	943.6125	0.3052	0.0000	951.2421
Total	**0.6318**	**6.6068**	**4.6717**	**0.0107**		**0.2882**	**0.2882**		**0.2651**	**0.2651**	**0.0000**	**943.6125**	**943.6125**	**0.3052**	**0.0000**	**951.2421**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0439	1.0548	0.2931	4.7100e-003	1.1732	3.6800e-003	1.1768	0.1434	3.5200e-003	0.1469	0.0000	446.6060	446.6060	0.0128	0.0000	446.9271
Worker	0.5427	0.4783	4.1134	6.6600e-003	7.6482	4.3600e-003	7.6526	0.8884	4.0200e-003	0.8924	0.0000	599.1025	599.1025	0.0407	0.0000	600.1207
Total	**0.5866**	**1.5331**	**4.4065**	**0.0114**	**8.8214**	**8.0400e-003**	**8.8294**	**1.0318**	**7.5400e-003**	**1.0393**	**0.0000**	**1,045.7085**	**1,045.7085**	**0.0536**	**0.0000**	**1,047.0478**

3.7 Battery Storage 2-5 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2634	5.2761	6.3410	0.0107		0.2422	0.2422		0.2422	0.2422	0.0000	943.6114	943.6114	0.3052	0.0000	951.2410
Total	**0.2634**	**5.2761**	**6.3410**	**0.0107**		**0.2422**	**0.2422**		**0.2422**	**0.2422**	**0.0000**	**943.6114**	**943.6114**	**0.3052**	**0.0000**	**951.2410**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0439	1.0548	0.2931	4.7100e-003	0.5442	3.6800e-003	0.5479	0.0809	3.5200e-003	0.0845	0.0000	446.6060	446.6060	0.0128	0.0000	446.9271
Worker	0.5427	0.4783	4.1134	6.6600e-003	3.4554	4.3600e-003	3.4598	0.4720	4.0200e-003	0.4760	0.0000	599.1025	599.1025	0.0407	0.0000	600.1207
Total	**0.5866**	**1.5331**	**4.4065**	**0.0114**	**3.9996**	**8.0400e-003**	**4.0077**	**0.5529**	**7.5400e-003**	**0.5604**	**0.0000**	**1,045.7085**	**1,045.7085**	**0.0536**	**0.0000**	**1,047.0478**

3.7 Battery Storage 2-5 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3883	3.9445	3.0370	7.1900e-003		0.1680	0.1680		0.1545	0.1545	0.0000	631.6280	631.6280	0.2043	0.0000	636.7350
Total	**0.3883**	**3.9445**	**3.0370**	**7.1900e-003**		**0.1680**	**0.1680**		**0.1545**	**0.1545**	**0.0000**	**631.6280**	**631.6280**	**0.2043**	**0.0000**	**636.7350**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0238	0.4683	0.1694	3.0900e-003	0.7851	9.9000e-004	0.7861	0.0960	9.4000e-004	0.0969	0.0000	292.9548	292.9548	6.3900e-003	0.0000	293.1145
Worker	0.3415	0.2950	2.5317	4.2900e-003	5.1184	2.8000e-003	5.1212	0.5945	2.5800e-003	0.5971	0.0000	385.7113	385.7113	0.0251	0.0000	386.3381
Total	**0.3652**	**0.7633**	**2.7011**	**7.3800e-003**	**5.9035**	**3.7900e-003**	**5.9073**	**0.6905**	**3.5200e-003**	**0.6940**	**0.0000**	**678.6661**	**678.6661**	**0.0315**	**0.0000**	**679.4526**

3.7 Battery Storage 2-5 - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1762	3.5309	4.2436	7.1900e-003		0.1621	0.1621		0.1621	0.1621	0.0000	631.6272	631.6272	0.2043	0.0000	636.7342
Total	**0.1762**	**3.5309**	**4.2436**	**7.1900e-003**		**0.1621**	**0.1621**		**0.1621**	**0.1621**	**0.0000**	**631.6272**	**631.6272**	**0.2043**	**0.0000**	**636.7342**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0238	0.4683	0.1694	3.0900e-003	0.3642	9.9000e-004	0.3652	0.0542	9.4000e-004	0.0551	0.0000	292.9548	292.9548	6.3900e-003	0.0000	293.1145
Worker	0.3415	0.2950	2.5317	4.2900e-003	2.3125	2.8000e-003	2.3153	0.3159	2.5800e-003	0.3184	0.0000	385.7113	385.7113	0.0251	0.0000	386.3381
Total	**0.3652**	**0.7633**	**2.7011**	**7.3800e-003**	**2.6767**	**3.7900e-003**	**2.6805**	**0.3700**	**3.5200e-003**	**0.3735**	**0.0000**	**678.6661**	**678.6661**	**0.0315**	**0.0000**	**679.4526**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1656	1.3219	2.7038	8.0100e-003	8.6862	5.6000e-003	8.6918	0.9594	5.2800e-003	0.9647	0.0000	740.2800	740.2800	0.0408	0.0000	741.2989
Unmitigated	0.1656	1.3219	2.7038	8.0100e-003	8.6862	5.6000e-003	8.6918	0.9594	5.2800e-003	0.9647	0.0000	740.2800	740.2800	0.0408	0.0000	741.2989

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	200.00	200.00	200.00	1,456,000	1,456,000
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Total	200.00	200.00	200.00	1,456,000	1,456,000

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	20.00	20.00	20.00	59.00	28.00	13.00	100	0	0
Unrefrigerated Warehouse-No	0.00	0.00	0.00	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.514862	0.031726	0.160627	0.119887	0.016529	0.004969	0.019101	0.120993	0.003465	0.001214	0.005236	0.000734	0.000658
Unrefrigerated Warehouse-No Rail	0.514862	0.031726	0.160627	0.119887	0.016529	0.004969	0.019101	0.120993	0.003465	0.001214	0.005236	0.000734	0.000658

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	22.0297	22.0297	5.1000e-004	1.2000e-004	22.0767
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	22.0297	22.0297	5.1000e-004	1.2000e-004	22.0767
NaturalGas Mitigated	8.8000e-004	7.9600e-003	6.6900e-003	5.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	8.6690	8.6690	1.7000e-004	1.6000e-004	8.7205
NaturalGas Unmitigated	8.8000e-004	7.9600e-003	6.6900e-003	5.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	8.6690	8.6690	1.7000e-004	1.6000e-004	8.7205

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	162450	8.8000e-004	7.9600e-003	6.6900e-003	5.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	8.6690	8.6690	1.7000e-004	1.6000e-004	8.7205
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**8.8000e-004**	**7.9600e-003**	**6.6900e-003**	**5.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**8.6690**	**8.6690**	**1.7000e-004**	**1.6000e-004**	**8.7205**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	162450	8.8000e-004	7.9600e-003	6.6900e-003	5.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	8.6690	8.6690	1.7000e-004	1.6000e-004	8.7205
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**8.8000e-004**	**7.9600e-003**	**6.6900e-003**	**5.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**8.6690**	**8.6690**	**1.7000e-004**	**1.6000e-004**	**8.7205**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	50750	22.0297	5.1000e-004	1.2000e-004	22.0767
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**22.0297**	**5.1000e-004**	**1.2000e-004**	**22.0767**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	50750	22.0297	5.1000e-004	1.2000e-004	22.0767
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**22.0297**	**5.1000e-004**	**1.2000e-004**	**22.0767**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.1848	4.0000e-005	4.6500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0200e-003	9.0200e-003	2.0000e-005	0.0000	9.6200e-003
Unmitigated	2.1848	4.0000e-005	4.6500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0200e-003	9.0200e-003	2.0000e-005	0.0000	9.6200e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2121					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.9723					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.3000e-004	4.0000e-005	4.6500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0200e-003	9.0200e-003	2.0000e-005	0.0000	9.6200e-003
Total	**2.1848**	**4.0000e-005**	**4.6500e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**9.0200e-003**	**9.0200e-003**	**2.0000e-005**	**0.0000**	**9.6200e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2121					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.9723					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.3000e-004	4.0000e-005	4.6500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0200e-003	9.0200e-003	2.0000e-005	0.0000	9.6200e-003
Total	**2.1848**	**4.0000e-005**	**4.6500e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**9.0200e-003**	**9.0200e-003**	**2.0000e-005**	**0.0000**	**9.6200e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	26.6112	0.1195	2.9400e-003	30.4757
Unmitigated	26.6112	0.1195	2.9400e-003	30.4757

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	3.65 / 1	26.6112	0.1195	2.9400e-003	30.4757
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**26.6112**	**0.1195**	**2.9400e-003**	**30.4757**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	3.65 / 1	26.6112	0.1195	2.9400e-003	30.4757
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**26.6112**	**0.1195**	**2.9400e-003**	**30.4757**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.2585	0.0744	0.0000	3.1180
Unmitigated	1.2585	0.0744	0.0000	3.1180

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	6.2	1.2585	0.0744	0.0000	3.1180
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**1.2585**	**0.0744**	**0.0000**	**3.1180**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	6.2	1.2585	0.0744	0.0000	3.1180
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**1.2585**	**0.0744**	**0.0000**	**3.1180**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX H – HAZARDS AND HAZARDOUS MATERIALS

APPENDIX H – HAZARDS AND HAZARDOUS MATERIALS

H.1. Hazard Consequences Analysis Report

Hazard Consequences Analysis Report

Westside Canal Battery Energy Storage Project BESS

April 6, 2020

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Revision	Description	Author		Quality Check		Independent Review	
0	Initial	E Clark	3/27	K. Kohan	3/30		

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Prepared by Eric E. Clark
(signature)

Eric Clark, P.E.

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1.0 INTRODUCTION

This Hazard Consequences Analysis Report presents the results of an off-site consequence analysis associated with the operation of the Westside Canal Battery Storage Project (project) (BESS) proposed by Consolidated Edison Development (CED) in Imperial County. Under normal operations, a BESS does not store or generate hazardous materials in quantities that would represent a risk to offsite receptors. This off-site consequence analysis was therefore conducted to determine the impacts resulting from the release of toxics from a credible fire or thermal runaway event at the proposed project site.

For this consequence analysis, off-site means any activity or receptors located beyond the boundaries of the proposed BESS. This report is being conducted in accordance with the Certified Unified Program Agencies (CUPA) of Imperial County, facilities that release and exceed thresholds are subject to California Accidental Release Preventions (CalARP) regulations. The thresholds of state and federal quantities are defined in Tables 1-3 California Code of Regulations Title 19, Division 2, Chapter 4.5, Article 8. According to these guidelines, the requirement for a hazard assessment is typically satisfied through preparation of an Offsite Consequence Analysis following United States Environmental Protection Agency (USEPA) procedures detailed in USEPA's Risk Management Program Guidance for Offsite Consequence Analysis (March 2009) (OCA Guidance), as supplemented by guidance from CalARP. While the project is not expected to store regulated substances in quantities greater than CalARP threshold quantities, there may be potential upset and accident conditions with a risk of initiating a thermal runaway (fire/explosion) event.

The offsite consequences analysis was conducted using EPA's and the National Oceanic and Atmospheric Administration's (NOAA's) "Areal Location Hazardous Atmospheres" ([ALOHA]; (Version 5.4.7, September 2016) hazards modeling program to determine distances to the toxic endpoints for release scenarios. The distance to the toxic endpoint is the distance a toxic vapor cloud, heat from a fire, or blast waves from an explosion will travel before dissipating to the point where serious injuries from short-term exposures will no longer occur. The supporting ALOHA hazards modeling program output files for the offsite consequence analysis are provided in Attachment A.

The topic of BESS and air toxic releases during a credible fire event is limited in available data and current hazards analyses. Much of the available information is very recent and subject to ongoing study. As such, this hazard consequences analysis represents the current understanding of the subject matter but is subject to the limitations of available data at the time of this report.

Appropriate preventative measures make a thermal runaway event a very rare event and can reduce the duration and intensity of an event when it may occur. The credible thermal runaway/fire event was determined to involve 1.5 battery racks. Per Consolidated Edison's 2017 "Considerations for ESS Fire Safety," "…the estimations limit of failure of a BESS is 1.5 battery modules [racks], with the presumption that the system should demonstrate adequate separations, cascading protections, and suppression systems to limit failure to a single cell [module] or at least a single module [rack]. The probability of failure for multiple modules [racks] should be very low for systems with these active and passive barriers to catastrophic failure." Use of the term "module" in the study is consistent with use of the term "rack" in this

report and use of the term “cell” in the study is consistent with use of the term “module” in this report. BESS thermal runaway/fire events may generate hazardous substances such as hydrogen chloride, hydrogen fluoride, hydrogen cyanide, and carbon monoxide, which may be released to the environment. The New York State Energy Research and Development Authority (NYSERDA) identified eleven toxic and/or flammable gases during their fire testing events and concluded that the main gases emitted were hydrogen chloride (HCl), hydrogen fluoride (HF), hydrogen cyanide (HCN), and carbon monoxide (CO), which were also identified in every battery tested. The NYSERDA study performed a series of fire/burn tests on a variety of battery types. The results of the tests illustrated general toxicity rates across all battery types and how they could affect first responders,

1.1 PROJECT OVERVIEW

Development of the Westside Canal Battery Storage Complex Project (project) will provide a utility-scale energy storage complex incorporating lithium ion battery systems and/or flow battery technologies throughout the site. The project will allow excess, intermittent renewable energy to be stored and later dispatched optimally back into the grid as firm, reliable generation when needed. The project complements solar and wind projects currently operating, and planned for development, in Imperial County (County), and supports the broader southern California bulk electric system by serving as a transmission asset.

The project is expected to be constructed in multiple phases, over multiple years, with each phase ranging from approximately 25 megawatts (MW) up to 350 MW per phase. Construction of the first phase includes roads, bridge and common facilities, and the first battery storage facility and is anticipated to begin in 2021 with completion expected in 2022. The project will store energy for up to a 12-hour duration based on grid and market conditions. The total nameplate capacity of the project at full build-out is approximately 2,025 MW.

1.2 PURPOSE

As part of the Conditional Use Permit Application and California Environmental Quality Act (CEQA) requirements, this hazard consequences analysis evaluates the potential for adverse effects to people or the environment related to hazards and hazardous materials. CEQA requires the analysis of potential adverse effects of a project on the environment. Consistent with Appendix G of the CEQA Guidelines, a proposed project would cause adverse impacts related to hazards and hazardous materials if they would create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. This consequence analysis considers the potential impacts to the surrounding facilities and canal within 0.25 mile of the project site.

The objectives of this hazard consequences analysis are to:

- Identify and characterize the quantities and locations of hazardous chemicals that could be released during a thermal runaway/fire event from the proposed BESS.
- Determine the distance from the proposed BESS to the nearest residence.

- Conduct plume dispersion modeling using EPA's ALOHA (Version 5.4.7, September 2016) hazards modeling program to determine distances to the toxic endpoints for the release scenario.
- Determine potential impacts and safety risks at the nearest receptors; and
- Identify project safety design measures and fire risk mitigation measures.

1.3 PROJECT SITE

The proposed project site is located in the unincorporated Mount Signal area of the County of Imperial, approximately 8.0 miles southwest of the city of El Centro and approximately 5.3 miles north of the United States.-Mexico border. Figure 1 shows the regional location of the proposed project. The project site is comprised of two parcels, Assessor Parcel Number (APN) 051-350-010 and APN 051-350-011, totaling approximately 148 acres. This land has limited access corridors for vehicular traffic and is less desirable for agricultural production, as reflected by the last 15 years without farming activity.

1.3.1 Surrounding Area

The project site is approximately one-third mile north of the Imperial Valley Substation (IV Substation) and directly south of the intersection of Liebert Road and the Imperial Irrigation District's (IID) Westside Main Canal. The project site is bounded by the Westside Main Canal to the north, Bureau of Land Management (BLM) lands to the south and west, and vacant private land to the east. The Campo Verde solar generation facility is located north of the project site, across the Westside Main Canal.

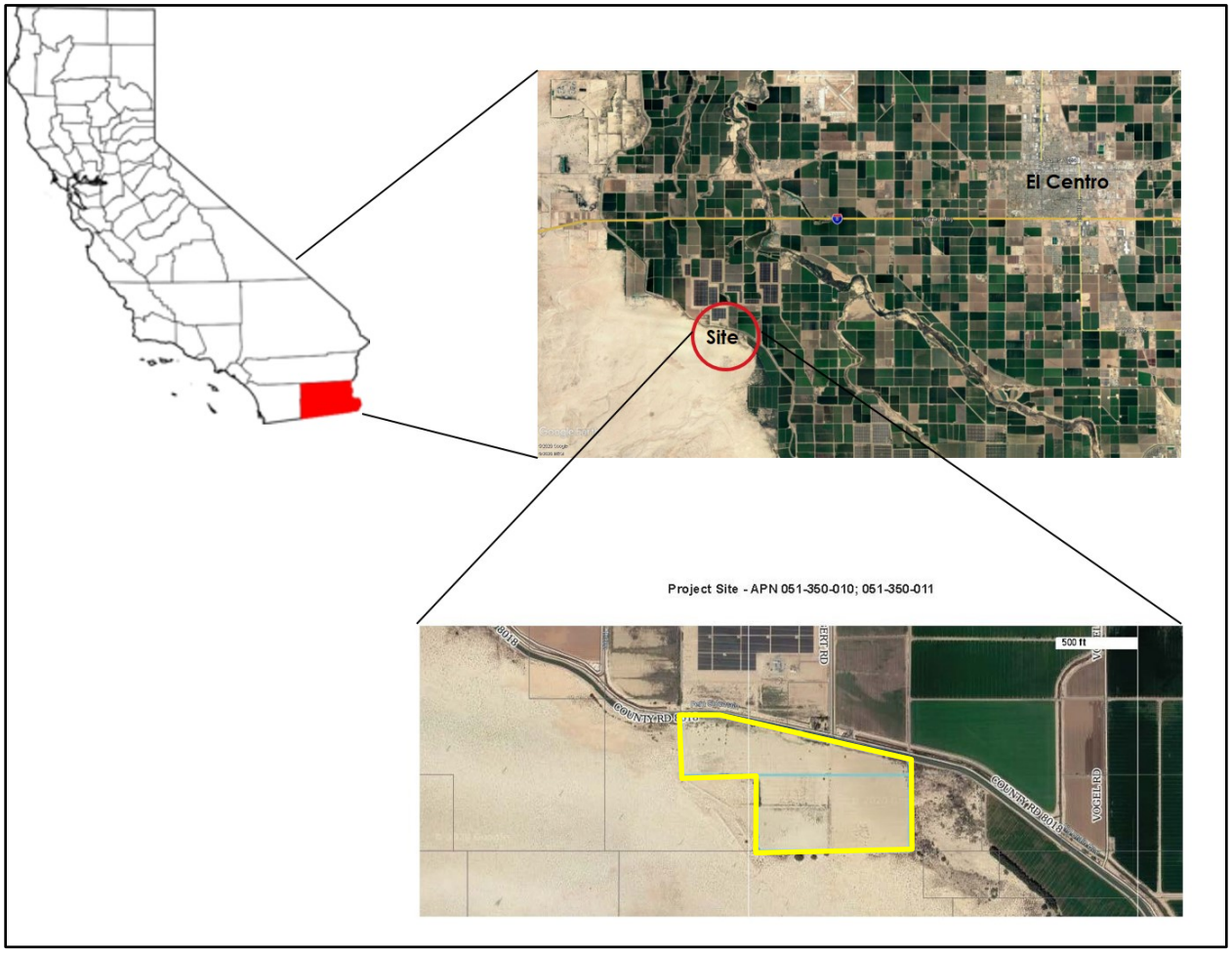

Figure 1 Regional/Project Location

1.4 DESIGN MEASUREMENTS & FIRE MITIGATION MEASURES

Fire protection systems for battery systems will be designed in accordance with California Fire Code 2016 and will take into consideration the recommendations of the National Fire Protection Association (NFPA) 855. Depending on the technology used in a phase, fire suppression agents such as Novec 1230 or FM 200, or water may be used as a suppressant. In addition, fire prevention methods will be implemented to reduce potential fire risk, including voltage, current and temperature alarms. Energy storage equipment will comply with UL-9540 and will account for the results of UL-9540A. The project has the potential to utilizing either lithium-ion batteries and/or flow batteries.

Flow batteries are generally not flammable and do not require fire suppression systems. In locations where equipment is located within buildings, automated fire sprinkler systems will be designed in accordance with California Fire Code. A fire loop system and fire hydrants will be located throughout the site for general fire

suppression. Buildings and containers for both lithium-ion and flow batteries will be unoccupied enclosures. These buildings will have an automatic sprinkler system designed in accordance with California Fire Code Section 903.

To mitigate potential hazards, redundant separate methods of failure detection will be implemented. These include alarms from the Battery Management System (BMS), including voltage, current, and temperature alarms. Detection methods for off gas detection will be implemented, as applicable. These are in addition to other protective measures such as ventilation, overcurrent protection, battery controls operating batteries within designated parameters, temperature and humidity controls, smoke detection, and maintenance in accordance with manufacturer guidelines. Flow battery tanks would be designed to have secondary containment in the event of a failure.

Remote alarms will be installed for operations personnel as well as emergency response teams in addition to exterior hazard lighting. In addition, an Incidence Response Plan will be implemented depending upon the technology installed for each phase.

Additionally, the project intends to commit to purchase or contribute its proportionate share to purchase, a Type 1 Fire Engine which shall meet all National Fire Protection Association (“NFPA”) standards for structural firefighting for the Imperial County Fire Department.

As described above, the credible thermal runaway/fire event was determined to involve 1.5 battery racks per the NYSERDA 2017 “Considerations for ESS Fire Safety” Study. This determination is predicated upon the project meeting industry standards for adequate separations, cascading protections, and suppression systems to limit failure to a single cell or at least a single module (rack).

Cascading protections assumed in the Consolidated Edison study can be tested by the UL 1973 internal fire test, the IEC 62619 internal propagation test, SAE J2929 propagation test, or similar standards. Both the Samsung SDI and LG Chem batteries considered for this project have been tested to the UL 1973 standard.

Air conditioning equipment will be used to maintain safe ambient operating temperature conditions. An effective method for Lithium-ion battery storage is to use a fire containment and suppression system that would deal with a battery fire event. Such systems contain the fire event and encourage suppression through cooling, isolation, and containment. It is important when using this approach to ensure batteries are housed in environments that feature fire suppression systems that extinguish through cooling. Suppressing a lithium-ion (secondary) battery is best accomplished by cooling the burning material. The proposed project would include a gaseous fire suppressant agent (e.g., 3M™ Novec™ 1230 Fire Protection Fluid or similar) and an automatic fire extinguishing system with sound and light alarms. Water has been historically recommended as fire suppression because of its ability to cool and limited side effects. Novec 1230 evaporates 50 times faster than water, rapidly removing heat. The project will also be developed with an onsite fire hydrant for the fire department to use water to provide additional cooling and to prevent fires from spreading. The Consolidated Edison study found that If a fixed suppression agent is installed within an enclosed environment containing the event, it may suppress flammability in the enclosed space and make the use of water unnecessary. The Consolidated Edison study recommended that the first stage of

fire suppression should be a gas-based suppression system to extinguish a single rack fire and prevent flashover in a contained environment. If temperatures continue to rise, the study recommended that the second stage of fire suppression be forced ventilation or water to cool the system and prevent further propagation of fire. This is consistent with the fire suppression measures proposed.

The use of Novec 1230 or FM 200 with an active suppression system is consistent with recommendations of the Consolidated Edison study and supports the determination adequate separations, cascading protections, and suppression systems would to limit failure to a single module or at least a single rack and that the credible thermal runaway/fire event involving a maximum of 1.5 battery racks is a conservative assumption for a lithium-ion configuration. Note that flow batteries are not flammable and are not expected to catch fire. However, it has the potential to release hydrogen chloride gas.

2.0 AIR TOXICS EVALUATED

Based upon testing data in available publications (the Consolidated Edison study, National Fire Protection Association studies), there are four hazardous substances that are potentially released during an accidental event within the BESS that may have an impact on nearby population. The hazardous substances include hydrogen chloride (HCl), hydrogen fluoride (HF), hydrogen cyanide (HCN), and carbon monoxide (CO). These air toxics were analyzed using ALOHA to determine the characteristics of emissions, possible smoke or emissions plume under several weather and wind scenarios, and potential exposure impacts to population and animals within the plume area.

The ALOHA program models dispersion of a release and compares predicted maximum concentrations to a toxic Level of Concern (LOC). The most common public exposure guidelines that are used as LOC's include Acute Exposure Guideline Levels (AEGLs) Emergency Response Planning Guidelines (ERPGs), and Temporary Emergency Exposure Limits (TEELs). All have three tiers of exposure values for each covered chemical. At a general level, the tiers are similar: the first tier is a mild effects threshold, the second tier is an escape-impairment threshold, and the third tier is a life-threatening effects threshold. Any of these three sources may be appropriate for a LOC comparison. For releases with an impact area extending well beyond the site, AEGLs are often preferentially used, but modeling against AEGLs has been shown to predict lower concentrations at a closer distance than ERPG values (Kelsey, 2012). As impacts under the release scenario are close to the project site, ERPG values were selected for the LOC in this analysis.

The following describes potential air toxics, potential impacts from acute inhalation exposure and ERPG values. The descriptions of health effects are summarized from the National Institute of Health PubChem database. ERPGs are developed by the Emergency Response Planning committee of the American Industrial Hygiene Association (AIHA). For many substances regulated by Code of Federal Regulations Chemical Accident Prevention Provision (40 CFR Part 68) included those listed above, the toxic endpoints listed in 40 CFR Part 68, Appendix A, are the ERPG-2 values published by AIHA. These are the toxic endpoints, which are airborne concentrations, that would be used if the facility was subject to 40 CFR Part 68 and are considered appropriate for this analysis. The off-site consequences analysis and distance of toxic endpoints used the ERPG-2 value per EPA guidance to assess the hazards impacts on nearby receptors. The ERPG values are defined as follows:

- ERPG-1 is the maximum airborne concentration below which nearly all individuals could be exposed to for up to one hour without experiencing more than mild, transient adverse health effects or without perceiving a clearly defined objectionable odor.
- ERPG-2 is the maximum airborne concentration below which nearly all individuals could be exposed to for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action.
- ERPG-3 is the maximum airborne concentration below which nearly all individuals could be exposed to for up to one hour without experiencing or developing life-threatening health effects.

In ALOHA, ERPGs can be chosen as the toxic Levels of Concern when modeling a toxic chemical release if ERPGs have been defined for that chemical. ALOHA allows up to three toxic Levels of Concern to be specified. Modeling was conducted to identify maximum estimated distances to the ERPG-1, ERPG-2, and ERPG-3 values and the ERPG-2 value was used as the toxic endpoint.

2.1 HYDROGEN CHLORIDE

HCl is a colorless, corrosive gas with a pungent, suffocating odor. It is heavier than air and may accumulate in low-lying areas. When exposed to air it forms white fumes due to condensation with atmospheric moisture. These fumes consist of hydrochloric acid which forms when HCL dissolves in water. HCL forms corrosive hydrochloric acid on contact with body tissue. Inhaling the fumes can cause coughing, choking, inflammation of the nose, throat, and upper respiratory tract, and in severe cases, pulmonary edema, circulatory system failure, and death.

Inhalation is an important exposure route to HCL. Its odor and highly irritating properties generally provide adequate warning for acute, high-level exposures. Concentrated HCL can be corrosive to the skin, eyes, nose, mucous membranes, and respiratory and gastrointestinal tracts. Inhaling HCL can lead to pulmonary edema. Other effects of exposure include shock, circulatory collapse, metabolic acidosis, and respiratory depression. HCL gas is intensely irritating to the mucous membranes of the nose, throat, and respiratory tract. Brief exposure to 35 parts per million (ppm) causes throat irritation and levels of 50 to 100 ppm are barely tolerable for 1 hour. The greatest impact is on the upper respiratory tract; exposure to high concentrations can rapidly lead to swelling and spasm of the throat and suffocation.

Most seriously exposed persons have immediate onset of rapid breathing, blue coloring of the skin, and narrowing of the bronchioles. Patients who have massive exposures may develop an accumulation of fluid in the lungs. Exposure to HCL can lead to Reactive Airway Dysfunction Syndrome, a chemically- or irritant-induced type of asthma. Children may be more vulnerable to corrosive agents than adults because of the relatively smaller diameter of their airways. Children may also be more vulnerable to gas exposure because of increased minute ventilation per kilogram and failure to evacuate an area promptly when exposed. EPA has not classified HCL or hydrochloric acid for carcinogenicity.

The ERPG values for HCl are:

- ERPG-1: 3 parts-per million (ppm);
- ERPG-2: 20 ppm; and
- ERPG-3: 150 ppm.

2.2 HYDROGEN FLUORIDE

HF is a colorless, corrosive gas or liquid (it boils at 19.5 degrees Celsius [°C]) that is made up of a hydrogen atom and a fluorine atom. It fumes strongly, readily dissolves in water, and both the liquid and vapor will cause severe burns upon contact. HF is also a very irritating gas, not as dangerous as fluorine, but large amounts of it can also cause death. The dissolved form is called hydrofluoric acid, a colorless fuming mobile

aqueous solution with a pungent odor. It is corrosive to metals and tissue and highly toxic by ingestion and inhalation. Exposure to fumes or very short contact with liquid may cause severe painful burns; it penetrates skin to cause deep-seated ulceration that may lead to gangrene.

Hydrofluoric acid is a clear, colorless liquid, miscible with water, with an acrid, irritating odor. It is an extremely corrosive liquid and vapor that can cause severe injury via skin and eye contact, inhalation, or ingestion. Dilute solutions deeply penetrate before dissociating, thus causing delayed injury and symptoms. Skin contact results in painful deep-seated burns that are slow to heal. Burns from dilute (less than 50 percent) hydrogen fluoride solutions do not usually become apparent until several hours after exposure. Hydrofluoric acid and HF vapor can cause severe burns to the eyes, which may lead to permanent damage. At 10 to 15 ppm, HF vapor is irritating to the eyes, skin, and respiratory tract. Exposure to higher concentrations can result in serious damage to the lungs. Hydrofluoric acid has not been reported to be a human carcinogen.

Acute inhalation exposure to gaseous HF can cause severe respiratory damage in humans, including severe irritation and pulmonary edema. Irritation of the eyes, nose, and upper and lower respiratory tract, lacrimation, sore throat, cough, chest tightness, and wheezing have been reported. Damage to the lungs, liver, and kidneys has been observed in animals acutely exposed to HF by inhalation. Acute animal tests in rats, mice, guinea pigs, and monkeys have demonstrated HF to have moderate to high acute toxicity from inhalation exposure. EPA has not classified hydrogen fluoride or hydrofluoric acid for carcinogenicity.

The ERPG values for HF are:

- ERPG-1: 2 ppm;
- ERPG-2: 20 ppm; and
- ERPG-3: 50 ppm.

Water solutions containing regulated substances such as hydrofluoric acid is analyzed differently from pure toxic liquids. The evaporation rate varies with the concentration of the solution. If a concentrated water solution is spilled, the toxic substance will evaporate more quickly than the water from the spilled solution, and the vapor pressure and evaporation rate will decrease as the concentration of the toxic substance in solution decreases.

2.3 HYDROGEN CYANIDE

HCN is a colorless, extremely poisonous gas above temperature at 26° C. It is a chemical asphyxiant as it interferes with the normal use of oxygen by nearly every organ of the body. Exposure to HCN can be rapidly fatal. It has whole-body (systemic) effects, particularly affecting those organ systems most sensitive to low oxygen levels: the central nervous system (brain), the cardiovascular system (heart and blood vessels), and the pulmonary system (lungs). It is used commercially for fumigation, electroplating, mining, chemical synthesis, and for producing synthetic fibers, plastics, dyes, and pesticides. HCN gas has a distinctive bitter almond odor (others describe a musty "old sneakers smell"), but a large proportion of people cannot detect it; the odor does not provide adequate warning of hazardous concentrations.

HCN is extremely toxic to humans. Acute inhalation exposure to 100 milligrams per cubic meter or more of HCN will cause death in humans. Acute exposure to lower concentrations (6 to 49 milligrams per cubic meter) of HCN will cause a variety of effects in humans, such as weakness, headache, nausea, increase rate of respiration, and eye and skin irritation.

Tests involving acute exposure of rats and mice have shown HCN to have extreme acute toxicity from inhalation exposure. EPA has not classified HCN or hydrocyanic acid for carcinogenicity.

The ERPG values for HCN are:

- ERPG-1: Not Applicable.
- ERPG-2: 10 ppm; and
- ERPG-3: 25 ppm.

2.4 CARBON MONOXIDE

CO is a poisonous, colorless, odorless, and tasteless gas. It is the product of the incomplete combustion of carbon-containing compounds, notably in internal combustion engines. It consists of one carbon atom covalently bonded to one oxygen atom and is a gas at room temperature. CO is a significantly toxic gas and is the most common type of fatal poisoning in many countries. Exposures can lead to significant toxicity of the central nervous system and heart.

When CO is not ventilated, it binds to hemoglobin, which is the principal oxygen-carrying compound in blood; this produces a compound known as carboxyhemoglobin. The traditional belief is that carbon monoxide toxicity arises from the formation of carboxyhemoglobin, which decreases the oxygen-carrying capacity of the blood and inhibits the transport, delivery, and use of oxygen by the body. The affinity between hemoglobin and CO is approximately 230 times stronger than the affinity between hemoglobin and oxygen, so hemoglobin binds to carbon monoxide in preference to oxygen. The resultant oxygen deprivation causes headache, dizziness, decreased pulse and respiratory rates, unconsciousness, and death. EPA has not classified CO for carcinogenicity.

The ERPG values for CO are:

- ERPG-1: 200 ppm;
- ERPG-2: 350 ppm; and
- ERPG-3: 500 ppm.

2.5 ESTIMATED EMISSIONS

The modeled release assumes a constant emission rate in kilograms per second for a thermal runaway event lasting 30 minutes, after which it is assumed that the event would be controlled. For the purpose of evaluating impacts to first responders in a controlled event, the Consolidated Edison report identified a 30-

minute release rate as conservative, accounting for an average of emissions rate that is higher than the low-level emissions leading up to peak failure, and lower than the peak emissions. Consolidated Edison's calculated average 30-minute release rate was identified in Table 2 of the Consolidated Edison report.

The Consolidated Edison publication “Considerations for ESS Fire Safety” (as Table 2 within publication), documents the average release rate (in kilograms per second) of the air toxics described above for thermal runaway events and fires involving battery materials over a 30-minute period. The study evaluated several types and manufactures of battery systems, including lithium-ion batteries provided by LG Chem and Samsung SDI. These values were used to estimate the toxics release rate of a credible fire event. Consistent with “Considerations for ESS Fire Safety,” it was assumed that the event would involve 1.5 single battery racks, equivalent to 45 individual modules (Table 1). The maximum size of a rack of lithium-ion batteries is 30 modules.

Table 1 - Emission Release Rates

Materials	30-minute Release Rate (kg/s) for 1 Battery Module	30-minute Release Rate (kg/s) for 1.5 Battery Racks (45 Modules)
HCl	2.36E-07	1.06E-05
HF	1.74E-07	7.83E-06
HCN	1.74E-07	7.83E-06
CO	2.00E-07	9.00E-06

Kg/s = kilograms per second

3.0 METEOROLOGICAL DATA

Air impacts are a function of the rate and release characteristic location of emissions under the influence of meteorological conditions and topographic features affecting pollutant movement and dispersion. Atmospheric conditions such as wind speed, wind direction, atmospheric stability, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants and consequently affect air quality. Climate within the Salton Sea Air Basin area varies throughout the year. Typical annual average low temperatures of the mid to high 40's °F and highs of the mid 70 °F during the winter months. Conversely, the summer months have high temperatures that reach the 90's and 100 °F, while the low values remain the 50 and 60 °F. This is consistent with a desert environment. Average annual rainfall typically less than 3.0 inches. In general, the area remains very arid and dry throughout the year.

All applicable meteorological data was obtained via the California Air Resources Board website[1] for the Imperial County Airport (KIPL). Hourly data from 2009-2014 was reviewed to obtained average wind speeds and wind directions. The wind is fairly active with only 18.40% (5.0% missing) of hourly reading registering a rate of 0.5 mile per hour (mph) or less. The predominate wind direction is westerly. Most non-calm days range from a west to southwest direction. The average wind direction, excluding calm hours, is from the west with an average speed of 8.75 mph. Also, the average temperature is 73.66 °F.

Figure 2 displays the wind rose during this period. Wind directions within El Centro and vicinity are generally similar to conditions at the Imperial County Airport weather station, which is the nearest representative meteorological station.

[1] Based upon meteorological data processed by the California Air Resources Board (CARB) made available at: https://ww3.arb.ca.gov/toxics/harp/metfiles2.htm

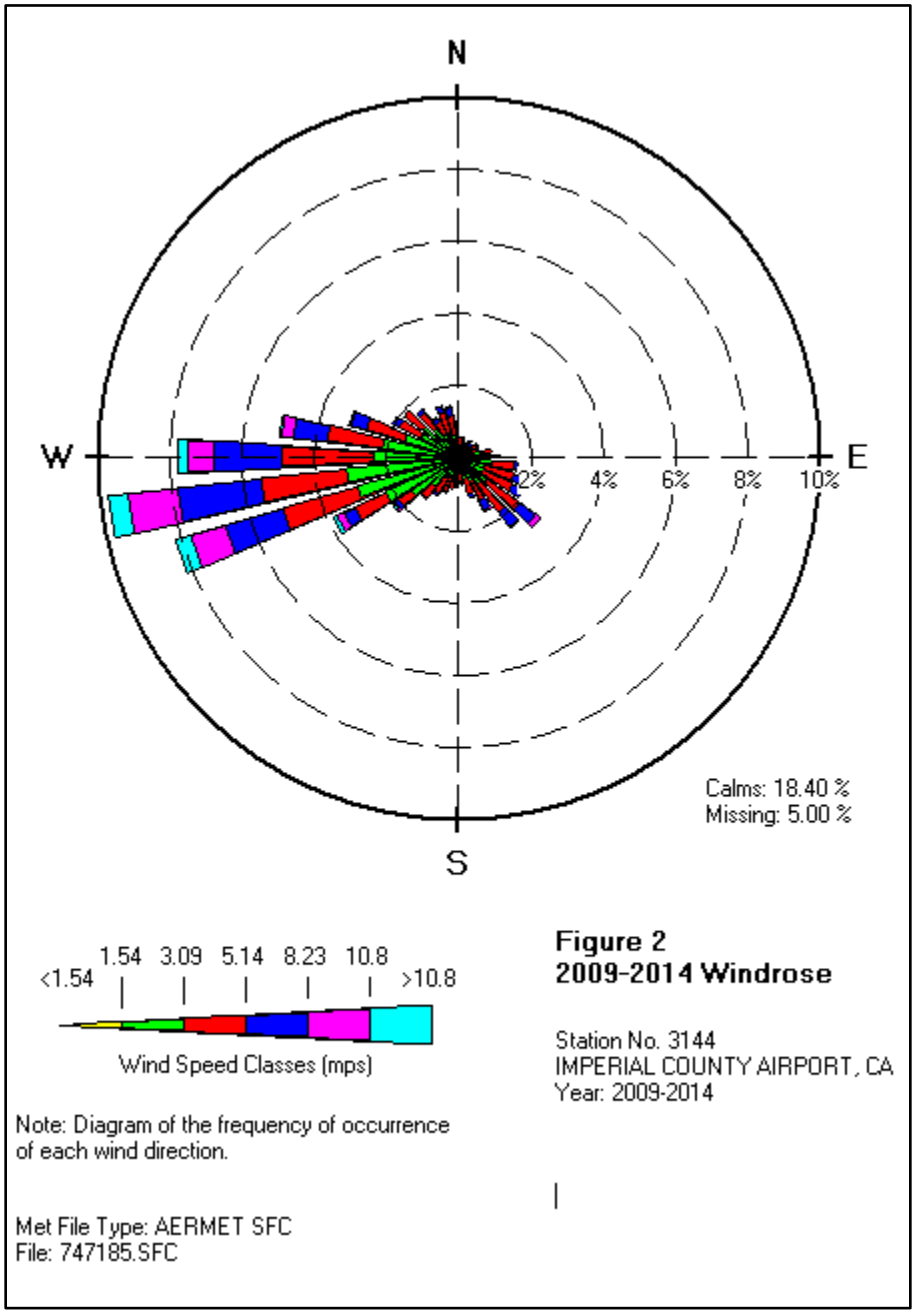

Figure 2 Windrose of Imperial County Airport

4.0 OFFSITE CONSEQUENCE ANALYSIS

An off-site consequence analysis was conducted using emission rate estimates as described in Section 2.5 and the ALOHA model as described in the sections below.

4.1 METHODOLOGY

The EPA's "Risk Management Program Guidance for Offsite Consequence Analysis" and the CalARP both recommend conducting an off-site consequence analysis to represent release scenarios that are possible (although unlikely) to occur under a variety of weather and wind conditions to determine the distance to a toxic or flammable endpoint. Modeling assumptions and meteorological conditions that were used for conducting the offsite consequence analysis are specified in the California Code of Regulations (CCR), Title 19, Chapter 4.5, Article 2735.1 et seq.

The offsite consequences analysis was conducted based on the following conditions:

- The credible fire event involves the toxic release from 1.5 battery modules over a 30-minute period.
- Nighttime conditions - wind speed of 2.0 m/s (4.47 mph) and atmospheric stability class E (stable atmospheric conditions). 3 AM was designated the nighttime scenario.
- Daytime conditions - wind speed of 4.0 m/s (8.94 mph) and atmospheric stability class C (slightly unstable atmospheric conditions). A cloud cover of 50 percent was assumed, and Incoming solar radiation is assumed to be slight.
- Release temperature of 73.7 degrees Fahrenheit (°F) for toxic gas releases. According to historical meteorological data from the National Oceanic and Atmospheric Administration, the average monthly high temperature in El Centro ranges from 60°F to 104°F; maximum high temperature can reach 106°F.
- No ambient temperature inversion was included in the consequence analysis.
- Humidity of 35 percent based on average value
- Height of release – ground level.
- Surface roughness – rural as determined based on the density and height of obstructions.
- Passive mitigation, such as the release inside of the container, was considered. Active mitigation measures, such as fire suppression, were also considered.
- Flow Batteries are only evaluated for HCl and containers are assumed 40' tall (two stories tall). Lithium-ion containers are only one story.

ALOHA uses location and elevation information to estimate sun angle using the location's latitude and longitude and the time of day and atmospheric pressure using the location's elevation. Site-specific project location data were used for input into ALOHA.

The offsite consequence analysis was conducted according to EPA's "Risk Management Program Guidance for Offsite Consequence Analysis" and guidance from the CalARP. Plume analysis and exposure impacts were conducted using USEPA's ALOHA hazards modeling program. Based on information about a chemical release, ALOHA estimates how quickly the chemical will escape from containment and form a hazardous gas cloud, and also how that release rate may change over time. ALOHA can then model how that hazardous gas cloud will travel downwind, including both neutrally buoyant and heavy gas dispersion. Additionally, if the chemical is flammable, ALOHA simulates pool fires, boiling liquid expanding vapor explosions, vapor cloud explosions, jet fires, and flammable gas clouds (where flash fires might occur). ALOHA evaluates different types of hazards (depending on the release scenario), toxicity, flammability, thermal radiation, and overpressure. ALOHA produces a threat zone estimate, which shows the area where a particular hazard (such as toxicity or thermal radiation) is predicted to exceed a specified level of concern at some time after the release begins. ALOHA is able to determine a threat zone under different weather and wind scenarios.

4.2 RESULTS

The nighttime release scenario is under more stable meteorological conditions and represents the more conservative release scenario. A daytime release scenario was also evaluated as an alternative release scenario.

A toxic release from 1.5 lithium-ion battery racks was assumed to be triggered by a fire event and result in a release of HCl, HF, HCN, and CO. Using nighttime meteorological conditions, modeling results indicate that the distance to the toxic endpoint at ERPG-2 would be less than 10 meters (33 feet). ALOHA is unable to predict threat zones less than 10 meters because of the effects of near-field patchiness which make dispersion predictions less reliable for short distances.

A toxic release from 1.5 lithium-ion battery racks was assumed to be triggered by a fire event and result in a release of HCl, HF, HCN, and CO. Using daytime meteorological conditions, modeling results indicate that the distance to the toxic endpoint at ERPG-2 would be less than 10 meters (33 feet).

A toxic release from flow batteries which was assumed equivalent to 1.5 lithium-ion battery racks, but two-story storage illustrated a modeling result with a distance to the toxic endpoint at ERPG-2 less than 10 meters (33 feet).

The results of the off-site consequence analysis show that the impacts at the ERPG-2 thresholds may extend to a toxic endpoint distance of approximately 33 feet from the toxic release/credible fire event and may require shelter in place and/or evacuation of receptors within this toxic endpoint distance. The estimated maximum toxic endpoint distance is primarily within the project site's boundary but does extend to the adjacent undeveloped parcel (APN 1054101100), which is also controlled by Consolidated Edison. No schools or residences are located within the estimated maximum toxic endpoint boundary. Also, the endpoint would not reach the canal provided no batteries are stored within 10 meters of the water.

5.0 REFERENCES

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Appendix A ALOHA Output Results

APPENDICES

Appendix A ALOHA OUTPUT RESULTS

APPENDIX H – HAZARDS AND HAZARDOUS MATERIALS

H.2. Phase I Environmental Site Assessment

GS Lyon

Engineering And
Information Technology

RELIANCE LETTER

March 14, 2019

ConEdison Clean Energy Businesses, Inc.
100 Summit Lake Drive
Valhalla, NY 10595
Attn: Mr. Jim Pomillo

With a copy to:

RECON Environmental, Inc.
1927 Fifth Avenue
San Diego, CA 92101

Subject: **Third Party Reliance regarding the Phase I ESA Report (GS Lyon Project No. GS1903) for the Westside Main Canal Energy Center Project, Liebert Road South of WSM Canal, Imperial County, CA, prepared by GS Lyon Consultants, Inc. ("GS Lyon") for their client ConEdison Development ("Client") dated as of March 14, 2019 (the "Report", a copy of which is attached hereto as Exhibit A), to be provided to ConEdison Clean Energy Businesses, Inc. ("Relying Party")**

Dear ConEdison Clean Energy Businesses, Inc.

The above-referenced Report was prepared for Client's sole use. Client has requested that GS Lyon consent to the use of the Report by Relying Party. This is to advise you that in consideration of the representations and promises made herein by Client and Relying Party, GS Lyon consents to the use of the Report by Relying Party provided that Relying Party agrees to the following conditions:

- Relying Party is subject to the same limitations and conditions as Client, as stated in the provisions of the contract between Client and GS Lyon, dated as of February 8, 2019, a copy of which is attached to this letter as Exhibit B (the "Contract").

- Relying Party acknowledges and is subject to the limitations and conditions stated in the Report.

- Client shall indemnify, defend and hold harmless GS Lyon and each of its directors, officers, employees, agents, representatives, affiliated and parent companies (collectively, the "Indemnitees") against any and all losses, claims, damages, expenses and liabilities (including the aggregate amount paid in reasonable settlement of any actions, suits, proceedings or claims), including attorneys' fees and costs, to which GS Lyon, or any of the Indemnitees may become subject to, but not limited to, (1) any losses, claims, damages, expenses, and liabilities resulting from or related to the Client's release of the Report to its lender(s), or other third parties and/or (2) any losses, claims, damages, expenses and liabilities arising under securities laws or regulations, or any other applicable statute, at common law or otherwise, insofar as such losses, claims, damages, expenses and/or liabilities arise out of or are based, directly or indirectly, in whole or in part, upon the performance of services rendered for or on behalf of Client, including, without limitation, any statement or omission at any point in the offering of debt securities by the Client or in obtaining any other type of funding, including, but not limited to, any loans. Such indemnification of GS Lyon and the Indemnitees by the Client will not apply to the extent that the claims, proceedings, damages, costs, charges and expenses arose out of any willful misconduct, recklessness or fraud by GS Lyon ("Indemnification").

- This agreement shall be governed by and construed under the laws of the State of California without regard to its conflicts of laws principles.

- The Report was prepared in accordance with the ASTM E1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Risk Assessment Process. Relying Party acknowledges that the Report is time dependent and that no such use or reliance upon such Report shall occur after six (6) months from the date of the Report without GS Lyon's prior written authorization.

Nothing has come to the attention of GS Lyon that causes GS Lyon to believe that the Report, as of the date hereof, contains any untrue statements of material fact or omits to state any material fact necessary in order to make the statements made therein, in the light of the circumstances under which they were made, not misleading.

Please acknowledge the acceptance of these conditions by signing in the space provided below and returning this letter to me. The use of or reliance on the Report by Relying Party shall constitute the agreement of Relying Party to be bound to the foregoing conditions, as well as the Client to be bound to the forgoing Indemnification. No further reliance is authorized by this letter. This letter does not grant the right to rely to other parties.

Sincerely,

GS LYON CONSULTANTS, INC.

By: _____
Name: Jeffrey O. Lyon
Title: Principal Engineer
Date: 03/14/19

EXHIBIT A

REPORT

Phase I ESA Report

Westside Main Canal Energy Center
Liebert Road South of WSM Canal
Imperial County, California

Prepared for:

RECON Environmental, Inc.
1927 Fifth Avenue
San Diego, CA 92101

Prepared by:

GS Lyon Consultants, Inc.
780 N. 4th Street
El Centro, CA 92243
(760) 337-1100

March 2019

GS Lyon

Engineering And
Information Technology

March 14, 2019

Mr. Nick Larkin
RECON Environmental, Inc.
1927 Fifth Avenue
San Diego, CA 92101

Phase I Environmental Site Assessment Report
Westside Main Canal Energy Center
Liebert Road South of WSM Canal
Imperial County, California
GSL Report No. GS1903

Dear Mr. Larkin:

We have performed a Phase I Environmental Site Assessment in general conformance with the scope and limitations of ASTM E1527-13 of the property located on the north and south sides of the Westside Main Canal at Liebert Road southwest of El Centro in Imperial County, California. Any exceptions to, or deletions from, this practice are described in Section 1.4 of this report. **This assessment has not revealed any recognized environmental conditions (REC's) in connection with the property.**

We declare that, to the best of our professional knowledge and belief, we meet the definition of *Environmental Professional* as defined in §312.10 of 40 CFR §312 and we have the specific qualifications based on education, training and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed all the appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Attached is our report which describes the procedures used and results of the assessment. If you have any questions or require additional information, please do not hesitate to contact the undersigned at (760) 337-1100. We appreciate the opportunity to provide our professional review for this subject property.

Respectfully Submitted,
GS Lyon Consultants, Inc.

REGISTERED PROFESSIONAL ENGINEER
JEFFREY O. LYON
No. 31921
EXPIRES 12-31-20
CIVIL
STATE OF CALIFORNIA

Jeffrey O. Lyon, PE
President

PROFESSIONAL GEOLOGIST
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CEG 2261
STATE OF CALIFORNIA

Steven K. Williams, PG, EG
Senior Engineering Geologist

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APPENDICES

1.0 INTRODUCTION

1.1 Purpose

GS Lyon Consultants, Inc. was retained by ConEdison Development (ConEdison) to conduct a Phase I Environmental Site Assessment (ESA) for the Property (herein referred to as the subject property or subject property in this Phase I ESA Report) as a prerequisite to property development entitlements. The subject property is located on the north and south sides of the Westside Main Canal at Liebert Road southwest of El Centro in Imperial County, California. The subject property was previously in agricultural production and lies between the Campo Verde Solar Substation and the SDG&E Imperial Valley Substation. See Plate 1 in Appendix B for a Vicinity Map of the subject property.

The purpose of this Phase I Environmental Site Assessment (ESA) is to identify, to the extent feasible, recognized environmental conditions (RECs) associated with past and present activities on the subject property or in the immediate subject property vicinity in general conformance to ASTM Standard E1527-13 "*Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*" that may affect future uses of the subject property.

This report is intended to satisfy the Phase I ESA portion of "*all appropriate inquiry*" into the previous ownership and uses of the subject property as defined under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) at Title 42 of the United States Code (U.S.C.) §9601(35)(B) and in accordance with 40 Code of Federal Regulations (CFR) Part 312, Standards and Practices for All Appropriate Inquiries; Final Rule (AAI Rule).

1.2 Scope of Services

The scope of work for this ESA is in general accordance with the requirements of ASTM Standard E1527-13. This assessment included:

- Reconnaissance of the subject property and adjacent properties
- Review user-provided information
- Interviews with persons with significant knowledge of the subject property
- Review of a regulatory database report provided by a third-party vendor
- Review readily-available historical sources (including but not limited to: aerial photographs, fire insurance maps, property tax files, recorded land title records, and topographical maps)
- Prepare report of findings

1.3 Limitations

No Phase I ESA can completely eliminate uncertainty regarding the potential for RECs in connection with a property. Conformance of this assessment with ASTM Standard E1527-13 is intended to reduce, but not eliminate uncertainty regarding the potential for RECs in connection with the Subject Property. While GS Lyon has made reasonable effort to discover and interpret available historical and current information on the property within the time available, the possibility of undiscovered contamination remains. Our assessment of the subject property and surrounding areas was conducted in accordance with ASTM guidelines and the *generally accepted environmental engineering standard of practice* which existed in Imperial County, California at the time that the report was prepared. No warranty, express or implied, is made.

GS Lyon Consultants, Inc. derived the data in this report primarily from visual inspections, examination of public records and information in the public domain, informal interviews with individuals, and readily available information about the subject property. The passage of time, manifestation of latent conditions or occurrence of future events may require further exploration of the subject property, analysis of the data, and reevaluation of the findings, observations, and conclusions expressed in this report.

The findings, observations, and conclusions expressed by GS Lyon Consultants in this report are not, and should not be considered, an opinion concerning the compliance of any past or present owner or operator of the subject property with any federal, state or local law or regulation.

This report should not be relied upon after **180 days** from the date of issuance, unless additional services are performed as defined in ASTM E1527-13 - Section 4.7.

1.4 Deviations or Data Gaps

ASTM Standard E1527-13 requires any significant data gaps, deviations, and deletions from the ASTM Standard to be identified and addressed in the Phase I ESA. A significant data gap would be one that affected the ability to identify a REC on the subject property or adjacent properties.

Through the course of this assessment, *data failures* or *data gaps* may have been encountered. These failures or gaps, if any, are discussed below. The following provides the opinion of the Environmental Professional as to the significance of the data gaps in terms of defining *recognized environmental conditions* at the subject property. Data failures may or may not be significant data gaps, and the discussion also provides information pertaining to whether the data failures resulted in significant data gaps.

1.4.1 Data Failures

Data failure is a failure to achieve the historical (property use) research objectives specified in the ASTM Standard Practice even after reviewing the eight standard historical sources that are reasonably ascertainable and likely to be useful. Data failure is one type of data gap.

No *data failures w*ere encountered during this investigation.

1.4.2 Data Gaps

A *data gap* is a lack of or inability to obtain information required by the ASTM Standard Practice, despite good faith efforts by the Environmental Professional to gather such information. This could include any component of the Practice, e.g., standard environmental records, interviews, or a complete reconnaissance. A data gap by itself is not inherently significant, but if other information and/or the EP's experience raises reasonable concerns about the gap, it may be judged to be significant.

Due to the location of the subject property, Sanborn Fire Insurance maps were not available for the subject property. Because there is no historical data or physical indications that the property has ever been developed or occupied by a business that would have produced hazardous materials, the lack of Sanborn Fire Insurance maps is not considered a significant data gap.

Aerial photographs and other historical records were not available at 5 year intervals as required under the ASTM E1527-13 standard. This resulted in a data gap for years that records were not available regarding the area of the subject property. However, based upon other historical information reviewed, the subject property has been vacant desert land, an agricultural field or a fallow agricultural field. Therefore, this data gap is not considered to be significant.

Interviews with past owners, operators and occupants were not reasonably ascertainable and thus constitute a data gap. Based on information obtained from other historical sources (as discussed in Section 3.0), this data gap is not expected to alter the findings of this assessment.

1.5 Significant Assumptions

In preparing this report, GS Lyon Consultants, Inc. has relied upon and presumed accurate certain information (or the absence thereof) about the subject property and adjacent properties by governmental officials and agencies, the Client, and others identified herein. Except as otherwise stated in the report, GS Lyon Consultants has not attempted to verify the accuracy or completeness of any such information.

1.6 User Reliance

This report has been prepared on behalf of and for the exclusive use of ConEdison as the property owner, RECON Environmental, Inc. as the property owners consultant, and the County of Imperial as the California Environmental Quality Act Lead Agency, for the particular subject property identified in this report, and is subject to and issued in connection with the referenced Agreement and the provisions thereof. This report should not be relied upon by any party other than the client, its legal counsel, and financial institution without the express permission of GS Lyon Consultants, Inc. Any reliance on this report by other parties shall be at such party's sole risk. Any future consultation or provision of services to third parties related to the subject property requires written authorization from ConEdison, RECON Environmental, Inc. or their representatives. Any such services may be provided at GS Lyon Consultants sole discretion and under terms and conditions acceptable to GS Lyon Consultants, including potential additional compensation.

2.0 SITE DESCRIPTION

2.1 Site Location and Legal Description

The subject property is located on the north and south sides of the Westside Main Canal at Liebert Road southwest of El Centro in Imperial County, California. The subject property was previously in agricultural production and lies between the Campo Verde Solar Substation and the SDG&E Imperial Valley Substation. The subject property location is depicted on Plate 2, Site Map. The subject property consists of APNs 051-350-010, 051-350-011, 051-350-019, and a portion of 051-350-018.

2.2 Current Property Use and Description

The subject property currently consists of vacant fallow agricultural land. The site is located on the boundary between agricultural farm lands (north and east) and desert lands (west and south) of Imperial County's West Desert.

The Westside Main (WSM) Canal forms portions of the northern boundary of the subject property. The WSM Canal is an unlined earthen irrigation supply canal that serves the western portion of the Imperial Valley. There are two irrigation water pumping stations at the subject site, one at the central northern area of the site (this area is overgrown with brush) and one at the central southern area. These pumping stations were used to pump irrigation water from the Westside Main Canal into a concrete lined ditch that runs north-south across the center of the southern portion of the subject site. The pumping stations and concrete lined ditch appear to be abandoned. Overhead powerlines run north-south through the center of the site and along the western boundary of the site.

There is a fenced area at the northwest corner of Liebert Road and the WSM Canal that previously had a rural residence occupying the site. The residence has been removed and the site overgrown with brush.

Transformers were noted on three power poles on the subject property. No evidence of leakage from the transformers was noted and labels were affixed to the transformers indicating that the transformers do not contain PCB's. The IID has tested all transformers in the Imperial Valley for PCB content and replaced those containing PCB's

2.3 Adjoining Property Use

The subject property is located at Liebert Road north and south of the Westside Main Canal in southwestern Imperial County. Properties to the north consist of the Campo Verde solar facility. East of the subject site across the Westside Main Canal are agricultural fields. Desert lands of Imperial County's West Desert are south and west of the subject site.

The San Diego Gas & Electric Imperial Valley Substation is located approximately 1,800 feet south of the subject site. An abandoned rural residential house is located at the northeast corner of Liebert Road and the Westside Main Canal.

2.4 Physical Site Characteristics

Topography: Topographic maps (USGS 7.5 minute Mr. Signal 7.5 Min., CA Quadrangle) indicate that the subject property elevation is approximately mean sea level (MSL) to 25 feet below MSL or elevation 975 to 1000 (local datum). The Imperial Irrigation District, which supplies power and raw (irrigation) water to the area, established local datum by equating mean sea level to El. 1000.00 feet.

Geologic Setting: The subject property is located in the Colorado Desert Physiographic province of southern California. The dominant feature of the Colorado Desert province is the Salton Trough, a geologic structural depression resulting from large-scale regional faulting. The trough is bounded on the northeast by the San Andreas Fault and the southwest by faults of the San Jacinto Fault Zone. The Salton Trough represents northward extension of the Gulf of California, which has experienced continual in-filling with both marine and non-marine sediments since the Miocene Epoch (25 million years before present). The tectonic activity that formed the trough continues at a high rate as evidenced by deformed young sedimentary deposits and high levels of historic seismicity.

The subject property is directly underlain by Holocene (0-11,000 years before present) Cahuilla Lake sediments, which consist of interbedded lenticular and tabular sand, silt, and clay. The predominant surface soil is silty clay. The Holocene lake deposits are considered to be less than 100 feet thick and are characterized by surficial clay and silt deposits with varying amounts of fine sand. The topography of the Imperial Valley is relatively flat, with few significant land features. The valley floor slopes gently to the north (less than 0.5 percent) from an elevation of sea level at Calexico to approximately 225 feet below sea level at the Salton Sea.

Soil Conditions: The U. S. Soil Conservation Service compiled a map of surface soil conditions and published a soil survey report including maps in 1980. The soil survey maps indicate that surficial deposits at the subject property and surrounding area consist predominantly of silty clay and silty clay loams of the Imperial and Glenbar soil groups and silts and sands of the Indio-Vint, Meloland, Rositas, and Vint soil groups (see Appendix B). These loams are formed in sediment and alluvium of mixed origin (Colorado River overflows and fresh-water lake-bed sediments). Based on Unified Soil Classification System presented in the Soils Survey Report, the permeability of these soils is expected to be low to very low.

Groundwater Conditions: The groundwater in the vicinity of the subject property is brackish and is encountered at a depth of 10 to 15 feet below the ground surface. Depth to groundwater may fluctuate due to localized geologic conditions, precipitation, irrigation, drainage and construction practices in the region. Based on the regional topography, groundwater flow is assumed to be generally towards the north within the subject property area. Flow directions may also vary locally in the vicinity of the subject property.

3.0 USER PROVIDED INFORMATION

In order to qualify for one of the *Landowner Liability Protections (LLPs)* offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the *Brownfields Amendments*), the *User* must provide the following information (if available) to the *environmental professional*. Failure to provide this information could result in a determination that *all appropriate inquiry* is not complete. The user was asked to provide information or knowledge of the following:

- Environmental cleanup liens that are filed or recorded against the subject property.
- Activity and land use limitations that are in place on the subject property or that have been filed or recorded in a registry.
- Specialized knowledge or experience of the person seeking to qualify for the LLPs.
- Relationship of the purchase price to the fair market value of the *property* if it were not contaminated.
- Commonly known or *reasonably ascertainable* information about the *property*.
- The degree of obviousness of the presence or likely presence of contamination at the *property*, and the ability to detect the contamination by appropriate investigation.
- The reason for preparation of this Phase I ESA.

A user questionnaire was provided to the user (ConEdison Development) to aid in gathering information that may be pertinent to the evaluation of the subject property for environmental conditions. The completed user questionnaire is provided in Appendix I.

3.1 Title Records

GS Lyon was provided with a preliminary title report for review as part of this assessment.

3.2 Environmental Liens or Activity and Use Limitations

An environmental lien is a charge, security, or encumbrance upon the title to a property to secure the payment of a cost, damage, debt, obligation, or duty arising out of response actions, cleanup, or other remediation of hazardous substances or petroleum products upon the property. According to the User Questionnaire, Mr. Jim Pomillo of ConEdison Development is not aware of any Environmental Liens or Activity and Use Limitations associated with the subject property that have been filed or recorded under federal, tribal, state or local law (Appendix I).

GS Lyon Consultants contracted Environmental Data Resources, Inc. (EDR) of Shelton, Connecticut to conduct a search of environmental liens for the subject property. According to the EDR environmental lien report, there are no environmental liens associated with the subject property. The EDR environmental lien report is included in Appendix I.

3.3 Specialized Knowledge

According to the User Questionnaire, Mr. Pomillo of ConEdison Development is not aware of any specialized knowledge or experience associated with the subject property or nearby properties.

GS Lyon has the following personal knowledge of the subject property:

- GS Lyon performed a Phase I ESA at the subject property in 2008.

3.4 Commonly Known or Reasonable Ascertainable Information

No information was provided by the Client regarding any commonly known or reasonably ascertainable information within the local community that is material to RECs in connection with the subject property.

3.5 Valuation Reduction for Environmental Issues

The client indicated that the purchase price of this property reasonably reflects the fair market value of the property with no discounts for environmental issues.

3.6 Owner, Property Manager, and Occupant Information

The current owner of the subject property is:

ConEdison Development
101 W. Broadway, Suite 1120
San Diego, CA 92101

The subject property is currently undeveloped fallow agricultural land. No property manager or occupant information is available.

3.7 Previous Reports and Other Provided Documentation

GS Lyon reviewed Phase I ESA report by Mathis and Associates, Inc. (Denver, CO) prepared in June 2010 and by URS (Santa Barbara, CA) prepared in April 2012 for adjacent solar power development and power transmission lines.

4.0 RECORDS REVIEW

A review of historic aerial photographs (Appendix C), historic topographic maps (Appendix D), historic Sanborn Fire Insurance maps (Appendix E), governmental regulatory databases (Appendix F), other regulatory and agency databases (Appendix G), and historic telephone and city directories (Appendix H) was performed to evaluate potentially adverse environmental conditions resulting from previous ownership and uses of the subject property. The details of the review are presented in Sections 4.1 through 4.5 of this report.

4.1 Regulatory Database Review

4.1.1 Standard Environmental Record Sources

GS Lyon Consultants contracted Environmental Data Resources, Inc. (EDR) of Shelton, Connecticut which queries and maintains comprehensive environmental databases and historical information, including proprietary databases, aerial photography, topographic maps, Sanborn Maps, and city directories to generate a compilation of Federal, State and Tribal regulatory lists containing information regarding hazardous materials occurrences on or within the prescribed radii of ASTM E1527-13. The search of each database was conducted using the approximate minimum search distances from the subject property defined by the ASTM E1527-13 Standard. The purpose of the records review is to obtain and review *reasonably ascertainable* records that will help identify *recognized environmental conditions* or *historical recognized environmental conditions* in connection with the subject property.

EDR‘s Phase I ESA search package was ordered and performed on February 12, 2019. The search package included: Radius Map with Geocheck, aerial photographs, historic topographic maps, Sanborn maps, and city directory information. The results of EDR’s search were used to evaluate if the subject property and/or properties within prescribed search distances are listed as having a past or present record of actual or potential environmental impact. Inclusion of a property in a government database list does not necessarily indicate that the property has an environmental problem.

The following is a brief synopsis of sites identified in the EDR Radius Map with Geocheck report. The government record search report is included in its entirety in Appendix F.

Federal NPL List

The Environmental Protection Agency’s (EPA) National Priorities List (NPL) of uncontrolled or abandoned hazardous waste sites was reviewed for risk sites within a 1 mile radius of the subject property.

The NPL identifies sites for priority cleanup and long-term care of properties under the Superfund Program that are contaminated with hazardous substances.

The database search did not identify any NPL sites within 1 mile of the subject property.

Federal CERCLIS List

The EPA's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) listings were reviewed to determine if risks sites within ½ mile are listed for investigation. The CERCLIS database identifies hazardous waste sites that are on or proposed to be included in the NPL and sites that require investigation and possible remedial action to mitigate potential negative impacts on human health or the environment.

The CERCLIS database search did not identify any risk sites within 0.5 mile of the subject property.

Federal CERCLIS – No Further Remedial Action Planned

The EPA's CERCLIS – No Further Remedial Action Planned (NFRAP) database was reviewed to determine if risks sites within ½ mile are listed. CERCLIS NFRAP site are risk sites that have been removed from and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at the subject property has been completed and the EPA has determined that no further steps will be taken to list this subject property on the NPL, unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time.

This designation is for sites where no contamination was found, contamination was quickly removed without the need for the subject property to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration.

The CERCLIS – NFRAP database search did not identify any risk sites within ½mile of the subject property.

One CERCLIS-NFRAP site is listed within 1/2-mile of the subject property. This site is located more than 1/8-mile of the subject property. Based on the relative distance, regulatory status, and/or inferred direction of groundwater flow, this site is not expected to represent a significant environmental concern.

Federal RCRA List

The Federal Resource Conservation Recovery Act (RCRA) Notifiers List was reviewed to determine if RCRA treatment, storage or disposal sites (TSD) are located within 1 mile of the subject property. The RCRA Correction Action Sites List (CORRACTS) is maintained for risk sites which are undergoing "a corrective action". A corrective action order is issued when there has been a release of hazardous waste constituents into the environment from a RCRA facility.

The RCRA and RCRA CORRACTS database searches did not identify any RCRA TSD or RCRA CORRACTS risk sites within ½ mile of the subject property.

The RCRA regulated hazardous waste generator notifiers list was reviewed to determine if RCRA generator facilities are located on or adjoining the subject property. No RCRA generator facilities within ¼ mile of the subject property were identified in the database.

Federal ERNS List

The Federal Emergency Response Notification System (ERNS) List was reviewed to determine if reported release of oil and/or hazardous substances occurred on the subject property.

The ERNS database searches did not identify any reported releases for the subject property.

State and Tribal NPL List

The Environmental Protection Agency's (EPA) National Priorities List (NPL) of uncontrolled or abandoned hazardous waste sites was reviewed for risk sites within a 1 mile radius of the subject property. The NPL identifies sites for priority cleanup and long-term care of properties under the Superfund Program that are contaminated with hazardous substances.

The database search did not identify any NPL sites within 1 mile of the subject property.

State and Tribal Leaking Underground Storage Tank Sites

The California State Water Resources Control Board (SWRCB) maintains a list of information concerning reported leaking underground storage tanks (LUST). The LUST inventory list was reviewed to determine if any LUSTs are located within ½ mile the subject property.

The SWRCB LUST database did not identify any risk sites within ½ mile of the subject property.

State and Tribal Underground Storage Tank Sites
The California State Water Resource Control Board (SWRCB) underground storage tank (UST) inventory list was reviewed to determine if any UST's are located on or adjacent to the subject property.

The SWRCB UST database did not identify any risk sites within ¼ mile of the subject property.

Solid Waste Disposal/Landfill Facilities
The Solid Waste Disposal/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data comes from the Integrated Waste Management Board's Solid Waste Information System (SWIS) database.

A review of the SWF/LF list database did not identify any risk sites within ½ mile of the subject property.

Unmapped (Orphan) Sites
Not all sites or facilities identified in the database records can be accurately located in relation to the Subject Property due to incomplete information being supplied to the regulatory agencies and are referred to as "orphan sites" by EDR.

The "Orphan Summary" section of the EDR Radius Map Report identified several orphan sites. Based on a drive-by reconnaissance of the Subject Property vicinity and review of location and status information provided in the database report, none of the identified orphan sites are located within the search radii for databases specified by the Standard.

No unmapped (orphan) listings were reported.

4.1.2 Additional Environmental Record Sources

California Department of Toxic Substances Control (DTSC) Records – Envirostor Database: EnviroStor is an online search and Geographic Information System tool for identifying sites that have known contamination or sites for which there may be reasons to investigate further. Public Access to EnviroStor is accessible via the DTSC Web Page located at: http://www.envirostor.dtsc.ca.gov/public/. The EnviroStor database includes the following site types: Federal Superfund sites (National Priority List); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites.

The information includes site name, site type, status, address, any restricted use (recorded deed restrictions), past use(s) that caused contamination, potential contaminants of concern, potential environmental media affected, site history, planned and completed activities. The EnviroStor database also contains current and historical information relating to Permitted and Corrective Action facilities. The EnviroStor database includes current and historical information on the following permit-related documents: facility permits; permit renewal applications; permit modifications to an existing permit; closure of hazardous waste management units (HWMUs) or entire facilities; facility corrective action (investigation and/or cleanup); and/or post-closure permits or other required post-closure activities.

The EnviroStor database was queried on February 21, 2019. A map showing the results of the query is provided in Appendix G. No reported cases were found on the subject property. No risk sites were located within ½ mile of the subject property.

California State Water Resources Control Board Records – GeoTracker Database: GeoTracker is a geographic information system (GIS) maintained by the California State Water Resources Control Board (SWRCB) that provides online access to environmental data at http://www.geotracker.swrcb.ca.gov\. GeoTracker tracks regulatory data about underground fuel tanks, fuel pipelines, and public drinking water supplies. Site information from the Spills, Leaks, Investigations, and Cleanups (SLIC) Program is also included in GeoTracker.

The GeoTracker database was queried for environmental data pertaining to the Subject property on February 21, 2019. A map showing the results of the query is provided in Appendix G. No reported cases were found on the subject property. No risk sites were located within ½ mile of the subject property.

CUPA Records Search: The Unified Program consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of six environmental and emergency response programs. Cal/EPA and other state agencies set the standards for their programs while local governments implement the standards—these local implementing agencies are called Certified Unified Program Agencies (CUPA).

The DTSC Imperial CUPA office which has jurisdiction of the area that covers the subject property was contacted (Veronica Lopez) by email on February 21, 2019. The DTSC indicated that records are filed per address, and with no known address associated with the subject property, no records were found associated with the subject property.

4.2 Historical Use Records

ASTM E1527-13 requires the environmental professional to identify all obvious uses of the property from the present back to the property's first developed use or 1940, whichever is earliest. This information is collected to identify the likelihood that past uses have led to RECs in connection with the property. This task is accomplished by reviewing standard historical sources to the extent that they are necessary, reasonably ascertainable, and likely to be useful. These standard records include aerial photographs, fire insurance maps, property tax files, land title records, topographic maps, city directories, telephone directories, building department records, and zoning/land use records.

The general type of historical use (i.e., commercial, retail, residential, industrial, undeveloped, office) should be identified at 5-year intervals, unless the specific use of the property appears to be unchanged over a period longer than 5 years. The historical research is complete when the use is defined or when data failure occurs. Data failure occurs when all of the standard historical sources have been reviewed, yet the property use cannot be identified back to its first developed use or to 1940. Data failure is not uncommon in trying to identify the use of the property at 5-year intervals back to first use or 1940, whichever is earlier.

GS Lyon reviewed the following historical records to identify obvious uses of the subject property from the present back to the property's first developed use, or to 1940, whichever is earlier. The results of this research and data failure, if encountered, are presented in the following sections.

4.2.1 Title Records

GS Lyon was provided with a preliminary title report for review as part of this assessment.

4.2.2 Sanborn Fire Insurance Maps

Sanborn Fire Insurance Maps are large scale maps depicting the commercial, industrial, and residential sections of various cities across the United States. Since the primary use of the fire insurance maps was to assess the buildings that were being insured, the existence and location of fuel storage tanks, flammable or other potentially toxic substances, and the nature of businesses are often shown on these maps.

Due to the rural undeveloped nature of the subject property and vicinity for the years the Sanborn Fire Insurance Maps were available for this subject property, no maps are available for the subject property. An "Unmapped Property" letter for the Sanborn Fire Insurance Maps is included in Appendix E.

4.2.3 Aerial Photographs

Aerial photographs obtained from Environmental Data Resources (EDR) dating back to 1937 and the Imperial Irrigation District (IID) archives dating back to 1949 were reviewed for historical development of the subject property. Reproductions of the historical aerial photographs reviewed are included in Appendix C.

The 1937 aerial photograph shows the subject site being desert land with some brush along the embankments of the Westside Main Canal. Adjacent parcels are desert land and an agricultural field to the northeast.

The 1949 aerial photograph shows the subject property as being similar to the 1937 photograph. A diversion channel to bypass the Fern Heading check structure in the Westside Main Canal along the north side of the site is visible. A rural residence is present at the northwest corner of Liebert Road (not yet present) and the Westside Main Canal.

The 1953 aerial photograph shows the eastern portion of the subject property has been developed into farmland. The diversion channel is still visible.

The 1959 aerial photograph shows that most of the subject property has been developed into farmland and a small structure (pump house) exists at the north end of the north-south irrigation ditch.

The 1965 aerial photograph shows that the entire subject property is agricultural land. There appears to be a farm building located to the east of the north-south irrigation ditch on the south side of the Westside Main Canal.

The 1976 aerial photograph shows the structures near the north end of the north-south ditch have been removed. The entire subject property is still in agricultural fields.

The 1985, 1992, 1996 and 2002 aerial photographs show the subject property as still being agricultural fields.

The 2006, 2009, 2012, and 2016 aerial photographs show the subject property as being fallow and not in agricultural production. The Campo Verde solar facility and substation have been constructed between 2012 and 2016 north of the subject property. The rural residence at the northwest corner of Liebert Road and the Westside Main Canal has been removed in the 2016 photograph.

4.2.4 Street Directories

GS Lyon Consultants contracted Environmental Data Resources, Inc. (EDR) of Shelton, Connecticut to conduct a search of historic city directories for the subject property (Appendix H). City directories are used for locating individuals and businesses in a particular urban or suburban area. City directories are generally divided into three sections: a business index, a list of resident names and addresses, the name and type of businesses (if unclear from the name). While city directory coverage is comprehensive for major cities, it may be spotty for rural and small towns.

EDR Digital Archive: The EDR Digital Archive City Directories for the years 1992, 1995, 2000, 2005, 2010, and 2014 were reviewed. No listings were found for the subject property.

Polk City Directories: The Polk City Directories for the years 1959, 1966, 1971, 1976, 1981, and 1986 were reviewed. No listings were found for the subject property.

4.2.5 Historic Topographic Maps

Historic topographic maps (1940 and 1947 Heber 15 Min. Quadrangle) did not show any development on the subject property (Appendix D). The 1957, 1979 and 2012 Mt. Signal 7.5 Min. Quadrangle maps show development of a rural residence located at the northwest corner of Liebert Road and the Westside Main Canal.

4.2.6 Historical Telephone Directories

Telephone Directories: Telephone directories for the Imperial County, published in 1941, 1955, 1965, 1974, 1994, and 2004 were reviewed. No service stations, chemical manufacturers, petroleum manufacturers, distributors, or automotive repair facilities were noted at or in the immediate vicinity of the subject property.

4.3 Historical Use Summary

4.3.1 Summary of the Historical Use of Property

Based on a review of the historical information, the subject property was first developed in 1953 for agricultural use. Prior to the early 1950s, the subject property was vacant desert land. The subject property remained active agricultural fields until the early 2000s, when the fields were fallowed. There appears to have been a rural residence or farm shop on the subject property at the northwest corner of Liebert Road and the Westside Main Canal from the early 1950s until about 2014 and east of the north-south ditch in the 1960s.

4.3.2 Summary of the Historical Use of Adjacent Properties

Historically, the properties located immediately adjacent to the subject property have been comprised of vacant desert land to the south and west. Development in the general area, which began in the 1950s, has primarily been agricultural fields to the north and east. The Campo Verde solar facility was construction to the north in 2013.

5.0 SITE RECONNAISSANCE

5.1 Methodology and Limiting Conditions

A site reconnaissance was performed by Mr. Steven Williams, a professional geologist of GS Lyon, on February 25, 2019. The site visit consisted of driving the perimeter of the subject property and randomly crossing the subject property. The reconnaissance included visual observations of surficial conditions at the subject property and observation of adjoining properties to the extent that they were visible from public areas. Mr. Williams was unaccompanied during the site reconnaissance. A site reconnaissance can be limited by weather conditions, bodies of water, adjacent buildings, or other obstacles. The weather was warm and sunny and no access limitations were placed on the site visit.

The site reconnaissance was limited to visual and/or physical observation of the exterior and interior of the subject property and its improvements, the current uses of the property and adjoining properties, and the current condition of the property. The site visit evaluated the subject property and adjoining properties for potential hazardous materials/waste and petroleum product use, storage, disposal, or accidental release, including the following: presence of tank and drum storage; mechanical or electrical equipment likely to contain liquids; evidence of soil or pavement staining or stressed vegetation; ponds, pits, lagoons, or sumps; suspicious odors; fill and depressions; or any other condition indicative of potential contamination. The site visit did not evaluate the presence of asbestos-containing materials, radon, lead-based paint, mold, indoor air quality, or structural defects, or other non-scope items.

5.2 General Site Setting

The subject property currently consists of vacant fallow agricultural land. The site is located on the boundary between agricultural farm lands (north and east) and desert lands (west and south) of Imperial County's West Desert.

The Westside Main (WSM) Canal forms a portion of the northern boundary of the subject property. The WSM Canal is an unlined earthen irrigation supply canal to the western portion of the Imperial Valley. There are two irrigation water pumping stations at the subject site, one at the central northern area of the site (this area is overgrown with brush) and one at the central southern area. These pumping stations were used to pump irrigation water from the Westside Main Canal into a concrete lined ditch that runs north-south across the center of the southern portion of the subject site. The pumping stations and concrete lined ditch appear to be abandoned. Overhead powerlines run north-south through the center of the site and along the western boundary of the site.

There is a fenced area at the northwest corner of Liebert Road and the WSM Canal that previously had a rural residence occupying the site. The residence has been removed and the site overgrown with brush.

Photographs of the subject property taken on February 25, 2019 during our site reconnaissance are included in Appendix A.

5.3 Adjacent Properties

The subject property is located at Liebert Road, north and south of the Westside Main Canal in southwestern Imperial County. Properties to the north consist of the Campo Verde solar facility. East of the subject site across the Westside Main Canal are agricultural fields. Desert lands of Imperial County's West Desert are south and west of the subject site. The San Diego Gas & Electric Imperial Valley Substation is located approximately 1,800 feet south of the subject site.

An abandoned rural residential house is located at the northeast corner of Liebert Road and the Westside Main Canal.

5.4 Exterior and Interior Observations

The following conditions were specifically assessed for their potential to indicate RECs and may include conditions inside or outside structures on the subject property.

5.4.1 Hazardous Substances and Petroleum Products

GS Lyon did not observe operations that use, treat, store, dispose of, or generate hazardous materials or petroleum products on the subject property.

5.4.2 Storage Tanks

Underground Storage Tanks (USTs) – No obvious visual evidence indicating the current presence of USTs (i.e. vent pipes, fill ports, etc.) was noted.

Aboveground Storage Tanks (ASTs) – No obvious visual evidence indicating the historical presence of ASTs (i.e. secondary containments, concrete saddles, etc.) was observed.

5.4.3 Odors

No obvious strong, pungent, or noxious odors were noted during the site reconnaissance.

5.4.4 Pools of Liquid

Pools of liquid were not observed during the site reconnaissance.

5.4.5 Drums and Containers

GS Lyon did not observe drums or storage containers on the subject property.

5.4.6 Unidentified Substance Containers

GS Lyon did not observe open or damaged containers containing unidentified substances at the subject property.

5.4.7 Suspect Polychlorinated Biphenyl (PCB) Containing Equipment

No potential PCB containing equipment such as electrical transformers, capacitors, and hydraulic equipment were observed during the site reconnaissance on the subject property or immediate vicinity.

Pole-mounted sealed electrical transformers owned and maintained by the Imperial Irrigation District (IID) are located near the north-central portion of the subject property. In recent years, the IID has replaced all transformers that contained PCB's. No leaks were noted during our site visit.

5.5 Interior Observations

The subject property is currently vacant with no structures; therefore, interior observations were not made.

5.5.1 Heating/Cooling

The subject property is vacant. No heating and cooling units are present on the subject property.

5.4.2 Stains or Corrosion

The subject property is vacant. No stains and/or corrosion were observed on floors, walls, or ceiling due to the lack of site structures.

5.4.3 Drains and Sumps

The subject property is vacant. No drains or sumps were noted on the subject property.

5.6 Exterior Observations

5.6.1 Pits, Ponds, and Lagoons

No pits, ponds, or lagoons were noted on the subject property.

5.6.2 Stained Soils or Pavement

No evidence of significantly stained soil or pavement was noted on the subject property.

5.6.3 Stressed Vegetation

No evidence of stressed vegetation attributed to potential contamination was noted on the subject property.

5.6.4 Solid Waste

No dumpsters or solid waste containers exist on the subject property.

5.6.5 Wastewater

No structures exist on the subject property, therefore, no wastewater is generated. Storm water flows to the Westside Main Canal.

5.6.6 Wells

No evidence of wells (dry wells, drinking water, observation wells, groundwater monitoring wells, irrigation wells, injection wells or abandoned wells) was noted on the subject property.

5.6.7 Septic Systems

A septic system was likely present at the old rural residence that was located at the northwest corner of Liebert Road and the Westside Main Canal.

5.7 Non-Scope Issues

ASTM guidelines identify non-scope issues, which are beyond the scope of a Phase I ESA as defined by ASTM. These issues may affect environmental risk at the subject property and may warrant discussion and/or assessment. Some of these non-scope issues include; asbestos-containing building materials, radon, lead-based paint, and wetlands which are discussed below.

5.7.1 Asbestos-Containing Building Materials

There is a slight potential for asbestos containing materials (ACM) existing at the subject property due to the age of the rural residence that was located at the northwest corner of Liebert Road and the Westside Main Canal.

5.7.2 Lead-Based Paint

There is a slight potential for lead based paint residues existing at the subject property due to the age of the rural residence that was located at the northwest corner of Liebert Road and the Westside Main Canal.

5.7.3 Radon

The subject property is located in Zone 3 as shown on the EPA Map of Radon Zones indicating a predicted average indoor radon screening level of less than 2 pCi/L; therefore, no further action is required. Radon gas is not believed to be a potential hazard at the subject property.

5.7.4 Wetlands

The Westside Main Canal which crosses the subject property is considered a wetland.

5.7.5 Agricultural Use

Based on our review of environmental records, historical documents, and subject property conditions, the property has been in agricultural use and/or vacant since the 1950s. Residues of currently available pesticides and currently banned pesticides such as DDT/DDE may be present in near surface soils in limited concentrations. The concentrations of these pesticides found on other Imperial Valley agricultural sites are typically less than 25% of the current regulatory threshold limits and, at those levels, are not considered a significant environmental hazard. The presence and concentration of near surface pesticides at this subject property can be accurately characterized only by site-specific sampling and testing.

6.0 INTERVIEWS

GS Lyon interviewed various individuals familiar with the subject property, as identified to us, and/or government officials in order to evaluate historical uses and identify potential RECs existing on the subject property. The individuals interviewed were asked to provide responses in good faith and to the best of their knowledge. The following sections identify the individuals interviewed and summarize the information each provided; however, additional information provided by these individuals may be presented in other sections of this report.

6.1 Interview with Owner

Mr. Jim Pomillo, a representative of the property owner, ConEdison Development, provided the user questionnaire on March 11, 2019. In the questionnaire, Mr. Pomillo indicated that he had no information pertaining to any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the subject property; any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the subject property; or any notices from a governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products.

6.2 Interview with the Site Manager

The subject property still is vacant, undeveloped land; therefore, there is no site manager.

6.3 Interview with Occupants

The subject property still is vacant, undeveloped land; therefore, there are no occupants.

6.4 Interview with Local Government Officials

The DTSC Imperial CUPA office was contacted (Veronica Lopez) by email on February 21, 2019. CUPA records were searched for environmental issues related to the subject property. The DTSC indicated that records are filed per address, and with no known address associated with the subject property, no records were found associated with the subject property.

7.0 EVALUATION

7.1 Summary of Findings

The subject property is located in an area generally developed for agricultural use in southwestern Imperial County, California. Based on a review of the historical information, the subject property was first developed in 1953 for agricultural use. Prior to the early 1950s, the subject property was vacant desert land. The subject property remained active agricultural fields until the early 2000s, when the fields were fallowed. There appears to have been a rural residence or farm shop on the subject property at the northwest corner of Liebert Road and the Westside Main Canal from the early 1950s until about 2014 and east of the north-south ditch in the 1960s.

7.2 Conclusions

GS Lyon has performed a Phase I Environmental Site Assessment in general conformance with the scope and limitations of ASTM E1527-13 of the property located on the north and south sides of the Westside Main Canal at Liebert Road southwest of El Centro in Imperial County, California. Any exceptions to, or deviations from, this practice are described in Section 1.4 of this Phase I ESA report. This assessment has revealed the following recognized environmental conditions (RECs) in connection with the subject property:

7.2.1 Recognized Environmental Conditions

A *recognized environmental condition (REC)* refers to the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term REC includes hazardous substances and petroleum products even under conditions that might be in compliance with laws. The term is not intended to include "de minimis" conditions as defined in Section 7.2.3 of this report.

This Phase I ESA has revealed no evidence of *recognized environmental conditions* in connection with the subject property.

7.2.2 Historical Recognized Environmental Conditions

A *historical recognized environmental condition (HREC)* refers to a past *release* of any *hazardous substances* or *petroleum products* that has occurred in connection with the *property* and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the *property* to any required controls (for example, *property* use restrictions, *activity and use limitations*, *institutional controls*, or *engineering controls*).

This Phase I ESA has revealed no evidence of *historical recognized environmental conditions* in connection with the subject property.

7.2.3 Environmental Concerns and De Minimis Conditions

A *de minimis condition* is a condition that generally does not present a threat to human health or the *environment* and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis conditions* are not *recognized environmental conditions* nor *controlled recognized environmental conditions*.

This Phase I ESA has revealed no *de minimis* conditions or environmental concerns in connection with the subject property, except for the following:

- Residues of currently available pesticides and currently banned pesticides such as DDT/DDE may be present in near surface soils in limited concentrations. The concentrations of these pesticides found on other Imperial Valley agricultural sites are typically less than 25% of the current regulatory threshold limits and, at those levels, are not considered a significant environmental hazard.

7.3 Recommendations

Based on the scope of work performed for this assessment, it is our professional opinion that no RECs have been identified in connection with the subject property that would warrant further environmental study (Phase II) at this time.

8.0 REFERENCES

40 CFR 312, Standards and Practices for All Appropriate Inquiries; Final Rule, November 2005 (AAI Rule).

American Society for Testing and Materials. 2013. Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. Designation E 1527-13. West Conshohocken, Pennsylvania. 35 pp.

Department of Toxic Substances Control. 2019. EnviroStor Database Website, http://www.envirostor.dtsc.ca.gov/public/ .

Environmental Data Resources, Inc., *The EDR Radius Map with Geocheck*. Inquiry number 5560850 February 12, 2019

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Environmental Data Resources, Inc., *EDR Historical Topographic Map Report*. Inquiry number 5560850 February 12, 2019

Environmental Data Resources, Inc., *The EDR Aerial Photo Decade Package*. Inquiry number 5560850 February 12, 2019

Environmental Data Resources, Inc., *Sanborn Map Report*. Inquiry number 5560850 February 12, 2019

Federal Emergency Management Agency, Flood Insurance Map, Community Number 06025C2050C, dated September 2008

GS Lyon Consultants, Inc. 2008, Phase I Environmental Site Assessment Report, 168-acre Property, Liebert Road South of Westside Main Canal, Imperial County California.

Mathis and Associates, Inc. 2010. Phase I Environmental Site Assessment Imperial Valley Solar Project, Imperial County, California.

State Water Resources Control Board. 2019. GeoTracker Database Website, http://geotracker.swrcb.ca.gov/ .

United States Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey, accessed via the Internet, February 2019

United States Environmental Protection Agency, EPA Map of Radon Zones (Document EPA-402-R-93-071), accessed via the Internet, February 2019

URS. 2012. Phase I Environmental Site Assessment for the First Solar Campo Verde Project Site, Imperial County, California.

APPENDIX A

Photo 1: Looking north from the southeast corner of subject property.

Photo 2: Looking west from the southeast corner of the subject property.

Photo 3: Looking north from the southwest corner of subject property.

Photo 4: Looking east from the southwest corner of subject property.

Photo 5: Looking northeast from the southwest corner of subject property.

Photo 6: Irrigation water sump in the southcentral portion of the subject property.

Photo 7: Looking north from the southcentral portion of the subject property.

Photo 8: Looking south from the northcentral portion of the subject property.

Photo 9: Pole mounted transformers in the northcentral portion of the subject property.

Photo 10: Looking southeast from the northwest corner of the subject property.

Photo 11: Large metal power pole in the northwest corner of subject property.

Photo 12: Looking south from the northern portion of the subject property.

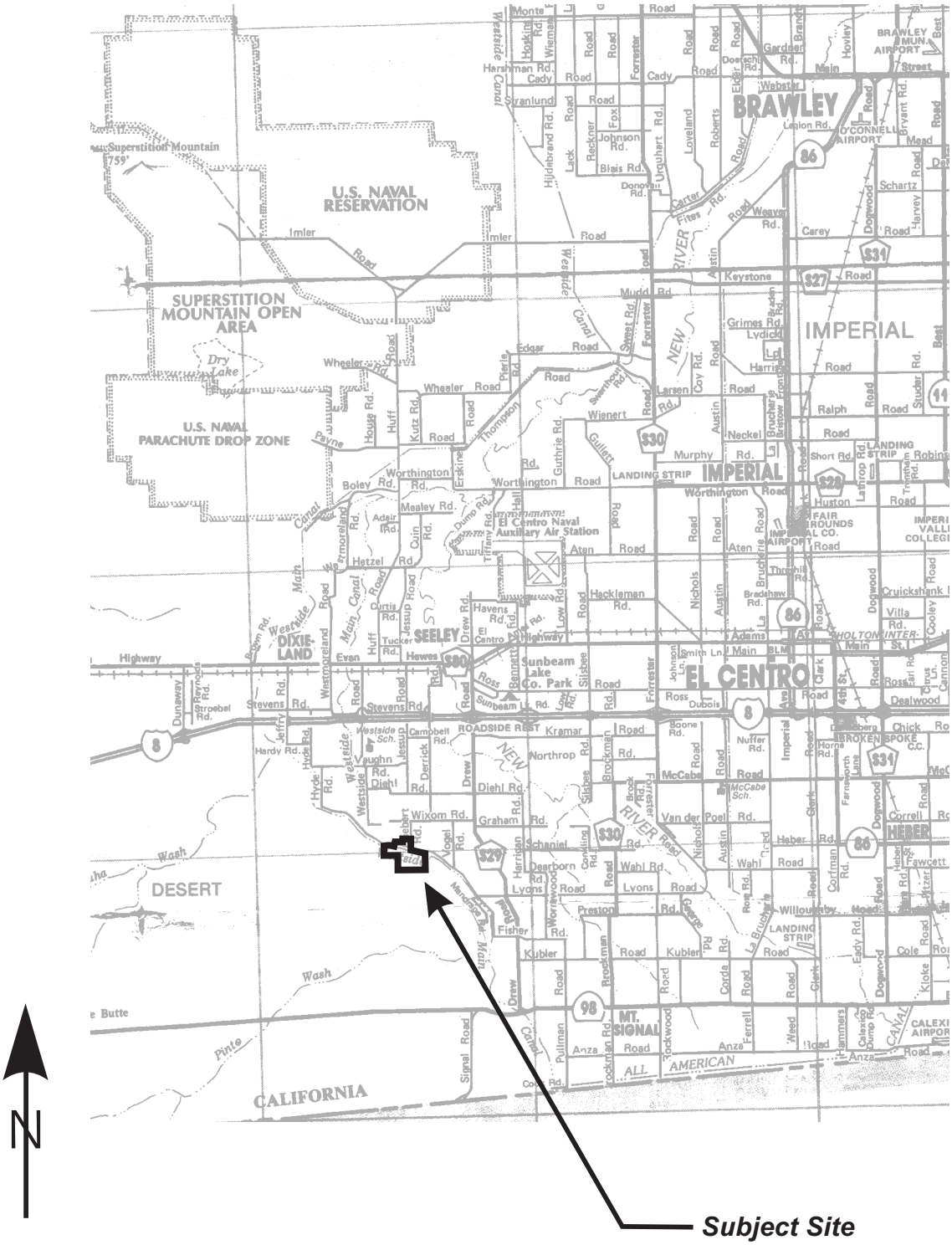
Photo 11: Westside Main Canal and Fern Heading on north boundary of subject property.

Photo 12: Looking south from the northern portion of the subject property.

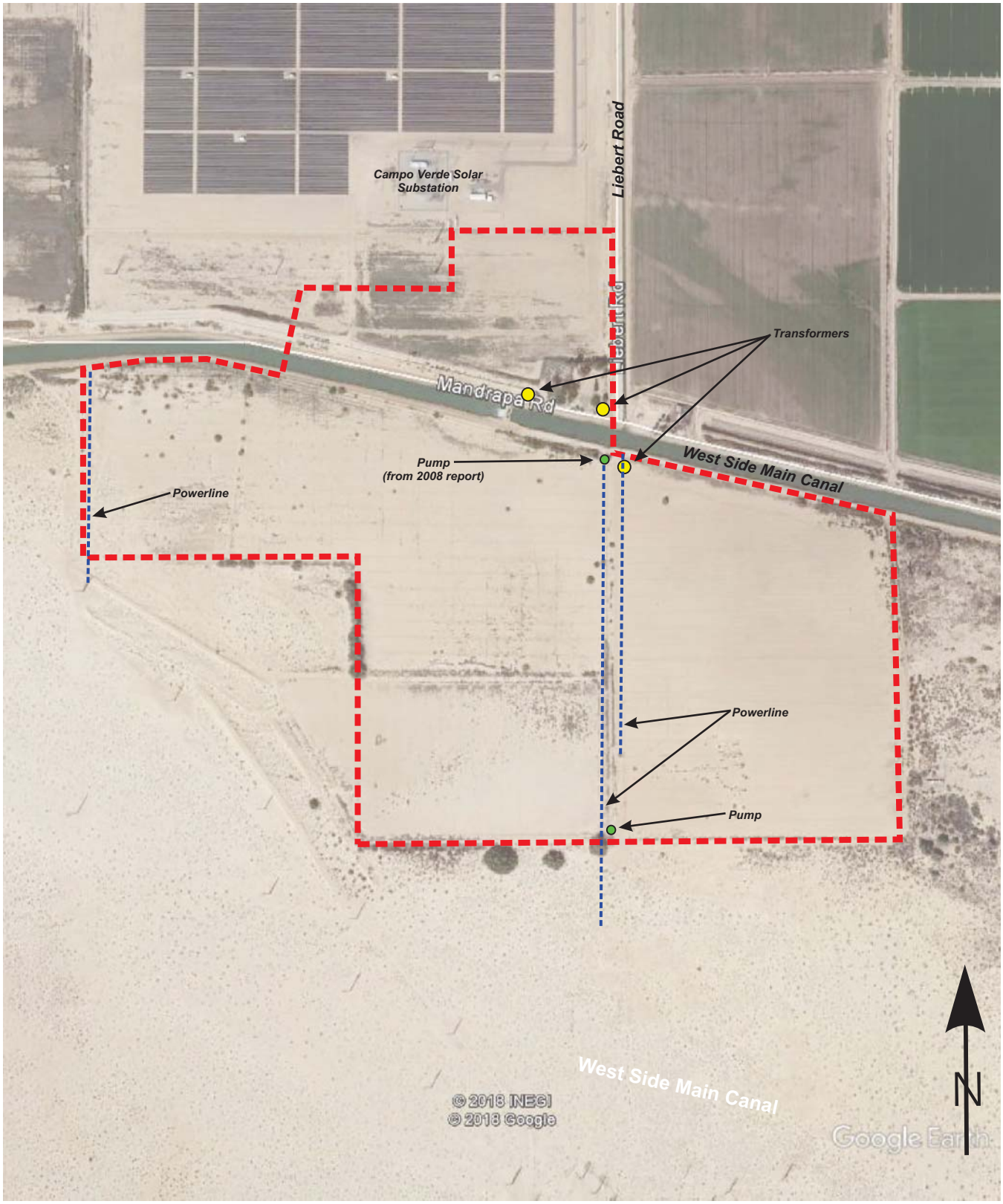
Photo 13: Pole mounted transformer in the northwest corner of Liebert Road and Westside Main Canal.

Photo 14: Looking west at the northern portion of the subject property.

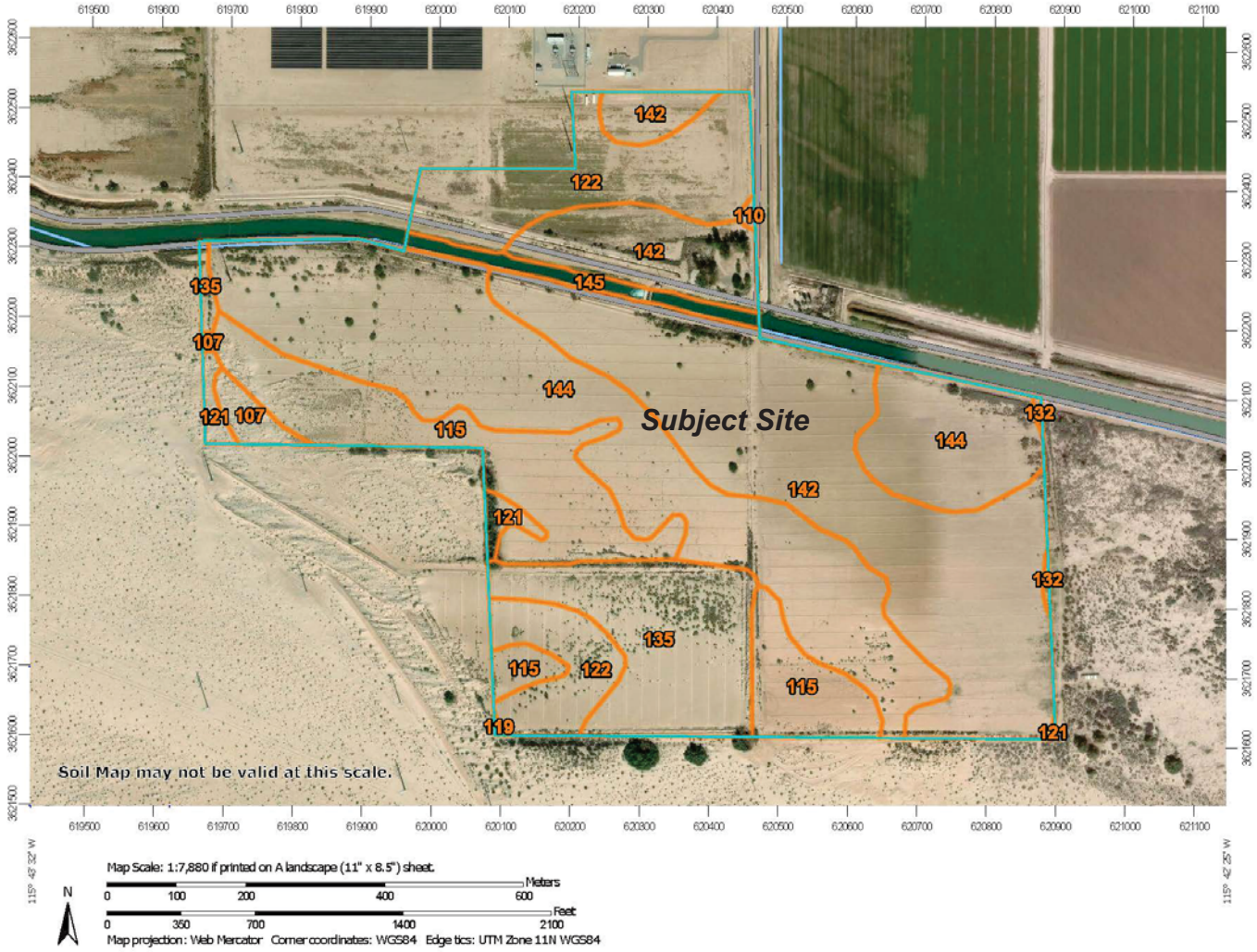
APPENDIX B



GS Lyon Project No.: GS1903	Vicinity Map	Plate 1



GSLyon Project No.: GS1903	Site Map	Plate 2



USDA Natural Resources Conservation Service

Web Soil Survey
National Cooperative Soil Survey

2/20/2019
Page 1 of 3

N

GS Lyon Project No.: GS1903	Soil Survey Map	Plate 3

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Imperial County, California, Imperial Valley Area
Survey Area Data: Version 10, Sep 13, 2018

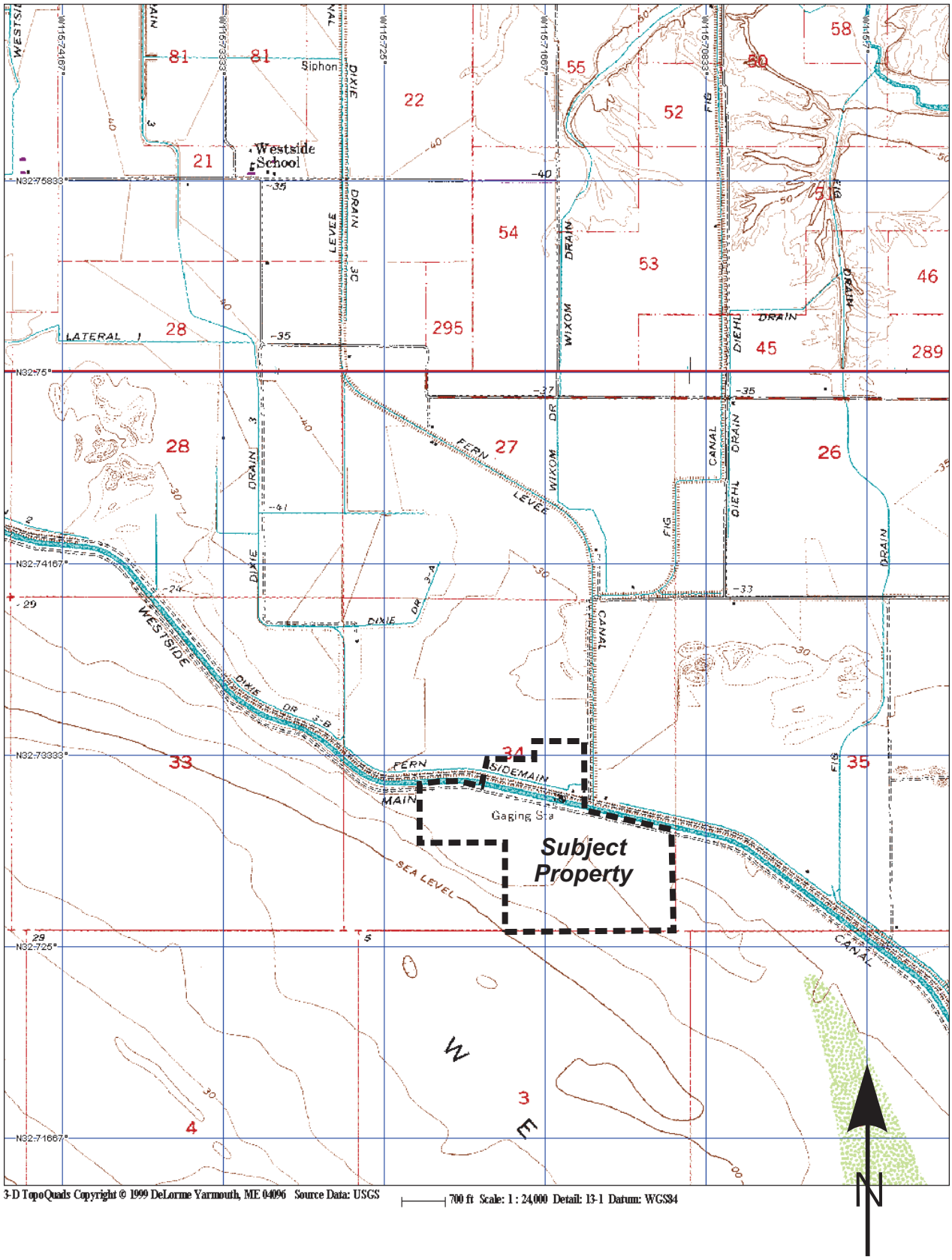
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 15, 2016—Oct 23, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

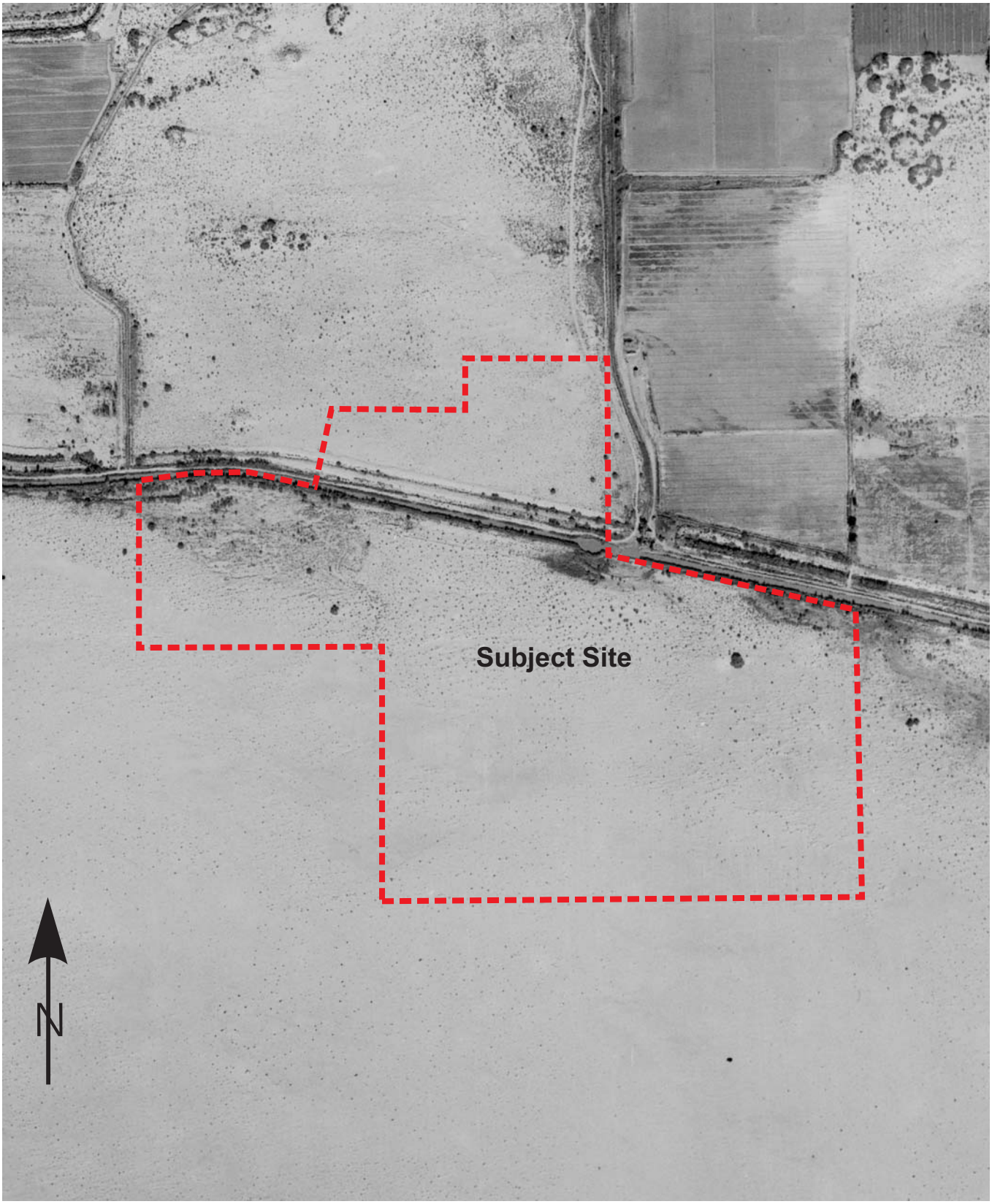
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
107	Glenbar complex	1.7	1.0%
110	Holtville silty clay, wet	0.2	0.1%
115	Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes	23.4	13.5%
119	Indio-Vint complex	0.1	0.0%
121	Meloland fine sand	1.8	1.0%
122	Meloland very fine sandy loam, wet	20.1	11.6%
132	Rositas fine sand, 0 to 2 percent slopes	0.2	0.1%
135	Rositas fine sand, wet, 0 to 2 percent slopes	16.2	9.4%
142	Vint loamy very fine sand, wet	54.1	31.3%
144	Vint and Indio very fine sandy loams, wet	52.7	30.4%
145	Water	2.7	1.6%
Totals for Area of Interest		**173.3**	**100.0%**



GS Lyon Project No.: GS1903	Topographic Map	Plate 4

APPENDIX C

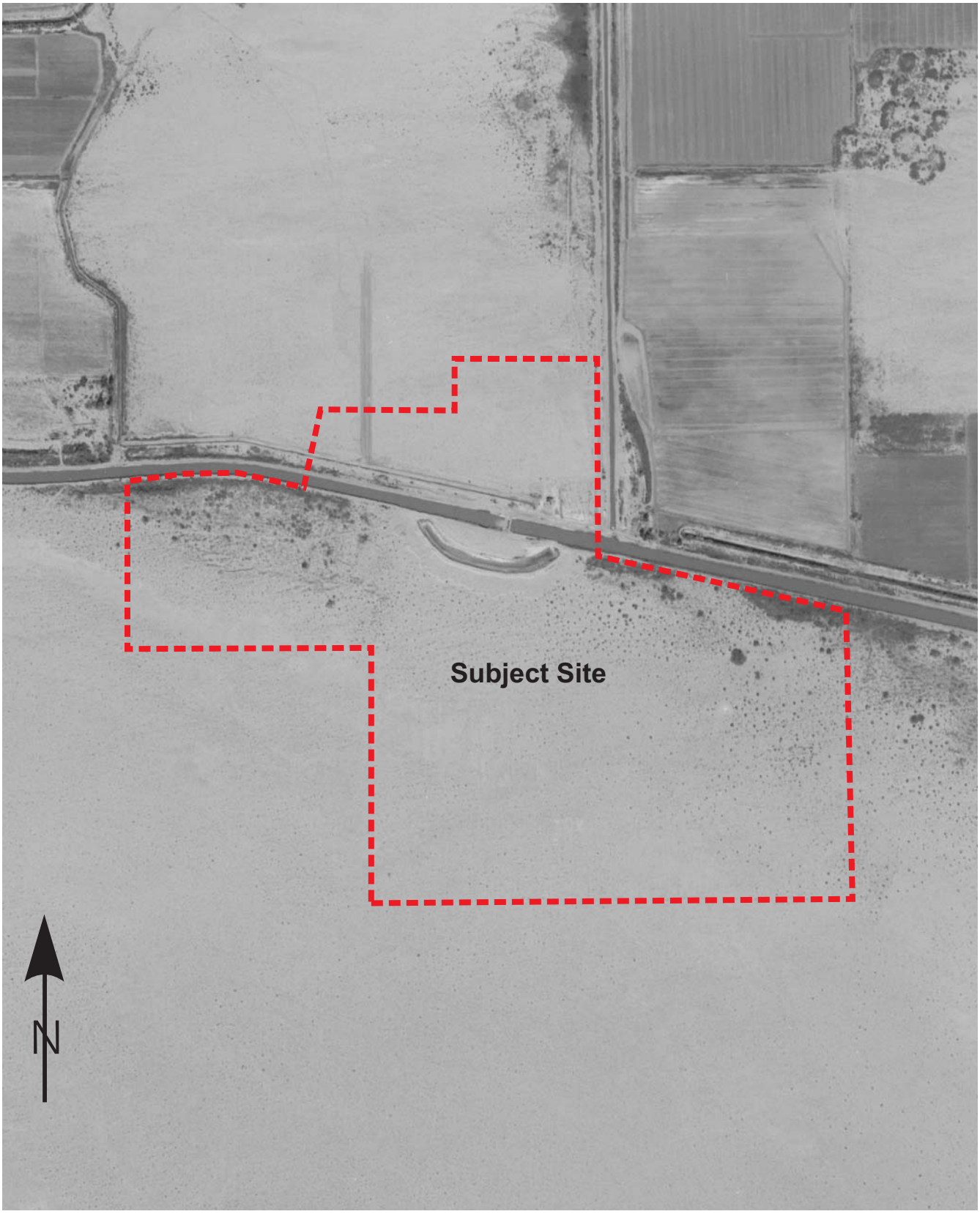


GS Lyon

Project No.: GS1903

1937 Aerial Photograph

Plate 5

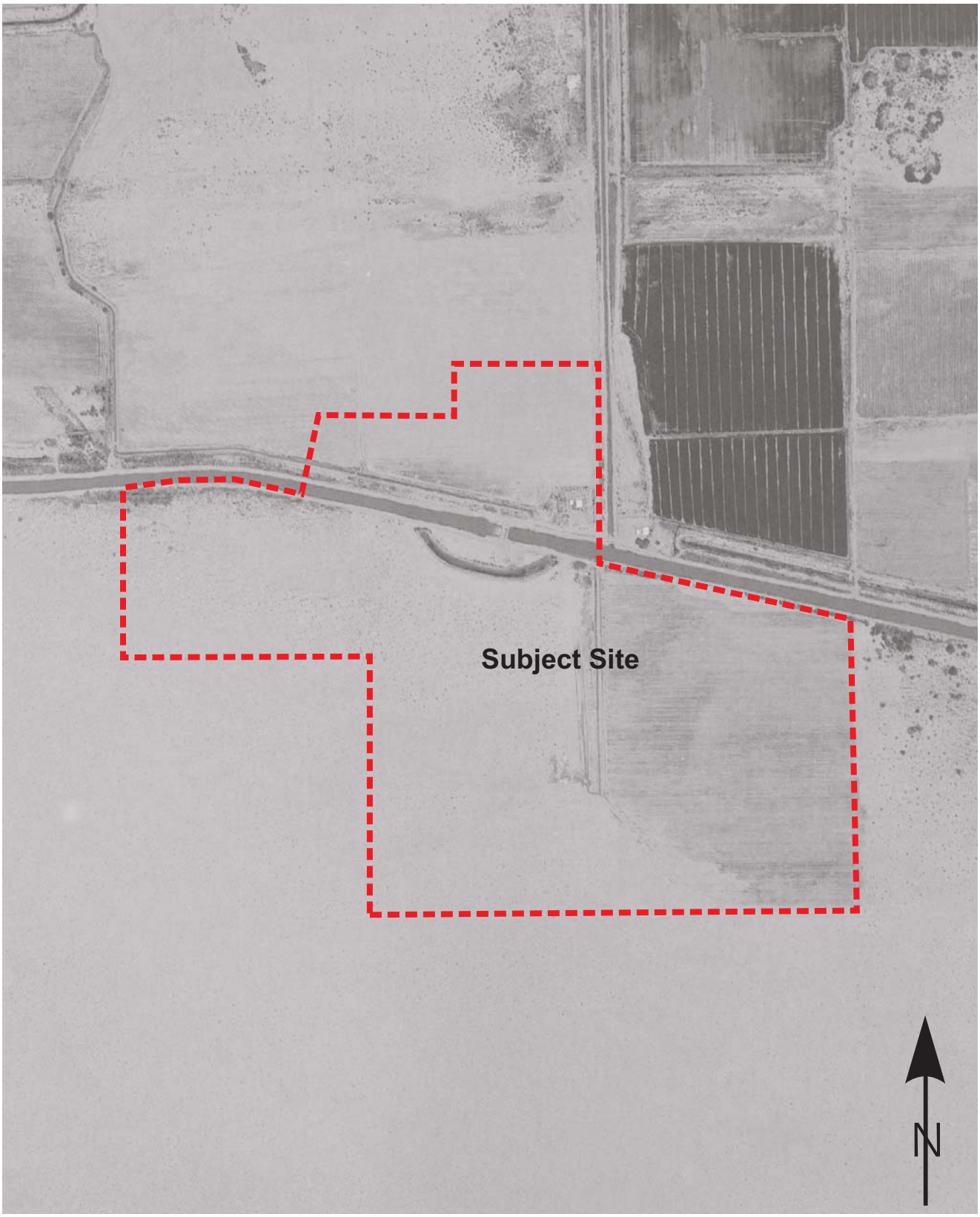


GS Lyon

Project No.: GS1903

1949 Aerial Photograph

Plate 6

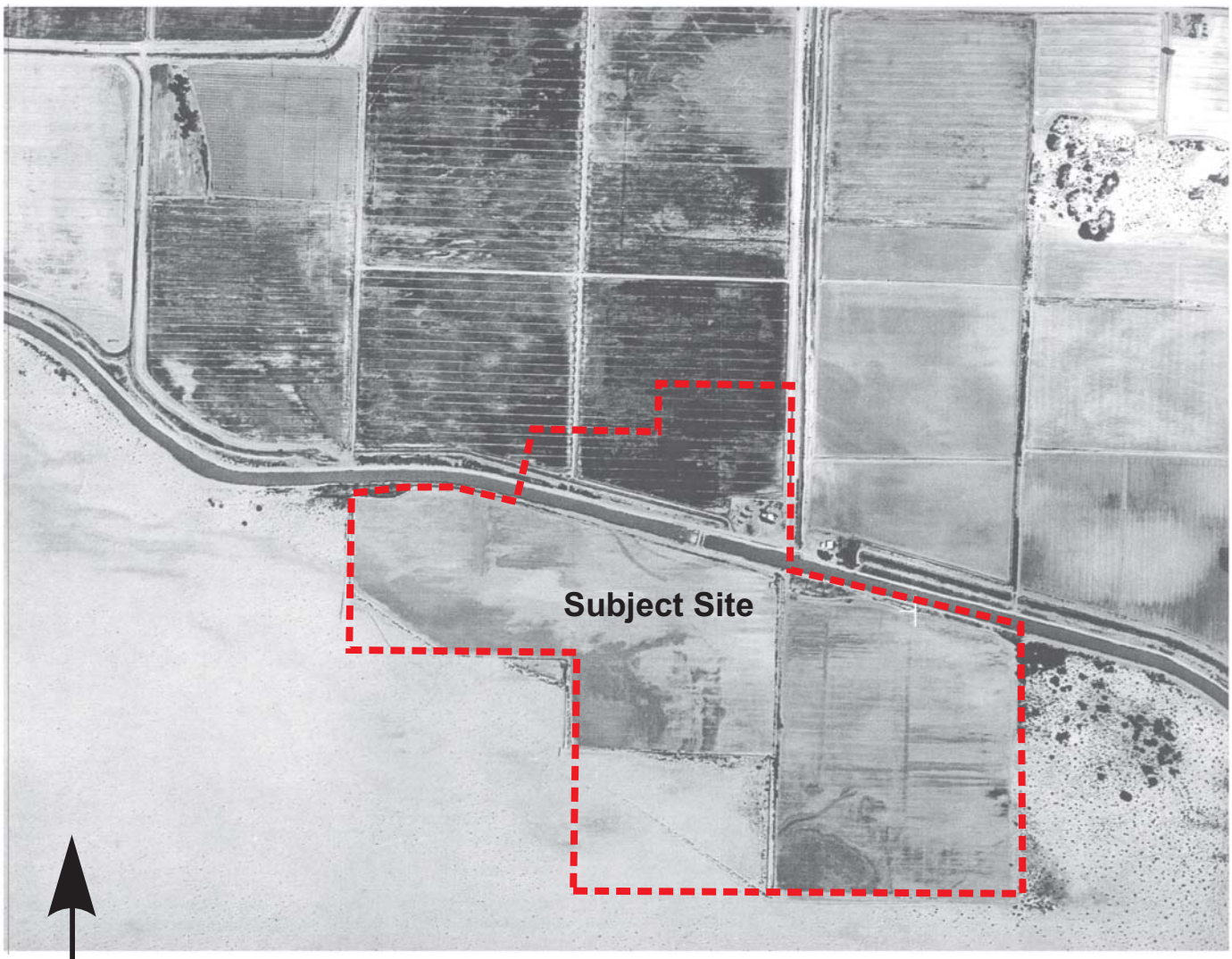


GS Lyon

Project No.: GS1903

1953 Aerial Photograph

Plate 7

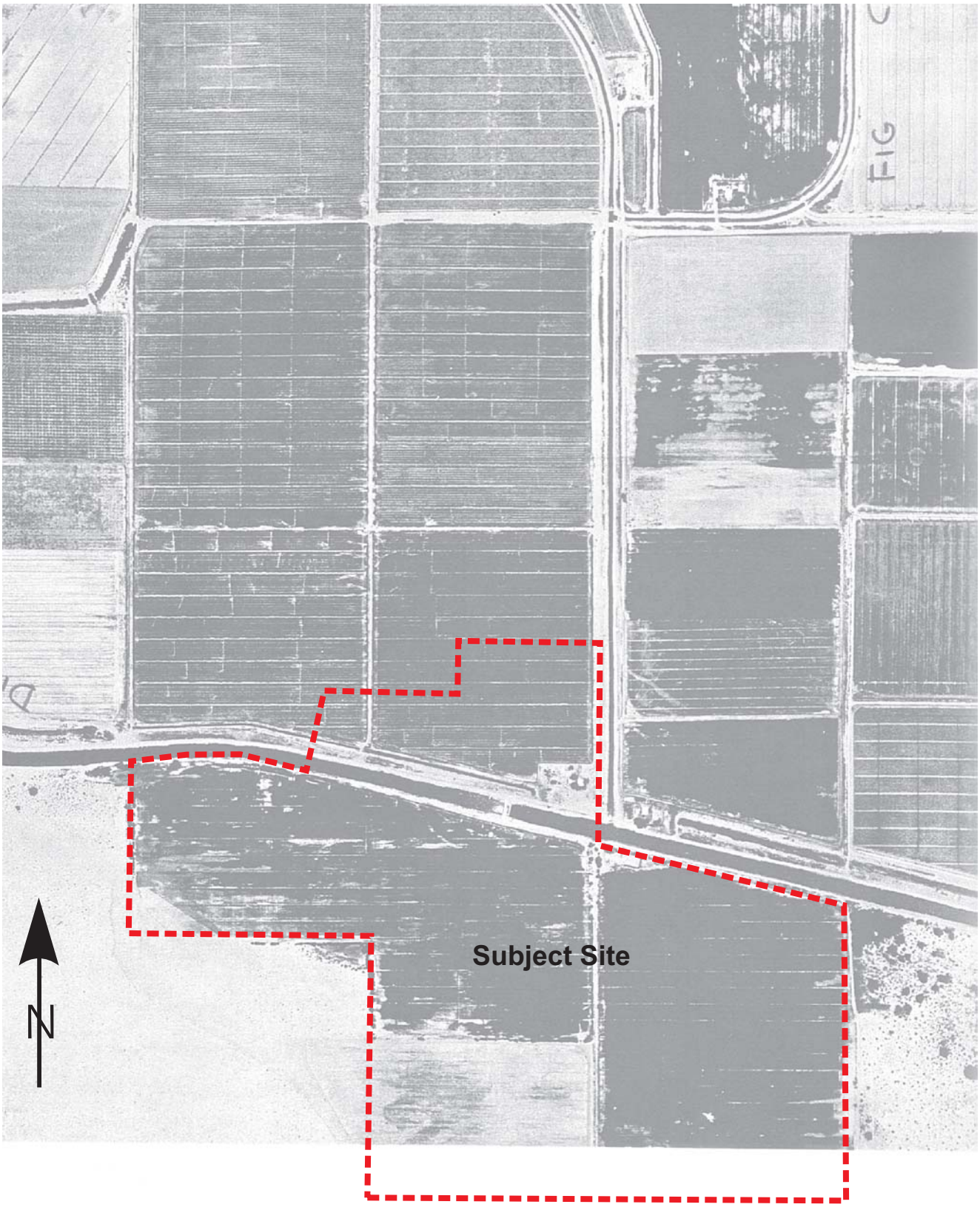


GS Lyon

Project No.: GS1903

1959 Aerial Photograph

Plate 8

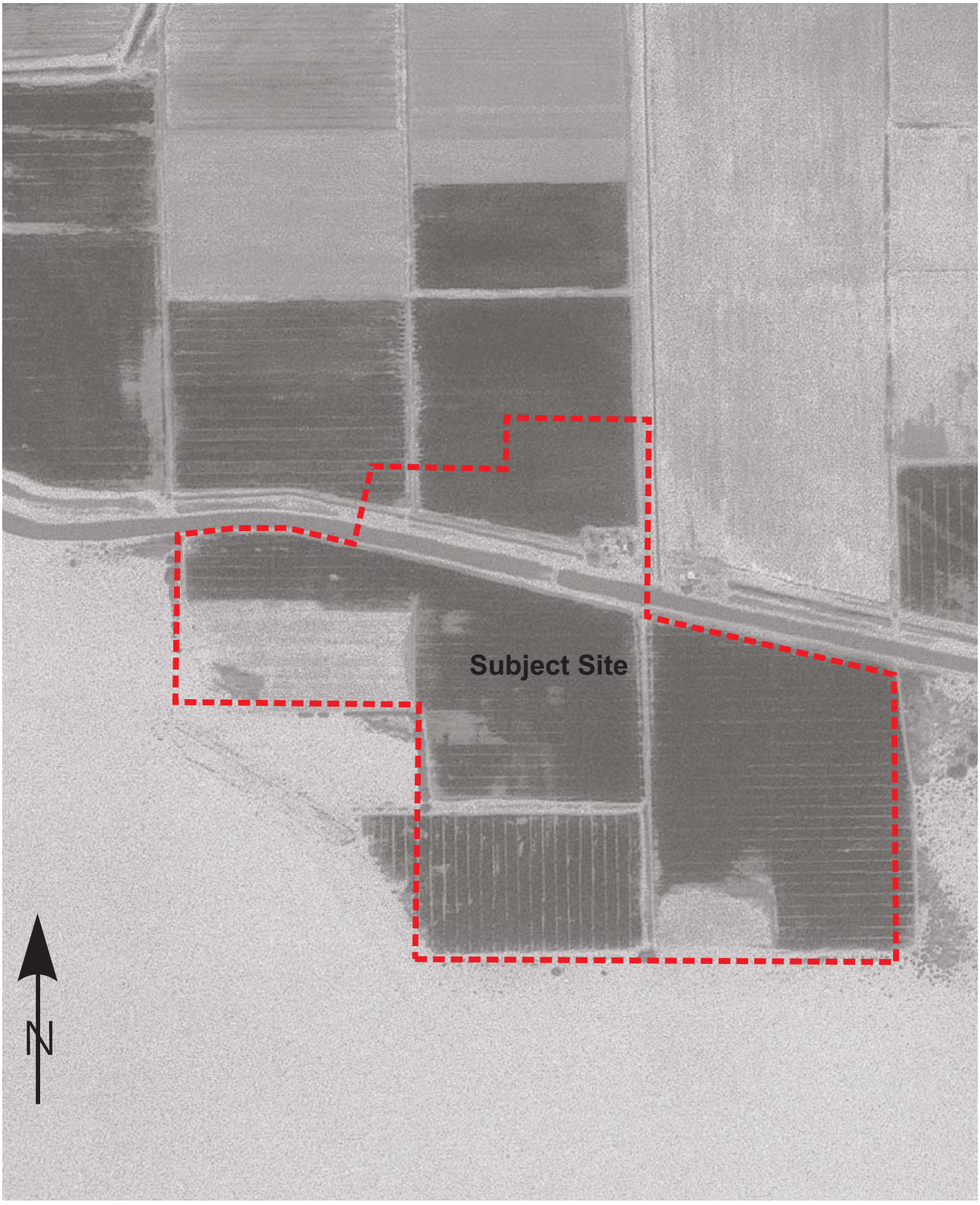


GS Lyon

Project No.: GS1903

1965 Aerial Photograph

Plate 9

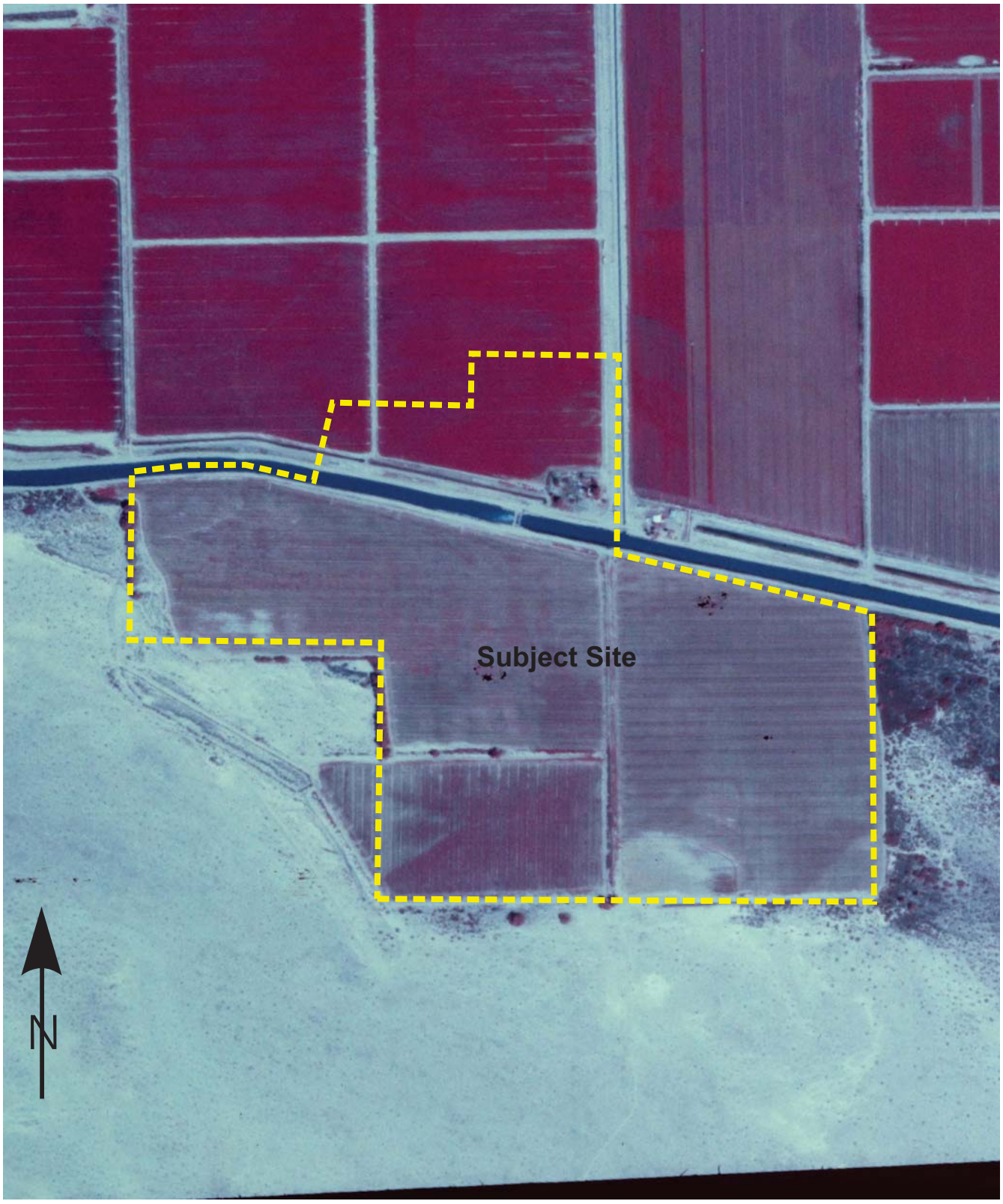


GS Lyon

Project No.: GS1903

1976 Aerial Photograph

Plate 10



GS Lyon

Project No.: GS1903

1985 Aerial Photograph

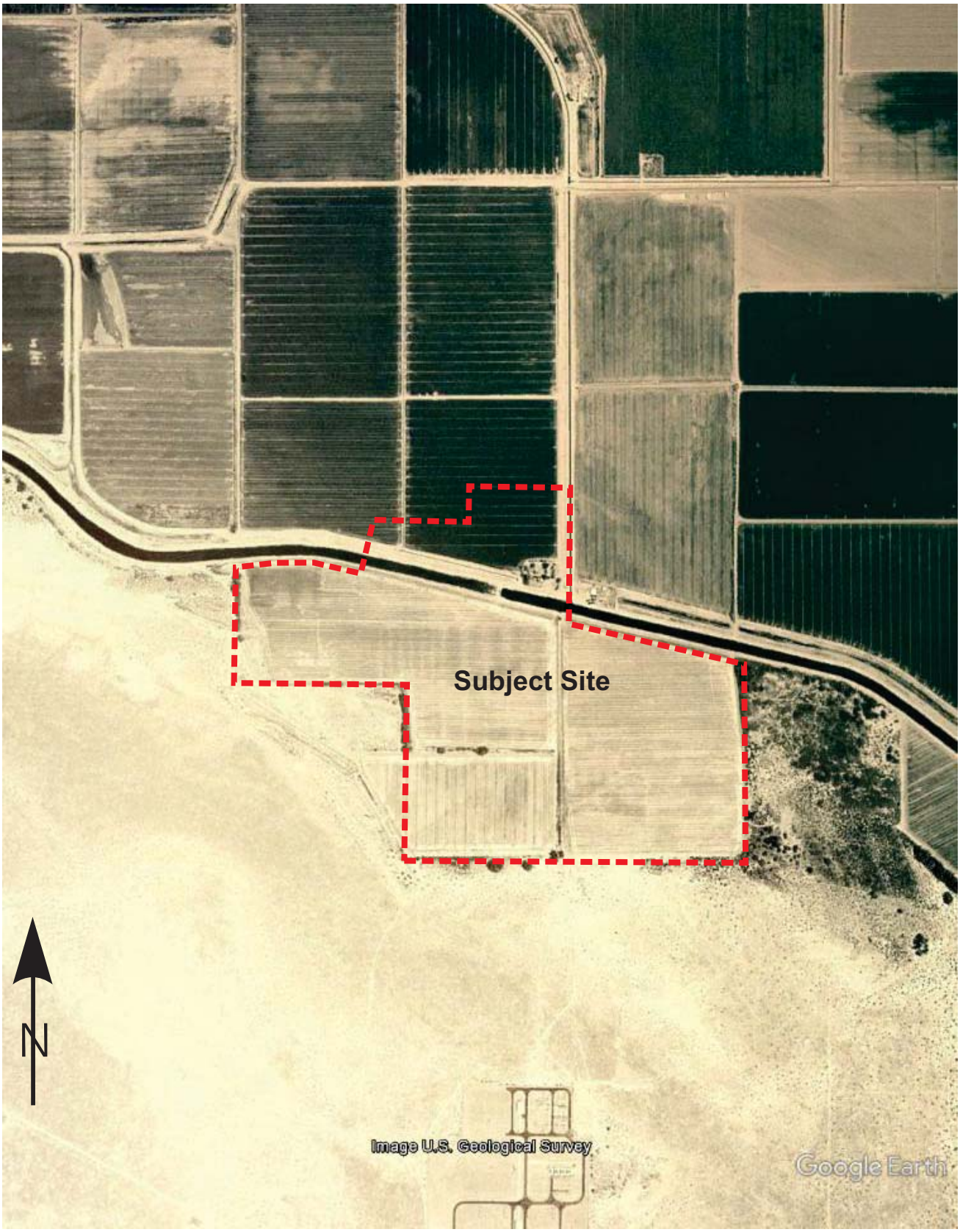
Plate 11

GS Lyon

Project No.: GS1903

1992 Aerial Photograph

Plate 12



GSLyon

Project No.: GS1903

1996 Aerial Photograph

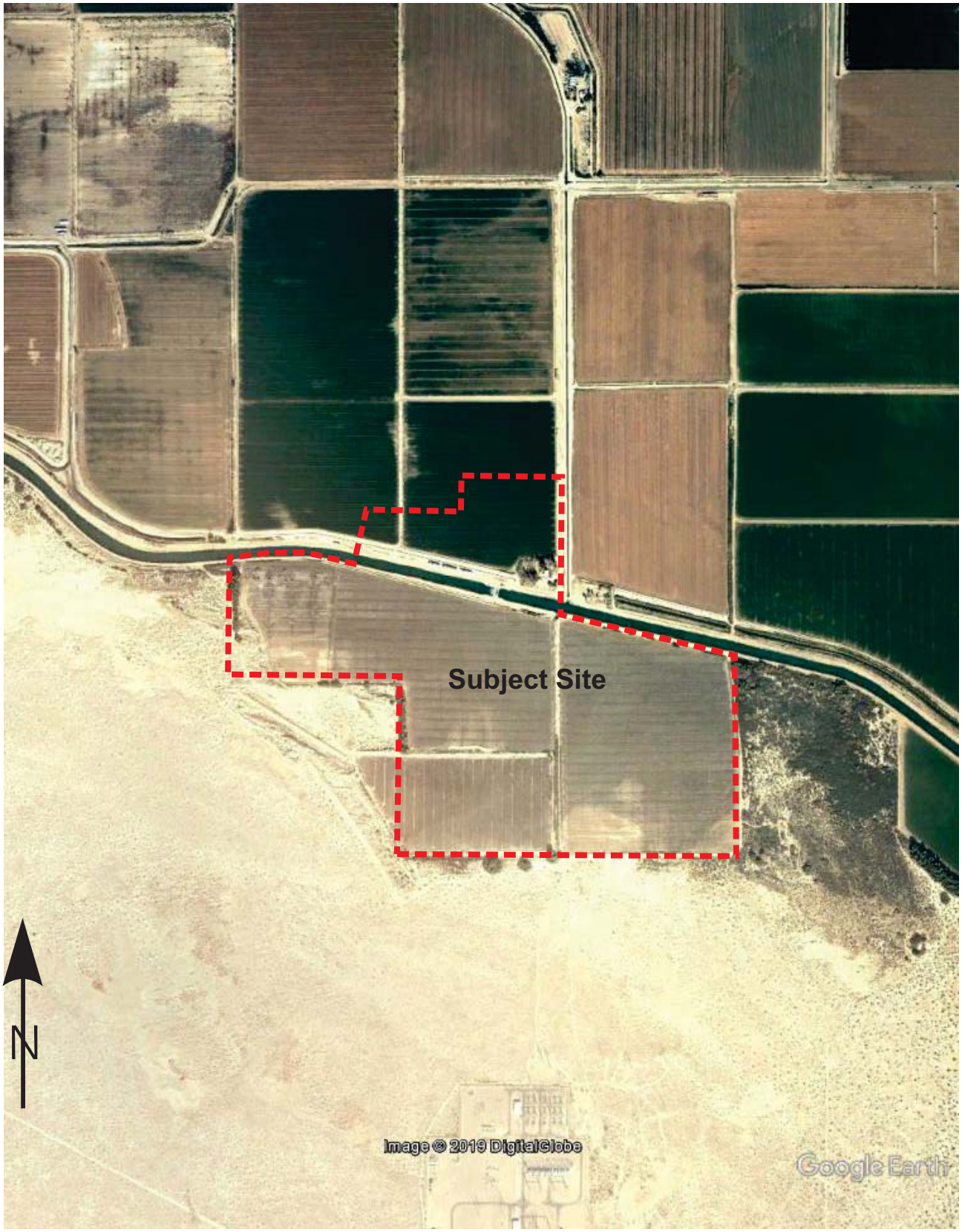
Plate 13

GSLyon

Project No.: GS1903

2002 Aerial Photograph

Plate 14

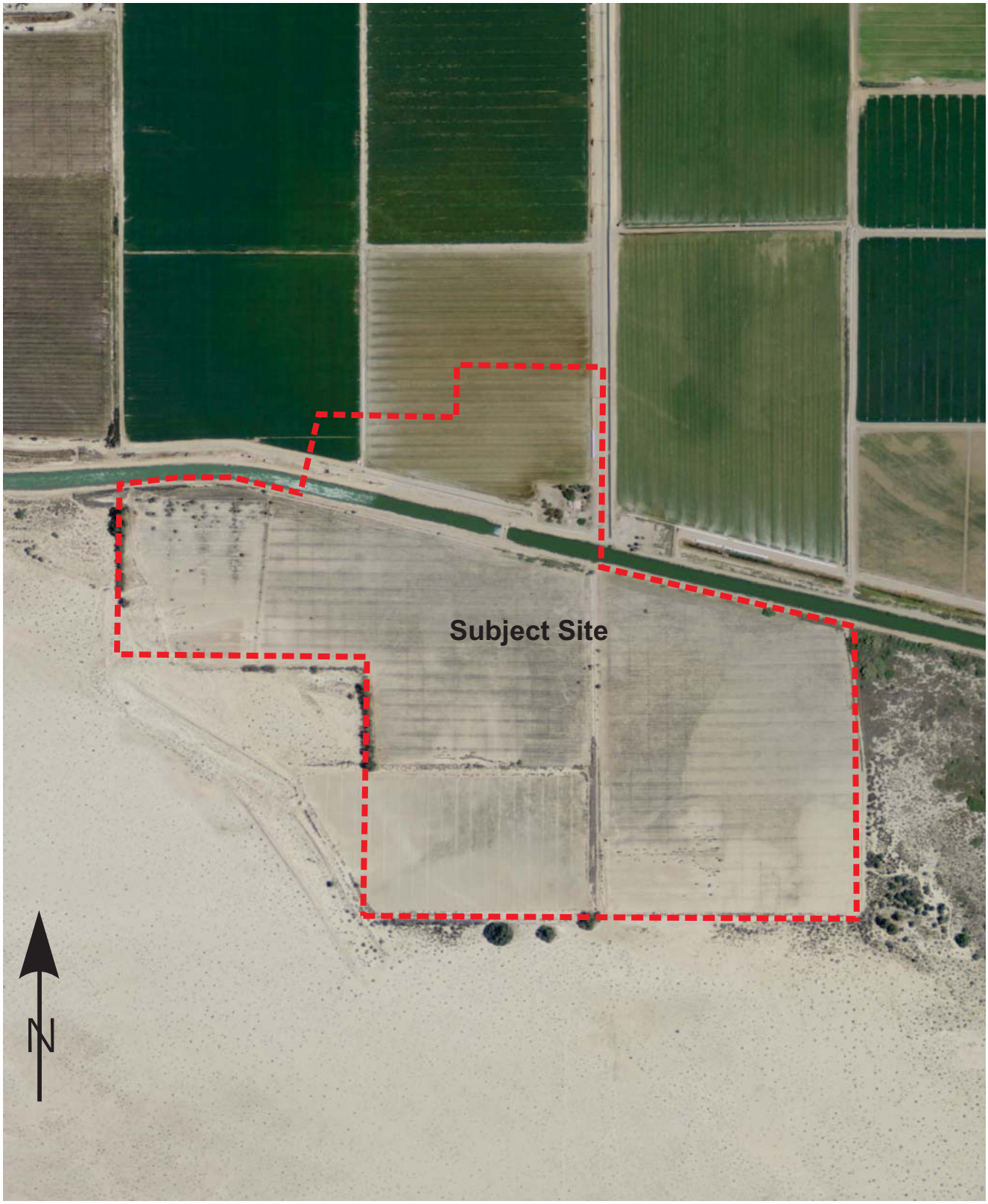


GS Lyon

Project No.: GS1903

2006 Aerial Photograph

Plate 15

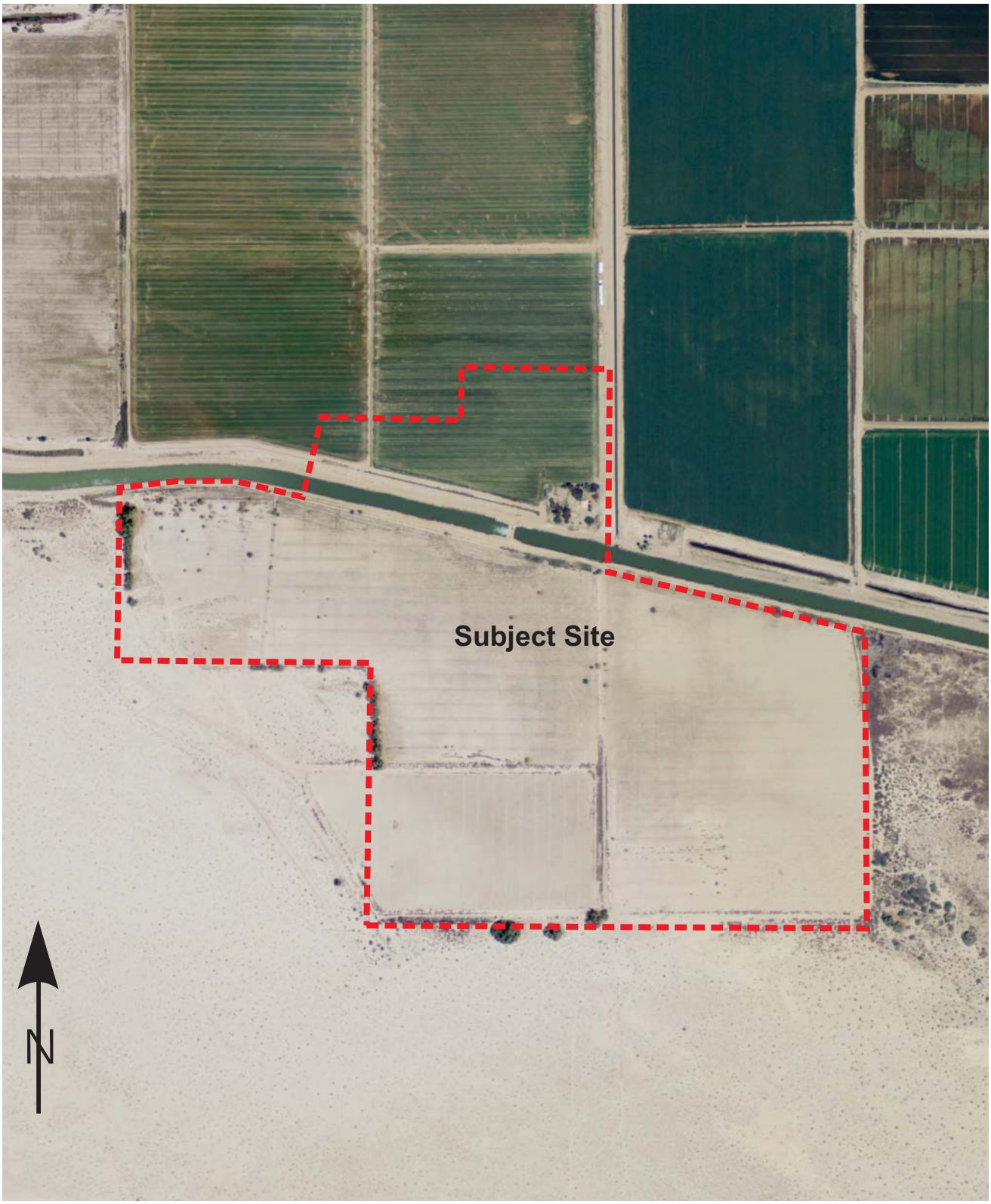


GS Lyon

Project No.: GS1903

2009 Aerial Photograph

Plate 16

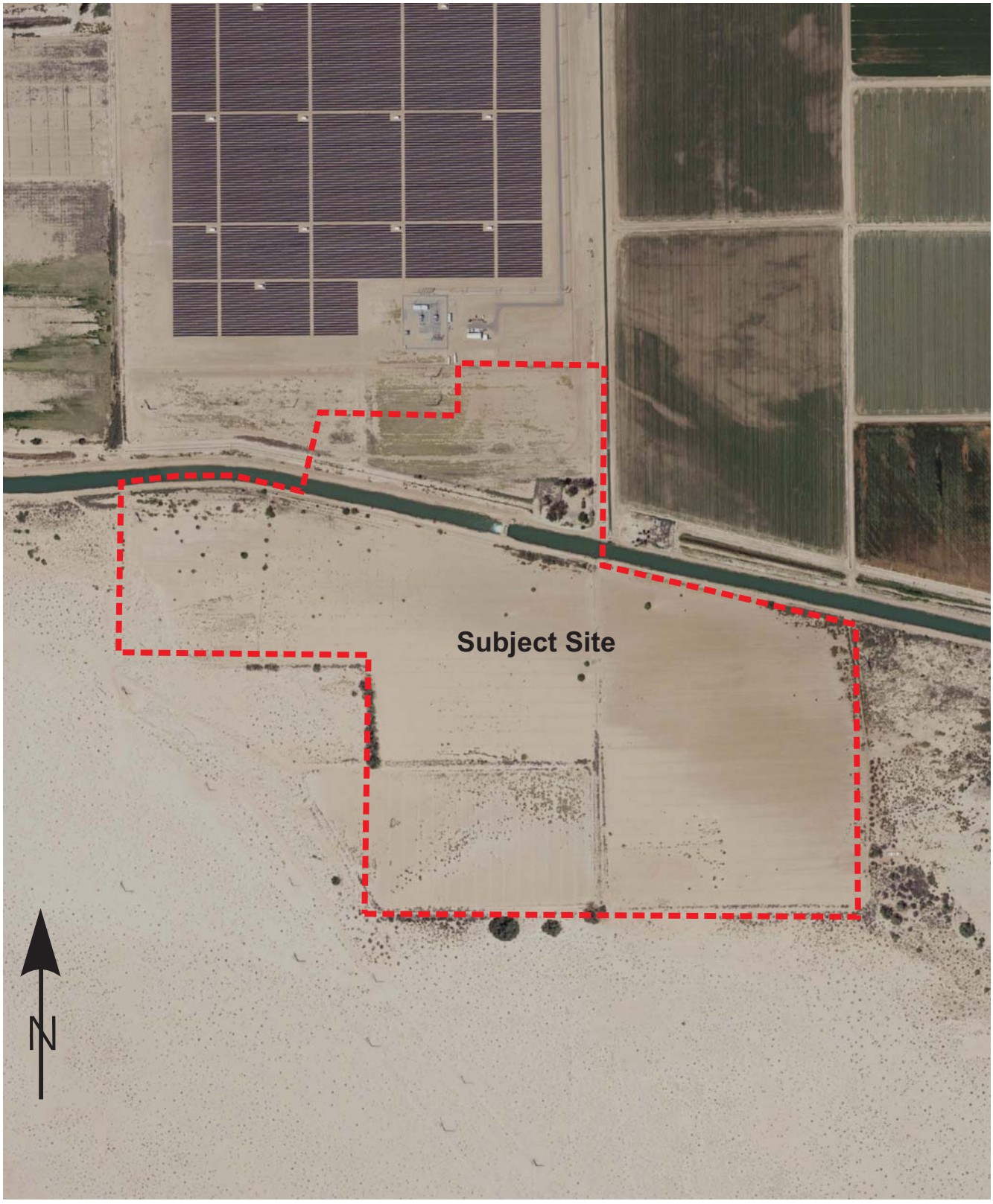


GS Lyon

Project No.: GS1903

2012 Aerial Photograph

Plate 17



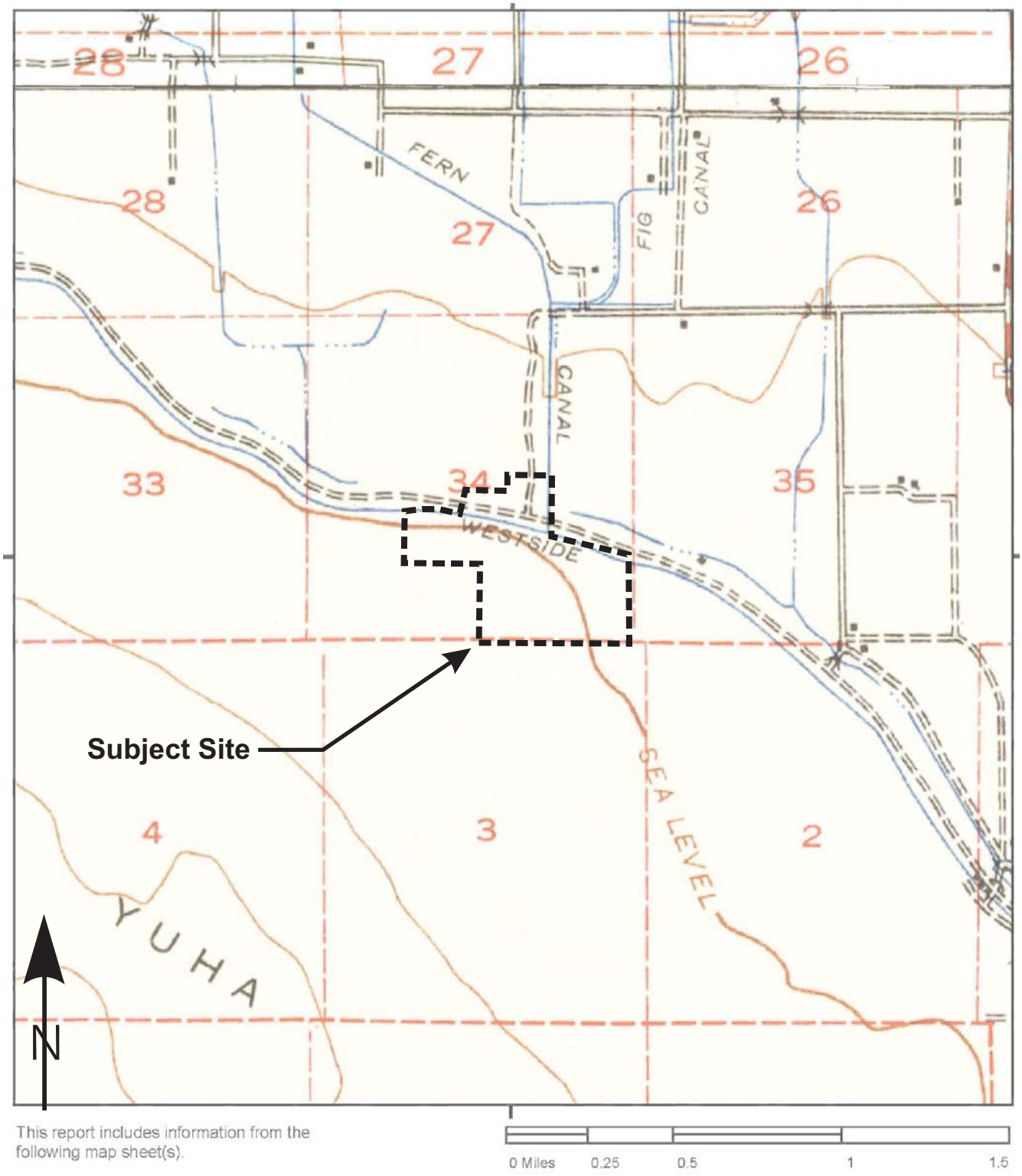
GS Lyon

Project No.: GS1903

2016 Aerial Photograph

Plate 18

APPENDIX D



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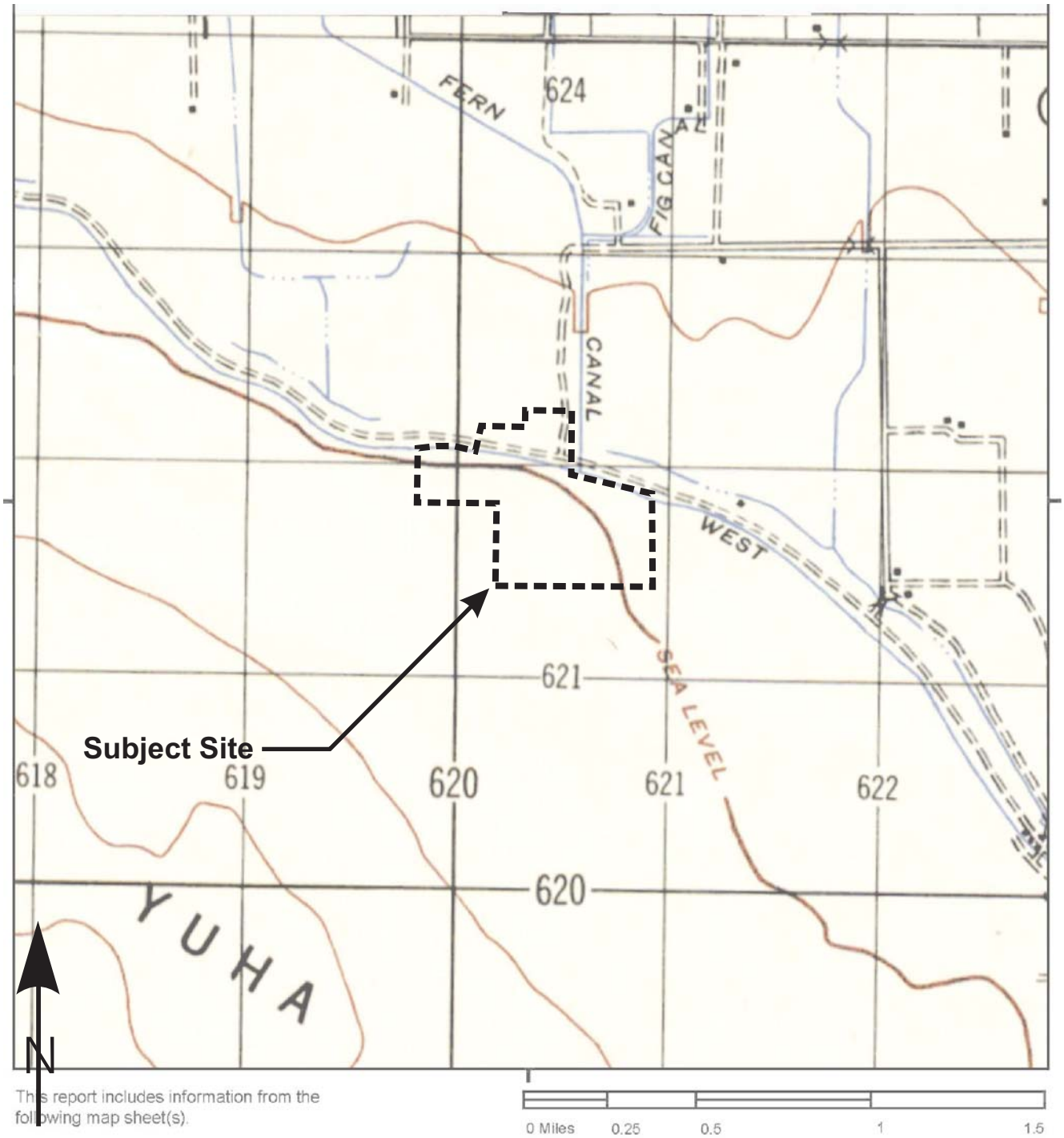
GS Lyon

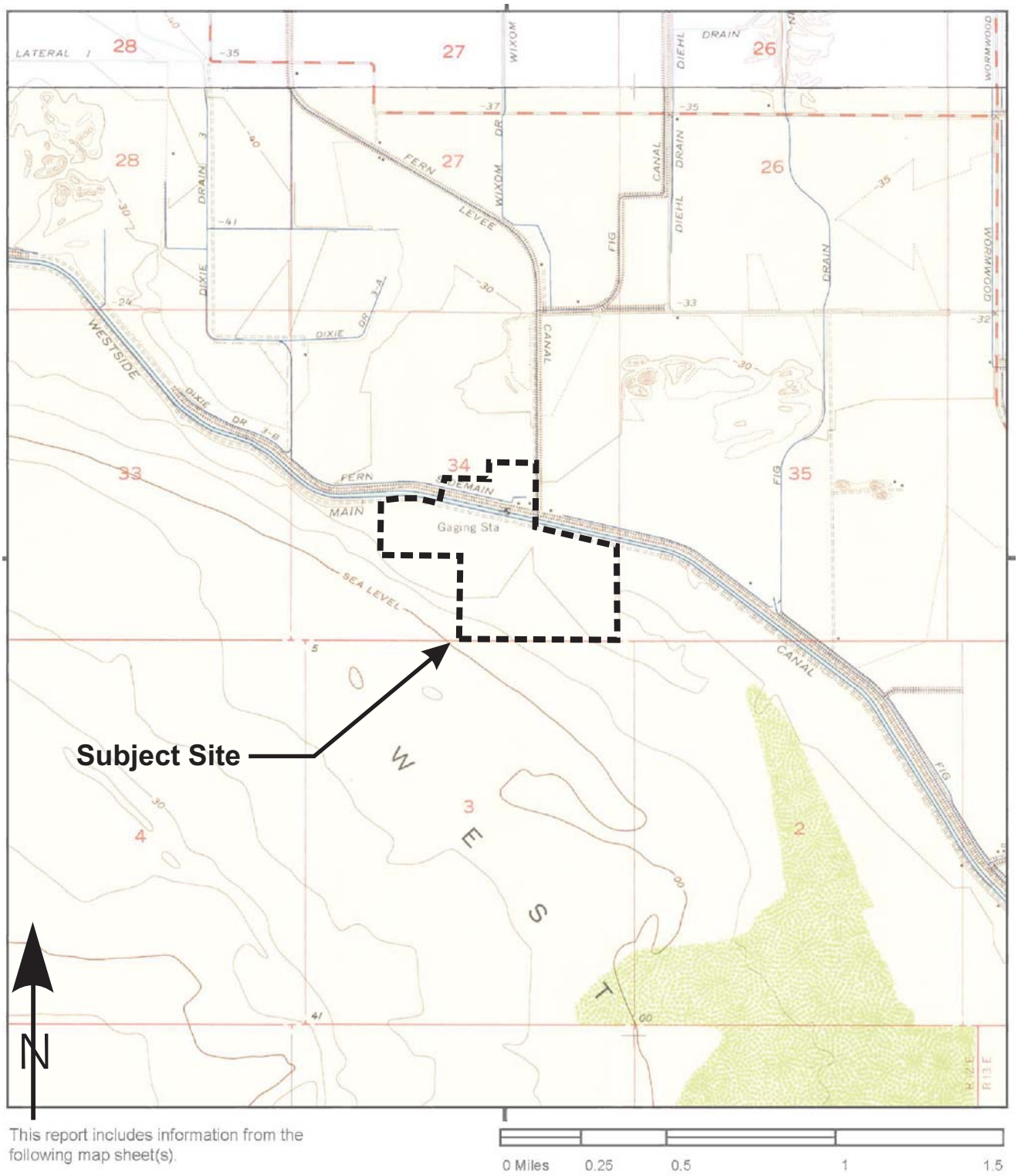
Project No.: GS1903

1940 Historical Topographic Map

Plate 19



GSLyon Project No.: GS1903	1947 Historical Topographic Map	Plate 20



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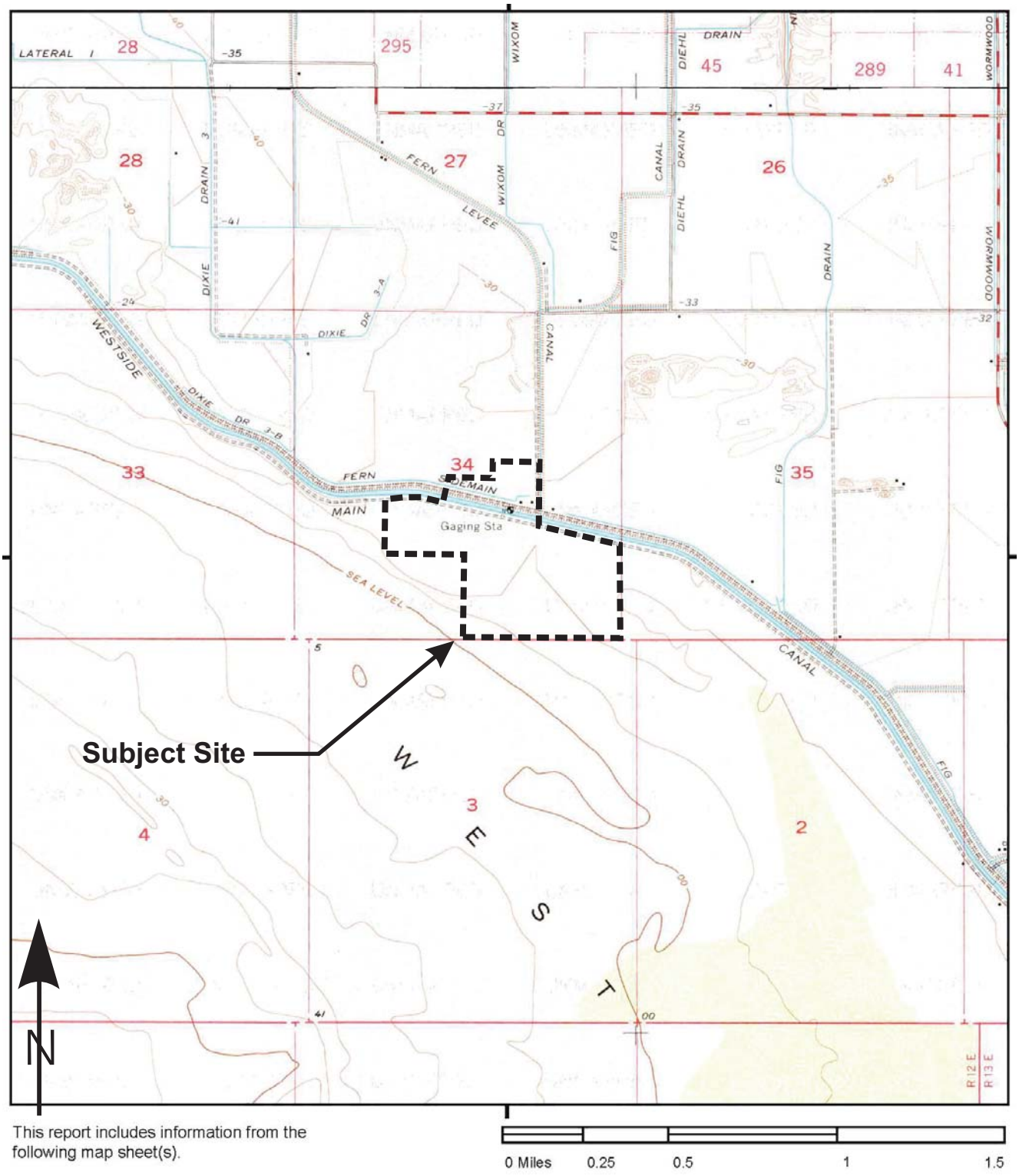
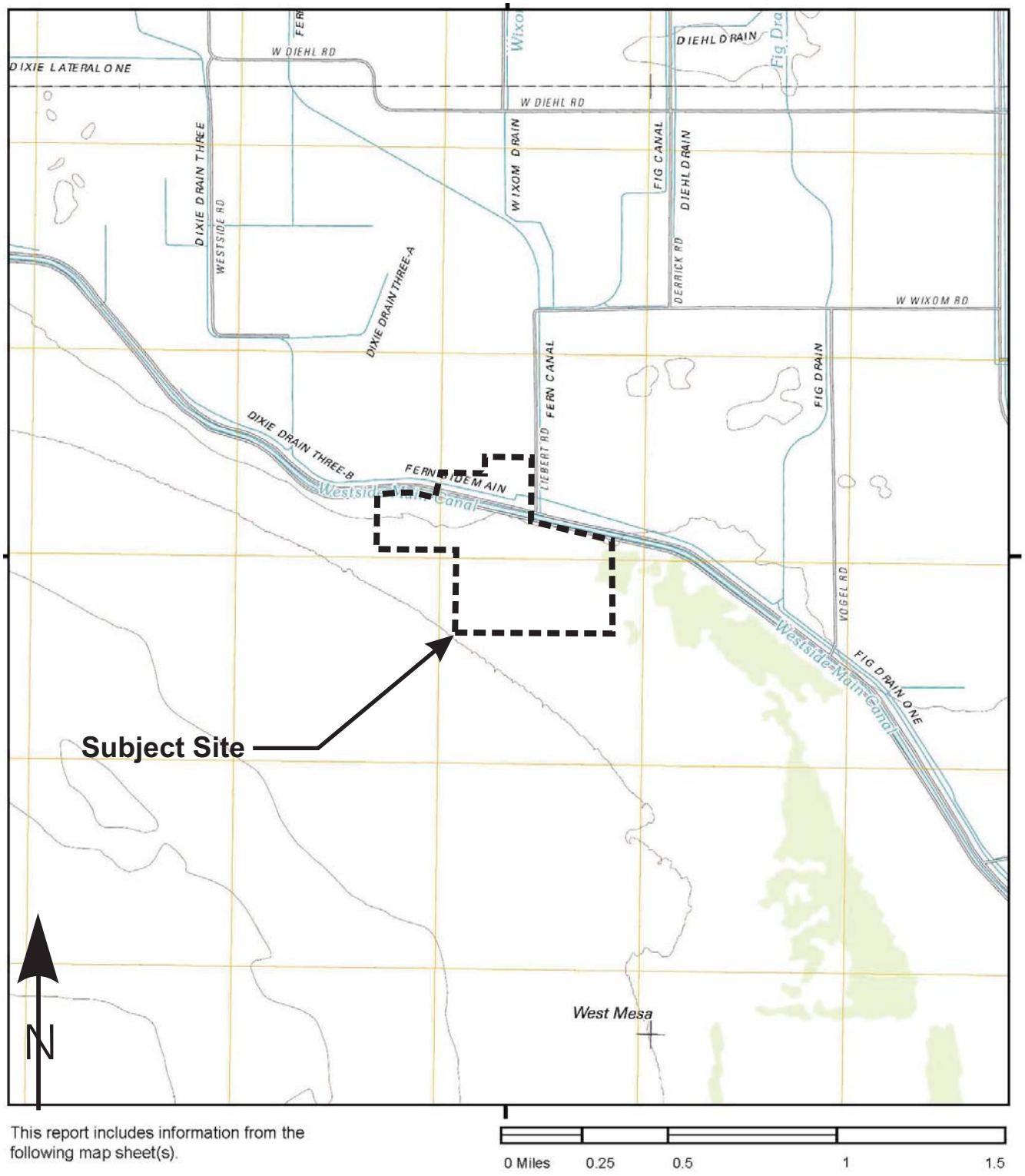
GSLyon Project No.: GS1903	1957 Historical Topographic Map	Plate 21



GSLyon Project No.: GS1903	1979 Historical Topographic Map	Plate 22



This report includes information from the following map sheet(s).

GSLyon Project No.: GS1903	2012 Historical Topographic Map	Plate 23

APPENDIX E

Westside Main Canal Energy Center

Liebert Road South of Westside Main Canal

El Centro, CA 92243

Inquiry Number: 5560850.3

February 12, 2019

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

02/12/19

Site Name:

Westside Main Canal Energy C
Liebert Road South of Westside
El Centro, CA 92243
EDR Inquiry # 5560850.3

Client Name:

GS Lyon Consultants
780 N. Fourth Street
El Centro, CA 92243
Contact: Steven Williams

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by GS Lyon Consultants were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # BE4B-4E8C-B30C

PO # GS1903

Project WSM Canal Energy Center

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: BE4B-4E8C-B30C

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

Limited Permission To Make Copies

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APPENDIX F

Westside Main Canal Energy Center
Liebert Road South of Westside Main Canal
El Centro, CA 92243

Inquiry Number: 5560850.2s
February 12, 2019

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

LIEBERT ROAD SOUTH OF WESTSIDE MAIN CANAL
EL CENTRO, CA 92243

COORDINATES

Latitude (North):	32.7286000 - 32° 43' 42.96''
Longitude (West):	115.7146000 - 115° 42' 52.56''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	620449.8
UTM Y (Meters):	3621740.5
Elevation:	14 ft. below sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5622994 MOUNT SIGNAL, CA
Version Date:	2012
North Map:	5623010 SEELEY, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140519
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
LIEBERT ROAD SOUTH OF WESTSIDE MAIN CANAL
EL CENTRO, CA 92274

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION

NO MAPPED SITES FOUND

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-CESQG ---------- RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System
US ENG CONTROLS ---------- Engineering Controls Sites List

US INST CONTROL ---------- Sites with Institutional Controls

Federal ERNS list

ERNS ---------- Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE ---------- State Response Sites

State- and tribal - equivalent CERCLIS

ENVIROSTOR ---------- EnviroStor Database

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ---------- Solid Waste Information System

State and tribal leaking storage tank lists

LUST ---------- Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land
CPS-SLIC ---------- Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST ---------- Underground Storage Tank Listing
UST ---------- Active UST Facilities
AST ---------- Aboveground Petroleum Storage Tank Facilities
INDIAN UST ---------- Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

VCP ---------- Voluntary Cleanup Program Properties
INDIAN VCP ---------- Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS ---------- Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ---------- A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT ---------- Waste Management Unit Database
SWRCY ---------- Recycler Database
HAULERS ---------- Registered Waste Tire Haulers Listing
INDIAN ODI ---------- Report on the Status of Open Dumps on Indian Lands
ODI ---------- Open Dump Inventory
DEBRIS REGION 9 ---------- Torres Martinez Reservation Illegal Dump Site Locations

IHS OPEN DUMPS ---------- Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL ---------- Delisted National Clandestine Laboratory Register
HIST Cal-Sites ---------- Historical Calsites Database
SCH ---------- School Property Evaluation Program
CDL ---------- Clandestine Drug Labs
Toxic Pits ---------- Toxic Pits Cleanup Act Sites
CERS HAZ WASTE ---------- CERS HAZ WASTE
US CDL ---------- National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

SWEEPS UST ---------- SWEEPS UST Listing
HIST UST ---------- Hazardous Substance Storage Container Database
CERS TANKS ---------- California Environmental Reporting System (CERS) Tanks
CA FID UST ---------- Facility Inventory Database

Local Land Records

LIENS ---------- Environmental Liens Listing
LIENS 2 ---------- CERCLA Lien Information
DEED ---------- Deed Restriction Listing

Records of Emergency Release Reports

HMIRS ---------- Hazardous Materials Information Reporting System
CHMIRS ---------- California Hazardous Material Incident Report System
LDS ---------- Land Disposal Sites Listing
MCS ---------- Military Cleanup Sites Listing
SPILLS 90 ---------- SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR ---------- RCRA - Non Generators / No Longer Regulated
FUDS ---------- Formerly Used Defense Sites
DOD ---------- Department of Defense Sites
SCRD DRYCLEANERS ---------- State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR ---------- Financial Assurance Information
EPA WATCH LIST ---------- EPA WATCH LIST
2020 COR ACTION ---------- 2020 Corrective Action Program List
TSCA ---------- Toxic Substances Control Act
TRIS ---------- Toxic Chemical Release Inventory System
SSTS ---------- Section 7 Tracking Systems
ROD ---------- Records Of Decision
RMP ---------- Risk Management Plans
RAATS ---------- RCRA Administrative Action Tracking System
PRP ---------- Potentially Responsible Parties
PADS ---------- PCB Activity Database System
ICIS ---------- Integrated Compliance Information System
FTTS ---------- FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS ---------- Material Licensing Tracking System
COAL ASH DOE ---------- Steam-Electric Plant Operation Data

COAL ASH EPA ---- Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER ---- PCB Transformer Registration Database
RADINFO ---- Radiation Information Database
HIST FTTS ---- FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS ---- Incident and Accident Data
CONSENT ---- Superfund (CERCLA) Consent Decrees
INDIAN RESERV ---- Indian Reservations
FUSRAP ---- Formerly Utilized Sites Remedial Action Program
UMTRA ---- Uranium Mill Tailings Sites
LEAD SMELTERS ---- Lead Smelter Sites
US AIRS ---- Aerometric Information Retrieval System Facility Subsystem
US MINES ---- Mines Master Index File
ABANDONED MINES ---- Abandoned Mines
FINDS ---- Facility Index System/Facility Registry System
ECHO ---- Enforcement & Compliance History Information
DOCKET HWC ---- Hazardous Waste Compliance Docket Listing
UXO ---- Unexploded Ordnance Sites
FUELS PROGRAM ---- EPA Fuels Program Registered Listing
CA BOND EXP. PLAN ---- Bond Expenditure Plan
Cortese ---- "Cortese" Hazardous Waste & Substances Sites List
CUPA Listings ---- CUPA Resources List
DRYCLEANERS ---- Cleaner Facilities
EMI ---- Emissions Inventory Data
ENF ---- Enforcement Action Listing
Financial Assurance ---- Financial Assurance Information Listing
HAZNET ---- Facility and Manifest Data
ICE ---- ICE
HIST CORTESE ---- Hazardous Waste & Substance Site List
HWP ---- EnviroStor Permitted Facilities Listing
HWT ---- Registered Hazardous Waste Transporter Database
MINES ---- Mines Site Location Listing
MWMP ---- Medical Waste Management Program Listing
NPDES ---- NPDES Permits Listing
PEST LIC ---- Pesticide Regulation Licenses Listing
PROC ---- Certified Processors Database
Notify 65 ---- Proposition 65 Records
UIC ---- UIC Listing
UIC GEO ---- UIC GEO (GEOTRACKER)
WASTEWATER PITS ---- Oil Wastewater Pits Listing
WDS ---- Waste Discharge System
MILITARY PRIV SITES ---- MILITARY PRIV SITES (GEOTRACKER)
PROJECT ---- PROJECT (GEOTRACKER)
WDR ---- Waste Discharge Requirements Listing
CIWQS ---- California Integrated Water Quality System
CERS ---- CERS
WIP ---- Well Investigation Program Case List
NON-CASE INFO ---- NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS ---- OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS ---- PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT ---- SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ ---- Well Stimulation Project (GEOTRACKER)

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP ---- EDR Proprietary Manufactured Gas Plants

EDR Hist Auto ---------- EDR Exclusive Historical Auto Stations
EDR Hist Cleaner ---------- EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF ---------- Recovered Government Archive Solid Waste Facilities List
RGA LUST ---------- Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

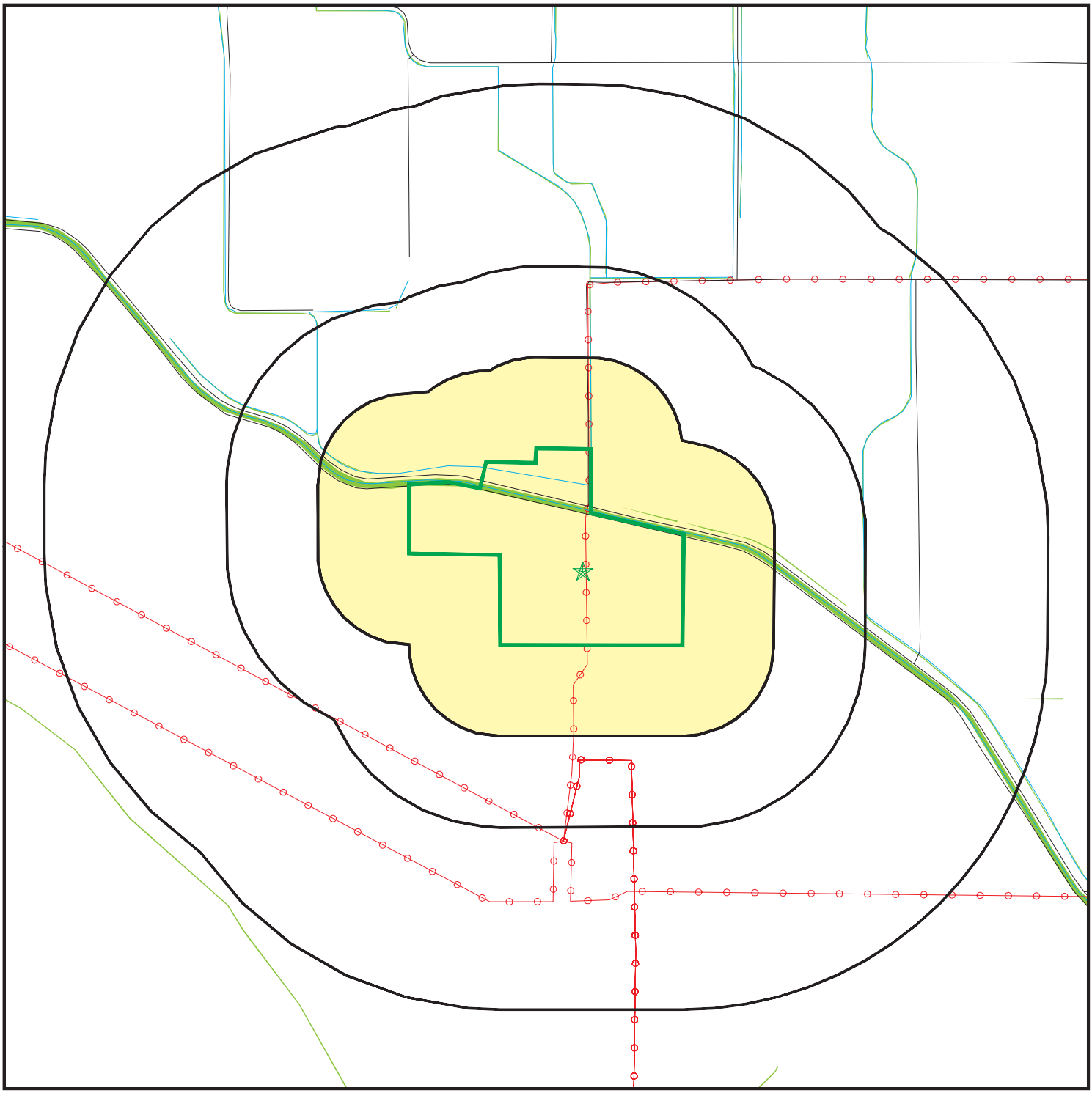
Surrounding sites were not identified.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 5560850.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Power transmission lines

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

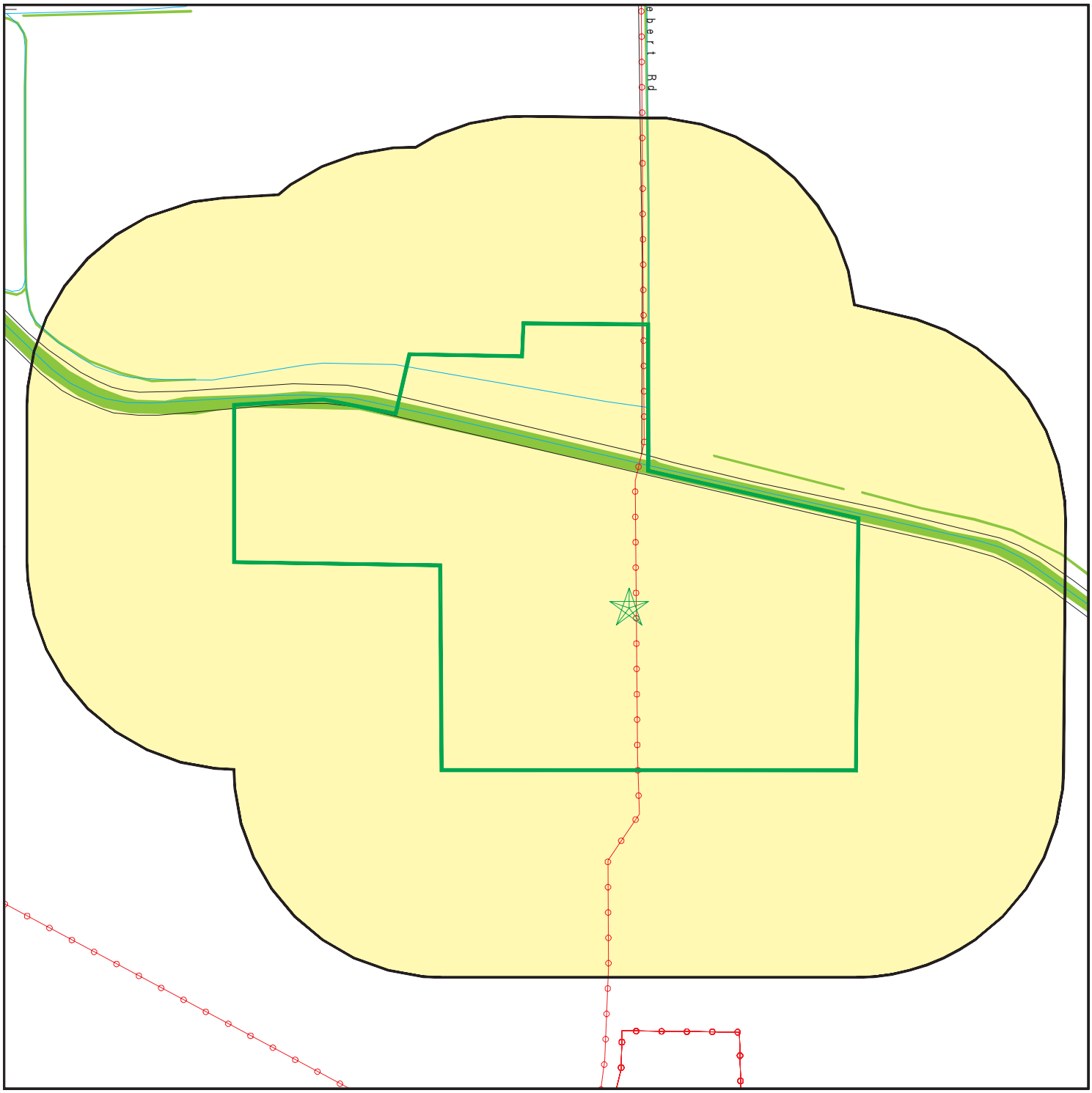
Areas of Concern

N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Westside Main Canal Energy Center	CLIENT:	GS Lyon Consultants
ADDRESS:	Liebert Road South of Westside Main Canal El Centro CA 92243	CONTACT:	Steven Williams
		INQUIRY #:	5560850.2s
LAT/LONG:	32.7286 / 115.7146	DATE:	February 12, 2019 5:37 pm

DETAIL MAP - 5560850.2S



0 1/8 1/4 1/2 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Westside Main Canal Energy Center	CLIENT:	GS Lyon Consultants
ADDRESS:	Liebert Road South of Westside Main Canal El Centro CA 92243	CONTACT:	Steven Williams
		INQUIRY #:	5560850.2s
LAT/LONG:	32.7286 / 115.7146	DATE:	February 12, 2019 5:38 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	0.001		0	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CERS HAZ WASTE	0.250		0	0	NR	NR	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0
LIENS 2	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	0.001		0	NR	NR	NR	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.001		0	NR	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.001		0	NR	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
UIC GEO	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
MILITARY PRIV SITES	0.001		0	NR	NR	NR	NR	0
PROJECT	0.001		0	NR	NR	NR	NR	0
WDR	0.001		0	NR	NR	NR	NR	0
CIWQS	0.001		0	NR	NR	NR	NR	0
CERS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
NON-CASE INFO	0.001		0	NR	NR	NR	NR	0
OTHER OIL GAS	0.001		0	NR	NR	NR	NR	0
PROD WATER PONDS	0.001		0	NR	NR	NR	NR	0
SAMPLING POINT	0.001		0	NR	NR	NR	NR	0
WELL STIM PROJ	0.001		0	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	0	0	0	0	0	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

MAP FINDINGS

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number

NO SITES FOUND

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 12/12/2018
Date Data Arrived at EDR: 12/28/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 14

Source: EPA
Telephone: N/A
Last EDR Contact: 12/28/2018
Next Scheduled EDR Contact: 04/15/2019
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 12/12/2018
Date Data Arrived at EDR: 12/28/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 14

Source: EPA
Telephone: N/A
Last EDR Contact: 12/28/2018
Next Scheduled EDR Contact: 04/15/2019
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/12/2018
Date Data Arrived at EDR: 12/28/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 14

Source: EPA
Telephone: N/A
Last EDR Contact: 12/28/2018
Next Scheduled EDR Contact: 04/15/2019
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 92

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 01/04/2019
Next Scheduled EDR Contact: 04/15/2019
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 12/12/2018
Date Data Arrived at EDR: 12/28/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 14

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/28/2018
Next Scheduled EDR Contact: 04/29/2019
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 12/13/2018
Date Data Arrived at EDR: 12/28/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 14

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/28/2018
Next Scheduled EDR Contact: 04/29/2019
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/03/2018
Next Scheduled EDR Contact: 04/08/2019
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/03/2018
Next Scheduled EDR Contact: 04/08/2019
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/03/2018
Next Scheduled EDR Contact: 04/08/2019
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/03/2018
Next Scheduled EDR Contact: 04/08/2019
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/03/2018
Next Scheduled EDR Contact: 04/08/2019
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 10/17/2018
Date Data Arrived at EDR: 10/25/2018
Date Made Active in Reports: 12/07/2018
Number of Days to Update: 43

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/07/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 07/31/2018
Date Data Arrived at EDR: 08/28/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 17

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/04/2019
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 07/31/2018
Date Data Arrived at EDR: 08/28/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 17

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/04/2019
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/24/2018
Date Data Arrived at EDR: 09/25/2018
Date Made Active in Reports: 11/09/2018
Number of Days to Update: 45

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 02/08/2019
Next Scheduled EDR Contact: 04/08/2019
Data Release Frequency: Quarterly

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 10/29/2018
Date Data Arrived at EDR: 10/30/2018
Date Made Active in Reports: 12/13/2018
Number of Days to Update: 44

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/29/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 10/29/2018
Date Data Arrived at EDR: 10/30/2018
Date Made Active in Reports: 12/13/2018
Number of Days to Update: 44

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/29/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 11/12/2018
Date Data Arrived at EDR: 11/14/2018
Date Made Active in Reports: 12/13/2018
Number of Days to Update: 29

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 11/14/2018
Next Scheduled EDR Contact: 02/25/2019
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)
Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 12/11/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 04/10/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 04/25/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/24/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/13/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 05/08/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/01/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)

Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 05/15/2017
Date Data Arrived at EDR: 05/30/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 136

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/08/2019
Next Scheduled EDR Contact: 04/22/2019
Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)
Military ust sites

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases
UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/12/2018
Date Made Active in Reports: 01/16/2019
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 12/11/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 04/01/2019
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 04/25/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/13/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/10/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/24/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 05/08/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/01/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 10/29/2018
Date Data Arrived at EDR: 10/30/2018
Date Made Active in Reports: 12/13/2018
Number of Days to Update: 44

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/29/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 12/19/2018
Next Scheduled EDR Contact: 04/08/2019
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfieds Sites Listing

A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 09/24/2018
Date Data Arrived at EDR: 09/25/2018
Date Made Active in Reports: 10/15/2018
Number of Days to Update: 20

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 12/21/2018
Next Scheduled EDR Contact: 04/08/2019
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 12/17/2018
Date Data Arrived at EDR: 12/18/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 24

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 12/18/2018
Next Scheduled EDR Contact: 04/01/2019
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/12/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 34

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 09/28/2018
Date Made Active in Reports: 11/01/2018
Number of Days to Update: 34

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 08/07/2018
Next Scheduled EDR Contact: 02/25/2019
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 01/29/2019
Next Scheduled EDR Contact: 05/13/2019
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/17/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176
Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 02/01/2019
Next Scheduled EDR Contact: 05/13/2019
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 09/21/2018
Date Data Arrived at EDR: 09/21/2018
Date Made Active in Reports: 11/09/2018
Number of Days to Update: 49
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/26/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database
The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21
Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program
This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 10/29/2018
Date Data Arrived at EDR: 10/30/2018
Date Made Active in Reports: 12/13/2018
Number of Days to Update: 44
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/29/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs
A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 06/12/2018
Date Made Active in Reports: 08/06/2018
Number of Days to Update: 55
Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 04/22/2019
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites
Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27
Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 10/22/2018
Date Data Arrived at EDR: 10/23/2018
Date Made Active in Reports: 11/30/2018
Number of Days to Update: 38

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 01/24/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Quarterly

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/21/2018
Date Data Arrived at EDR: 09/21/2018
Date Made Active in Reports: 11/09/2018
Number of Days to Update: 49

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/26/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: Quarterly

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 12/04/2018
Date Data Arrived at EDR: 12/06/2018
Date Made Active in Reports: 12/14/2018
Number of Days to Update: 8

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 11/26/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing

Aboveground storage tank sites

Date of Government Version: 09/11/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/11/2018
Number of Days to Update: 29

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Varies

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CERS TANKS: California Environmental Reporting System (CERS) Tanks

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 10/22/2018
Date Data Arrived at EDR: 10/23/2018
Date Made Active in Reports: 11/30/2018
Number of Days to Update: 38

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 01/24/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Quarterly

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 11/29/2018
Date Data Arrived at EDR: 12/04/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 38

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/29/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 12/12/2018
Date Data Arrived at EDR: 12/28/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 12/28/2018
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 12/03/2018
Date Data Arrived at EDR: 12/05/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 37

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 12/05/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 03/26/2018
Date Data Arrived at EDR: 03/27/2018
Date Made Active in Reports: 06/08/2018
Number of Days to Update: 73

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 02/08/2019
Next Scheduled EDR Contact: 04/08/2019
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 51

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 01/24/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/03/2018
Next Scheduled EDR Contact: 04/08/2019
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015
Date Data Arrived at EDR: 07/08/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 97

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 11/19/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/11/2019
Next Scheduled EDR Contact: 04/22/2019
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/11/2019
Next Scheduled EDR Contact: 04/22/2019
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63
Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 11/16/2018
Next Scheduled EDR Contact: 02/25/2019
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 08/31/2018
Date Data Arrived at EDR: 09/25/2018
Date Made Active in Reports: 11/09/2018
Number of Days to Update: 45
Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 02/04/2019
Next Scheduled EDR Contact: 04/08/2019
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88
Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 02/08/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73
Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/08/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 198
Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/21/2018
Next Scheduled EDR Contact: 04/01/2019
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 01/10/2018
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 2

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 11/16/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 12/12/2018
Date Data Arrived at EDR: 12/28/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 14

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 12/28/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 10/26/2018
Date Data Arrived at EDR: 11/06/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/22/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 08/13/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/09/2018
Number of Days to Update: 36
Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 02/08/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 09/14/2018
Date Data Arrived at EDR: 10/11/2018
Date Made Active in Reports: 12/07/2018
Number of Days to Update: 57
Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/11/2019
Next Scheduled EDR Contact: 04/22/2019
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 01/07/2019
Next Scheduled EDR Contact: 04/22/2019
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016
Date Data Arrived at EDR: 09/08/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 43
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 01/22/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 12/05/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 12/03/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 05/24/2017
Date Data Arrived at EDR: 11/30/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 15
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 10/02/2018
Date Data Arrived at EDR: 10/03/2018
Date Made Active in Reports: 11/09/2018
Number of Days to Update: 37
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 01/03/2019
Next Scheduled EDR Contact: 04/15/2019
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 10/01/2018
Date Data Arrived at EDR: 10/30/2018
Date Made Active in Reports: 01/18/2019
Number of Days to Update: 80

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 01/29/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 09/30/2018
Date Data Arrived at EDR: 10/12/2018
Date Made Active in Reports: 12/07/2018
Number of Days to Update: 56

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 01/07/2019
Next Scheduled EDR Contact: 04/22/2019
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 11/21/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/07/2019
Next Scheduled EDR Contact: 04/22/2019
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 08/08/2017
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 06/23/2017
Date Data Arrived at EDR: 10/11/2017
Date Made Active in Reports: 11/03/2017
Number of Days to Update: 23

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 12/14/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 12/12/2018
Date Data Arrived at EDR: 12/28/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 12/28/2018
Next Scheduled EDR Contact: 04/15/2019
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/01/2018
Date Data Arrived at EDR: 08/29/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 37

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 11/30/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 11/30/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 11/30/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 12/19/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 11/15/2018
Date Data Arrived at EDR: 12/05/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 37

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 09/02/2018
Date Data Arrived at EDR: 09/05/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 9

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 01/07/2019
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 07/26/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 71

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 11/30/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites
A listing of unexploded ordnance site locations

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 06/19/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 87
Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 01/14/2019
Next Scheduled EDR Contact: 04/29/2019
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing
This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 08/22/2018
Date Data Arrived at EDR: 08/22/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 44
Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 11/19/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan
Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6
Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 09/24/2018
Date Data Arrived at EDR: 09/25/2018
Date Made Active in Reports: 10/16/2018
Number of Days to Update: 21
Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 12/21/2018
Next Scheduled EDR Contact: 04/08/2019
Data Release Frequency: Quarterly

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing
list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 08/28/2018
Date Data Arrived at EDR: 08/30/2018
Date Made Active in Reports: 11/01/2018
Number of Days to Update: 63
Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 02/11/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Varies

CUPA SAN FRANCISCO CO: CUPA Facility Listing
Cupa facilities

Date of Government Version: 09/11/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 09/19/2018
Number of Days to Update: 7
Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Varies

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 11/13/2018
Date Data Arrived at EDR: 12/04/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 42

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 11/29/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Varies

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 10/04/2018
Date Data Arrived at EDR: 10/05/2018
Date Made Active in Reports: 11/01/2018
Number of Days to Update: 27

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 11/26/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 08/30/2018
Date Data Arrived at EDR: 09/27/2018
Date Made Active in Reports: 11/01/2018
Number of Days to Update: 35

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 11/29/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Annually

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 06/20/2018
Date Made Active in Reports: 08/06/2018
Number of Days to Update: 47

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 12/21/2018
Next Scheduled EDR Contact: 04/01/2019
Data Release Frequency: Varies

ENF: Enforcement Action Listing
A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 11/01/2018
Date Data Arrived at EDR: 11/02/2018
Date Made Active in Reports: 12/13/2018
Number of Days to Update: 41

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 02/04/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 10/19/2018
Date Data Arrived at EDR: 10/23/2018
Date Made Active in Reports: 11/30/2018
Number of Days to Update: 38

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 01/17/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 11/18/2018
Date Data Arrived at EDR: 11/19/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 53
Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 02/11/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 10/10/2018
Date Made Active in Reports: 11/16/2018
Number of Days to Update: 37
Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 01/07/2019
Next Scheduled EDR Contact: 04/22/2019
Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 11/19/2018
Date Data Arrived at EDR: 11/19/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 53
Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 11/19/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 11/19/2018
Date Data Arrived at EDR: 11/19/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 53
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/19/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 10/09/2018
Date Data Arrived at EDR: 10/10/2018
Date Made Active in Reports: 11/16/2018
Number of Days to Update: 37
Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 01/08/2019
Next Scheduled EDR Contact: 04/22/2019
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing
A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/12/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 34

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 11/09/2018
Date Data Arrived at EDR: 12/05/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 37

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 12/05/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 11/12/2018
Date Data Arrived at EDR: 11/14/2018
Date Made Active in Reports: 12/13/2018
Number of Days to Update: 29

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 11/14/2018
Next Scheduled EDR Contact: 02/25/2019
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 12/03/2018
Date Data Arrived at EDR: 12/05/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 37

Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 12/05/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/12/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 34

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 09/19/2018
Date Data Arrived at EDR: 09/20/2018
Date Made Active in Reports: 10/19/2018
Number of Days to Update: 29

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 04/01/2019
Data Release Frequency: No Update Planned

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 04/27/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/17/2018
Number of Days to Update: 34
Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35
Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 05/08/2018
Date Data Arrived at EDR: 07/11/2018
Date Made Active in Reports: 09/13/2018
Number of Days to Update: 64
Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 01/11/2019
Next Scheduled EDR Contact: 04/22/2019
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9
Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 11/14/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Quarterly

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)
Military privatized sites

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)
Projects sites

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing
In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/12/2018
Date Made Active in Reports: 01/18/2019
Number of Days to Update: 37
Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 12/03/2018
Date Data Arrived at EDR: 12/04/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 38
Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 12/04/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 10/22/2018
Date Data Arrived at EDR: 10/23/2018
Date Made Active in Reports: 11/30/2018
Number of Days to Update: 38
Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 01/24/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 12/19/2018
Next Scheduled EDR Contact: 04/08/2019
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)

Produced water ponds sites

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)
Sampling point - public sites

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)
Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations
EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 10/05/2018
Date Data Arrived at EDR: 10/10/2018
Date Made Active in Reports: 11/01/2018
Number of Days to Update: 22

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/07/2019
Next Scheduled EDR Contact: 04/22/2019
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 10/05/2018
Date Data Arrived at EDR: 10/10/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 23

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/07/2019
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List
Cupa Facility List

Date of Government Version: 07/01/2018
Date Data Arrived at EDR: 07/24/2018
Date Made Active in Reports: 08/20/2018
Number of Days to Update: 27

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 01/04/2019
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing
Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 01/07/2019
Next Scheduled EDR Contact: 04/22/2019
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 10/31/2018
Date Data Arrived at EDR: 12/04/2018
Date Made Active in Reports: 12/12/2018
Number of Days to Update: 8

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 12/21/2018
Next Scheduled EDR Contact: 04/08/2019
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 05/23/2018
Date Data Arrived at EDR: 05/24/2018
Date Made Active in Reports: 07/13/2018
Number of Days to Update: 50

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 11/26/2018
Date Data Arrived at EDR: 11/30/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 46

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 08/16/2018
Date Data Arrived at EDR: 11/06/2018
Date Made Active in Reports: 11/14/2018
Number of Days to Update: 8

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 12/13/2018
Date Data Arrived at EDR: 12/18/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 28

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 10/16/2018
Date Data Arrived at EDR: 10/18/2018
Date Made Active in Reports: 11/14/2018
Number of Days to Update: 27

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 12/26/2018
Next Scheduled EDR Contact: 04/15/2019
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 01/17/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 12/11/2018
Date Data Arrived at EDR: 12/13/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 33

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 11/19/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 10/22/2018
Date Data Arrived at EDR: 10/25/2018
Date Made Active in Reports: 11/14/2018
Number of Days to Update: 20

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 01/17/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 11/14/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Varies

KERN COUNTY:

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 11/02/2018
Date Data Arrived at EDR: 11/07/2018
Date Made Active in Reports: 12/14/2018
Number of Days to Update: 37

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 11/21/2018
Date Data Arrived at EDR: 11/27/2018
Date Made Active in Reports: 12/12/2018
Number of Days to Update: 15

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 11/14/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

Date of Government Version: 11/07/2018
Date Data Arrived at EDR: 11/08/2018
Date Made Active in Reports: 11/14/2018
Number of Days to Update: 6

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 01/14/2019
Next Scheduled EDR Contact: 04/29/2019
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List
Cupa facility list

Date of Government Version: 10/15/2018
Date Data Arrived at EDR: 10/23/2018
Date Made Active in Reports: 11/14/2018
Number of Days to Update: 22

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 01/17/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: N/A
Telephone: N/A
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 04/01/2019
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 09/20/2018
Date Data Arrived at EDR: 10/12/2018
Date Made Active in Reports: 11/16/2018
Number of Days to Update: 35

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 01/07/2019
Next Scheduled EDR Contact: 04/22/2019
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 10/15/2018
Date Data Arrived at EDR: 10/16/2018
Date Made Active in Reports: 11/16/2018
Number of Days to Update: 31

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 01/15/2019
Next Scheduled EDR Contact: 04/29/2019
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2018
Date Data Arrived at EDR: 05/01/2018
Date Made Active in Reports: 05/14/2018
Number of Days to Update: 13

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 01/15/2019
Next Scheduled EDR Contact: 04/29/2019
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 07/01/2018
Date Data Arrived at EDR: 10/16/2018
Date Made Active in Reports: 11/16/2018
Number of Days to Update: 31

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 02/01/2019
Next Scheduled EDR Contact: 04/29/2019
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 01/14/2019
Next Scheduled EDR Contact: 04/29/2019
Data Release Frequency: Semi-Annually

UST LONG BEACH: City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/09/2017
Date Data Arrived at EDR: 03/10/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 54

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 01/17/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Annually

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 10/02/2018
Date Data Arrived at EDR: 10/05/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 28

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 01/17/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 11/26/2018
Date Data Arrived at EDR: 11/27/2018
Date Made Active in Reports: 12/12/2018
Number of Days to Update: 15

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 11/14/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 29

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 01/14/2019
Next Scheduled EDR Contact: 04/15/2019
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/29/2018
Date Data Arrived at EDR: 08/31/2018
Date Made Active in Reports: 09/19/2018
Number of Days to Update: 19

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 01/09/2019
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 12/07/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/24/2019
Number of Days to Update: 44

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 12/06/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 10/29/2018
Date Data Arrived at EDR: 11/01/2018
Date Made Active in Reports: 11/16/2018
Number of Days to Update: 15

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 12/27/2018
Next Scheduled EDR Contact: 04/15/2019
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/21/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 11/28/2018
Date Data Arrived at EDR: 11/30/2018
Date Made Active in Reports: 12/14/2018
Number of Days to Update: 14

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/26/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 11/06/2018
Date Data Arrived at EDR: 11/08/2018
Date Made Active in Reports: 11/14/2018
Number of Days to Update: 6

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 10/04/2018
Date Data Arrived at EDR: 11/14/2018
Date Made Active in Reports: 12/13/2018
Number of Days to Update: 29

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/04/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 10/04/2018
Date Data Arrived at EDR: 11/14/2018
Date Made Active in Reports: 12/13/2018
Number of Days to Update: 29

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/04/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 10/04/2018
Date Data Arrived at EDR: 11/06/2018
Date Made Active in Reports: 12/14/2018
Number of Days to Update: 38

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/05/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 11/29/2018
Date Data Arrived at EDR: 12/04/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 38

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 11/29/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 07/19/2018
Date Data Arrived at EDR: 07/25/2018
Date Made Active in Reports: 09/05/2018
Number of Days to Update: 42

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 01/17/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 10/10/2018
Date Data Arrived at EDR: 10/12/2018
Date Made Active in Reports: 10/16/2018
Number of Days to Update: 4

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/17/2018
Next Scheduled EDR Contact: 04/01/2019
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 10/10/2018
Date Data Arrived at EDR: 10/12/2018
Date Made Active in Reports: 11/05/2018
Number of Days to Update: 24

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/17/2018
Next Scheduled EDR Contact: 04/01/2019
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 08/03/2018
Date Data Arrived at EDR: 10/02/2018
Date Made Active in Reports: 11/01/2018
Number of Days to Update: 30

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/04/2019
Next Scheduled EDR Contact: 04/15/2019
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 08/23/2018
Date Data Arrived at EDR: 10/02/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 31

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 12/28/2018
Next Scheduled EDR Contact: 04/15/2019
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List
Cupa facility list

Date of Government Version: 11/15/2018
Date Data Arrived at EDR: 11/16/2018
Date Made Active in Reports: 12/13/2018
Number of Days to Update: 27

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 11/28/2018
Date Data Arrived at EDR: 11/30/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 42

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 02/04/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

HMMD SAN DIEGO: Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 12/03/2018
Date Data Arrived at EDR: 12/05/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 37

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 12/05/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 04/18/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 56

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 01/17/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing

A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 10/22/2018
Date Data Arrived at EDR: 10/23/2018
Date Made Active in Reports: 11/30/2018
Number of Days to Update: 38

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 01/17/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

SAN DIEGO CO. SAM: Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 11/29/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

LUST SAN FRANCISCO: Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Quarterly

UST SAN FRANCISCO: Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/05/2018
Date Data Arrived at EDR: 11/06/2018
Date Made Active in Reports: 12/14/2018
Number of Days to Update: 38

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 04/01/2019
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 11/14/2018
Date Data Arrived at EDR: 11/15/2018
Date Made Active in Reports: 12/13/2018
Number of Days to Update: 28

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 11/14/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 12/03/2018
Date Data Arrived at EDR: 12/12/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 34

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 12/13/2018
Date Data Arrived at EDR: 12/18/2018
Date Made Active in Reports: 01/23/2019
Number of Days to Update: 36

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/10/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 11/14/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Varies

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List
Cupa facility list

Date of Government Version: 11/16/2018
Date Data Arrived at EDR: 11/16/2018
Date Made Active in Reports: 12/13/2018
Number of Days to Update: 27

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 11/14/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 11/21/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: Annually

SAN JOSE HAZMAT: Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/01/2018
Date Data Arrived at EDR: 11/06/2018
Date Made Active in Reports: 12/14/2018
Number of Days to Update: 38

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 11/14/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 11/14/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 11/29/2018
Date Data Arrived at EDR: 12/04/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 38

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 11/29/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 11/29/2018
Date Data Arrived at EDR: 12/04/2018
Date Made Active in Reports: 12/14/2018
Number of Days to Update: 10

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 11/29/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 12/21/2018
Date Data Arrived at EDR: 12/27/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 19

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 12/19/2018
Next Scheduled EDR Contact: 04/08/2019
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 10/02/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 10/25/2018
Number of Days to Update: 21

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 01/07/2019
Next Scheduled EDR Contact: 04/08/2019
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 12/11/2018
Date Data Arrived at EDR: 12/13/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 33

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 12/13/2018
Next Scheduled EDR Contact: 04/29/2019
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 09/18/2018
Date Data Arrived at EDR: 09/20/2018
Date Made Active in Reports: 10/25/2018
Number of Days to Update: 35

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 11/29/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 12/13/2018
Date Data Arrived at EDR: 12/18/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 28

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 10/22/2018
Date Data Arrived at EDR: 10/25/2018
Date Made Active in Reports: 11/14/2018
Number of Days to Update: 20

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 01/17/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 12/26/2018
Date Data Arrived at EDR: 12/27/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 19

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/25/2018
Date Made Active in Reports: 11/30/2018
Number of Days to Update: 36

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 01/22/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/26/2018
Next Scheduled EDR Contact: 04/15/2019
Data Release Frequency: Annually

LUST VENTURA: Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 02/07/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Quarterly

MED WASTE VENTURA: Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 09/25/2018
Date Data Arrived at EDR: 10/25/2018
Date Made Active in Reports: 11/30/2018
Number of Days to Update: 36
Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 01/22/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 11/26/2018
Date Data Arrived at EDR: 12/12/2018
Date Made Active in Reports: 01/16/2019
Number of Days to Update: 35
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 12/26/2018
Date Data Arrived at EDR: 01/03/2019
Date Made Active in Reports: 01/16/2019
Number of Days to Update: 13
Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 12/26/2018
Next Scheduled EDR Contact: 04/15/2019
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 11/05/2018
Date Data Arrived at EDR: 11/07/2018
Date Made Active in Reports: 11/14/2018
Number of Days to Update: 7
Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 11/12/2018
Date Data Arrived at EDR: 11/14/2018
Date Made Active in Reports: 12/04/2018
Number of Days to Update: 20

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 11/14/2018
Next Scheduled EDR Contact: 02/25/2019
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 07/13/2018
Date Made Active in Reports: 08/01/2018
Number of Days to Update: 19

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 01/07/2019
Next Scheduled EDR Contact: 04/22/2019
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 10/01/2018
Date Data Arrived at EDR: 10/31/2018
Date Made Active in Reports: 12/20/2018
Number of Days to Update: 50

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 01/30/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 10/23/2018
Date Made Active in Reports: 11/27/2018
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 01/11/2019
Next Scheduled EDR Contact: 04/29/2019
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 02/23/2018
Date Made Active in Reports: 04/09/2018
Number of Days to Update: 45

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 11/16/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 06/15/2018
Date Made Active in Reports: 07/09/2018
Number of Days to Update: 24

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 12/07/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: PennWell Corporation
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data
Source: PennWell Corporation
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

WESTSIDE MAIN CANAL ENERGY CENTER
LIEBERT ROAD SOUTH OF WESTSIDE MAIN CANAL
EL CENTRO, CA 92243

TARGET PROPERTY COORDINATES

Latitude (North):	32.7286 - 32° 43' 42.96''
Longitude (West):	115.7146 - 115° 42' 52.56''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	620449.8
UTM Y (Meters):	3621740.5
Elevation:	14 ft. below sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5622994 MOUNT SIGNAL, CA
Version Date:	2012
North Map:	5623010 SEELEY, CA
Version Date:	2012

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

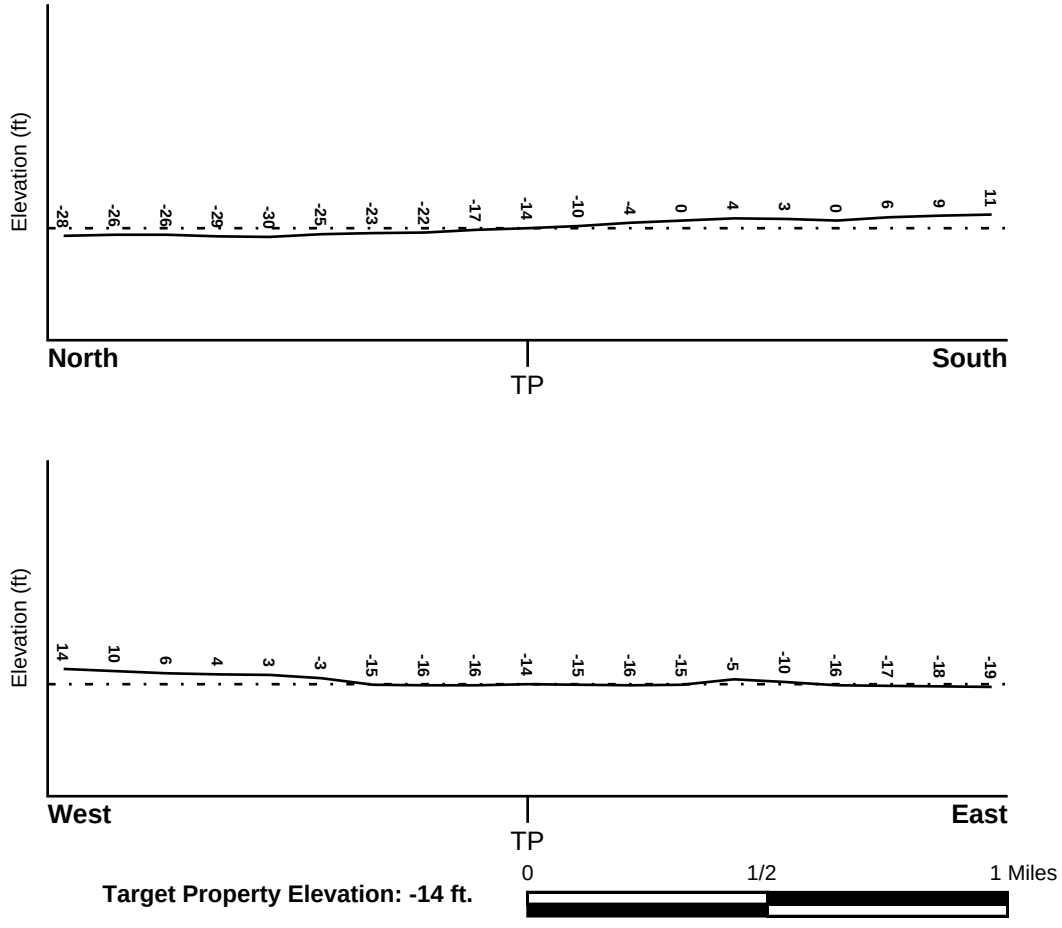
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General North

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: -14 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06025C2050C	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
Not Reported	

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
MOUNT SIGNAL	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

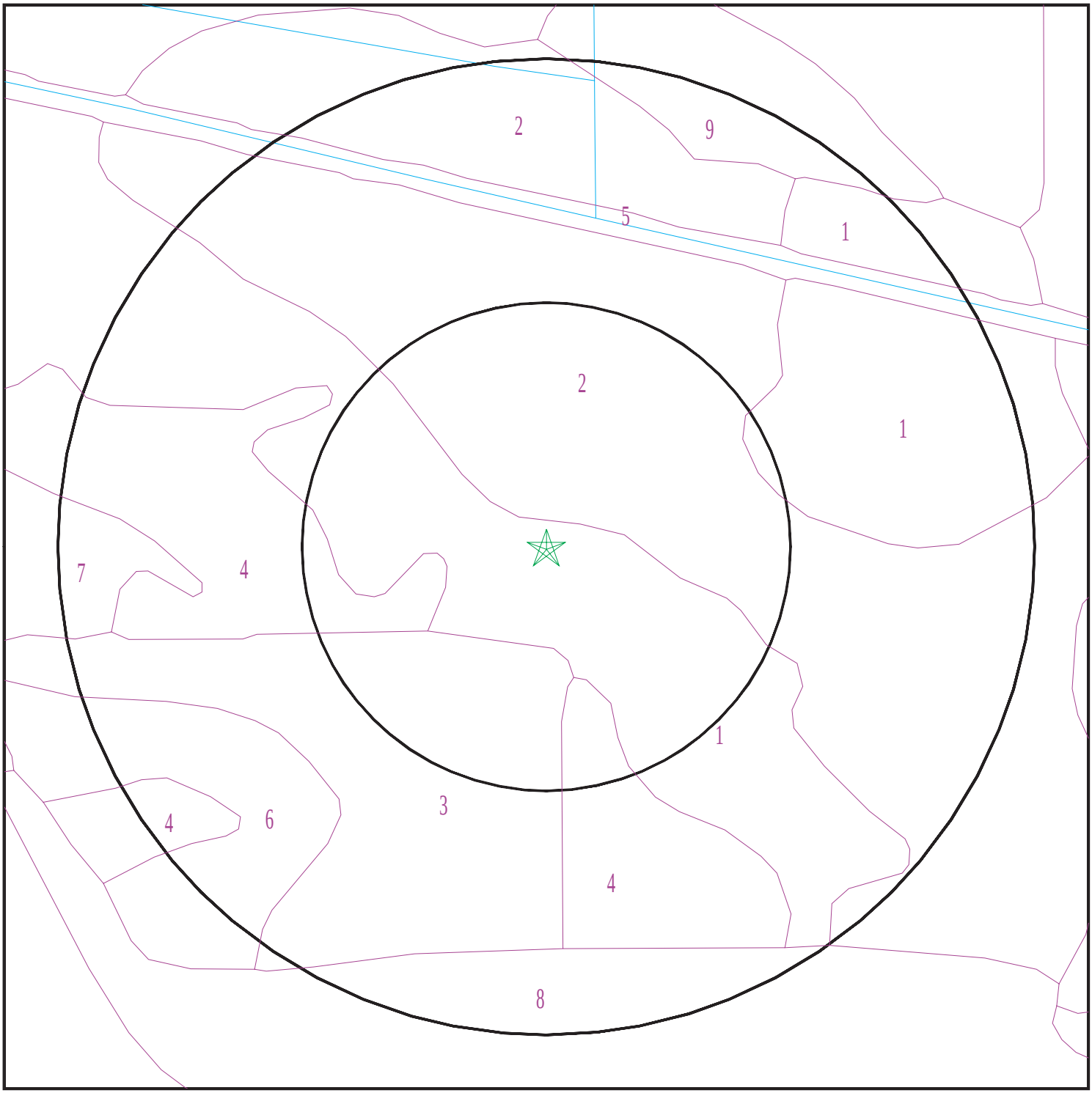
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 5560850.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	Westside Main Canal Energy Center	CLIENT:	GS Lyon Consultants
ADDRESS:	Liebert Road South of Westside Main Canal El Centro CA 92243	CONTACT:	Steven Williams
		INQUIRY #:	5560850.2s
LAT/LONG:	32.7286 / 115.7146	DATE:	February 12, 2019 5:38 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Vint

Soil Surface Texture: very fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 122 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 7.9
2	9 inches	40 inches	loamy fine sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 7.9
3	40 inches	59 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 7.9

Soil Map ID: 2

Soil Component Name: Vint

Soil Surface Texture: loamy very fine sand

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 122 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	loamy very fine sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.9
2	9 inches	59 inches	loamy fine sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.9

Soil Map ID: 3

Soil Component Name: Rositas

Soil Surface Texture: fine sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 122 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	fine sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.9
2	9 inches	59 inches	sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.9

Soil Map ID: 4

Soil Component Name: Imperial

Soil Surface Texture: silty clay loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 122 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.9
2	11 inches	59 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.9

Soil Map ID: 5

Soil Component Name: Water

Soil Surface Texture: silty clay loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class:
Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

Soil Map ID: 6

Soil Component Name: Meloland

Soil Surface Texture: very fine sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 76 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 8.4 Min: 7.4
2	11 inches	25 inches	stratified loamy fine sand to silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 8.4 Min: 7.4
3	25 inches	70 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 8.4 Min: 7.4

Soil Map ID: 7

Soil Component Name: Meloland

Soil Surface Texture: fine sand

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	fine sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 8.4 Min: 7.4
2	11 inches	25 inches	stratified loamy fine sand to silt loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 8.4 Min: 7.4
3	25 inches	70 inches	clay	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 8.4 Min: 7.4

Soil Map ID: 8

Soil Component Name: Indio

Soil Surface Texture: loam

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 4	Max: 8.4 Min: 7.9
2	11 inches	72 inches	stratified loamy very fine sand to silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 4	Max: 8.4 Min: 7.9

Soil Map ID: 9

Soil Component Name: Holtville

Soil Surface Texture: silty clay

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 122 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	16 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 7.4

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	16 inches	24 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 7.4
3	24 inches	35 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 7.4
4	35 inches	59 inches	loamy very fine sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 7.4

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 0.001 miles
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

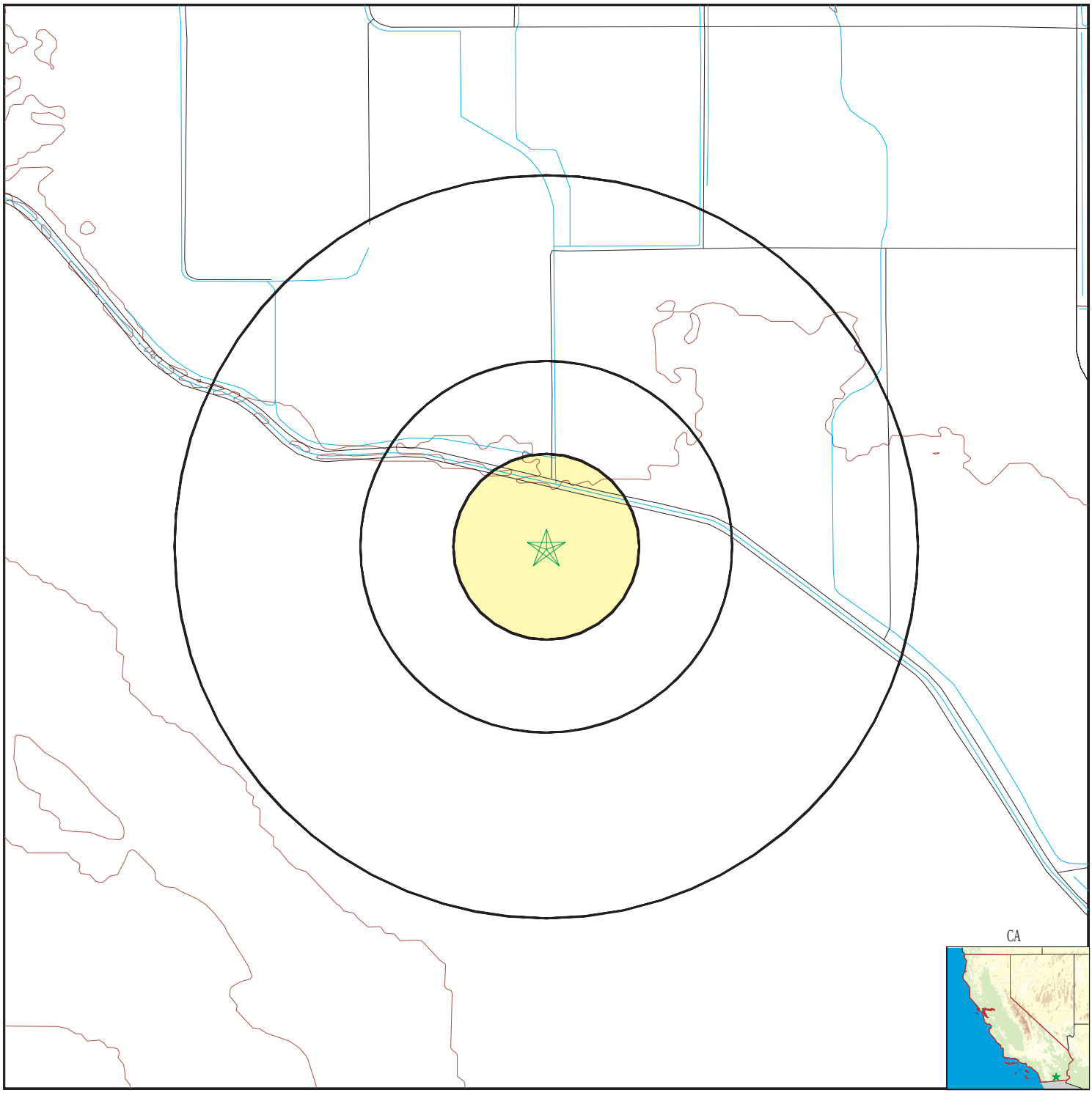
Note: PWS System location is not always the same as well location.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 5560850.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	Westside Main Canal Energy Center	CLIENT:	GS Lyon Consultants
ADDRESS:	Liebert Road South of Westside Main Canal El Centro CA 92243	CONTACT:	Steven Williams
		INQUIRY #:	5560850.2s
LAT/LONG:	32.7286 / 115.7146	DATE:	February 12, 2019 5:38 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92274	1	0

Federal EPA Radon Zone for IMPERIAL County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for IMPERIAL COUNTY, CA

Number of sites tested: 2

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	1.450 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

California Earthquake Fault Lines
Source: California Division of Mines and Geology
The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

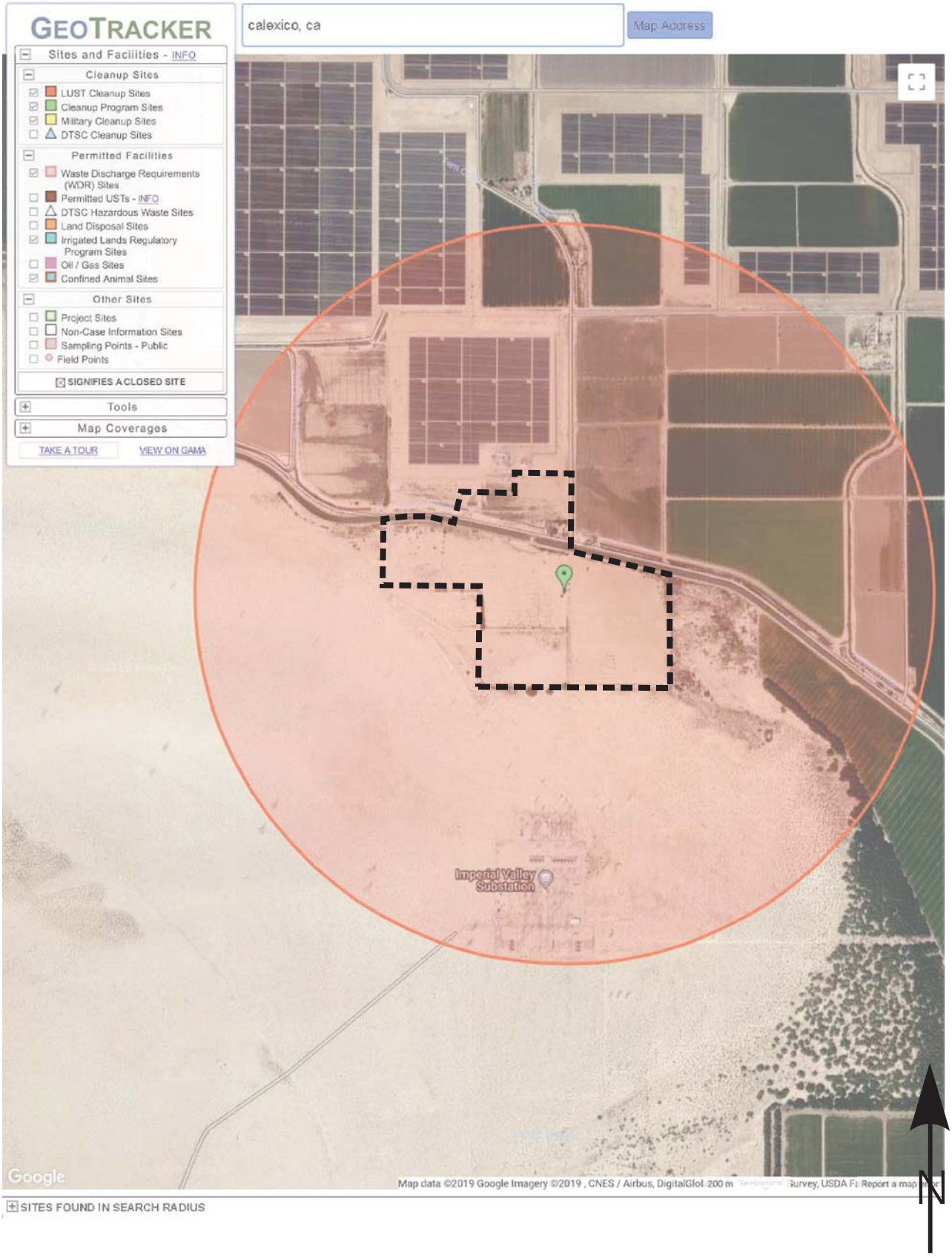
Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

APPENDIX G

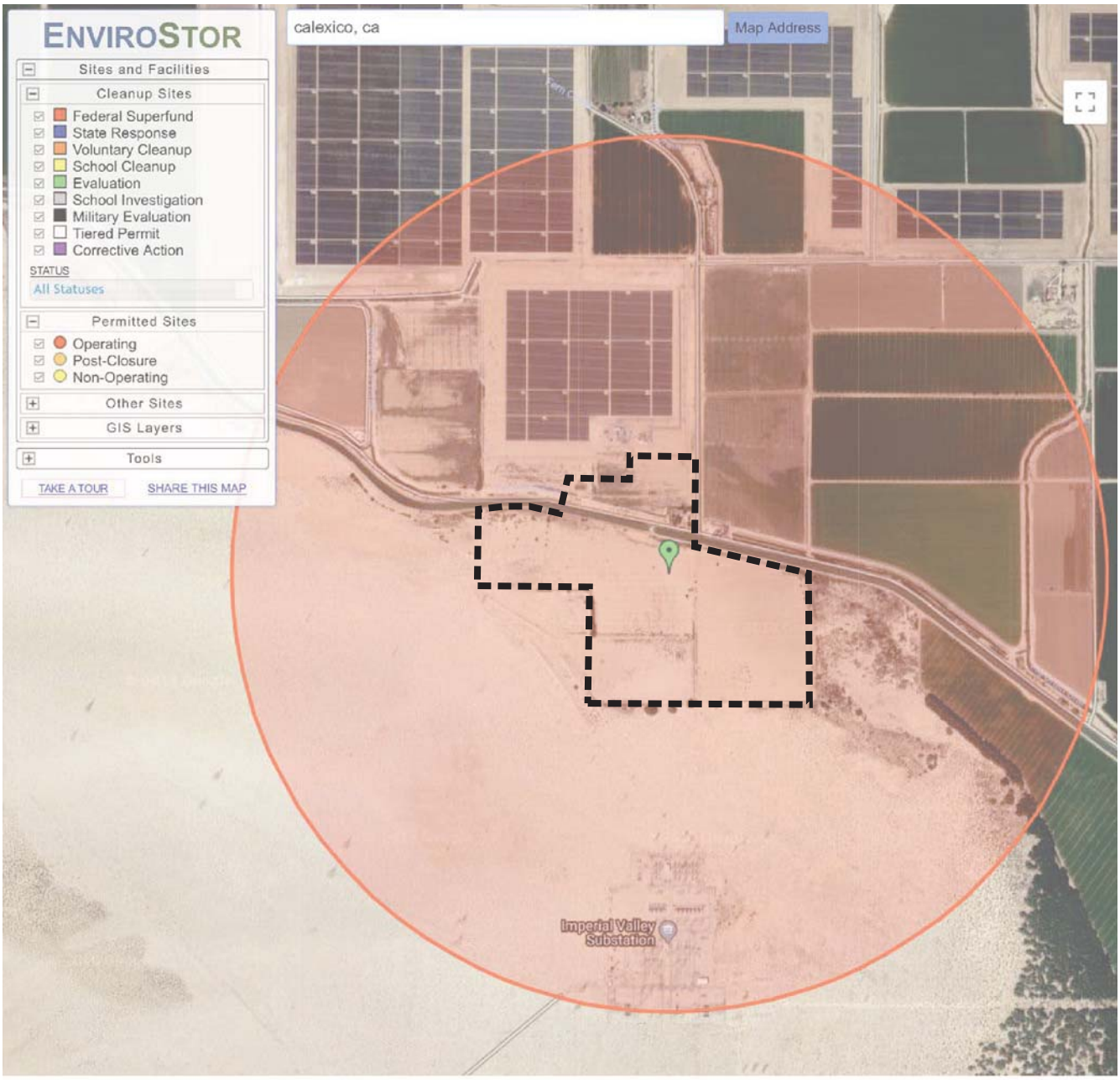


GS Lyon

Project No.: GS1903

Geotracker Map

Plate 24



GS Lyon Project No.: GS1903	Envirostor Map	Plate 25

APPENDIX H

Westside Main Canal Energy Center
Liebert Road South of Westside Main Canal
El Centro, CA 92243

Inquiry Number: 5560850.5
February 14, 2019

The EDR-City Directory Image Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

EDR is licensed to reproduce certain City Directory works by the copyright holders of those works. The purchaser of this EDR City Directory Report may include it in report(s) delivered to a customer. Reproduction of City Directories without permission of the publisher or licensed vendor may be a violation of copyright.

Data by
infoUSA®

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	Target Street	Cross Street	Source
2014	☑	☐	EDR Digital Archive
2010	☑	☐	EDR Digital Archive
2005	☑	☐	EDR Digital Archive
2000	☑	☐	EDR Digital Archive
1995	☑	☐	EDR Digital Archive
1992	☑	☐	EDR Digital Archive
1986	☐	☐	Polk's City Directory
1981	☐	☐	Polk's City Directory
1976	☐	☐	Polk's City Directory
1971	☐	☐	Polk's City Directory
1966	☐	☐	Polk's City Directory
1959	☐	☐	Polk's City Directory

FINDINGS

TARGET PROPERTY STREET

Liebert Road South of Westside Main Canal
El Centro, CA 92243

Year	*CD Image*	*Source*	
LIEBERT RD			
2014	pg A1	EDR Digital Archive	
2010	pg A2	EDR Digital Archive	
2005	pg A3	EDR Digital Archive	
2000	pg A4	EDR Digital Archive	
1995	pg A5	EDR Digital Archive	
1992	pg A6	EDR Digital Archive	
1986	-	Polk's City Directory	Street not listed in Source
1981	-	Polk's City Directory	Street not listed in Source
1976	-	Polk's City Directory	Street not listed in Source
1971	-	Polk's City Directory	Street not listed in Source
1966	-	Polk's City Directory	Street not listed in Source
1959	-	Polk's City Directory	Street not listed in Source

FINDINGS

CROSS STREETS

No Cross Streets Identified

City Directory Images

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

LIEBERT RD 2014

1105 BIGGERS, DOUGLAS

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

LIEBERT RD 2010

1105 OCCUPANT UNKNOWN,

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

LIEBERT RD 2005

1105 ELSER, LYNNETTE

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

LIEBERT RD 2000

1104 LOVE, DALLAS E
1105 HERRERA, LAURA

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

LIEBERT RD 1995

1104 LOVE, DALLAS E
1105 KEMP, WILLIAM H JR

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

LIEBERT RD 1992

1104 LOVE, DALLAS E
1105 KEMP, WILLIAM H JR

APPENDIX I

780 N. 4th Street
El Centro, CA 92243
(760) 337-1100

Phase I Environmental Site Assessment (ESA)
User Questionnaire

1) Environmental liens that are filed or recorded against the *property*.

Did a search of *recorded land title records* (or judicial records where appropriate) identify any environmental liens filed or recorded against the *property* under federal, tribal, state, or local law?

A copy of the most recent title report is provided

2) Activity and use limitations that are in place on the *property* or that have been filed or recorded against the *property*.

Did a search of *recorded land title records* (or judicial records where appropriate) identify any AULs, such as *engineering controls*, land use restrictions or *institutional controls* that are in place at the property and/or have been filed or recorded against the *property* under federal, tribal, state or local law?

A copy of the most recent title report is provided

3) Specialized knowledge or experience of the person seeking to qualify for the LLP.

Do you have any specialized knowledge or experience related to the *property* or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the *property* or an *adjoining property* so that you would have specialized knowledge of the chemicals and processes used by this type of business?

Current landowner has no specialized knowledge. Property is fallow farmland and has been vacant for an number of years

4) Relationship of the purchase price to the fair market value of the *property* if it were not contaminated.

Does the purchase price being paid for this *property* reasonable reflect the fair market value of the *property*? If you conclude that there is a difference, have you

considered whether the lower purchase price is because contamination is known or believed to be present at the *property*?

Not applicable – current landowner

5) Commonly known or *reasonably ascertainable* information about the *property*.
Are you aware of commonly known or *reasonably ascertainable* information about the *property* that would help the *environmental professional* to identify conditions indicative of releases or threatened releases? For example,

a. Do you know the past uses of the *property*?
Current owner believes prior use was farming

b. Do you know of specific chemicals or oils that are present or once were present at the *property*?
Current owner is not aware of any

c. Do you know of spills or other chemical releases that have taken place at the *property*?
Current owner is not aware of any

d. Do you know of any environmental cleanups that have taken place at the *property*?
Current owner is not aware of any

6) The degree of obviousness of the presence or likely presence of contamination at the *property*, and the ability to detect the contamination by appropriate investigation.
Based on your knowledge and experience related to the *property* are there any *obvious* indicators that point to the presence or likely presence of releases at the *property*?

Current owner is not aware of any

Additional Information

1) Reason why Phase I ESA is required:

The property will be part of a future energy development project

2) Type of Property:

Commercial	☐
Industrial	☐
Residential	☐
Vacant/Undeveloped	☐
Other ___*Current Agricultural*	

Type of Transaction:

Purchase	☐
Financing	☐
Sale	☐
Lease	☐
Other___*Current Owner*	

3) Complete and correct address for the property:

There is no physical address for this site
051-350-010 parcel 1

4) Are there any existing environmental report, documents, correspondence, etc. available for review?

Not at this time

User Name/Company: ____ConEdison Development_____

Address: 101 W Broadway Suite 1120
San Diego, CA 92101

User Signature: _____Jim Pomillo_____

Date: _____3-11-19_____

780 N. 4th Street
El Centro, CA 92243
(760) 337-1100

Phase I Environmental Site Assessment (ESA)
User Questionnaire

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Additional Information

1) Reason why Phase I ESA is required:

The property will be part of a future energy development project

2) Type of Property:

Commercial	☐
Industrial	☐
Residential	☐
Vacant/Undeveloped	☐
Other ___*Current Agricultural*	

Type of Transaction:

Purchase	☐
Financing	☐
Sale	☐
Lease	☐
Other___*Current Owner*	

3) Complete and correct address for the property:

There is no physical address for this site
051-350-011 parcel 2

4) Are there any existing environmental report, documents, correspondence, etc. available for review?

Not at this time

User Name/Company: ____ConEdison Development_____

Address: 101 W Broadway Suite 1120
San Diego, CA 92101

User Signature: ____Jim Pomillo_____

Date: _____3-11-19_____

780 N. 4th Street
El Centro, CA 92243
(760) 337-1100

Phase I Environmental Site Assessment (ESA)
User Questionnaire

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Current owner is not aware of any

Additional Information

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The property will be part of a future energy development project

2) Type of Property:

Commercial	☐
Industrial	☐
Residential	☐
Vacant/Undeveloped	☐
Other ___*Current Agricultural*	

Type of Transaction:

Purchase	☐
Financing	☐
Sale	☐
Lease	☐
Other___*Current Owner*	

3) Complete and correct address for the property:

There is no physical address for this site
051-350-011 parcel 3

4) Are there any existing environmental report, documents, correspondence, etc. available for review?

Not at this time

User Name/Company: ____ConEdison Development_____

Address: 101 W Broadway Suite 1120
San Diego, CA 92101

User Signature: ____Jim Pomillo_____

Date: _____3-11-19_____

APPENDIX J

Jeffrey O. Lyon, PE
Principal Engineer

Education

B.S. Civil Engineering (Magna Cum Laude)
California Polytechnic University, Pomona Campus 1978

Registration

Registered Civil Engineer No. 31921, California
Registered Civil Engineer No. 16994, Arizona

Professional Experience

1987 - Present	Principal Engineer Southland Geotechnical, Inc.
1982 - 1987	Principal Engineer Lyon Engineers, Inc.
1978 - 1981	Partner/Senior Engineer Tesco Engineering
1974 - 1977	Survey Party Chief Tesco Engineering
1972 - 1973	Survey Party Chief Lyon & Associates

Summary of Experience

As Principal Engineer, Mr. Lyon is responsible for financial and technical management of all employees in Southland Geotechnical's four branch offices. Mr. Lyon has performed site investigations for residential subdivisions, geogrid-reinforced slopes, shopping centers, military airfields, roadways, administration and office buildings, elementary and high schools, goldmine mill processing facilities, hydro-electric plants, power transmission lines, electrical substations, co-generation power plants and geothermal power plants. He has provided design for drilled piers, driven piles, stone columns and floating (rigid) mats, and has performed seismic risk evaluations, ground shaking analyses, liquefaction studies and liquefaction induced settlements studies. Mr. Lyon has conducted Phase I and Phase II ESA's throughout the Imperial and Coachella Valleys for over 7 years. Mr. Lyon's experience also includes forensic investigations for foundation/structural distress to residential, commercial and educational facilities, and has performed pressure grout stabilization and lifting for distress remediation.

Selected Project Experience

- **Aten Road Improvements, Imperial, CA**

Performed Phase I environmental site assessment for improvements to Aten Road in accordance to CalTrans requirements.

- **Gateway to the Americas, Calexico, CA**

Conducted Phase I ESA, geologic hazards study and geotechnical investigation including liquefaction evaluation for 1,700 acre development associated with new Port of Entry east of Calexico

- **El Centro Magistrate Court, El Centro, CA**

Conducted geotechnical investigation and Phase I ESA for new Federal Magistrate Court building at site with soft soil conditions requiring foundation settlement analysis

- **El Centro Regional Medical Center, El Centro, CA**

Conducted Phase I ESA and geotechnical investigation for 50,000 sf, 2-story addition to the medical center's emergency room, operating rooms, and recovery rooms.

- **Brawley Union High School, Brawley, CA**

Conducted Phase II investigation for PCB and lead contamination of surficial soil and hydrocarbon contamination of subsurface soil of a property proposed for purchase.

- **EW Corporation Site, Westmorland, CA**

Conducted Phase II investigation for hydrocarbon contamination of subsurface soil of a service station site with leaking underground storage tanks prior to property purchase

- **Various Apartment Complexes, Imperial County, CA**

Conducted Phase I environmental investigation at numerous proposed apartment complex site within the Imperial Valley

- **Hwy 98 Improvements, Imperial, CA**

Performed Phase I environmental site assessment for improvements to Hwy 98 for a new intersection in accordance to CalTrans requirements.

Professional Affiliations

American Society of Civil Engineers, Member
American Society of Testing Materials, Member
American Concrete Institute, Certified Examiner
Association of Professional Firms Practicing in the Geosciences, Member

GS Lyon

Steven K. Williams, CEG
Senior Engineering Geologist

Education
M.S. Geology
University of Utah, 1993
B.S. Geology
University of Utah, 1989

Registration
Registered Geologist
Arizona 3759
California 6975
Certified Engineering Geologist
California 2261

Professional Experience

2000 – Present	Project Geologist GS Lyon Consultants, Inc.
1994 - 2000	Staff Geologist GS Lyon Consultants, Inc.
1994	Field Geologist Bureau of Land Management
1991 - 1992	Exploration Geologist Kennecott Corporation

Summary of Experience
Mr. Williams has performed geotechnical investigations in southern California and southwestern Arizona. His field experience includes logging of soil borings and exploratory trenches, collection and documentation of soil samples, collection of field geotechnical data, and monitoring pile driving operations. Mr. Williams is also responsible for preparing computer generated data and figures, drafting and subsequent writing of geotechnical reports for a variety of projects including road improvements, fault studies, liquefaction potential evaluation, foundation preparation, seepage studies, structural distress, and soil investigations. He has performed geotechnical, geologic, and environmental studies for a wide variety of projects including correctional facilities, water and wastewater facilities, schools, residential subdivisions, commercial developments, and landfills throughout southern California and southwestern Arizona.

Mr. Williams also performs Phase I Environmental Site Assessments throughout the Imperial and Coachella Valleys. The scope of work for these projects typically include a site reconnaissance, review of government records pertaining to previous site uses, and preparation of a report identifying potential environmental risks.

He also conducts investigations for the potential of asbestos-containing materials and lead-based paint in old building projects and potential for soil contamination by hydrocarbons, pesticides, and other hazardous materials.

Professional Affiliations
Geological Society of America, Member

Selected Project Experience
- **El Centro Seniors Apartments, El Centro, CA**

Performed Phase I and Phase II environmental site assessments for apartment complex at old school district office site with underground storage tanks.
- **Central Main Canal Seepage Study, Imperial, CA**

Conducted 6-month groundwater seepage study for Imperial Irrigation District to evaluate high groundwater levels in Sandalwood Glen Subdivision
- **Gateway to the Americas, Calexico, CA**

Conducted Phase I ESA, geologic hazards study and geotechnical investigation including liquefaction evaluation for 1,700 acre development associated with new Port of Entry east of Calexico
- **El Centro Magistrate Court, El Centro, CA**

Conducted geotechnical investigation and Phase I ESA for new Federal Magistrate Court building at site with soft soil conditions requiring foundation settlement analysis
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- **Various Apartment Complexes, Imperial County, CA**

Conducted Phase I environmental investigation at numerous proposed apartment complex site within the Imperial Valley
- **Oasis Elementary School, Mecca, CA**

Conducted PEA environmental investigation for the new Oasis Elementary School prior to construction of school

EXHIBIT B

CONTRACT

C O N S U L T I N G A G R E E M E N T

This Consulting Agreement ("AGREEMENT") is made and entered into this 24th day of January, 2019by and between RECON Environmental, Inc. (hereinafter called ***"RECON"***) of 1927 Fifth Avenue, San Diego, California 92101-2387, and GS Lyon Consultants, Inc. (hereinafter called "SUBCONSULTANT") of 780 N. 4th Street, El Centro, CA 92243.

R E C I T A L S

Sempra Renewables, LLC (recently acquired by Con Edison, Inc.) ("Customer") has awarded ***RECON*** a contract ("Prime Contract") entitled Purchase Order 5009P000172 (RECON 8888). As part of said Prime Contract, ***RECON*** is required to provide services for which SUBCONSULTANT has extensive experience.

RECON and SUBCONSULTANT desire to enter into a Consulting Agreement whereby SUBCONSULTANT will, as an independent contractor, assist ***RECON*** in the performance of these tasks in accordance with the generally accepted standard of care of SUBCONSULTANT'S profession. **All services shall be performed by qualified personnel. SUBCONSULTANT shall provide *RECON* with copies of all applicable permits and certifications pertinent to scope of work to be performed.**

In light of the foregoing and in consideration of the mutual terms and covenants contained herein, it is hereby agreed as follows:

1. ***RECON*** retains SUBCONSULTANT as an independent contractor to perform the following tasks with respect to said Prime Contract.

   a. See Exhibit B for a detailed scope of work. Exhibit B is attached hereto and incorporated herein.

2. ***RECON*** agrees to pay SUBCONSULTANT $3,750 (Three thousand seven hundred and fifty dollars) for said services in accordance with the following method:

   a. ***RECON*** will forward all invoices received by the 25th of any month for work performed in the previous month to Customer as part of our regular billing on the 5th of the following month. Invoices received after the 25th will be held until the following monthly invoice cycle. SUBCONSULTANT invoices should be emailed to acctspay@reconenvironmental.com or sent to Attn: Accounting, 1927 Fifth Avenue, San Diego, California 92101-2387.

   b. ***RECON*** will pay SUBCONSULTANT after receipt of payment from Customer covering charges in forwarded invoices.

3. It is understood and agreed that time is of the essence in the performance of these obligations.

4. The Prime Contract is attached as Exhibit A and is hereby incorporated into and made part of this Agreement by this reference. With respect to its services, SUBCONSULTANT agrees to be bound to ***RECON*** in the same manner and to the same extent as ***RECON*** is bound to Customer under the Prime Contract. In the event of a conflict between a provision of the Prime Contract and this Agreement, the provision which imposes the more stringent requirement on the SUBCONSULTANT will prevail.

5. SUBCONSULTANT shall comply with accounting and audit requirements of the Prime Contract. ***RECON*** and Customer shall have access, at all reasonable times, to SUBCONSULTANT'S records for the purpose of auditing and verifying the accuracy of costs and hours relating to the work for which ***RECON*** is to credit SUBCONSULTANT under this Agreement. ***RECON*** shall have the right to reproduce any record considered pertinent to this Agreement. SUBCONSULTANT shall preserve, and shall require its sub SUBCONSULTANTs to preserve, and provide audit access to its records for the period required by the Prime Contract, or by law, if longer.

6. ***RECON*** shall have the right to use all of the data and resultant work product generated by SUBCONSULTANT in performing its obligations under this Consulting Agreement. It is understood that both sides retain the right to use SUBCONSULTANT's work product and tangible data generated by SUBCONSULTANT under this Agreement.

7. ***RECON*** shall have the ultimate control over the format and content of the final report submitted to the above-mentioned governmental agency. SUBCONSULTANT agrees that it will not, either directly or indirectly, interfere with or attempt to appropriate ***RECON's*** rights under the Prime Contract or any other contract right or business relationship between ***RECON*** and the Customer.

8. ***RECON*** has the right to make written demand upon SUBCONSULTANT for SUBCONSULTANT to supply ***RECON*** with reasonable assurance within 72 hours of receipt of said written demand that SUBCONSULTANT is proceeding in a satisfactory manner to complete the tasks under this Agreement by the date set forth in paragraph 3 above. In the event SUBCONSULTANT fails to give said reasonable assurances to ***RECON*** within said 72 hours, SUBCONSULTANT shall, at ***RECON's*** option, be deemed in breach of the obligations under this Consulting Agreement and ***RECON*** shall be relieved from any obligation under this Consulting Agreement and shall make separate arrangements for the completion of the tasks set forth in paragraph 1 above.

9. SUBCONSULTANT agrees to defend and indemnify ***RECON***, its officers, employees, and agents, and hold them harmless from any loss, damage, liability, and claims thereof arising directly or indirectly out of SUBCONSULTANT's breach of contract, willful misconduct, errors or omissions, or negligent performance of services under this Agreement, except to the extent the same results from the active negligence or the willful misconduct of ***RECON*** or its officers, employees, and agents.

10. SUBCONSULTANT shall perform its services hereunder in accordance with generally accepted environmental, planning, and technical practices in effect at the time the services are performed, and the work product shall be free of defects and performed to the reasonable satisfaction of ***RECON*** and Customer. Any deficiencies in the services or the work product shall be reported in writing to SUBCONSULTANT within a reasonable time after discovery thereof, and at Customer or ***RECON's*** request SUBCONSULTANT shall redo such services or work product at no additional cost to Customer or ***RECON***.

11 The parties agree that the SUBCONSULTANT and its employees, officers and agents, if any, are independent contractors under this Agreement and shall not be construed for any purpose to be employees or agents of ***RECON***. The SUBCONSULTANT is not entitled to participate in any pension plans, workers compensation insurance, or similar benefit plans that ***RECON*** provides to its employees.

12. Should litigation be necessary to enforce any term or provision of this Agreement, then all proceedings shall be resolved only in the state or federal courts of the County of San Diego, State of California. The prevailing party shall be entitled to a reasonable sum for attorney's fees, court costs, and any costs incurred in enforcing said resulting judgment.

13. SUBCONSULTANT shall not disclose nor permit disclosure of any information designated by ***RECON*** or Customer as CONFIDENTIAL, except to its employees who need such information in order to perform the services hereunder or unless approved in advance in writing by ***RECON*** or Customer.

14. If SUBCONSULTANT is contacted during the course of the work by public interest groups or news media, all requests for information will first be cleared and approved by ***RECON*** or Customer.

15. During the performance of this Agreement, the SUBCONSULTANT agrees to comply with all the requirements imposed by Title VI of the Civil Rights Act of 1984 (78 Stats 252); Title 49, CFR Part 21; Title V, Section 504, of the Rehabilitation Act, as amended; California Government Code Sections 11135-11139.5; and the Americans with Disabilities Act and the regulations issued thereunder.

This contractor and subcontractor shall abide by the requirements of 41 CFR 60-1.4(a), 60-300.5(a) and 60-741.5(a). These regulations prohibit discrimination against qualified individuals based on their status as protected veterans or individuals with disabilities and prohibit discrimination against all individuals based on their race, color, religion, sex, sexual orientation, gender identity, or national origin. Moreover, these regulations require that covered prime contractors and subcontractors take affirmative action to employ and advance in employment individuals without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, disability, or veteran status.

16. If any provision of this Agreement shall be held to be invalid, illegal, unenforceable, or in conflict with the law of any jurisdiction, the validity, legality, and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

17. Neither this Agreement nor any part thereof shall be assigned by the SUBCONSULTANT without the prior written consent of ***RECON***.

18. The SUBCONSULTANT, its employees, agents, contractors, and subcontractors shall maintain professional licenses required by the laws of the State of California at all times while performing services under this Agreement. Further, SUBCONSULTANT shall provide ***RECON*** with a copy of the required professional license(s) immediately upon request.

19. There are no understandings or agreements except as herein expressly stated.

In witness whereof, SUBCONSULTANT and ***RECON*** have executed this Agreement by their duly authorized representatives.

GS Lyon Consultants, Inc.	RECON Environmental, Inc.
By	By
Jeffrey O. Lyon	Michael Page, Vice President
Printed Name and Title Principal	Printed Name and Title
2/8/19	2/8/2019
Date	Date

Federal Employer
Identification Number _____ *(please provide a current W-9)*

NHL:gps

Purchase order: 3000170172
Version Number: 1

Purchase order

PROJECT: WESTSIDE CANAL ENERGY CENTER

Purchase order date: 3/21/2018

CONTRACTOR: RECON ENVIRONMENTAL INC
1927 FIFTH AVE
SAN DIEGO, CA 92101
USA

(p): 619-308-9333

COMPANY: Sempra Renewables, LLC
488 8th Ave
San Diego, CA 92101
USA

EMAIL PDF INVOICE TO: A/P Email: Sempra-5009@mail.axtension-us.readsoftonline.com

Job\Project Location	**Instructions**	**Supply Management Representative**
Sempra Renewables, LLC 488 8th Ave San Diego, CA 92101 USA Contact Person: EVELYN MOKIN (p): 6196963106 (e): emokin@sempraglobal.com	Payment Terms: NET 30 Freight Terms: Shipping Method:	Name: MATTHEW KISSEL Sempra Renewables, LLC (p): 619-696-2990 (e): mkissel@sempraglobal.com

LINE	INTERNAL ITEM #	SUPPLIER PART #	MATERIAL/SERVICE DESCRIPTION	DELIVERY DATE	QTY	UNIT	UNIT PRICE	TAX AMOUNT	LINE ITEM TOTAL
1	Avian and Bat Studies		Habitat Assessment - Environmental	3/20/2018	9,960.00	EA	1.00	0.00	9,960.00
2	Avian and Bat Studies		Breeding Season Survey - Environmental	3/20/2018	45,290.00	EA	1.00	0.00	45,290.00
3	Avian and Bat Studies		Expenses - Environmental	3/20/2018	3,231.00	EA	1.00	0.00	3,231.00

SUBTOTAL	58,481.00
TOTAL TAX	0.00
TOTAL CHARGES	0.00
TOTAL AMOUNT	58,481.00

Special Instruction: Contractor to perform services as specified in Attachment A – Scope of Work.

THIS PURCHASE ORDER SHALL BE SUBJECT TO THE ATTACHED TERMS AND CONDITIONS.

Sempra Renewables, LLC Authorizer Name and Title	**Sempra Renewables, LLC Authorized Signature**	**Date**
MATTHEW KISSEL, Buyer		03/21/2018

This purchase order number must be referenced on all invoices and communications.

Sempra Renewables, LLC is not the same company as the California utilities, San Diego Gas & Electric (SDG&E) or Southern California Gas Company (SoCalGas), and
Sempra Renewables, LLC is not regulated by the California Public Utilities Commission.

PURCHASE ORDER TERMS AND CONDITIONS REVISION DATE 7/15/15

1. Parties. This Purchase Order ("Order") is between Company and Contractor. Contractor is the firm, person, corporation, or business entity supplying the goods or performing the services specified in this Order (in each case a "Good" or Service").
2. Acceptance of Terms. Contractor agrees to be bound by and to comply with all terms and conditions set forth herein and in the Order, to which these terms are attached, including any amendments, supplements, specifications and other documents referred to herein. ANY ADDITIONAL OR DIFFERENT TERMS AND CONDITIONS PROPOSED BY CONTRACTOR PRIOR TO THE EXECUTION OF THIS ORDER ARE HEREBY EXPRESSLY REJECTED. ANY ADDITIONAL OR DIFFERENT TERMS AND CONDITIONS PROPOSED BY CONTRACTOR AFTER THE DATE OF THIS ORDER SHALL BE OF NO FORCE AND EFFECT UNLESS EXPRESSLY AGREED TO IN WRITING BY COMPANY. Contractor accepts and shall be bound by the terms and conditions of this Order upon the earlier of (1) the date on which it executes and returns the acknowledgment copy or (2) when it commences performance. No other form of acceptance shall be binding on Company.
3. Change Orders. Company may at any time, in writing, direct or authorize Contractor to make changes or modifications within the general scope of this Order. If such changes or modifications necessitate an increase or decrease in the amount due or in the time required for performance, such matters shall be agreed upon in writing prior to proceeding with the change. No payment shall be made by Company for any change or modification not so directed or authorized prior to proceeding with the change.
4. Prices. All prices are firm and shall not be subject to change. Unless otherwise stated on the face of this Order, the price includes all packaging, dunnage, containers, etc. to protect the goods in transit.
5. Invoicing. If Contractor's invoice price does not match the Order price, Company shall pay Contractor the lesser amount. Contractor will be notified of the reason for the adjustment and Contractor reserves the right to dispute the adjusted amount. Contractor shall add a separately stated amount for sales or use tax computed at the current legal rate. When Contractor is considered to be a retailer of taxable tangible personal property, Contractor shall add a separately stated amount for State sales or use tax computed at the current legal rate. Any non-taxable charges such as freight, installation, technical service or optional warranties shall also be separately stated and excluded from the taxable computation.
6. Quantities. Company is not obligated to purchase any quantity of Goods and/or Services except for such quantities as may be specified in this Order. Unless otherwise agreed to in writing by Company, Contractor shall not make material commitments or production arrangements in excess of the quantities specified in this Order and/or in advance of the time necessary to meet Company's delivery schedule. Should Contractor enter into such commitments or engage in such production, any resulting exposure shall be for Contractor's account. Quantities received in excess of that shown in this Order may be returned by Company at Contractor's risk and expense, including but not limited to any cost incurred by Company related to storage and handling of such goods. Any excess quantities which Company accepts shall be at a price agreed between the parties.
7. Delivery. Time is expressly agreed to be of the essence of this Order and each and every term, condition and provision hereof. If Contractor delivers the Goods or completes the Services later than scheduled, Company may assess such amounts as may be set on the face of this Order as liquidated damages for the delay period. The parties agree that such amounts, if stated on the face of this Order, are an exclusive remedy for the damages resulting from the delay period only; are a reasonable pre-estimate of such damages Company will suffer as a result of delay based on circumstances existing at the time the Order was issued; and are to be assessed as liquidated damages and not as a penalty. In the absence of agreed to liquidated damages on the face of the Order, Company shall be entitled to recover damages that it incurs as a result of Contractor's failure to perform as scheduled. Company's resort to liquidated damages for the delay period does not preclude Company's right to other remedies, damages and choices under this Order other than the damages resulting from the delay period, including, but not limited to Company's right to terminate this Order for non-delivery. All delivery designations are INCOTERMS 2010. Unless otherwise stated on the face of this Order, all goods provided under this Order shall be delivered FCA Contractor's facility. Company may specify contract of carriage in all cases. Failure of Contractor to comply with any such Company specification shall cause all resulting transportation charges to be for the account of Contractor and give rise to any other remedies available at law or equity.
8. Inspection of Goods. All goods purchased are subject to inspection, test, and approval at destination by Company, notwithstanding prior payments or inspections at the source. Company, without limitation to its other rights under this Order but subject to Article 9 below, may reject any goods which contain defective materials or workmanship, do not conform to the specifications, or are not as ordered. Rejected goods may be returned by the method of transportation selected by Contractor at Contractor's risk and expense. Acceptance of any goods shall not be deemed to alter or affect the obligations of Contractor or the rights of Company under any other term or condition of this Order.
9. Warranties. Contractor expressly warrants that all Goods and Services furnished pursuant to this Order shall be (1) provided in strict accordance with all specifications, drawings, designs or other requirements approved or adopted by Company and (2) free from defects in design, materials and workmanship, and be fit for the uses and purposes intended by Company. Contractor further warrants that all Services will be performed in an orderly and professional manner and in accordance with established professional business standards and ethics applicable to the Services and in conformity with each and every term of this Order. The foregoing warranties shall apply for a period of 24 months from the date of Contractor's delivery of all Goods to destination/performance of the Services. If any of the Goods and/or Services are found to be defective or otherwise not in conformity with the warranties in this section during the warranty period, then Company, at its options and sole discretion and at Contractor's expense may (A) require that Contractor repair or replace/ re-preform any nonconforming Goods and/or Services within a reasonable time; (B) take such actions as may be required to cure all defects and/or bring the Goods and/or Services into conformity with all requirements of this Order, in which case all related costs and expenses shall be for Contractor's account and Company may set-off such costs against any payment obligations it has to Contractor; and/or (C) reject and return all or any portion of such Goods and/or Services. Contractor shall promptly reimburse Company for any and all damages and repair costs resulting from, or due to, any deficiencies in the Goods and/or Services supplied by Contractor. Any repaired or replaced Goods, or part thereof, or re-performed Services shall carry warranties of the same terms as set forth above, with the warranty period being the greater of the original unexpired warranty or 24 months after repair or replacement.
10. Subcontractors. Contractor agrees to use, and agrees that it shall require each of its subcontractors, if any, to use, only personnel who are qualified and properly trained and who possess every license, permit, registration, certificate or other approval required to enable such personnel to perform their work involving any part of Contractor's obligations under this Order. Prior to commencing Services and upon request of Company, Contractor will provide a list of employees and subcontractor's employees who will directly perform Services. Company has the right to disapprove the use of one or more of Contractor's or subcontractor's employees performing the Services, and upon such notice of disapproval, Contractor shall

immediately cease the use of such individual(s) in performing the Services.

11. Independent Contractor.

14.1. Contractor's Relationship with Company. It is agreed that Contractor is an independent business separate from Company and shall deliver the Goods or perform the Services as an independent contractor, and no principal-agent or employer-employee relationship or joint-venture partnership shall be created with Company. Contractor shall not hold itself or its employees out as employees or agents of Company.

14.2. Individuals Performing Services; Benefits and the Patient Protection and Affordable Care Act of 2010, as amended (the "Affordable Care Act"). Regardless of the nature or duration of any assignment with Company, neither Contractor, subcontractor nor any individuals performing Services shall be eligible for or entitled to participate in any of Company's employee benefit plans, programs, policies or practices which may now or in the future be in effect, including, without limitation, any pension, retirement, or 401(k) plan; any profit sharing, stock option, bonus or incentive compensation plan; any life or health insurance plan; any vacation or holiday pay plan; or any separation payment plan. Contractor shall, or shall require that the appropriate subcontractor is contractually obligated to, treat individuals performing Services as its employees for the purposes of satisfying the requirements of the Affordable Care Act, including but not limited to the requirements of Internal Revenue Code Section 4980H, the associated reporting requirements of Internal Revenue Code Section 6056, and the requirements of Sections 18A and 18B of the Fair Labor Standards Act. Furthermore, Contractor shall, or shall require that the appropriate subcontractor is contractually obligated to, offer minimum essential coverage that is both affordable and minimum value to all individuals performing Services under this Order who are full-time employees (and their dependents) in accordance with Internal Revenue Code section 4980H and the regulations issued thereunder, provided that the Contractor or applicable subcontractor is a "large employer" subject to section 4980H.

12. Ownership of Intellectual Property.

12.1. Proprietary Rights. Any idea, invention, work of authorship, drawing, design, formula, algorithm, utility, tool, pattern, compilation, program, device, method, technique, process, improvement, enhancement, modification, development, discovery, trade secret, patent, copyright or intellectual property, including without limitation Work Product (as defined in Section 12.5) (hereinafter, collectively, "Proprietary Right"), whether or not patentable, or copyrightable, or entitled to legal protection as a trade secret or otherwise, that Contractor may conceive, make, develop, create, reduce to practice, or work on, in whole or in part, in the course of delivering Goods or performing Services shall be owned by Company and shall be delivered to Company upon delivery of the Goods or completion of the Services. Contractor agrees that any such Proprietary Right that is copyrightable shall constitute a "work made for hire". Contractor hereby assigns and grants to Company, without royalty or any further consideration, Contractor's entire right, title and interest in and to any such Proprietary Rights, including any work made for hire. At Company's request, Contractor shall execute an assignment or other document confirming such transfer upon the completion of any such Proprietary Right.

12.2. Contractor Material. Unless specifically intended to be transferred to Company as provided elsewhere in this Order, any Proprietary Right conceived, developed or reduced to practice by Contractor prior to the delivery of Goods or performance of Services ("Contractor Material") shall remain the property of Contractor, provided that if any such Contractor Material are used in and become integral with the Goods, Services or any Work Product, or are necessary for Company to have complete enjoyment of the Goods, Services or Work Product, Contractor hereby grants to Company an irrevocable, assignable, nonexclusive royalty-free unrestricted license as may be required by Company for complete enjoyment of the Goods, Services and Work Product, including without limitation the right to use, copy, correct, repair, replace, maintain, translate, modify, publish, dispose of, distribute and make derivatives of any or all of the Goods, Services and Work Product and grant sublicenses to others with respect to the Goods, Services and Work Product.

12.3. Third-Party Proprietary Rights. If the Goods, Services or Work Product includes the Proprietary Rights of third parties, Contractor shall procure, at no additional cost to Company, all necessary licenses regarding such third-party Proprietary Rights so as to allow Company the complete enjoyment of the Goods, Services and Work Product. All such licenses shall be in writing and shall be irrevocable and royalty-free to Company.

12.4. Enforcement. If requested by Company, Contractor agrees to take all actions necessary, at Company's sole cost and expense, to obtain, maintain or enforce patents, copyrights, trade secrets and other proprietary rights in connection with any Proprietary Right, and Contractor agrees that its obligations under this Article shall survive termination or expiration of this Order.

12.5. Work Product. Any and all material and information prepared, accumulated or developed by Contractor, any subcontractor or their respective employees or representatives, including, without limitation, documents, drawings, designs, calculations, maps, plans, work plans, text, filings, estimates, manifests, certificates, books, specifications, sketches, notes, reports, summaries, analyses, data models and samples, including summaries, extracts, analyses and preliminary or draft materials developed in connection therewith, that are required to be delivered by Contractor to Company under this Order (hereinafter, collectively "Work Product") shall become the sole property of Company without any further consideration to be provided therefore when (a) prepared or in process, in connection with the Services and (b) whether or not actually delivered by Contractor. Contractor shall deliver the Work Product, or any portion thereof, to the Company as provided in this Order, and, in any event, upon termination or expiration of this Order.

12.6. Non-Infringing. Contractor represents and warrants that the Goods, Services and Work Product shall not infringe or violate any trade secret, trademark, trade name, copyright, patent or any other intellectual property rights of any person. If a claim is made against Company or any of its affiliates that the Goods, Services or Work Product do infringe or violate any intellectual property rights of any person, Contractor shall, at its expense and at Company's option, (a) refund any amounts paid by Company under this Order, (b) procure for Company the right to continue using the Goods, Services and Work Product, or (c) replace or modify the Goods, Services and Work Product as approved by Company so as to obviate any such claim. The remedies provided in this Section 12.6 shall not limit the indemnification obligations in Section 13.

13. Indemnity.

13.1. Contractor shall be solely liable for and Contractor shall indemnify, defend and hold Company, and its direct or indirect parent company, subsidiaries, affiliates, divisions and their respective directors, officers, shareholders, employees, agents, representatives, successors and assigns (collectively, "Indemnitees") harmless from and against any and all claims, actions, suits, proceedings, losses, liabilities, penalties, damages, costs or expenses (including attorneys' fees and disbursements) of any kind whatsoever (collectively, "Claims") resulting from (1) injuries to or death of any and all individuals or damage to, loss, and/or destruction of property, including, without limitation, property of Company, arising out of or connected in any manner with the delivery of the Goods and/or performance of the Services, whether or not the conduct of Contractor or any subcontractor was tortious and whether or not Company's tortious conduct contributed to the property damage, (2) Actual or alleged infringement or misappropriation by Contractor or any subcontractor or other representative of any patent, copyright, trade secret, trademark, service mark, trade name, or other intellectual property right in connection with the Goods and/or Services, including without limitation, any deliverable; (3) Contractor's violation of any third party license to use intellectual property in connection with the Goods and/or Services; (4) third party claims of any kind, whether based upon negligence, strict liability or otherwise, arising out of or connected in any manner to Contractor's acts or omissions in breach of this Order, (5)

Contractor's failure to comply with any term of this Order, or (6) the failure of Contractor to cause any mechanics lien or stop notice claim to be fully discharged. The indemnification obligation shall not apply to the extent that injuries, death, loss, damage or destruction is caused by the willful act of Company, its agents or employees, or Company's sole and direct gross negligence.

13.2. Contractor shall, and shall require that all subcontractors are contractually obligated to, indemnify, defend and hold Indemnitees harmless from and against all Claims: (a) asserted by or on behalf of any individual performing work under this Order alleging that, in connection with such work, he or she is entitled to participate in any Indemnitee's employee benefit plans, programs, policies or practices which may now or in the future be in effect, including, without limitation, any pension, retirement, 401(k), profit sharing, stock option, bonus, incentive compensation, life insurance, health insurance, vacation, holiday, or separation payment plan; and (b) arising out of any assertion by the IRS that an individual performing work under this Order is a common law employee of the Company, its parent, subsidiaries or affiliates, including but not limited to any Claims for taxes owed under Internal Revenue Code Section 4980H.

13.3. If any third party claims for which Company is entitled to indemnification are made or threatened, Company may retain all or any part of the money due Contractor under this Order as it shall consider necessary until all such claims have been settled and evidence to that effect has been furnished to the satisfaction of Company.

13.4. Contractor assumes exclusive liability for and shall pay before delinquency, all federal, state, regional, municipal or local sales, use, excise and other taxes, charges or contributions imposed on, or with respect to, or measured by (i) the equipment, materials, supplies or labor furnished hereunder, (ii) the wages, salaries or other remunerations paid to individuals employed in connection with, the performance of the Services, (iii) any failure to comply with the Affordable Care Act with respect to individuals performing Services. Contractor shall indemnify, defend and hold Company, and its current and future Affiliates and their respective directors, officers, shareholders, employees, agents, representatives, successors and assigns harmless from and against any claim, liability, penalty, interest and expense arising by reason of Contractor's failure to pay such taxes, charges or contributions.

13.5. Contractor's obligation to indemnify Company under this Article 13 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for Contractor under any statutory scheme, including, without limitation, under any Workers Compensation Acts, Disability Benefit Acts or other Employee Benefit Acts.

14. Insurance.

14.1. General Requirements. On or before the effective date of this Order, and thereafter during its term, Contractor shall provide Company with current certificates of insurance including applicable endorsements, and renewal certificates of insurance including applicable endorsements thereafter, executed by a duly authorized representative of each insurer, or by the insurance agent or broker authorized to do so, as evidence of all insurance policies required under this Article 9. Contractor shall cooperate with the third party vendor hired by Company to obtain certificates of insurance and to monitor compliance with these insurance requirements on Company's behalf. Contractor shall not commence Services until Contractor has obtained all insurance required by this Article and has provided acceptable certificates of insurance. Insurance policies may not be cancelled or materially revised without at least thirty (30) calendar days prior written notice being given to Company, ten (10) days for non-payment of premium. Contractor shall provide Company with renewal certificates of insurance including applicable endorsements or binders within five (5) business days prior to or after such expiration. Insurance shall be maintained without lapse in coverage during the term of this Order. Company shall be named as an additional insured by endorsement or blanket endorsement in all policies required in this Article except for Workers' Compensation. All such general liability insurance shall provide a severability of interest or cross-liability clause. The required policies, and any of Contractor's policies providing coverage in excess of the required policies, shall provide that the coverage is primary for all purposes and Contractor shall not seek any contribution from any insurance or self-insurance maintained by Company. All required policies of insurance shall be written by companies having an A.M. Best rating of "A-" or better, or equivalent. Contractor shall be solely responsible for any deductible or self-insured retention on insurance required hereunder this Order. Each policy of insurance maintained by Contractor shall contain a waiver of subrogation in favor of Company. The insurance requirements shall not in any way limit the amount or scope of liability of Contractor under this Order.

14.2. Commercial General Liability Insurance. Contractor shall maintain an occurrence form commercial general liability policy or policies, insuring against liability arising from bodily injury, property damage, personal and advertising injury, independent contractors liability, products and completed operations and contractual liability covering all operations of Contractor for Work performed under this Order. Such coverage shall be in an amount of not less than $1,000,000.00 per occurrence. If the policy maintains a policy aggregate, such aggregate shall not be less than twice the per occurrence limit.

14.3. Commercial Automobile Liability Insurance. Contractor shall maintain an automobile liability policy or policies insuring against liability for damages because of bodily injury, death, or damage to property, (including loss of use thereof), and occurring in any way related to the use, loading or unloading of any of Contractor's automobiles (including owned, non-owned, leased, rented and/or hired vehicles). Such coverage shall be in an amount of not less than $1,000,000.00 combined single limit. Contractor's automobile liability insurance coverage shall contain appropriate no-fault insurance provisions or other endorsements in accordance with applicable laws. Coverage shall be at least as broad as the Insurance Services Office Business Auto Coverage form covering Automobile Liability, code 1 "any auto". If Services involve hauling hazardous materials, coverage shall include MCS 90 endorsement.

14.4. Workers Compensation Insurance. In accordance with the laws of the State(s) in which the work shall be performed, Contractor shall maintain in force workers compensation insurance for all of its employees. If applicable, Contractor shall obtain U.S. Longshoremen's and Harbor Workers compensation insurance, separately, or as an endorsement to Workers Compensation Insurance. Contractor shall also maintain employer's liability coverage in an amount of not less than $1,000,000.00 per accident and per employee for disease. In lieu of such insurance, Contractor may maintain a self-insurance program meeting the requirements of the State(s) in which the work shall be performed along with the required employer's liability insurance coverage.

14.5. Reports. Contractor shall immediately report to Company, and promptly thereafter confirm in writing, the occurrence of any injury, loss or damage incurred by Contractor or its consultants, subcontractors, sub-subcontractors, suppliers, agents or Contractor's receipt of notice or knowledge of any claim by a third party of any occurrence that might give rise to such a claim. Upon completion of the Services, Contractor shall submit to Company a written summary of all such injuries, losses, damage, notices or third party claims and occurrences that might give rise to such claim

15. Assignment. Contractor shall not assign or subcontract any of its rights or obligations under this Order without the prior written consent of Company. In no event shall Company's written consent be construed as discharging or releasing Contractor from the performance of its obligations specified in this Order. Contractor shall remain jointly and severally liable with any subcontractor of its rights or obligations.

16. Time. Time is expressly agreed to be of the essence of this Order and each and every term, condition and provision hereof.

17. Governing Law. The formation, interpretation and performance of this Order shall be governed by the internal laws of the State of California, including, except to the extent that the terms and conditions of this Order are clearly inconsistent therewith, any applicable provisions of California's Uniform Commercial Code. To the extent that this Order entails delivery or performance of services, such services shall be deemed "goods" within the meaning of the Uniform Commercial Code, except when to so deem such services as "goods" would result in an absurdity.
18. Compliance with Laws. Contractor represents and warrants that it is familiar with, and at all times shall comply with, all applicable federal, state, and local laws, ordinances, rules, regulations, and executive orders, all applicable safety and environmental orders, and all orders or decrees of administrative agencies, courts, or other legally constituted authorities having jurisdiction or authority over Contractor, Company, or the Goods and/or Services, which may now or hereafter exist.
19. Termination and Suspension.
19.1. Termination for Default. Company may terminate all or any part of this Order upon the occurrence of any of the following events: (1) Contractor becomes bankrupt or insolvent, (2) Contractor assigns this Order, or sublets any part thereof, without the written authorization of Company, or (3) Contractor fails to perform or violates any of the provisions of this Order. Upon such termination, Company shall have the right to continue and complete the work or any part thereof, by contract or otherwise and Contractor shall be liable to Company for any and all loss, damage, penalties and excess cost incurred by Company caused by Contractor's failure to execute the requirements of this Order. The remedies herein shall be inclusive and additional to any other remedies in law or equity, and no action by Company shall constitute a waiver of any such right or remedy.
19.2. Termination for Convenience. Company may terminate all or any part of this Order at any time for its sole convenience by written notice to Contractor. Termination shall be effective upon actual receipt by Contractor or its representative of the notice, or 48 hours after deposit of the notice in the U.S. mail, whichever occurs first. Upon receipt of notice, Contractor shall immediately cease performance under this Order to the extent specified. Upon termination pursuant to this Article, an equitable adjustment shall be made by agreement between Company and Contractor for the reasonable value of the work performed prior to termination. In no event shall the equitable adjustment include an amount for unperformed work or anticipated profit on unperformed work. Company shall have the right to review and verify by independent audit, any termination charges claimed by Contractor.
19.3. Suspension. Company may suspend all or any part of this Order at any time for its sole convenience by written notice to Contractor. Upon receiving notice of suspension, Contractor shall promptly suspend work to the extent specified, properly caring for and protecting all work in progress and materials, supplies and equipment Contractor has on hand for performance. Upon Company's request, Contractor shall promptly deliver to Company copies of outstanding purchase orders and subcontracts for materials, equipment and/or services for the work and take such action relative to such purchase orders and subcontracts as Company may direct. Company may at any time withdraw the suspension as to all or part of the suspended work by written notice specifying the effective date and scope of withdrawal. Contractor shall resume diligent performance on the specified effective date of withdrawal. All claims for increase or decrease in the cost of or the time required for the performance of any work caused by suspension shall be pursued pursuant to, and consistent with, Section 3.
20. Audit. Company reserves the right to audit and to examine any cost, payment, settlement or supporting documentation relating to any Order. Any such audit(s) shall be undertaken by Company or its representative from a certified public accounting firm at reasonable times and in conformance with generally accepted auditing standards. Contractor agrees to fully cooperate with any such audit(s). Contractor shall refund to Company the amount of any exception found in the audit within ten (10) days of receipt of written notice of the exception. If Contractor fails to make such payment, Contractor shall pay interest at a rate of ten percent (10%) per annum, accruing from the date of written notification of exception(s) to the date Contractor reimburses Company for any exception(s). This right to audit shall extend for a period of five (5) years following the date of final payment under this Order and Contractor shall retain all necessary records/documentation for the entire length of this audit period.
21. No Publicity. Without the prior written consent of Company, neither Contractor, nor its subcontractors and agents shall engage in advertising, promotion or publicity related to this Order, or make public use of any Company Identification in any circumstances related to this Order or otherwise. As used in this Order, "Identification" means any corporate name, trade name, trademark, service mark, insignia, symbol, logo or any other product, service or organization designation, or any specification or drawing owned by Company or its affiliates or any representation thereof.
22. Confidentiality. Contractor agrees that is shall use any proprietary or confidential information of Company solely for the purposes of performing its obligations under this Order and not in any way detrimental to Company or its affiliates or for Contractor's own benefit. Contractor shall use no less than a reasonable standard of care to prevent unauthorized use or disclosure of Company's proprietary or confidential information. Upon request of Company, Contractor shall promptly deliver to Company or destroy if so directed by Company all proprietary or confidential information of Company. Contractor acknowledges that the proprietary or confidential information is valuable and unique, and that damages would be an inadequate remedy for breach of this Order and the obligations of the Contractor are specifically enforceable. Accordingly, the parties agree that in the event of a breach or threatened breach of this Order by Contractor, Company shall be entitled to seek an injunction preventing such breach, without the necessity of proving damages or posting any bond. Any such relief shall be in addition to, and not in lieu of, monetary damages or any other legal or equitable remedy available to Company.
23. Validity. The invalidity, in whole or in part, of any terms or conditions of this Order shall not affect the validity of any other terms or conditions.
24. Disputes. In the event of any litigation to enforce or interpret any terms or conditions of this Order, the parties agree that such action will be brought in the Superior Court of the County of San Diego, California (or, if the federal courts have exclusive jurisdiction over the subject matter of the dispute, in the U.S. District Court for the Southern District of California), and the parties hereby submit to the exclusive jurisdiction of said court. In any action in litigation to enforce or interpret any of the terms or conditions of this Order, the prevailing party shall be entitled to recover from the unsuccessful party all costs, expenses (including expert testimony), and reasonable attorneys' fees (including in-house and outside counsel) incurred therein by the prevailing party. In no event shall the litigation of any controversy or the settlement thereof delay the performance of this Order.
25. Survival. The obligations imposed on Contractor pursuant to each Article of this Order, which by its terms contains subject matter which relates to time periods subsequent to the term of this Order, including without limitation the following Articles: Warranty; Indemnity; Disputes; Confidentiality; and this Survival provision, shall survive delivery of Goods, completion of Services or Termination of the Order.
26. Remedies. The remedies reserved in this Order are cumulative and in addition to any other remedies in law or equity which may be available to Company. The election of one or more remedies shall not bar the use of other remedies unless the circumstances make the remedies incompatible.
27. Complete Order. This Order, which includes any supplemental documents attached hereto, sets forth the entire agreement between Company and Contractor, and supersedes all other oral or written provisions. THE PARTIES HEREBY AGREE THAT NO TRADE USAGE; PRIOR COURSE OF DEALING OR COURSE OF PERFORMANCE UNDER THIS ORDER SHALL BE A PART OF THIS ORDER OR SHALL BE USED IN THE INTERPRETATION OR CONSTRUCTION OF THIS ORDER. No modification of any of the provisions shall be binding on the Company unless expressly agreed to in writing by Company.

Attachment A – Scope of Work

RECON has prepared the following scope of services and associated cost estimates based on the project description and exhibits provided by Sempra Renewables, which is summarized above. At this point in time Sempra is requesting a habitat assessment for burrowing owls and, if necessary, breeding season and non-breeding season surveys. Ultimately Sempra Renewables intends to submit a Conditional Use Permit (CUP) application package to Imperial County, along with environmental documents prepared in compliance with the California Environmental Quality Act (CEQA) and the Imperial County Guidelines for CEQA Compliance. The following scope of services is for burrowing owl only. All additional environmental services are to be conducted under a separate agreement.

Burrowing Owl Habitat Assessment

RECON biologists will compile relevant biological information for the project site and check all available sources for burrowing owl occurrence information.

In accordance with the 2012 CDFW Staff Report on Burrowing Owl Mitigation, RECON biologist(s) will conduct at least one visit covering the project site and the adjoining areas within 150 meters (approximately 500 feet), where direct or indirect effects could potentially extend off site; the assessment area is estimated at 328 acres. If lawful access cannot be achieved to adjacent areas, surveys will be performed with a spotting scope or other methods. The habitat assessment will aim for 100 percent visual coverage of the main project component, i.e., the hybrid renewable energy facility; any other project components requiring vegetation removal or ground disturbance; and the surrounding 150-meter buffer.

RECON biologists will record any inventoried biological resources located during the survey and will comply with the reporting requirements of the California Natural Diversity Data Base (CNDDB).

RECON biologists will prepare a report for submittal to Sempra Reneables, Imperial County, and the California Department of Fish and Wildlife (CDFW) describing the biological setting of the survey area and any burrowing owl or burrowing owl sign observed during the Habitat Assessment, in accordance with Appendix C of the 2012 CDFW Staff Report on Burrowing Owl Mitigation. RECON will complete up to two rounds of revisions to the report.

Burrowing Owl Breeding Season Survey

In accordance with Appendix D of the of the 2012 CDFW Staff Report on Burrowing Owl Mitigation, qualified RECON biologists will conduct 4 survey visits in suitable habitat within the project site and surrounding 150-meter (approximate 500-foot) buffer. If lawful access cannot be achieved to adjacent areas, surveys will be performed with a spotting scope or other methods. The surveys will aim for 100 percent visual coverage of the main project component, i.e., the hybrid renewable energy facility; any other project components requiring vegetation removal or ground disturbance; and the surrounding 150-meter buffer.

The surveys will be conducted with: 1) at least one site visit between 15 February and 15 April, and 2) a minimum of three survey visits, at least three weeks apart, between 15 April and 15 July, with at least one visit after 15 June.

RECON will prepare a letter report to Sempra Renewables, Imperial County, and CDFW describing the results of the burrowing owl surveys, in accordance with Appendix D of the 2012 CDFW Staff Report on Burrowing Owl Mitigation. RECON will complete up to two rounds of revisions to the report.

Purchase Order 5009P000172

PURCHASE ORDER
CHANGE ORDER 1

PROJECT: **Westside Canal Energy Center**

Purchase Order Date: September 20, 2018

CONTRACTOR:
Recon Environmental Inc.
1927 Fifth Ave.
San Diego, CA 92101
Attn: Nick Larkin
(p): (619) 308-9333 ext. 144
(e): nlarkin@reconenvironmental.com

COMPANY: *EMAIL PDF INVOICE OR MAIL INVOICE TO:*
Sempra Renewables LLC
Attn: Accounts Payable
488 8th Avenue, HQ AP
San Diego, CA 92101
A/P Email: Sempra-5009@mail.axtension-us.readsoftonline.com

Job/Project Location		**Supply Management Representative**
Sempra Renewables LLC 488 8th Avenue San Diego, CA 92101 Contact Name: Marilyn Teague (p): (619) 696-4910 (e): mteague@SempraGlobal.com		Name: Angela Sablan Senior Buyer (p): (619) 696.1851 (e): asablan@sempraglobal.com

DESCRIPTION OF CHANGE ORDER

Increase funding by $50,996 (Fifty Thousand Nine Hundred Ninety-Six Dollars) for a new total NTE value of $109,477 (One Hundred and Nine Thousand Four Hundred Seventy-Seven Dollars) additional services as described in Attachment A1 – Scope of Work.

1.0 COMMERCIAL TERMS

Full compensation to Contractor for performance of the Services shall be the sum of the following unit prices.

Line	Part Number SKU Number	Material/ Services Description	QTY	UOM	Rate per Unit	Line Item Total
1	Avian and Bat Studies	Habitat Assessment	9,960	EA	1.00	$9,960
2	Avian and Bat Studies	Local Site Plan Preparation – Permitting	45,290	EA	1.00	$45,290
3	Avian and Bat Studies	Aerial Planimetric Survey – Permitting	3,231	EA	1.00	$3,231
4	Environmental review/assessment/licensing/permitting	Consulting Services	50,996	EA	1.00	$50,996
					NTE TOTAL	**$109,477**

1.1 Payment Terms. Subject to any applicable retainage and holdbacks, after receipt of an invoice from Contractor, Company shall make payment **NET 30 DAYS** by check, wire transfer, ACH or other methods of any undisputed amounts set forth in such invoice to the following address:

1927 Fifth Ave., San Diego, CA 92101

Failure by Company to pay any amount in dispute until resolution of such dispute in accordance with this Agreement shall not alleviate, diminish, modify or excuse the performance of Contractor's obligations hereunder.

1.2 Freight Terms. INTENTIONALLY OMITTED.

1.3 Taxes. Contractor assumes exclusive liability for and shall pay before delinquency, all federal, state, regional, municipal or local

sales, use, excise and other taxes, charges or contributions imposed on, or with respect to, or measured by the equipment, materials, supplies or labor furnished hereunder, or the wages, salaries or other remunerations paid to individuals employed, in connection with, the performance of the Services. Contractor shall indemnify, defend and hold Company harmless from and against any Claims arising by reason of Contractor's failure to pay such taxes, charges or contributions.

1.3.1 Withholding. Contractor understands that compensation payable to Contractor for the Services may be subject to withholding consistent with Applicable Law except to the extent Contractor qualifies for any exemption from such withholding as prescribed by such Applicable Law (in which case Contractor shall provide copies of all resale and exemption certificates evidencing such exemption).

1.3.2 Duty to Minimize Taxes. Contractor and Company shall make commercially reasonable efforts to cooperate with each other to minimize the tax liability of both Parties to the extent legally permissible (and with no duty to increase either Party's tax liability).

1.4 Change Requests. Company may request, and Contractor shall provide, proposals for scope of work changes (additions and deletions) which are priced, at Company's option, by one or a combination of the following methods:

1.4.1 Lump Sum;

1.4.2 Time and material basis utilizing the rates found in Schedule E; and/or

1.4.3 Unit Price(s) set forth herein.

2.0 **Complete Agreement.** This Agreement, including all schedules, exhibits, drawings and specifications attached hereto, constitutes the complete and entire agreement between the Parties and supersedes any previous communications, representations or agreements, whether oral or written, with respect to the subject matter hereof. There are no additions to, or deletions from, or changes in, any of the provisions hereof, and no understandings, representations or agreements concerning any of the same, which are not expressed herein. **THE PARTIES HEREBY AGREE THAT NO TRADE USAGE, PRIOR COURSE OF DEALING OR COURSE OF PERFORMANCE UNDER THIS AGREEMENT SHALL BE A PART OF THIS AGREEMENT OR SHALL BE USED IN THE INTERPRETATION OR CONSTRUCTION OF THIS AGREEMENT.**

Special Instructions:		
Contractor Representative Name and Title Robert T. MacAller, CEO	Contractor Signature	Date 9/21/18
Sempra Renewables LLC Authorizer Name and Title Angela Sablan Sr Buyer	Sempra Renewables LLC Authorized Signature DocuSigned by: Angela Sablan 984076D13C40410...	Date 9/21/2018

Sempra Renewables LLC is not the same company as the California utilities, San Diego Gas & Electric (SDG&E) or Southern California Gas Company (SoCalGas), and Sempra Renewables LLC is not regulated by the California Public Utilities Commission.

ATTACHMENT A1 – SCOPE OF WORK

Contractor shall provide environmental survey and site assessment consulting services under this Change Order as described:

Burrowing Owl Non-Breeding Season Survey

Contractor conducted focuses surveys during the breeding season in 2018 and found no burrowing owls were detected within the project site or surrounding 150-meter survey buffer. As result of this previous survey Contractor shall conduct and complete burrowing owl non-breeding season surveys in accordance with Appendix D of the 2012 California Department of Fish and Wildlife (CDFW) Staff Report on Burrowing Owl Mitigation.

Qualified Contractor biologists shall conduct four (4) survey visits in suitable habitat within project boundary surrounding a 150-meter buffer. The surveys will aim for 100 percent visual coverage of the main project components to include: the hybrid renewable energy facility; any other project components requiring vegetation removal or ground disturbance; and the surrounding 150-meter buffer.

All four (4) surveys shall be conducted through the non-breeding season.

Contractor shall prepare a letter report to Company, Imperial County, and CDFW depicting the results of the directed search for the burrowing owl in accordance with Appendix D of the 2012 SDFW Staff Report on Burrowing Owl Mitigation. Contractor shall complete up to two (2) rounds of versions for a complete report.

Phase I – Environmental Site Survey

Sub-contractor shall prepare an Environmental Site Assessment (ESA) based on the following tasks:

1. Conduct a walk-over inspection of the subject site and visual inspection of the properties adjoining the subject property. During the visual inspection, observations shall be made for soil staining, stressed vegetation, evidence of waste disposal, indications of underground storage tanks, asbestos containing materials (ACM), polychlorinated biphenyls (PCBs) and the presents of on-site public utilities.

2. Review site history based upon available information, including but not limited to: topographic maps, aerial photographs, city/county directories, historical maps, and environmental regulatory agency files.

3. Prepare a report of the subject site presenting finding of the Phase I ESA. The report shall include a summary of the findings to include:
    a. Description of site conditions documented during the site inspection
    b. Potential environmental problem areas in the project vicinity
    c. Regulatory agencies' files review
    d. Aerial photo review and records map review
    e. Historical search/land use review
    f. Site photographs
    g. Potential for presences of ACMs lead-based pain or PCBs
    h. Interviews with subject property owners/neighbors

4. Provide one (1) Reliance Letter

SCHEDULE

Task	Duration
Burrowing Owl Non-Breeding Season Survey	Between September 1, 2018 – January 31, 2018
Phase I – Environmental Site Assessment	2 weeks from notice to proceed

COST

Task/Description	Staff	Qty/Unit	Rate
Non-Breeding Season Survey	Senior	60 hours	[redacted]
	Associate PM	52 hours	
	Associate	52 hours	
	Analyst	72 hours	
	Assistant	52 hours	
	Production	5 hours	
	Graphics	7 hours	
Non-Breeding Season Survey Expenses	N/A	1	
Phase I ESA	N/A	1	$3,750
NTE Total Labor and Expenses			**$50,996**

Phase I Environmental Site Assessment

GS Lyon will prepare a Phase I Environmental Site Assessment (ESA) based on the following tasks:

1. Professional staff will conduct a walk-over inspection of the subject site and visual inspection of the properties adjoining the subject property. During the visual inspection, observations will be made for soil staining, stressed vegetation, evidence of waste disposal, indications of underground storage tanks, asbestos containing materials (ACM), polychlorinated biphenyls (PCBs) and the presence of on-site public utilities.

2. GS Lyon Consultants personnel will also review the site history based upon available information, including, but not limited to: topographic maps, aerial photographs, City/County directories, historical maps, and environmental regulatory agency files.

3. GS Lyon Consultants will prepare a report for the subject site presenting the findings of the Phase I ESA. The report will include a summary of our findings which may include:

- Description of site conditions documented during the site reconnaissance
- Potential environmental problem areas in the project vicinity
- Regulatory agencies' files review
- Aerial photo review and records maps review
- Historical search/land use review
- Site photographs
- Potential for presence of ACMs lead-based paint, or PCBs
- Interviews with subject property owners/neighbors.

4. GS Lyon will also provide one (1) Reliance Letter.

Cost

GS Lyon will complete the Phase I ESA and one (1) Reliance Letter for $3,750.

Schedule

GS Lyon will begin work within two (2) working days of receiving notice to proceed. GS Lyon will submit a draft Phase I ESA two (2) weeks from receiving notice to proceed.

APPENDIX I – HYDROLOGY AND WATER QUALITY

Preliminary Drainage Study

BURNS McDONNELL

Preliminary Drainage Study

Westside Canal Battery Storage Complex

Project No. 110578

Revision C
04/03/2020

CED WESTSIDE CANAL BATTERY STORAGE COMPLEX PRELIMINARY DRAINAGE REPORT

Introduction

Burns and McDonnell has been retained to provide engineering support for the Westside Canal Battery Storage Complex Conditional Use Permit, a project for ConEdison Development.

The purpose of this report is to describe and document the preliminary drainage design of the project. This report is intended to fulfill the drainage study requirements of the reviewing agencies and meets the drainage standards of Imperial County.

PROJECT DESCRIPTION

Location

The project is located in unincorporated Imperial County, California, approximately 3 miles south of Kumeyaay Highway (Interstate 8) and Jessup Rd. The project is south of the Westside Canal that is owned and operated by the Imperial Irrigation District. See attached figure for existing site conditions and vicinity map. The project comprises approximately 148 acres. The property is located in Flood Zone X (Unshaded) Map No. 060065 2050 C. Flood Zone X (Unshaded) is defined as an area of minimal flood hazard, is an area outside the Special Flood Hazard Area, and higher than the elevation of the 0.2 percent annual chance flood.

Existing Conditions

Under existing conditions, the project area is a fallow farm field consisting of sandy soils with minimal vegetation. The site is divided into eastern and western halves by an existing transmission corridor that follows the Liebert Road alignment. The western portion of the site slopes from the southeast to the northwest while the eastern portion of the site slopes from the southwest to the northeast. The site is relatively flat with slopes varying from 0.2% to 2.5%. The site currently has a berm along the western and southern boundaries which divert all offsite flows around the site. The berm elevation on the western portion varies from approximately 10 to 15 feet above adjacent grade. The berm along the southern boundary is approximately three feet in height.

Proposed Conditions

The proposed site will consist of approximately 2000MW of battery storage using a mixture of flow cell and lithium ion technologies. The project is expected to be constructed over multiple phases, with phases ranging from 25 MW to a maximum size of 300 MW. The first phase of the project will consist of an operations and maintenance building, water and fire suppression, stormwater retention, substations and either a lithium-ion battery storage facility or a flow cell energy storage facility. Large industrial buildings, warehouses and/or containers will be the structures to house the storage equipment including battery cells, modules, racks and controls for lithium ion and cell stack modules, tanks, pumps, and controls for flow batteries. Dependent on the technology deployed within a specific storage facility (warehouse/industrial building), the building may have heating, ventilation, and air condition (HVAC) units. Each building is

planned to have roof top solar installed and if there is any open space on the project site, ground mounted solar may be installed for distribution project site power. Building pads will be designed so that they are a minimum of one foot above adjacent grade to protect from the 100-year storm event.

Due to the increase in impervious area, detention basins will need to be constructed to capture the increase in runoff. The site will be graded to divert on-site flows to detention basins via roadside swales. Culverts will be installed under roadway/driveway crossings to connect the drainage swales. The detention basins will be located in the northeast and northwest corners of the site at the historic discharge locations. The Westside Main Canal bounds the project to the north and has elevated banks approximately 2' tall which prevents runoff from leaving the site. Ultimate outfall for the site occurs when stormwater ponds to a height to overtop the canal bank. Proposed battery storage structures and equipment pads for the site will need to be elevated above the ultimate outfall elevation at the top of the bank as indicated on the drainage plan.

The detention basins will be designed such that stormwater will percolate within 72 hours in accordance with Imperial County requirements. A geotechnical study will be performed as part of final design to verify the infiltration rates. In the event that testing shows poor infiltration rates for the basins, injection/dry wells will be installed as needed to meet the 72 hour percolation requirement. Installation of detention basins and grading of the site may be phased to match the phasing of the energy storage facilities.

Drainage Calculations

The County of Imperial Department of Public Works "Engineering Design Guidelines Manual for the Preparation and Checking of Street Improvement, Drainage and Grading Plans within Imperial County" was used to calculate the size of the detention basins needed for the site. Per Section III. Drainage Improvements, General Requirement number four states, "Retention volume on retention or detention basins should have a total volume capacity for a three (3) inch minimum precipitation covering the entire site with no C reduction factors. Volume can be considered by a combination of basin size and volume considered within parking and/or landscaped areas". Thus, the retention required on site is calculated by:

$$V = C\left(\frac{P}{12}\right)A$$

Where;

V = Volume Required (acre-ft)

C = Runoff Coefficient

P = Precipitation, 3 inches

A = Drainage area (acres)

	West Basin	East Basin
Drainage Area (A)	91.1	57.1 acres
Runoff Coefficient (C)	1	1
Precipitation (P)	3 inches	3 inches
Volume Required (V_r)	22.78 ac-ft	14.28 ac-ft
Volume Provided (V_p)	23.90 ac-ft	16.46 ac-ft

Summary

The Westside Canal Energy Center is a 148-acre project located on fallow farmland. The proposed site features berms along the western and southern boundaries which divert offsite flows around the site. Historic drainage patterns will be preserved by routing flows using swales and culverts to two detention basins located at the northwest and northeast corners of the site. The basins will provide a detention volume of approximately 40.4 ac-ft to capture the three-inch precipitation as stated in the Engineering Design Guidelines manual for Imperial Irrigation District.

ATTACHMENTS

National Flood Hazard Layer FIRMette

FEMA

Attachment 1

32°43'55.99"N

115°43'7.09"W

115°42'29.63"W

32°43'25.73"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 — Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- 513 — Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

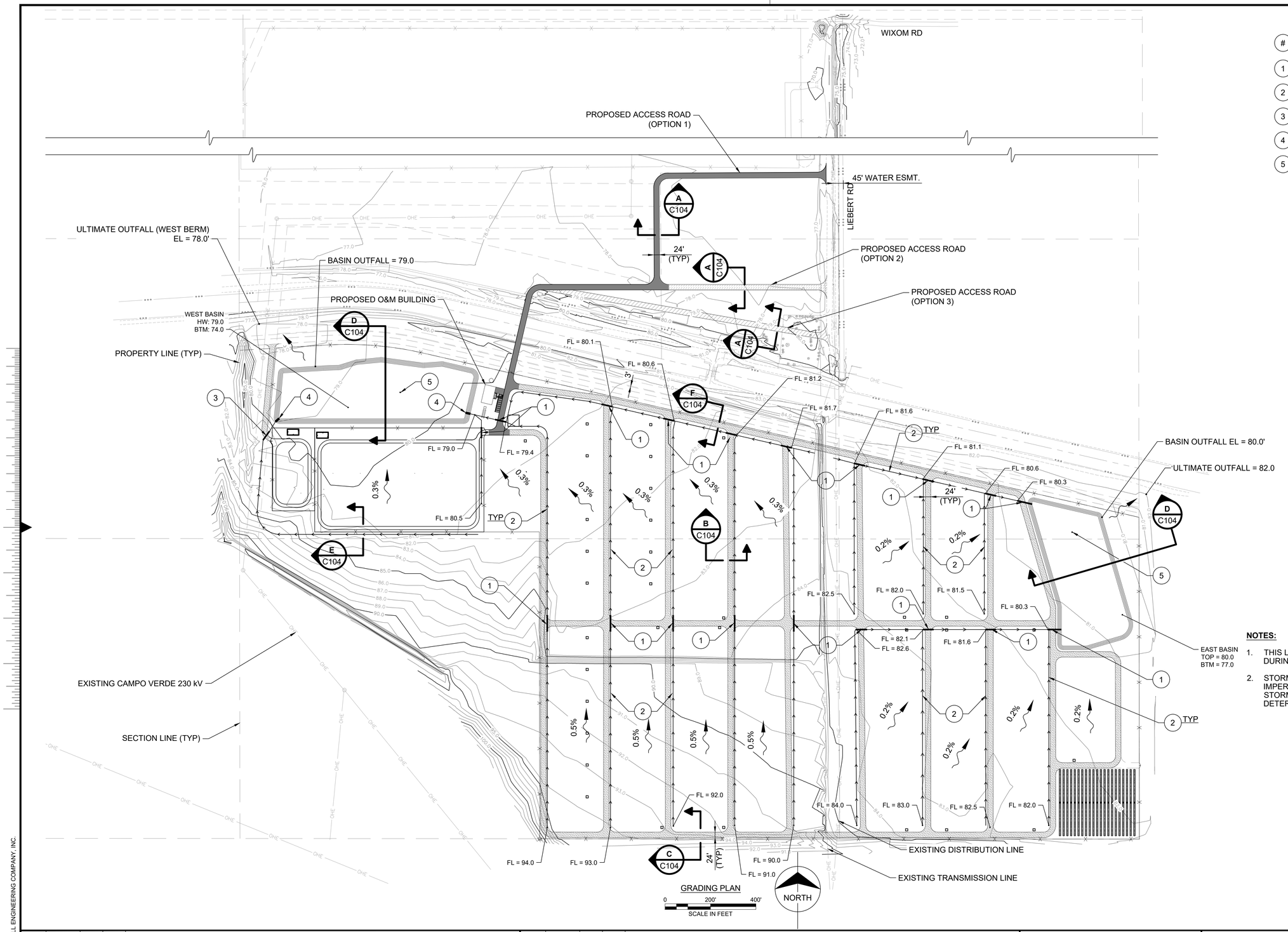
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/24/2019 at 2:18:09 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Attachment 2



#	KEY NOTES:
1	18"-24" HDPE CULVERT
2	DRAINAGE SWALE
3	LOW FLOW CROSSING
4	RIP RAP SPILLWAY
5	INJECTION/DRY WELL (IF REQUIRED FOR BASIN TO PERCOLATE WITHIN 72 HOURS)

NOTES:

1. THIS LAYOUT IS CONCEPTUAL IN NATURE AND IS SUBJECT TO CHANGE DURING DETAILED DESIGN.
2. STORMWATER BASINS WILL BE DESIGNED IN ACCORDANCE WITH IMPERIAL COUNTY REGULATIONS. FINAL LOCATION AND SIZE OF STORMWATER FACILITIES AND BEST MANAGEMENT PRACTICES TO BE DETERMINED AT FINAL DESIGN.

GRADING PLAN
0 200' 400'
SCALE IN FEET

no.	date	by	ckd	description
E	07/16/19	BNS	JTD	ISSUED FOR PERMITTING
D	07/01/19	BNS	JTD	ISSUED FOR PERMITTING
C	06/14/19	BNS	JTD	ISSUED FOR REVIEW
B	05/24/19	BNS	JTD	ISSUED FOR REVIEW
A	04/26/19	BNS	JTD	ISSUED FOR REVIEW

no.	date	by	ckd	description
C	06/14/19	BNS	JTD	ISSUED FOR REVIEW

BURNS McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MO 64114
816-333-9400
FIRM LICENSE NO. 11523
designed T. DOWELL
detailed B. SVOR

conEdison Development

IMPERIAL COUNTY, CA

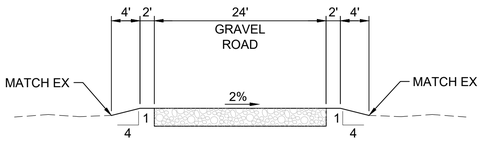
WESTSIDE CANAL BATTERY STORAGE COMPLEX
CONDITIONAL USE PERMIT
GRADING PLAN

project 110578 | contract -
drawing C103 | rev. C
sheet - of - sheets
file 110578C103.dwg

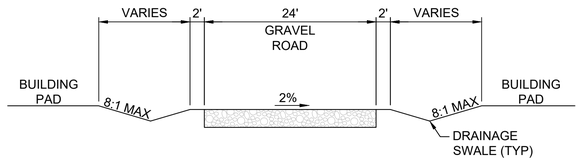
\\BMCD\DFS\CLIENTS\ENR\CONEDISON\118017_WCEC\DESIGN\CIVIL\SHEETS\110578C103.DWG 4/3/2020 3:58 PM BNSVOR

Scale For Microfilming: Millimeters / Inches

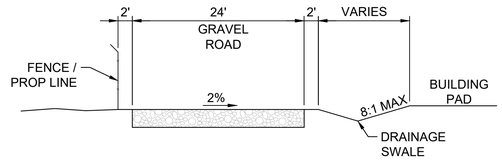
Attachment 3



SECTION A C103
SCALE : 1" = 10'



SECTION B C103
SCALE : 1" = 10'



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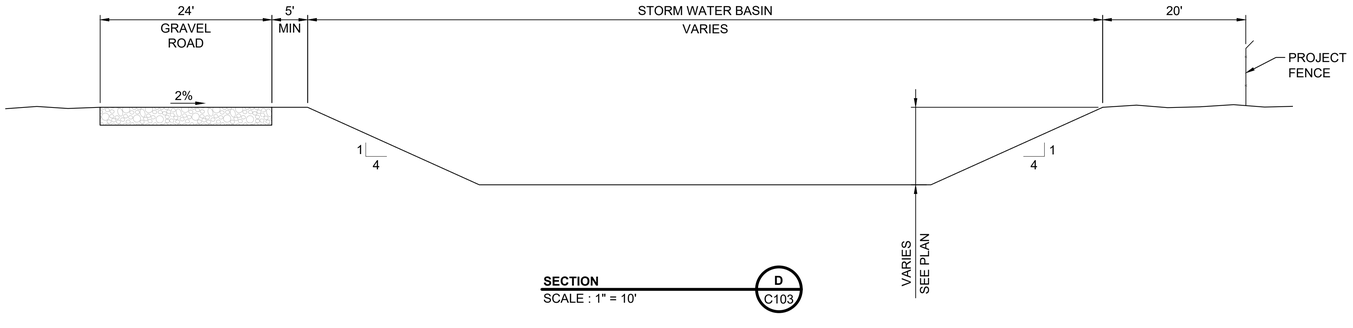

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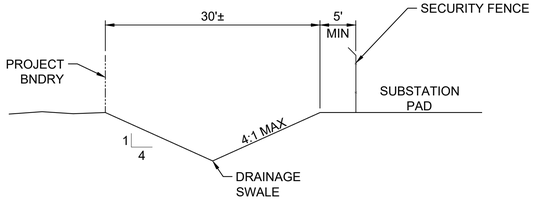

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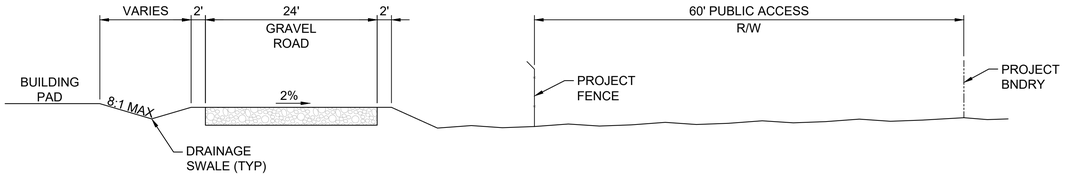

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D	07/01/19	BNS	JTD	ISSUED FOR PERMITTING
C	06/14/19	BNS	JTD	ISSUED FOR REVIEW
B	05/24/19	BNS	JTD	ISSUED FOR REVIEW
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WESTSIDE CANAL BATTERY STORAGE COMPLEX
CONDITIONAL USE PERMIT
GRADING SECTIONS

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APPENDIX K – UTILITIES

Water Supply Assessment – Westside Main Canal Battery Storage

2021

WATER SUPPLY ASSESSMENT – WESTSIDE MAIN CANAL BATTERY STORAGE

PREPARED FOR IMPERIAL COUNTY PLANNING & DEVELOPMENT SERVICES

BY DUBOSE DESIGN GROUP

JANUARY 2021

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1.1 LIST OF TABLES

1.2 LIST OF FIGURES

2 ACRONYMS

A-3	Agricultural Zone – 3
AAC	All-American Canal
AC	Acre
AF	Acre-Foot or Acre-Feet
AFY	Acre-Feet per Year
AOP	Annual Operations Plan
APN	Assessor's Parcel Number
BLM	Bureau of Land Management
BMS	Battery Management System
CAP	Central Arizona Project
CDCR	California Department of Corrections and Rehabilitation
CDPH	California Department of Public Health
CDWR	California Department of Water Resources
CED	Consolidated Economic Development
CEQA	California Environmental Quality Act
County	County of Imperial
CPI	Consumer Price Index
CRWDA	Colorado River Water Delivery Agreement
CUP	Conditional Use Permit
CVWD	Coachella Valley Water District
CWC	California Water Code
EDP	IID Equitable Distribution Plan
EIS	Environmental Impact Statement
ET	evapotranspiration
FSM	Fern Side Main Canal
gpd	Gallons Per Day
HVAC	Heating, Ventilation and Air-conditioning
ICPDS	Imperial County Planning and Development Services
ICS	Intentionally Created Surplus
IID	Imperial Irrigation District
IOPP	Inadvertent Overrun Payback Policy
ISG	Interim Surplus Guidelines
IRWMP	Integrated Regional Water Management Plan
IWSP	Interim Water Supply Policy
kV	kilovolt
KAF	Thousand Acre Feet
LAFCO	Local Agency Formation Commission
LCR	Lower Colorado Region
LCRWSP	Lower Colorado Water Supply Project
MCI	Municipal, commercial, industrial
MGD	Million Gallons per Day
MW	Megawatt
MWD	Metropolitan Water District of Southern California
NAF	Naval Air Facility
NFPA	National Fire Protection Association
O&M	Operating and Maintenance
PV	Photovoltaic

PVID	Palo Verde Irrigation District
QSA	Quantification Settlement Agreement and Related Agreements
SB	Senate Bill
SDCWA	San Diego County Water Authority
SNWA	Southern Nevada Water Authority
SWRCB	State Water Resource Control Board
TLCFP	Temporary Land Conversion Fallowing Policy
USBR	United States Bureau of Reclamation
USEPA	United States Environmental Protection Agency
WSA	Water Supply Assessment
WSM	West Side Main Canal

3 PURPOSE OF WATER SUPPLY ASSESSMENT

This Water Supply Assessment (WSA) was prepared for the Imperial County Planning & Development Services (Lead Agency) by Dubose Design Group, regarding Consolidated Edison Development, (the "Applicant"). This study is a requirement of California law, specifically Senate Bill 610 (referred to as SB 610). SB 610 is an act that amended Section 21151.9 of the Public Resources Code, and Sections 10631, 10656, 10910, 10911, 10912, and 10915 of the Water Code. SB 221 is an act that amended Section 11010 of the Business and Professions Code, while amending Section 65867.5 and adding Sections 66455.3 and 66473.7 to the Government Code. SB 610 was approved by the Governor and filed with the Secretary of State on October 9, 2001, and became effective January 1, 2002.[1] SB 610 requires a lead agency, to determine that a project (as defined in CWC Section 10912) subject to California Environmental Quality Act (CEQA), to identify any public water system that may supply water for the project and to request the applicants to prepare a specified water supply assessment. This study has been prepared pursuant to the requirements of CWC Section 10910, as amended by SB 610 (Costa, Chapter 643, Stats. 2001). The purpose of SB 610 is to advance water supply planning efforts in the State of California; therefore, SB 610 requires the Lead Agency, to identify any public water system or water purveyor that may supply water for the project and to prepare the WSA after a consultation. Once the water supply system is identified and water usage is established for construction and operations for the life of the project, the lead agency is then able to coordinate with the local water supplier and make informed land use decisions to help provide California's cities, farms and rural communities with adequate water supplies.

This study has been prepared pursuant to the requirements of CWC Section 10910, as amended by SB 610 (Costa, Chapter 643, Stats. 2001). The purpose of SB 610 is to advance water supply planning efforts in the State of California; therefore, SB 610 requires the Lead Agency, to identify any public water system or water purveyor that may supply water for the project and to prepare the WSA after a consultation. Once the water supply system is identified and water usage is established for construction and operations for the life of the project, the lead agency is then able to coordinate with the local water supplier and make informed land use decisions to help provide California's cities, farms and rural communities with adequate water supplies.

[1]SB 610 amended Section 21151.9 of the California Public Resources Code, and amended Sections 10631, 10656, 10910, 10911, 10912, and 10915, repealed Section 10913, and added and amended Section 10657 of the Water Code. SB 610 was approved by California Governor Gray Davis and filed with the Secretary of State on October 9, 2001.

Under SB 610, water supply assessments must be furnished to local governments for inclusion in any environmental documentation for certain projects (as defined in California Water Code (CWC) Section 10912 [a]) that are subject to the California Environmental Quality Act (CEQA). Due to increased water demands statewide, this water bill seeks to improve the link between information on water availability and certain land use decisions made by cities and counties. This bill takes a significant step toward managing the demand placed on California's water supply. It provides further regulations and incentives to preserve and protect future water needs. Ultimately, this bill will coordinate local water supply and land use decisions to help provide California's cities, farms, rural communities, and industrial developments with adequate long-term water supplies. The WSA will allow the lead agency to determine whether water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses.

4 PROJECT DETERMINATION ACCORDING TO SB 610 - WATER SUPPLY ASSESSMENT

With the introduction of SB 610, any project under the California Environmental Quality Act (CEQA) shall provide a Water Supply Assessment if the project meets the definition of CWC § 10912. Water Code section 10911(c) requires for that the lead agency "determine, based on the entire record, whether projected water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses." Specifically, Water Code section 10910(c)(3) states that "If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20 year projection, will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses."

After review of CWC § 10912a, and Section 10912 (a)(5)(B), it was determined that the Westside Main Canal Battery Storage Project, a utility-scale energy storage complex incorporating lithium ion battery systems and/or flow battery technologies production plant is deemed a project as it is considered an industrial water use project use that is considered an industrial plant of 40 Acres or more in accordance to CWC §

10912a (5). The proposed project totals 148 Acres, additionally the proposed project intends to use 15 acres of temporary staging area, totaling 163 Acres, which exceeds the 40 Acre or more allowance.

4.1 EXECUTIVE SUMMARY

ICPDS has requested a WSA as part of the environmental review for the proposed Westside Main Canal Battery Storage. This study is intended for use by the Imperial County, the lead agency in its evaluation of water supplies for existing and future land uses. The evaluation examines the following water elements:

- Water availability during a normal year
- Water availability during a single dry, and multiple dry water years
- Water availability during a 20-year projection to meet existing demands
- Expected 30-year water demands of the project
- Reasonably foreseeable planned future water demands to be served by the Imperial Irrigation District

The proposed Project site is located within Imperial Irrigation District's (IID) Imperial Unit and district boundary and as such is eligible to receive water service. IID has adopted an Interim Water Supply Policy (IWSP) for Non-Agricultural Projects, from which water supplies can be contracted to serve new developments within IID's water service area. For applications processed under the IWSP, applicants shall be required to pay a processing fee and, after IID board approval of the corresponding agreement, will be required to pay a reservation fee(s) and annual water supply development fees.

The IWSP sets aside 25,000 acre-feet annually (AFY) of IID's Colorado River water supply to serve new non-agricultural projects. As of June, 2020, a balance of 23,800 AFY remain available under the IWSP for new non-agricultural projects ensuring reasonably sufficient supplies for such projects. The proposed Project water demand at full build out over the span of 30 years would be approximately 437.14 AF over the life of the project. The proposed Project estimated water demand of 210 AF for construction and 227.14 AF for operations over the 30-year life of the project, for a amortized total of 14.57 AFY over the 30- year life of the proposed Project, represent .06 percent (.06%) of the annual unallocated supply set aside for new nonagricultural projects. Thus, the proposed Project's demand would not affect IID's ability to provide water to other users in IID's water service area.

Table 1: Project APNs, Canals and Gates, & Land Relationship to Project

APN	IID CANAL	ABRV.	GATE	AC	LAND RELATIONSHIP TO PROJECT
051-350-009	N/A	N/A	N/A	NA	The Project would access the small portion of parcel within an IID easement for connection to the existing IID Campo Verde Imperial Valley 230 kilovolt (kV) radial gen-tie line during the construction of a substation on the Project site.
051-350-010	Westside Main	WSM	6	148	Project site, the site has not been farmed for the last 15 years. Project total of 148 AC.
051-350-011	Westside Main	WSM	6		
051-350-018	Fern Side Main	FSM	11A	15	Used for site access as a temporary construction staging area. This portion of the project totals 15 AC.
051-350-019	Fern Side Main	FSM	11A		

Table 2: Project Water Summary

Phase	Expected Years	Total Acre Feet (AF)	Notes
Construction	1-10 Years	210.0	It is anticipated that approximately 210 acre-feet (AF) of water would be required for the full buildout/construction of the site, over the projected 10-year construction time frame.
Operations	11-30 Years	224.07	Water usage for the O&M building and personnel would be less than 10,000 gallons per day (gpd), assumption 365 days a 365=3650000 Gal/Year equates to 11.20 AFY.
On-Site Water Storage for Mitigation Measures	11-30 Years	3.07	Additionally, approximately 1,000,000 gallons of raw water (3.07 AF) would be stored on site in storage tanks for fire suppression.[2]
Total	30 Years	437.14	----------

Table 3: Amortized Project Water Summary

Project Water Use – Life of Project	Years	Total Years Combined*	Unallocated IWSP	% of Remaining Unallocated IWSP per Year**
14.57 AF Per Year	30 Years	437.14 AF	23,800 AF	.06 %

*(14.57 AF/Year x 30 Years)
**(14.57 AF/ YR/23,800 AC-FT/YR x 100)

5 PROJECT DESCRIPTION

Consolidated Edison Development (CED, Applicant) is proposing to develop 148 Acres known as the Westside Main Battery Storage Project (proposed Project, Project) which would provide a utility-scale energy storage complex with lithium ion battery systems, and/or flow battery technologies and behind-the-meter solar facilities distributed throughout the site. The Project would allow for excess, intermittent renewable energy to be stored and later dispatched optimally back into the electric grid as firm, reliable

[2] Applicant will not be flushing tanks used to store fire suppression water.

generation. The Project complements both the existing operational renewable energy facilities, and those planned for development, in Imperial County (County), and supports the broader Southern California bulk electric system. A brief project description and water summary can be summarized in both Table 2 and Table 3, both tables indicate that the applicant is proposing to utilize the following amount of water for construction operation and mitigation through the indicated phases for the project. As described in table 2, Project Water Summary, the construction phase is anticipated to last a duration of 1-10 years utilizing a total of 210 acre-feet (AF). The operation phase will follow construction phase during the 11-30-year period and is anticipated to use a total of 224.07 AF of water. All potable water which will service the O&M building will be delivered to the site . Personnel for the site is projected to use less than 10,000 gallons per day (gpd) of potable water with the assumption that would operate 365 days a year which would be a total of 11.20 AFY. All drinkable water will be imported through an outside vendor contracted with a certified supplier. Additionally, dust mitigated measures are expected to be met throughout the operational phase of the project and throughout the 11-30-year period utilizing approximately 3.07 acre-feet of water. As described in table 3, amortized project water summary stated that the total years combined of 30 years totals 437.14 acre-feet which equates to 14.57 AFY.

5.1 PROJECT OBJECTIVES

The Project is pursuing the following objectives:

1. To construct and operate utility-scale energy storage technologies that are safe, efficient, and environmentally responsible.
2. To provide load-serving entities and system operators the ability to effectively manage intermittent renewable generation on the grid, thereby creating reliable, dispatchable generation upon demand.
3. To facilitate deployment of additional renewable energy resources in furtherance of the State of California Renewable Portfolio Standard.
4. To develop an up to 2,000 MW energy storage facility on previously disturbed land that is no longer used for agricultural production.
5. To promote local economic development by maximizing the utilization of the local workforce for a variety of trades and businesses.

5.2 PROJECT LOCATION AND SITE DESCRIPTION

The Project is proposed to be in the unincorporated Mount Signal area of the County, approximately 8.0 miles southwest of the city of El Centro and approximately 5.3 miles north of the U.S.-Mexico border (Figure 1-Project Site Regional Location). The project site is comprised of two parcels, Assessor Parcel Number (APN) 051-350-010 and APN 051-350-011, totaling approximately 148 acres. These parcels have limited access corridors for vehicular traffic and are considered less desirable for agricultural production, as no farming activities have occurred in the last 15 years.

The project site is located approximately one-third mile north of the Imperial Valley Substation (IV Substation) and directly south of the intersection of Liebert Road and the Imperial Irrigation District's (IID) WSM (the Canal). The project site is bound by the WSM Canal to the north, Bureau of Land Management (BLM) lands to the south and west, and vacant private land to the east. The Campo Verde solar generation facility is located north of the project site, across the WSM Canal. The two project parcels will be developed as a utility-scale energy storage complex. The project will utilize portions of two parcels located north of the Canal (APN 051-350-019 owned by IID and APN 051-350-018 owned by a private landowner) for site access and as a temporary construction staging area.

5.3 CURRENT SITE CONDITIONS

The site is comprised of two parcels, Assessor Parcel Number (APN) 051-350-010 and APN 051-350-011, totaling approximately 148 acres. This land has limited access corridors for vehicular traffic and was historically used for agricultural production but has not been farmed for the last 15 years. The Project would also utilize portions of two parcels located north of the IID's WSM Canal (APN 051-350-019 owned by IID and APN 051-350-018 owned by a private landowner) for site access and as a temporary construction staging area totaling approximately 15 acres. The land currently is vacant with little to no vegetation and is comprised of native with sandy loam composition see **Figure 2**.

Figure 1 Project Site Regional Location Map

Westside Main Battery Storage Project

Figure 2 Aerial Map of Project Vicinity

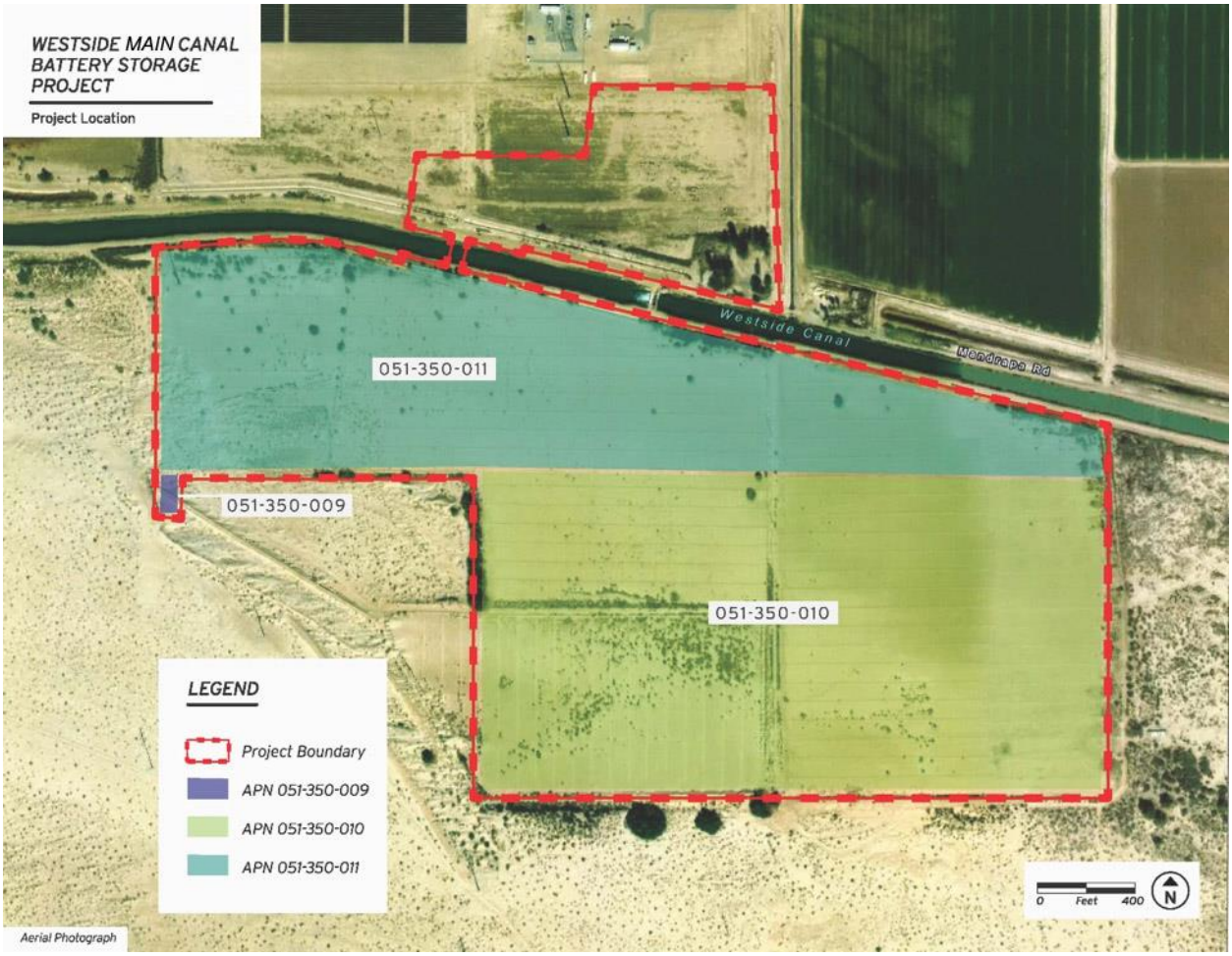
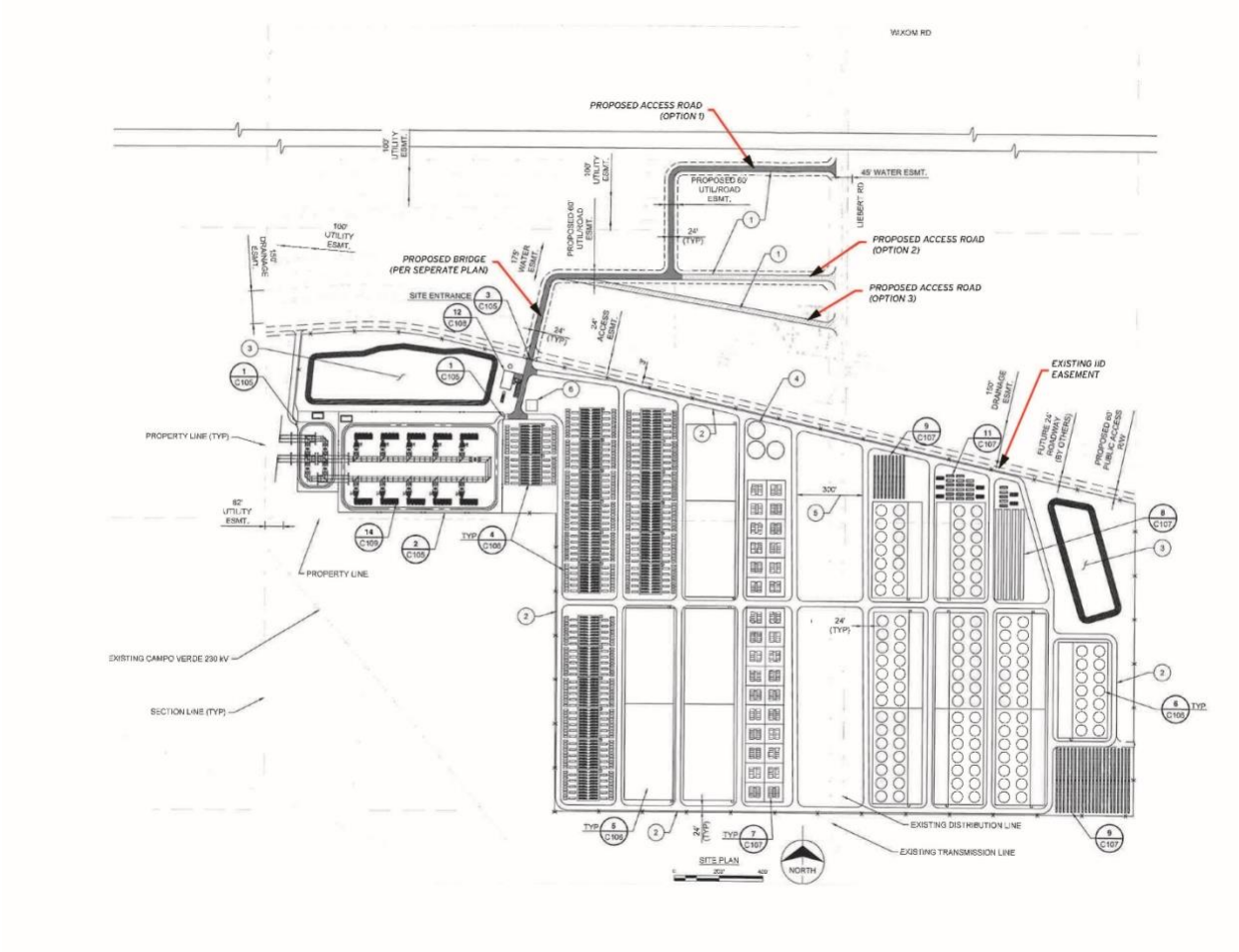


Figure 3 Project Layout/Site Plan

Westside Main Canal Battery Storage Project



6 PROJECT COMPONENTS

The project is expected to be constructed in 3 to 5 phases over a 10-year period, with each phase ranging from approximately 25 megawatts (MW) up to 350 MW per phase. Construction of the first phase includes roads, bridge, and common facilities, and the first battery storage facility and, if approved, is anticipated to begin in 2021 with completion expected in 2022. Subsequent phases would then be completed as demand/market conditions require.. The total nameplate (or rated capacity) capacity of the project at full build-out (all phases completed) is approximately 2,000 MW. On-site photovoltaic (PV) solar generation would serve as station auxiliary power and be deployed throughout the project site as both rooftop solar on buildings, as well as ground-mounted solar. Figure 3 shows the conceptual site plan for the project with a representation of the various energy storage technologies, ground and roof-mounted solar, common facilities within the Project site, and vehicular access and bridge outside the Project site.

6.1 PHASING

The timing and energy storage capacity of the Project's phases would be dependent on commercial contracts for the energy/capacity to be stored/discharged in response to the need for energy storage to manage renewable energy growth throughout the greater southern California area. This energy storage complex would thus become a valuable tool for commercial customer(s) and system operators to better manage intermittent renewable generation by converting it into reliable, dispatchable generation. The date for project build-out is currently not known and would be dependent on the factors listed above. It is anticipated that each phase would be constructed within 1-2 years of each other.

6.2 COMMON COMPONENTS

The Project would consist of multiple phases of development, construction, and operation of an energy storage facility. Although the Applicant plans to build the energy storage components over time in multiple phases, the first phase of Project construction would include the majority of required construction activities. The first phase would include construction of the Operating and Maintenance (O&M) facilities, water connections and fire suppression systems for the Project, storm water retention, substation, and legal permanent vehicle access, as well as the first energy storage facility. As per the site plan (see Figure 2), the northwest area of the Project serves as the location for the common facilities, which include

substation(s) and the O&M building. With the project being built in phases, the necessary infrastructure, such as water-mains, retention ponds and access roads, would be built out to serve the project phases from west to east and be expanded over time to serve each phase.

A summary of the common facilities is presented below:

- 230 KV Loop-In Substation o Connection to Campo Verde Imperial Valley 230 kV radial transmission line o Located on Applicant property
- Project substation
- O&M building
- Project parking
- Storm water detention basins
- Fencing and Gates

Large industrial buildings, warehouses, engineered containers, and/or electrolyte storage tanks would be the primary structures needed to house the main project components. Other components to be located on the project site and adjacent to the proposed buildings/warehouses include some of the following:

- Inverters, transformers, power distribution panels
- Underground water-main loop for Project operation and fire prevention
- Underground wiring to connect to Project substation
- Project site access roads (unpaved/crushed rock)
- 5 Raw Water storage tanks, 200,000 gallon capacity each
- Heating, Ventilation, and Air Conditioning (HVAC) units
- Ground-mounted or roof-mounted PV arrays
- Energy Storage sites
- Emergency backup generator(s).

6.3 OPERATIONS AND MAINTENANCE FACILITIES

The O&M building described in Phase One above is expected to be the only manned facility on the site and would include upto 20 full-time employees at full project build-out working allocated shifts during a 24-hour period. Water usage for the O&M facilities and personnel would be less than 10,000 gallons per day (gpd). No offices or staffed control centers would be located within the storage-specific warehouses/buildings. For sanitary waste, the Project would include a septic leach field to be located near the O&M building. The proposed O&M building would also require an HVAC unit.

6.4 WATER CONNECTIONS

During construction, the Project would utilize at least two temporary connections to the WSM Canal for dust suppression and other construction uses such as concrete production. Permanent water to serve the Project's non-potable operational water requirements and fire suppression needs would come from the WSM Canal. Water infrastructure for the non-potable operational water requirements/fire suppression would be laid underground throughout the site by open trenching. A segment of line from the project boundary to the connection at the WSM Canal would be constructed by a horizontal directional underground bore to connect to an IID Canal tap. It is anticipated that approximately 210 acre-feet (AF) of water would be required for the full buildout/construction of the site, over the projected 10-year construction time frame.

Following construction, potable water will be delivered to the site from local water suppliers. This potable water would be used for operations using on-site aboveground storage tanks. Water usage for the O&M building and personnel would be less than 10,000 gallons per day (gpd). Additionally, approximately five (5), 2,000,000 gallons of water would be stored on site in storage tanks for fire suppression. The project would connect to the WSM Canal consistent with the IID approved encroachment permit secured for the Project. The applicant intends to maintain the water allocated within the fire suppression tanks by regularly testing and treating its pH maintaining its viability. This use for fire suppression water was accounted for in the WSA. The applicant does not intend to flush out fire suppression water.

PERMANENT VEHICLE ACCESS

There are no circulation element roadways in the immediate vicinity of the project site. The nearest freeways are Interstate (I)-8, located 4.6 miles north of the project site, and State Route (SR) 98, located 5.2 miles south of the project site. Drew Road, a 2-lane Collector, is located 1.3 miles east of the project site. All other roadways in the immediate vicinity of the project site are rural roadways. All roadways that would be used to access the project site from Interstate 8 are currently paved, except for the portion of Liebert Road south of Wixom Road. However, this segment would be improved prior to project operation. Permanent access to the project site will be via a private maintained road from Liebert Road on to a Private Bridge that will cross the IID's Westside Main Canal, through an IID encroachment permit.

6.5 PROJECT ACCESS ROADS

Prior to any construction on the main project site (Phase 1), vehicular access for the Project would need to be established. The proposed Project site is surrounded by private landowners to the east, BLM land to the south and west, and IID maintenance roads and the Canal to the north. Due to the property having no current legal direct vehicular access routes, the Applicant is proposing to construct private access roads on both the north and south side of the canal on private land and a permanent clear-span bridge over the Canal. The proposed private access roads would be designed and constructed in accordance with County standards.

6.6 CLEAR-SPAN BRIDGE

The permanent new clear-span bridge would span the Canal to connect to a proposed access road on the north side of the Canal. The north proposed access road would ultimately connect the project to Liebert Road. Construction of the permanent clear-span bridge spanning the IID's WSM requires CED to have access to both the north side and the south of the Canal to perform the necessary construction activities. In addition to being necessary to facilitate construction of the new permanent clear-span bridge, access from the south side of the WSMwould allow CED to commence construction on the initial phase (Phase I) of the battery storage project simultaneously, thereby shortening the duration of construction and potentially minimizing the associated impacts. CED is evaluating various options for temporary construction access, including accessing the project site from the south side of the Canal off SR98, as well as options involving access from the north side of the Canal from I-8. The preferred temporary access option would be used until construction of the permanent bridge is completed.

6.7 CONSTRUCTION

The project consists of multiple phases of development, construction, and operation of an energy storage facility. Although the project applicant plans to build the energy storage components over time in multiple phases, the first phase of the project construction of the O&M facilities, water /fire suppression for the project, storm water retention basins, substations, and legal permanent vehicle access, as well as the first energy storage facility.

Prior to any construction on the main project site, vehicular access for the project is required. The project is surrounded by the private landowners to the east, BLM land to the south and west, and IID maintenance roads and the WSM Canal to the north. Due to the property having no legal direct vehicular access routes,

the applicant is proposing to construct a private access road on both the north and south side of the canal on private land and a bridge over the WSM Canal. The project proposes a new private clear-span bridge to span the WSM Canal, which will connect to a proposed access road easement on the north side of the WSM Canal. The north proposed access road will ultimately connect the project to Liebert Road.

6.8 CONSTRUCTION EQUIPMENT AND WORKFORCE

Construction would include the use of standard construction equipment such as scrapers, excavators, loaders, and water trucks, and other similar machinery. Construction equipment would be used for site preparation activities such as clearing, grading, perimeter fencing, development of staging areas and site access roads, and would involve facility installation activities, including support masts, trenching utility connections, construction of electrical distribution facilities, O&M building, access roads, and a clear-span bridge. Delivery trucks also would bring materials to the site.

6.9 FIRE PROTECTION/FIRE SUPPRESSION

Fire protection systems for battery systems will be designed in accordance with California Fire Code 2016 and will take into consideration the recommendations of the National Fire Protection Association (NFPA) 855. Depending on the technology used in a phase, fire suppression agents such as Novec 1230 or FM 200, or water may be used as a suppressant. In addition, fire prevention methods will be implemented to reduce potential fire risk, including voltage, current and temperature alarms. Energy storage equipment will comply with UL-9540 and will account for the results of UL-9540A. The project has the potential to utilize either lithium-ion batteries and/or flow batteries. Flow batteries are generally not flammable and do not require fire suppression systems. In locations where equipment is located within buildings, automated fire sprinkler systems will be designed in accordance with California Fire Code. A fire loop system and fire hydrants will be located throughout the site for general fire suppression. Buildings and containers for both lithium-ion and flow batteries will be unoccupied enclosures. These buildings will have an automatic sprinkler system designed in accordance with California Fire Code Section 903. To mitigate potential hazards, redundant separate methods of failure detection will be implemented. These include alarms from the Battery Management System (BMS), including voltage, current, and temperature alarms. Detection methods for off gas detection will be implemented, as applicable. These are in addition to other protective measures such as ventilation, overcurrent protection, battery controls operating batteries within designated parameters, temperature and humidity controls, smoke detection, and maintenance in

accordance with manufacturer guidelines. Flow battery tanks would be designed to have secondary containment in the event of a failure. Remote alarms will be installed for operations personnel as well as emergency response teams in addition to exterior hazard lighting. In addition, an Incidence Response Plan will be implemented depending upon the technology installed for each phase.

The fire suppression systems will be designed in accordance with the 2016 California Fire Code or current Fire Code at the time of construction. A fire loop system will be installed around the site with fire hydrants spaced at 300' intervals in accordance with fire flow requirements. The fire loop will be built out and extended to serve each phase as the site is developed. Fire water will be obtained by tapping into the WSM Canal and will be stored in tanks on the applicant's property. Raw water from the WSM Canal will be used to fill a total of 5 tanks with a capacity of 200,000 gallons each. The tanks will be required to provide the needed fire flow volume at full build out and will be located on the project site. The tanks will also be installed in phases as the site is developed as required by Federal, State and Local fire regulations. The fire suppression system will consider National Fire Protection Agency (NFPA) 855 standards. Depending on the technology used in a particular phase, fire suppression agents such as Novec 1230 or FM 200 may be used. In addition, fire prevention methods will be implemented to reduce potential fire risk, including voltage, current and temperature alarms. Energy storage equipment will comply with UL9540 and will account for the results of UL-9540A. The 1,000,000 gallons of raw water will be monitored and tested to maintain viable pH levels. This use for fire suppression water was accounted for in the WSA. The applicant will not flush tank mitigation water out but rather be utilizing water as needed though the mitigation measures specified. The applicant will not be flushing any fire suppression water stored on site.

PROJECT OPERATION

Operation of the project would require routine maintenance and security. It is anticipated that the Project would employ a plant manager and an O&M manager, as well as the addition of a facility manager once the complex deploys 500 MW of generation. The complex would also employ staff technicians, with at least one additional technician for every approximately 250 MW of generation. It is expected that the project would employ a total of 20 full-time employees at full build-out. Water usage for the O&M facilities would be less than 10,000 gpd of treated water.

7 DESCRIPTION OF IID SERVICE AREA

The proposed Project site is located in Imperial County,California. The County is comprised of approximately 4,597 square miles or 2,942,080 acres.[3] Imperial County is bordered by San Diego County to the west, Riverside County to the north, the Colorado River/Arizona boundary to the east, and 84 miles of International Boundary with the Republic of Mexico to the south. Approximately fifty percent of Imperial County is undeveloped land under federal ownership and jurisdiction. The Salton Sea accounts for approximately 11 percent of Imperial County's surface area. In 2019, fifteen percent (15%) of the area was in irrigated agriculture (463,948 acres), including 14,676 acres of the Yuma Project, some 35 sections or 5,600 acres served by Palo Verde Irrigation District (PVID), and 443,672 acres served by IID.3F4, 4F5

The area served by IID is located in the Imperial Valley, which is generally contiguous with IID's Imperial Hydrologic Unit, lies south of the Salton Sea, north of the U.S./Mexico International Border, and generally in the 658,942-acre area between IID's Westside Main and East Highline Canals.[8] In 2019, IID delivered untreated water to 443,677 net irrigated acres, predominantly in the Imperial Valley, along with small areas of East and West Mesa land.

The developed area consists of seven incorporated cities (Brawley, Calexico, Calipatria, El Centro, Holtville, Imperial and Westmorland), three unincorporated communities (Heber, Niland, Seeley), and three institutions (Naval Air Facility [NAF] El Centro, Calipatria CDCR, and Centinela CDCR) and supporting facilities. Figure 4 provides a map of the IID Imperial Unit boundary, as well as cities, communities, and main canals.

7.1 CLIMATE FACTORS

Imperial Valley, located in the Northern Sonoran Desert, has a subtropical desert climate characterized by hot, dry summers and mild winters. Clear and sunny conditions typically prevail, and frost is rare. The region receives 85 to 90 percent of possible sunshine each year, the highest in the United States. Winter temperatures are mild, rarely dropping below 32°F, but summer temperatures are very hot, with more

[3] *Imperial County General Plan*, Land Use Element 2008 Update
[4] *USBR website:* Yuma Project. *7 June 2017, PVID website:* About Us, *Acreage Map. 7 June 2017.*
[5] Palo Verde Irrigation District Acreage Map <http://www.pvid.org/pviddocs/acreage_2012.pdf> 7 June 2013
[8] *IID Annual Inventory of Areas Receiving Water Years 2019, 2018, 2017*

than 100 days over 100°F each year. The remainder of the year has a relatively mild climate with temperatures averaging in the mid-70s.

The 100-year average climate characteristics are provided in **Table 4.** Rainfall contributes around 50,000 AF of effective agricultural water per inch of rain. Most rainfall occurs from November through March; however, summer storms can be significant in some years. Annual areawide rainfall is shown in **Table 5.** The thirty-year, 1990-2019, average annual air temperature was 73.6°F and average annual rainfall was 2.82 inches, see **Table 4** and **Table 3.** This record shows that while average annual rainfall has fluctuated, the 10-year average temperatures have slightly increased over the 30-year averages.

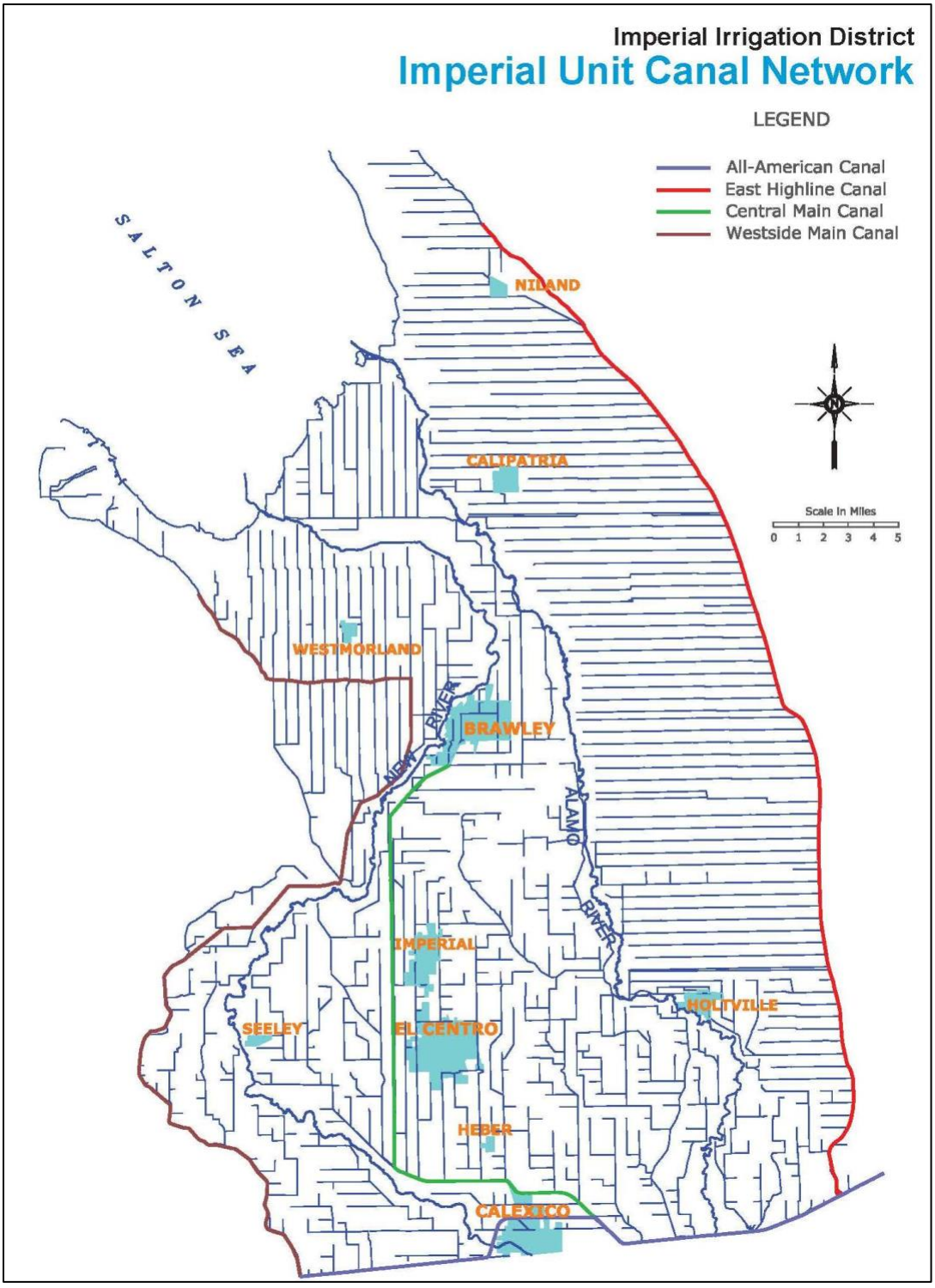


Figure 4: IID Imperial Unit Boundary and Canal Network

Table 4: Climate Characteristics, Imperial, CA 100-Year Record, 1920-2019

Climate Characteristic	Annual Value
Average Precipitation (100-year record, 1920-2019)	2.82 inches (In)
Minimum Temperature, Jan 1937	16 °F
Maximum Temperature, July 1995	121 °F
Average Minimum Temperature, 1920-2019	48.2 °F
Average Maximum Temperature, 1920-2019	98.2 °F
Average Temperature, 1920-2019	72.9 °F

Source: IID Imperial Weather Station Record

Table 5: IID Areawide Annual Precipitation (In), (1990-2019)

1990	1991	1992	1993	1994	1995	1996
1.646	3.347	4.939	2.784	1.775	1.251	0.685
1997	1998	1999	2000	2001	2002	2003
1.328	2.604	1.399	0.612	0.516	0.266	2.402
2004	2005	2006	2007	2008	2009	2010
4.116	4.140	0.410	1.331	1.301	0.619	3.907
2011	2012	2013	2014	2015	2016	2017
2.261	2.752	2.772	1.103	2.000	1.867	2.183
2018	2019					
1.305	3.017					

Source: Computation based on polygon average of CIMIS as station came online in the WIS.[9]

Notable from Table 3 (above) and 5 (below) is that while average annual rainfall measured at IID Headquarters in Imperial, California, has been decreasing, monthly average temperatures are remarkably consistent.

[9] From 1/1/1990-3/23/2004, 3 CIMIS stations: Seeley, Calipatria/Mulberry, Meloland; 3/24/2004-7/5/2009, 4 CIMIS stations (added Westmorland N.); 7/6/2009-12/1/2009, 3 CIMIS stations: Westmorland N. offline; 12/2/2009-2/31/2009, 4 CIMIS stations, Westmorland N. back online; 1/1/2010-9/20/2010.

Table 6: Monthly Mean Temperature (°F) – Imperial, CA 10-Year, 30-Year & 100-Year (2010-2019, 1990-2019, 1920-2019)

	Jan			Feb			Mar			Apr		
	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
10-year	82	32	56	85	35	60	94	41	67	99	47	72
30-year	81	33	57	84	37	60	92	41	66	99	47	71
100-year	80	31	55	84	35	59	91	40	64	98	46	71
	May			Jun			Jul			Aug		
	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
10-year	105	52	76	115	61	87	114	70	92	114	70	92
30-year	105	54	78	113	60	86	114	68	92	113	70	92
100-year	105	52	78	112	59	86	114	68	92	113	68	91
	Sep			Oct			Nov			Dec		
	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
10-year	111	61	87	100	51	75	91	38	64	81	31	55
30-year	110	62	87	101	50	76	90	39	64	79	32	55
100-year	110	60	86	101	49	75	90	38	63	80	32	56

Table 7 Monthly Mean Rainfall (In) – Imperial, CA 10-Year, 30-Year & 100-Year (2010-2019, 1990-2019, 1920-2019)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
10-year	0.54	0.28	0.15	0.04	0.08	0.01	0.24	0.28	0.28	0.14	0.26	0.48	2.77
30-year	0.49	0.41	0.26	0.07	0.06	0.00	0.14	0.22	0.27	0.16	0.22	0.40	2.65
100-year	0.40	0.39	0.24	0.10	0.03	0.00	0.12	0.34	0.38	0.25	0.21	0.51	2.82

Source: IID WIS: CIMIS stations polygon calculation (Data provided by IID staff).

Imperial Valley depends on the Colorado River for its water, which IID transports, untreated, to delivery gates for agricultural, municipal, industrial (including geothermal and solar energy), environmental (managed marsh), recreational (lakes), and other non-agricultural uses. IID supplies the cities, communities, institutions and Golden State Water (which includes all or portions of Calipatria, Niland, and some adjacent Imperial County territory) with untreated water that they treat to meet state and federal drinking water guidelines before distribution to their customers. Industries outside the municipal areas treat the water to required standards of their industry. To comply with U.S. Environmental Protection Agency (USEPA) requirements and avoid termination of canal water service, residents in the IID water service area who do not receive treated water service must obtain alternative water service for drinking and cooking from a state-approved provider. To avoid penalties that could exceed $25,000 a day, IID strictly enforces this rule. The IID Water Department tracks nearly 4,000 raw water service accounts required by the California Department of Public Health (CDPH) to have alternate state approved drinking water service. IID maintains a small-acreage pipe and drinking water database and provides an annual compliance update to CDPH.

7.2 IMPERIAL VALLEY HISTORIC AND FUTURE LAND AND WATER USES

Agricultural development in the Imperial Valley began at the turn of the twentieth century. In 2019, gross agricultural production for Imperial County was valued at $2,015,843,000 of which approximately $1,693,308,120 was produced in the IID water service area.[10] While the agriculture-based economy is expected to continue, land use is projected to change somewhat over the years as industrial and/or alternative energy development and urbanization occur in rural areas and in areas adjacent to existing urban centers, respectively.

Imperial Valley's economy is gradually diversifying. Agriculture will likely continue to be the primary industry within the valley; however, two principal factors anticipated to reduce crop acreage are renewable energy (geothermal and solar) and urban development. Over the next twenty years, urbanization is expected to slightly decrease agriculture land use to provide space for an increase in residential, commercial and industrial uses. The transition from agricultural land use typically results in a net decrease in water demand for municipal, commercial, and solar energy development, and a net increase in water demand for geothermal energy development. Local energy resources include geothermal, wind, biomass and solar. The County General Plan provides for development of energy production centers or energy parks within Imperial County. [8] Alternative energy facilities will help California meet its statutory and regulatory goals for increasing renewable power generation and use and decrease water demands in Imperial County.

The IID Board has adopted the following policies and programs to address how to accommodate water demands under the terms of the QSA/Transfers Agreements and minimize potential negative impacts on agricultural water uses:

Imperial Integrated Regional Water Management Plan (IRWMP): Adopted by the board on December 18, 2012, and by the County of Imperial, to meet the basic requirement of California Department of Water Resources (CDWR) for an IRWMP. In all, 14 local agencies adopted the 2012 Imperial IRWMP.

Interim Water Supply Policy for Non-Agricultural Projects: Adopted by the board on September 29, 2009, to ensure sufficient water will be available for new development, in particular, anticipated renewable energy projects until the board selects and implements capital development projects such as those considered in the Imperial IRWMP.

[10] https://agcom.imperialcounty.org/wp-content/uploads/2020/12/2019-Crop-Report.pdf

Temporary Land Conversion Fallowing Policy: adopted by the board on May 8, 2012, and revised on March 29, 2016, to provide a framework for a temporary, long-term fallowing program to work in concert with the IWSP and IID's coordinated land use/water supply strategy.

Equitable Distribution Plan: adopted by the board on October 28, 2013, to provide a mechanism for IID to administer apportionment of the district's quantified annual supply of Colorado River water; IID board approved a resolution repealing the Equitable Distribution Plan (EDP) on February 6, 2018.

In addition, water users within the IID service area are subject to the statewide requirement of reasonable and beneficial use of water under the California Constitution, Article X, section 2.

7.3 IMPERIAL INTEGRATED REGIONAL WATER MANAGEMENT PLAN (OCTOBER 2012)

The Imperial Integrated Regional Water Management Plan (IRWMP) serves as the governing document for regional water planning to meet present and future water resource needs and demands by addressing such issues as additional water supply options, demand management, and determination and prioritization of uses and classes of service provided. In November 2012, the Imperial County Board of Supervisors approved the Imperial IRWMP, and the City of Imperial City Council and the IID Board of Directors approved it in December 2012. Approval by these three (3) stakeholders meets the basic requirement of California Department of Water Resources (CDWR) for an IRWMP. Through the IRWMP process, IID presented to the region stakeholders options in the event long-term water supply augmentation is needed, such as water storage and banking, recycling of municipal wastewater, and desalination of brackish water[11]. As discussed herein, long term water supply augmentation is not anticipated to be necessary to meet proposed Project demands.

Chapter 5 of the 2012 Imperial IRWMP addresses water supplies (Colorado River and groundwater), demand, baseline and forecasted through 2050, and IID water budget. Chapter 12 addresses projects, programs and policies, and funding alternatives. Chapter 12 of the IRMWP lists, and Appendix N details, a set of capital projects that IID might pursue, including the amount of water that might result (AFY) and cost ($/AF) if necessary. These also highlight potential capital improvement projects that could be implemented in the future.

[11] October 2012 Imperial Integrated Regional Water Management Plan, Chapter 12.

Imperial Valley historic non-agricultural water demand for 2015 and forecasted future for 2020 to 2055 are provided in Table -8 in five-year increments. Total water demand for non-agricultural uses is projected to be 199.3 KAF in the year 2055. This is a forecasted increase in the use of non-agricultural water from 107.2 KAF for the period of 2015 to 2055.[12] These values were modified from Chapter 5 of the Imperial IRWMP to reflect updated conditions from the IID Provisional Water Balance for calendar year 2015. Due to the recession in 2009 and other factors, non-agricultural growth projections have lessened since the 2012 Imperial IRWMP. *Projections in* Table 8 *have been adjusted have been adjusted (reduced by 3%) to reflect IID 2015 delivery data.*

Table 8: Non-Agricultural Water Demand within IID Water Service Area, 2015-2055 (KAFY)

	2015	2020	2025	2030	2035	2040	2045	2050	2055
Municipal	30.0	33.9	36.8	39.8	41.5	46.3	51.7	57.8	61.9
Industrial	26.4	33.1	39.8	46.5	53.2	59.9	66.6	73.3	80.0
Other	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Feedlots/Dairies	17.8	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Envr Resources	8.3	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Recreation	7.4	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Service Pipes	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Total Non Ag	**107.4**	**123.5**	**133.3**	**142.8**	**151.2**	**162.7**	**174.8**	**187.6**	**198.4**

Notes: 2015 non-agricultural water demands are from IID 2015 Provisional Water Balance rerun 03/28/2019 2020-2055 demands are modified from 2012 Imperial IRWMP Chapter 5, Table 5-22 p 5-50 based on IID 2015 Provisional Water Balance. Industrial Demand includes geothermal, but not solar, energy production.

Agricultural evapotranspiration (ET) demand of approximately 1,476.4 KAF in 2015, decreased in 2019 to around 1,494.9 KAF. The termination of fallowing programs provided 103.5 KAF of water for Salton Sea mitigation in 2017. Forecasted agricultural ET remains constant, as reductions in water use are to come from efficiency conservation not reduction in agricultural production. Market forces and other factors may impact forecasted future water demand.

Table 9 provides the 2015 historic and 2020-2055 forecasted agricultural consumptive use and delivery demand within the IID water service area. When accounting for agriculture ET, tailwater and tilewater, total agricultural consumptive use (CU) demand ranges from 2,157.9 KAF in 2015 to 2,209.5 KAF in 2055. Forecasted total agricultural delivery demand is around 1 KAFY higher than the CU demand, ranging from 2,158.9 KAF in 2015 to 2,210.5 KAF in 2055.

[12] Wistaria Solar Ranch, Final Environmental Impact Report, December 2014

Table 9: Historic and forecasted Agricultural Water Consumptive Use and Delivery Demand within IID Water Service Area, 2015-2055 (KAFY)

	2015	2020	2025	2030	2035	2040	2045	2050	2055
Ag ET from Delivered & Stored Soil Water	1,475.4	1,567.5	1,567.5	1,567.5	1,567.5	1,567.5	1,567.5	1,567.5	1,567.5
Ag Tailwater to Salton Sea	282.9	318.0	268.0	218.0	218.0	218.0	218.0	218.0	218.0
Ag Tilewater to Salton Sea	398.6	423.0	423.0	423.0	423.0	423.0	423.0	423.0	423.0
Total Ag CU Demand	**2,157.9**	**2,308.5**	**2,258.5**	**2,208.5**	**2,208.5**	**2,208.5**	**2,208.5**	**2,208.5**	**2,208.5**
Subsurface Flow to Salton Sea	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
Total Ag Delivery Demand	**2,158.9**	**2,309.5**	**2,259.5**	**2,209.5**	**2,209.5**	**2,209.5**	**2,209.5**	**2,209.5**	**2,209.5**

Notes: 2015 record from IID 2015 Provisional Water Balance rerun 06/28/2019; 2020-2055 forecasts from spreadsheet used to develop Figure 19, et seq. in Imperial IRWMP Chapter 5 (Data provided by IID staff). Next Update 2021

In addition to agricultural and nonagricultural water demands, system operational demands must be included to account for operational discharge, main and lateral canal seepage; and for All American Canal (AAC) seepage, river evaporation and phreatophyte ET from Imperial Dam to IID's measurement site at AAC Mesa Lateral 5. These system operation demands are shown in **Table 10.** IID measures system operational uses at All-American Canal Station 2900 just upstream of Mesa Lateral 5 Heading. Total system operational use for 2019 was 257.9 KAF, including 10 KAF of LCWSP input, 39.8 KAF of seepage interception input, and 30.9 KAF of unaccounted canal water input.

Table 10: IID System Operations Consumptive Use within IID Water Service Area and from AAC at Mesa Lateral 5 to Imperial Dam, (KAF), 2019

Delivery System Evaporation	24.6
Canal Seepage	91.7
Canal Spill	13.1
Lateral Spill	118.1
Seepage Interception	-39.8
Unaccounted Canal Water	30.9
Total System Operational Use, In valley	**238.6**
Imperial Dam to AAC @ Mesa Lat 5	29.2
LCWSP	-10
Total System Operational Use in 2019	**257.8**
Source: 2019 Water Balance rerun 04/22/2020	

7.4 IID INTERIM WATER SUPPLY POLICY FOR NON-AGRICULTURAL PROJECTS (SEPTEMBER 2009)

The IID IWSP provides a mechanism to address water supply requests for projects being developed within the IID service area. The IWSP designates up to 25,000 AFY of IID's annual Colorado River water supply for new non-agricultural projects, provides a mechanism and process to develop a water supply agreement for any appropriately permitted project, and establishes a framework and set of fees to ensure the supplies used to meet new demands do not adversely affect existing users by funding water conservation or augmentation projects as needed.[13]

Depending on the nature, complexity, and water demands of the proposed project, new projects may be charged a one-time Reservation Fee and an annual Water Supply Development Fee for the contracted water volume used solely to assist in funding new water supply projects. The applicability of the fee to certain projects will be determined by IID on a case-by-case basis, depending on the proportion of types of land uses and water demand proposed for a project. The 2019 fee schedule is shown in **Table 11.**

Table 11: Interim Water Supply Policy 2019 Annual Non-Agricultural Water Supply Development Fee Schedule

Annual Demand (AF)	Reservation Fee ($/AF)*	Development Fee ($/AF)*
0-500	$73.15	$292.62
501-1000	$103.00	$412.00
1001-2500	$129.34	$517.34
2501-5000	$159.77	$639.07

Adjusted annually in accordance with the Consumer Price Index (CPI).

IID customers with new projects receiving water under the IWSP will be charged the appropriate water rate based on measured deliveries, see IID Water Rate Schedules. As of January 2021, IID has issued one Water Supply Agreement for 1,200 AFY, leaving a balance of 23,800 AFY of supply available for contracting under the IWSP.

[13] *IID website: Municipal, Industrial and Commercial Customers.*

7.5 IID TEMPORARY LAND CONVERSION FALLOWING POLICY (MAY 2012)

Imperial County planning officials determined that renewable energy facilities were consistent with the county's agricultural zoning designation and began issuing CUPs for these projects with ten- to twenty-year terms. These longer-term, but temporary, land use designations were not conducive to a coordinated land use/water supply policy as envisioned in the Imperial IRWMP, because temporary water supply assignments during a conditional use permit (CUP) term were not sufficient to meet the water supply verification requirements for new project approvals. Agricultural landowners also sought long-term assurances from IID that, at project termination, irrigation service would be available for them to resume their farming operations.

Based on these conditions, IID determined it had to develop a water supply policy that conformed to the local land use decision-making in order to facilitate new development and economic diversity in Imperial County which has resulted in the IID Temporary Land Conversion Fallowing Policy (TLCFP).[14] IID concluded that certain lower water use projects could still provide benefits to local water users. The resulting benefits; however, may not be to the same categories of use (e.g., MCI) but to the district as a whole.

At the general manager's direction, staff developed a framework for a fallowing program that could be used to supplement the IWSP and meet the multiple policy objectives envisioned for the coordinated land use/water supply strategy. Certain private projects that, if implemented, will temporarily remove land from agricultural production within the district's water service area include renewable solar energy and other non-agricultural projects. Such projects may need a short-term water supply for construction and decommissioning activities and longer-term water service for facility operation and maintenance or for treating to potable water standards. Conserved water will be credited to the extent that water use for the project is less than historic water use for the project site's footprint as determined by the ten year water use history.[15]

Water demands for certain non-agricultural projects are typically less than that required for agricultural production. This reduced demand allows water to be made available for other users under IID's annual consumptive use cap. This allows the district to avail itself of the ability during the term of the QSA/Transfer Agreements under CWC Section 1013 to create conserved water through projects such as temporary land

[14] *IID website: Temporary Land Conversion Fallowing Policy (TLCFP), and The TLCFP are the sources of the text for this section.*
[15] For details of how water conservation yield attributable to land removed from agricultural production and temporarily fallowed is computed, see TLCFP for Water Conservation Yield.

fallowing conservation measures. This conserved water can then be used to satisfy the district's conserved water transfer obligation and for environmental mitigation purposes.

Under the terms of the legislation adopted to facilitate the QSA/Transfer Agreements and enacted in CWC Section 1013, the TLCFP was adopted by the IID board on May 8, 2012 and revised on March 29, 2016 to update the fee schedule for 2016. This policy provides a framework for a temporary, long-term fallowing program to work in concert with the IWSP. While conserved water generated from the TLCFP is limited by law for use for water transfer or environmental purposes, by satisfying multiple district objectives the TLCFP serves to reduce efficiency conservation and water use reduction demands on IID water users, thus providing district wide benefits.

7.6 IMPERIAL IRRIGATION DISTRICT'S WATER RIGHTS

The laws and regulations that influence IID's water supply are noted in this section. The Law of the River (as described below), along with the 2003 Quantification Settlement Agreement and Related Agreements serve as the laws, regulations and agreements that primarily influence the findings of this WSA. These agreements grant California the most senior water rights along the Colorado River and IID specify that IID has access to 3.1 MAF per year. These two components will influence future decisions in terms of water supply during periods of shortages.

CALIFORNIA LAW

IID's has a longstanding right to divert Colorado River water, and IID holds legal titles to all of its water and water rights in trust for landowners within the district (CWC §20529 and §22437; *Bryant v. Yellen*, 447 U.S. 352, 371 (1980), fn.23.). Beginning in 1885, a number of individuals, as well as the California Development Company, made a series of appropriations of Colorado River water under California law for use in the Imperial Valley. The rights to these appropriations were among the properties acquired by IID from the California Development Company.

LAW OF THE RIVER

Colorado River water rights are governed by numerous compacts, state and federal laws, court decisions and decrees, contracts, and regulatory guidelines collectively known as the "Law of the River." Together, these documents form the basis for allocation of the water, regulation of land use, and management of the Colorado River water supply among the seven basin states and Mexico.

Of all regulatory literature that governs Colorado River water rights, the following are the specifics that impact IID:

- Colorado River Compact (1922)
- Boulder Canyon Project Act (1928)
- California Seven-Party Agreement (1931)
- Arizona v. California US Supreme Court Decision (1964, 1979)
- Colorado River Basin Project Act (1968)
- Quantification Settlement Agreement and Related Agreements (2003)
- 2003 Colorado River Water Delivery Agreement: Federal QSA for purposes of Section 5(b) Interim Surplus Guidelines (CRWDA)
- 1970 Criteria for Coordinated Long-Range Operation of Colorado River Reservoirs
- Annual Operating Plan (AOP) for Colorado River Reservoirs
- 2007 Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lakes Powell and Mead (2007 Interim Guidelines)

COLORADO RIVER COMPACT (1922)

With authorization of their legislatures and urging of the federal government, representatives from the seven Colorado River basin states began negotiations regarding distribution of water from the Colorado River in 1921. In November 1922, an interstate agreement called the "Colorado River Compact" was signed by the representatives giving the Lower Basin perpetual rights to annual apportionments of 7.5 million acre-feet (MAF) of Colorado River water (75 MAF over ten years). The Upper Basin was to receive the remainder, which based on the available hydrological record was also expected to be 7.5 MAF annually, with enough left over to provide 1.5 MAF annually to Mexico.

BOULDER CANYON PROJECT ACT (1928)

Provisions in the 1928 Boulder Canyon Project Act made the compact effective and authorized construction of Hoover Dam and the All-American Canal, and served as the United States' consent to accept the Compact. Through a Presidential Proclamation on June 25, 1929, this act resulted in ratification of the Compact by six of the basin states and required California to limit its annual consumptive use to 4.4 MAF of the lower basin's apportionment plus not less than half of any excess or surplus water unapportioned by the Compact. A lawsuit was filed by the State of Arizona after its refusal to sign. Through the implementation of its 1929 Limitation Act, California abided by this federal mandate. The Boulder Canyon Act authorized the Secretary of the Interior (Secretary) to "contract for the storage of water… and for the delivery thereof… for irrigation and domestic uses," and additionally defined the lower basin's 7.5 MAF apportionment split, with an annual allocation 0.3 MAF to Nevada, 2.8 MAF to Arizona, and 4.4 MAF to California. Even though the three states never formally settled or agreed to these terms, a 1964 Supreme Court decision (*Arizona v. California*, 373

U.S. 546) declared the three states' consent to be insignificant since the Boulder Canyon Project Act was authorized by the Secretary.

CALIFORNIA SEVEN-PARTY-AGREEMENT (1931)

Following implementation of the Boulder Canyon Project Act, the Secretary requested that California make recommendations regarding distribution of its apportionment of Colorado River water. In August 1931, under chairmanship of the State Engineer, the California Seven-Party Agreement was developed and authorized by the affected parties to prioritize California water rights. The Secretary accepted this agreement and established these priorities through General Regulations issued in September of 1931. The first four (4) priority allocations account for California's annual apportionment of 4.4 MAF, with agricultural entities using 3.85 MAF of that total. Additional priorities are defined for years in which the Secretary declares that excess waters are available.

ARIZONA V. CALIFORNIA U.S. SUPREME COURT DECISION (1964, 1979)

The 1964 Supreme Court decision settled a 25-year disagreement between Arizona and California that stemmed from Arizona's desire to build the Central Arizona Project to enable use of its full apportionment. California's argument was that as Arizona used water from the Gila River, which is a Colorado River tributary, it was using a portion of its annual Colorado River apportionment. An additional argument from California was that it had developed a historical use of some of Arizona's apportionment, which, under the doctrine of prior appropriation, precluded Arizona from developing the project. California's arguments were rejected by the U.S. Supreme Court. Under direction of the Supreme Court, the Secretary was restricted from delivering water outside of the framework of apportionments defined by law. Preparation of annual reports documenting consumptive use of water in the three lower basin states was also mandated by the Supreme Court. In 1979, present perfected water rights (PPRs) referred to in the Colorado River Compact and in the Boulder Canyon Project Act were addressed by the Supreme Court in the form of a Supplemental Decree.

In March of 2006, a Consolidated Decree was issued by the Supreme Court to provide a single reference to the conditions of the original 1964 decrees and several additional decrees in 1966, 1979, 1984 and 2000 that stemmed from the original ruling. The Consolidated Decree also reflects the settlements of the federal reserved water rights claim for the Fort Yuma Indian Reservation.

COLORADO RIVER BASIN PROJECT ACT (1968)

In 1968, various water development projects in both the upper and lower basins, including the Central Arizona Project (CAP) were authorized by Congress. Under the Colorado River Basin Project Act, priority was given to California's apportionment over (before) the CAP water supply in times of shortage. Also under the act, the Secretary was directed to prepare long-range criteria for the Colorado River reservoir system in consultation with the Colorado River Basin States.

QUANTIFICATION SETTLEMENT AGREEMENT AND RELATED AGREEMENTS (2003)

With completion of a large portion of the CAP infrastructure in 1994, creation of the Arizona Water Banking Authority in 1995, and the growth of Las Vegas in the 1990s, California encountered increasing pressure to live within its rights under the Law of the River. After years of negotiating among Colorado River Compact States and affected California water delivery agencies, a Quantification Settlement Agreement and Related Agreements and documents were signed on October 10, 2003, by the Secretary of Interior, IID, Coachella Valley Water District (CVWD), Metropolitan Water District of Southern California (MWD), San Diego County Water Authority (SDCWA), and other affected parties.

The Quantification Settlement Agreement and Related Agreements (QSA/Transfer Agreements) are a set of interrelated contracts that resolve certain disputes among the United States, the State of California, IID, MWD, CVWD and SDCWA, for a period of 35 to 75 years, regarding the reasonable and beneficial use of Colorado River water; the ability to conserve, transfer and acquire conserved Colorado River water; the quantification and priority of Priorities 3(a) and 6(a)[16] within California for use of Colorado River water; and the obligation to implement and fund environmental impact mitigation.

[16] *Priorities 1, 2, 3(b), 6(b), and 7 of current Section 5 Contracts for the delivery of Colorado River water in the State of California and Indian and miscellaneous Present Perfected Rights within the State of California and other existing surplus water contracts are not affected by the QSA Agreement.*

Conserved water transfer agreements between IID and SDCWA, IID and CVWD, and IID and MWD are all part of the QSA/Transfer Agreements. For IID, these contracts identify conserved water volumes and establish transfer schedules along with price and payment terms. As specified in the agreements, IID will transfer nearly 415,000 AF annually over a 35-year period (or loner), as follows:

- to MWD 110,000 AF [modified to 105,000 AF in 2007],
- to SDCWA 200,000 AF,
- to CVWD and MWD combined 103,000 AF, and
- to certain San Luis Rey Indian Tribes 11,500 AFY of water.

All of the conserved water will ultimately come from IID system and on-farm efficiency conservation improvements. In the interim, IID has implemented a Fallowing Program to generate water associated with Salton Sea mitigation related to the impacts of the IID/SDCWA water transfer, as required by the State Water Resources Control Board, which is to run from 2003 through 2017. In return for its QSA/Transfer Agreements programs and deliveries, IID will receive payments totaling billions of dollars to fund needed efficiency conservation measures and to pay growers for conserved on-farm water, so IID can transfer nearly 14.5 MAF of water without impacting local productivity. In addition, IID will transfer to SDCWA 67,700 AFY annually of water conserved from the lining of the AAC in exchange for payment of lining project costs and a grant to IID of certain rights to use the conserved water. In addition to the 105,000 acre-feet of water currently being conserved under the 1988 IID/MWD Conservation Program, these more recent agreements define an additional 303,000 AFY to be conserved by IID from on-farm and distribution system conservation projects for transferred to SDCWA, CVWD, and MWD.

COLORADO RIVER WATER DELIVERY AGREEMENT (2003)[17]

As part of QSA/Transfer Agreements among California and federal agencies, the Colorado River Water Delivery Agreement: Federal QSA for purposes of Section 5(b) Interim Surplus Guidelines (CRWDA) was entered into by the Secretary of the Interior, IID, CVWD, MWD and SDCWA. This agreement involves the federal government because of the change in place of diversion from Imperial Dam into the All-American Canal to Parker Dam into MWD's Colorado River Aqueduct.

The CRWDA assists California to meet its "4.4 Plan" goals by quantifying deliveries for a specific number of years for certain Colorado River entitlements so transfers may occur. In particular, for the term of the CRWDA, quantification of Priority 3(a) was effected through caps on water deliveries to IID (consumptive

[17] *CRWDA: Federal QSA accessed 7 June 2017.*

use of 3.1 MAF per year) and CVWD (consumptive use of 330 KAF per year). In addition, California's Priority 3(a) apportionment between IID and CVWD, with provisions for transfer of supplies involving IID, CVWD, MWD and SDCWA are quantified in the CRWDA for a period of 35 years or 45 years (assumes SDCWA does not terminate in year 35) or 75 years (assumes SDCWA and IID mutually consent to renewal term of 30 years).

Allocations for consumptive use of Colorado River water by IID, CVWD and MWD that will enable California to stay within its basic annual apportionment (4.4 MAF plus not less than half of any declared surplus) are defined by the terms of the QSA/Transfer Agreements (**Table 12**). As specified in the QSA/Transfer Agreements, by 2026, IID annual use within (Imperial Valley) is to be reduced to just over 2.6 MAF of its 3.1 MAF quantified annual apportionment. The remaining nearly 500,000 AF (which includes the 67,000 AF from AAC lining) are to be transferred annually to urban water users outside of the Imperial Valley.

Table 12: CRWDA Annual 4.4 MAF Apportionment (Priorities 1 to 4) for California Agencies (AFY)

User	Apportionment (AFY)
Palo Verde Irrigation District and Yuma Project*	420,000
Imperial Irrigation District	3,100,000
Coachella Valley Water District	330,000
Metropolitan Water District of Southern California*	550,000
Total:	4,400,000

* PVID and Yuma Project did not agree to a cap; value represents a contractual obligation by MWD to assume responsibility for any overages or be credited with any volume below this value.
Notes: All values are consumptive use at point of Colorado River diversion: Palo Verde Diversion Dam (PVID), Imperial Dam (IID and CVWD), and Parker Dam (MWD). Source: IID Annual Water Report

Quantification of Priority 6(a) was effected through quantifying annual consumptive use amounts to be made available in order of priority to MWD (38 KAF), IID (63 KAF), and CVWD (119 KAF) with the provision that any additional water available to Priority 6(a) be delivered under IID's and CVWD's existing water delivery contract with the Secretary.[18] The CRWDA provides that the underlying water delivery contract with the Secretary remain in full force and effect. (*Colorado River Documents 2008*, Chapter 6, pages 6-12 and 6-13). The CRWDA also provides a source of water to effect a San Luis Rey Indian Water rights settlement. Additionally, the CRWDA satisfies the requirement of the 2001 Interim Surplus Guidelines (ISG) that a QSA be adopted as a prerequisite to the interim surplus determination by the Secretary in the ISG.

INADVERTENT OVERRUN PAYBACK POLICY (2003)

[18] When water levels in the Colorado River reservoirs are low, Priority 5, 6 and 7 apportionments are not available for diversion.

The CRWDA Inadvertent Overrun Payback Policy (IOPP), adopted by the Secretary contemporaneously with the execution of the CRWDA, provides additional flexibility to Colorado River management and applies to entitlement holders in the Lower Division States (Arizona, California and Nevada).[19] The IOPP defines inadvertent overruns as "Colorado River water diverted, pumped, or received by an entitlement holder of the Lower Division States that is in excess of the water users' entitlement for the year." An entitlement holder is allowed a maximum overrun of 10 percent (10%) of its Colorado River water entitlement.

In the event of an overrun, the IOPP provides a mechanism to payback the overrun. When the Secretary has declared a normal year for Colorado River diversions, a contractor has from one to three years to pay back its obligation, with a minimum annual payback equal to 20 percent of the entitlement holder's maximum allowable cumulative overrun account or 33.3 percent of the total account balance, whichever is greater. However, when Lake Mead is below 1125 feet on January 1, the terms of the IOPP require that the payment of the inadvertent overrun obligation be made in the calendar year after the overrun I reported in the USBR Lower Colorado Region Colorado River Accounting and Water Use Report [for] Arizona, California, and Nevada (Decree Accounting Report).[20]

1970 CRITERIA FOR COORDINATED LONG-RANGE OPERATION OF COLORADO RIVER RESERVOIRS

The 1970 Operating Criteria control operation of the Colorado River reservoirs in compliance with requirements set forth in the Colorado River Compact of 1922, the United States-Mexico Water Treaty of 1944, the Colorado River Storage Project Act of 1956, the Boulder Canyon Projects Act (Lake Mead) and the Colorado River Basin Project Act (Upper Basin Reservoirs) of 1968, and other applicable federal laws. Under these Operating Criteria, the Secretary makes annual determinations published in the USBR Annual Operating Plan for Colorado River Reservoirs (discussed below) regarding the release of Colorado River water for deliveries to the lower basin states. A requirement to equalize active storage between Lake Powell and Lake Mead when there is sufficient storage in the Upper Basin is included in these operating criteria. **Figure 5** identifies the major storage facilities at the upper and lower basin boundaries.

ANNUAL OPERATING PLAN FOR COLORADO RIVER RESERVOIRS (Applicable Only if Lake Mead has Surplus/Shortage)

[19] *USBR, 2003 CRWDA ROD Implementation Agreement, IOPP and Related Federal Actions Final EIS. Section IX. Implementing the Decision A. Inadvertent Overrun and Payback Policy. Pages 16-19 of 34.*
[20] *2003 CRWDA ROD. Section IX. A.6.c,, page 18 of 34.*

The AOP is developed in accordance with Section 602 of the Colorado River Basin Project Act (Public Law 90-537); the Criteria for Coordinated Long-Range Operations of Colorado River Reservoirs Pursuant to the Colorado River Basin Project Act of 1968, as amended, promulgated by the Secretary of the Interior; and Section 1804(c)(3) of the Grand Canyon Protection Act (Public Law 102-575). As part of the AOP process, the Secretary makes determinations regarding the availability of Colorado River water for deliveries to the lower basin states, including whether normal, surplus, and shortage conditions are in effect on the lower portion of the Colorado River.

2007 COLORADO RIVER INTERIM GUIDELINES FOR LOWER BASIN SHORTAGES (2007 INTERIM GUIDELINES)

A multi-year drought in the Colorado River Upper Basin triggered the need for the 2007 Interim Shortage Guidelines. In the summer of 1999, Lake Powell was essentially full with reservoir storage at 97 percent of capacity. However, precipitation fell off starting in October 1999 and 2002 inflow was the lowest recorded since Lake Powell began filling in 1963.[21],[22] By August 2011, inflow was 279 percent (279%) of average; however, drought resumed in 2012 and continued through calendar year 2018. Using the record in **Table 13,** average unregulated inflow to Lake Powell for water years 2000-2017 is 74 percent (74%); or if 2011 is excluded, 70 percent (70%) of the historic average, see **Table 13**.

Table 13: Unregulated Inflow to Lake Powell, Percent of Historic Average, 2000-2019

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
62%	59%	25%	51%	49%	105%	73%	68%	102%	88%	73%
2011	2012	2013	2014	2015	2016	2017	2018	2019		
136%	35%	49%	90%	83%	80%	100%	43%	%36		

Source: Drought in the Upper Colorado River Basin (2000-2010), and UCR Water Operations: Historic Data (2011-2019)

[21] Water Year: October 1 through September 30 of following year, so water year ending September 30, 1999

[22] Drought in the Upper Colorado River Basin. August 2011

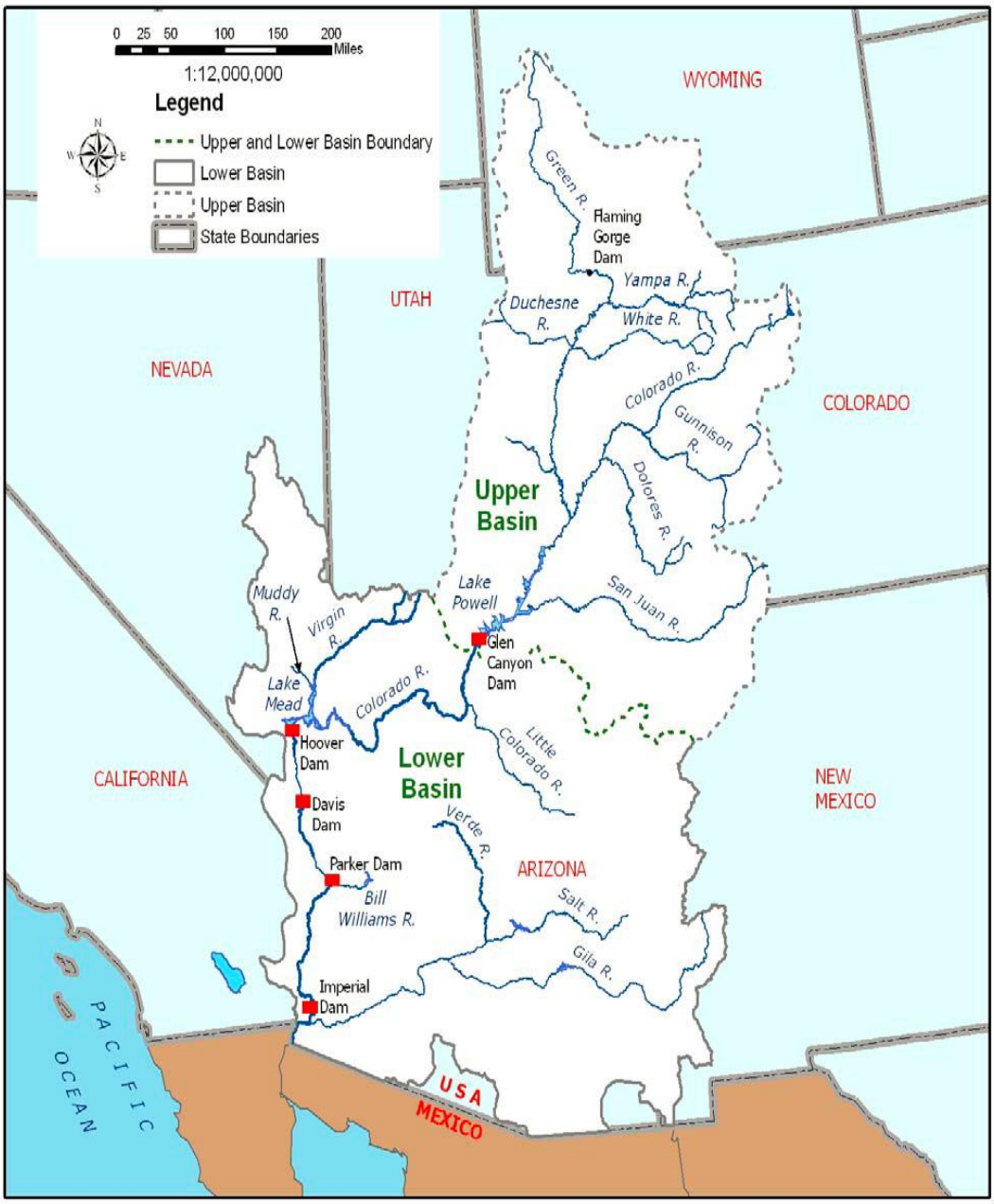


Figure 5 Major Colorado River Reservoir Storage Facilities and Basin Location Map

Source: **Final EIS – Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead, Volume 1 Chapter 1 Purpose and Need** , p I-10.

In the midst of the drought period, USBR developed 2007 Interim Guidelines with consensus from the seven basin states, which selected the Draft EIS Preferred Alternative as the basis for USBR's final determination. The basin states found the Preferred Alternative best met all aspects of the purpose and need for the federal action.[23]

The 2007 interim Guidelines Preferred Alternative highlights the following:

1. The need for the Interim Guidelines to remain in place for an extended period of time.
2. The desirability of the Preferred Alternative based on the facilitated consensus recommendation from the basin states.
3. The likely durability of the mechanisms adopted in the Preferred Alternative in light of the extraordinary efforts that the basin states and water users have undertaken to develop implementing agreements that will facilitate the water management tools (shortage sharing, forbearance, and conservation efforts) identified in the Preferred Alternative
4. That the range of elements in the Preferred Alternative will enhance the Secretary's ability to manage the Colorado River reservoirs in a manner that recognizes the inherent tradeoffs between water delivery and water storage.

In June 2007, USBR announced that a preferred alternative for Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations of Lake Powell and Lake Mead (Final Preferred Alternative) had been determined. The Final Preferred Alternative, based on the basin states' consensus alternative and an alternative submitted by the environmental interests called "Conservation Before Shortage," is comprised of four key operational elements which are to guide operations of Lake Powell and Lake Mead through 2026 are:

1. Shortage strategy for Lake Mead and Lower Division states: The Preferred Alternative proposed discrete levels of shortage volumes associated with Lake Mead elevations to conserve reservoir storage and provide water users and managers in the Lower Basin with greater certainty to know when, and by how much, water deliveries will be reduced during low reservoir conditions.

[23] USBR *Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead* <http://www.usbr.gov/lc/region/programs/strategies.html>

2. Coordinated operations of Lake Powell and Lake Mead: The Preferred Alternative proposed a fully coordinated operation of the reservoirs to minimize shortages in the Lower Basin and to avoid risk of curtailments of water use in the Upper Basin.
3. Mechanism for storage and delivery of conserved water in Lake Mead: The Preferred Alternative proposed the Intentionally Created Surplus (ICS) mechanism to provide for the creation, accounting, and delivery of conserved system and non-system water thereby promoting water conservation in the Lower Basin. Credits for Colorado River or non-Colorado River water that has been conserved by users in the Lower Basin creating an ICS would be made available for release from Lake Mead at a later time. The total amount of credits would be 2.1 MAF, but this amount could be increased up to 4.2 MAF in future years.
4. Modifying and extending elements of the Interim Surplus Guidelines (ISG). The ISG determines conditions under which surplus water is made available for use within the Lower Division states. These modifications eliminate the most liberal surplus conditions thereby leaving more water in storage to reduce the severity of future shortages.

With respect to the various interests, positions and views of the seven basin states, this provision adds an important element to the evolution of the legal framework for prudent management of the Colorado River. Furthermore, the coordinated operation element allows for adjustment of Lake Powell releases to respond to low reservoir storage conditions in either Lake Powell or Lake Mead[24]. States found the Preferred Alternative best met all aspects of the purpose and need for the federal action.[25] The 2007 Interim Guidelines are in place from 2008 through December 31, 2025 (through preparation of the 2026 Annual Operating Plan). Reclamation's Upper and Lower Colorado Basin Regions manage the operations of Lake Powell and Lake Mead pursuant to the Record of Decision for the 2007 Interim Guidelines.

LOWER COLORADO REGION WATER SHORTAGE OPERATIONS

The drought in the Colorado River watershed has continued through 2019 despite an increase in observed runoff in August 2011 when unregulated inflow to Lake Powell was 279 percent of the average. Since 2000,

[24] *For a discussion of the 2007 Interim Guidelines, see: Intermountain West Climate Summary by TheWestern Water Assessment, issued Jan. 21, 2008, Vol. 5, Issue 1, January 2009 Climate Summary, Feature Article, pages 5-7, 22 Mar 2013.*

[25] *USBR Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead.*

Lake Mead has been below the "average" level of lake elevations (see **Figure 6**). Such conditions have caused the preparation of shortage plans for waters users in Arizona and Nevada, and in Mexico.

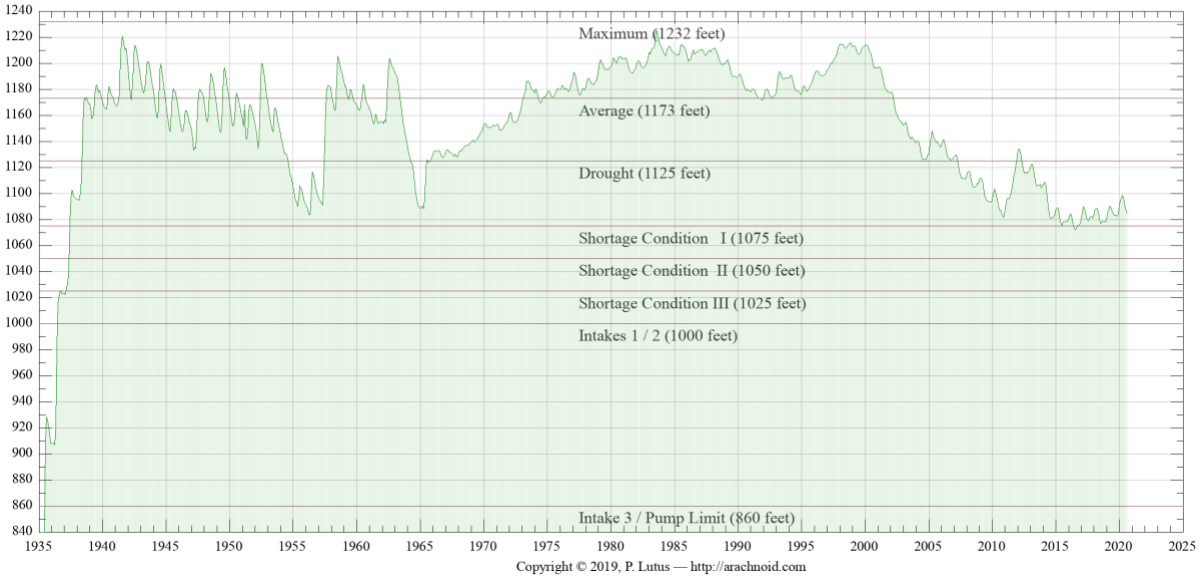


Figure 6 Lake Mead Water Elevation Levels 2020

visit <http://www.arachnoid.com/NaturalResources/index.html>

According to guidelines put in place in 2007, Arizona and Nevada begin to take shortages when the water elevation in Lake Mead falls below 1,075 feet. The volumes of shortages increase as water levels fall to 1,050 feet and again at 1,025 feet. In 2012, Mexico agreed to participate in a 5-year pilot agreement to share specific volumes of shortages at the same elevations. The 2007 interim shortage guidelines contain no reductions for California, which has senior water rights to the Central Arizona Project water supply, through 2025 when the guidelines expire. If Lake Mead's elevation drops to 1,025 feet, a re-consultation process would be triggered among the basin states to address next steps. Consultation would start out within each state, then move to the three lower basin states, followed by all seven states and the USBR. Mexico will then be brought into the process unless they choose to participate earlier.

8 IMPERIAL IRRIGATION DISTRICT WATER SUPPLY AND DEMAND

SB 610 requires an analysis of a normal, single dry, and multiple dry water years to show that adequate water is available for the proposed Project in various climate scenarios. Water availability for this Project in a normal year is no different from water availability during a single-dry and multiple-dry year scenarios.

This is due to the small effect rainfall has on water availability in IID's arid environment along with IID's strong entitlements to the Colorado River water supply. Local rainfall does have some impact on how much water is consumed (i.e. if rain falls on agricultural lands, those lands will not demand as much irrigation), but does not impact the definition of a normal year, a single-dry year or a multiple-dry year scenario.

9 WATER AVAILABILITY – NORMAL YEAR

IID is entitled to annual net consumptive use of 3.1 MAF of Colorado River, less its QSA/Transfer Agreement obligations. Imperial Dam, located north of Yuma, Arizona, serves as a diversion structure for water deliveries throughout southeastern California, Arizona and Mexico. Water is transported to the IID water service area through the AAC for use throughout the Imperial Valley. IID historic and forecast net consumptive use volumes at Imperial Dam from CRWDA Exhibit B are shown in **Table 14.** Volumes 2003-2019 are adjusted for USBR Decree Accounting historic records. Volumes for 2020-2077 are from CRWDA Exhibit B modified to reflect 2014 Letter Agreement changes to the 1988 IID/MWD Water Conservation Agreement.[26]

9.1 GROUNDWATER, AGRICULTURAL PRACTICES AND DRAINAGE

Groundwater underlying the Imperial Valley is generally of poor quality unsuitable for domestic or irrigation purposes. Groundwater in the area of the project is brackish (contains a high salt content). Agricultural practices in the Imperial Valley, including in the project vicinity, consist of aerial and ground application of pesticides and application of chemical fertilizers to both ground and irrigation water at the farm delivery gate. Most of the agricultural fields in the valley are underlain by tile drainage systems (perforated pipelines encapsulated by sand/gravel) installed at a depth of approximately 5 to 7 feet below the ground surface. The tile drains maintain groundwater at levels below the root system of crops. The tile drains transport soluble salts contained in the Colorado River water and that are leached from the soil profile during irrigation. The tile drainage is collected in IID's drainage system, most of which discharges into the New and Alamo rivers and flows to the Salton Sea. A few IID drains discharge directly to the Salton Sea.

[26] 2014 Imperial Irrigation District Letter Agreement for Substitution and Conservation Modifications to the IID/MWD Water Conservation Agreement - December 17, 2014.

Table 14: IID Historic and Forecast Net Consumptive Use for Normal Year, Single-Dry Year and Multiple-Dry Year Water Supply, 2003-2037, et seq. (CRWDA Exhibit B)

IID Quantification and Transfers, Volumes in KAF at Imperial Dam [1]										
Col 1	2	3	4	5	6	7	8	9	10	11
	IID Priority 3(a)									
		IID Reductions								IID Net [Available for] Consumptive Use (Col 2 - 10)
Year	IID 3(a) Quantified Amount	1988 MWD Transfer [2]	SDCWA Transfer	AAC Lining	Salton Sea Mitigation SDCWA Transfer [3]	Intra-Priority 3 CVWD Transfer	MWD Transfer w\ Salton Sea Restoration [4]	Misc. PPRs	IID Total Reduction (Σ Cols 3-9) [5]	
2003	3,100	105.1	10.0	0.0	0.0	0.0	0.0	11.5	126.6	2978.2
2004	3,100	101.9	20.0	0.0	15.0	0.0	0.0	11.5	148.4	2743.9
2005	3,100	101.9	30.0	0.0	15.0	0.0	0.0	11.5	158.4	2756.8
2006	3,100	101.2	40.0	0.0	20.0	0.0	0.0	11.5	172.7	2909.7
2007	3,100	105.0	50.0	0.0	25.0	0.0	0.0	11.5	191.5	2872.8
2008	3,100	105.0	50.0	8.9	26.0	4.0	0.0	11.5	205.4	2825.1
2009	3,100	105.0	60.0	65.5	30.1	8.0	0.0	11.5	280.1	2566.7
2010	3,100	105.0	70.0	67.7	33.8	12.0	0.0	11.5	294.8	2540.5
2011	3,100	103.9	63.3	67.7	0.0	16.0	0.0	11.5	262.4	2915.8
2012	3,100	104.1	106.7	67.7	15.2	21.0	0.0	11.5	326.2	2,903.2
2013	3,100	105.0	100.0	67.7	71.4	26.0	0.0	11.5	381.6	2,554.9
2014	3,100	104.1	100.0	67.7	89.2	31.0	0.0	11.5	403.5	2,533.4
2015	3,100	107.82	100.0	67.7	153.3	36.0	0.0	11.5	476.3	2,480.9
2016	3,100	105.0	100.0	67.7	130.8	41.0	0.0	11.5	456.0	2,504.3
2017	3,100	105.0	100.0	67.7	105.3	45.0	0.0	9.9	434.5	2,548.2
2018	3,100	105	130	67.7	0.1	63	0.0	11.5	377.3	2,722.8
2019	3,100	105	160	67.7	46.55	68	0.0	11.5	458.75	2,687.8
2020	3,100	105	193	67.7	0	73	0	11.5	450.2	2,649.8
2021	3,100	105	205	67.7	0	78	0	11.5	467.2	2,632.8
2022	3,100	105	203	67.7	0	83	0	11.5	470.2	2,629.8
2023	3,100	105	200	67.7	0	88	0	11.5	472.2	2,627.8
2024	3,100	105	200	67.7	0	93	0	11.5	477.2	2,622.8
2025	3,100	105	200	67.7	0	98	0	11.5	482.2	2,617.8
2026	3,100	105	200	67.7	0	103	0	11.5	487.2	2,612.8
2027	3,100	105	200	67.7	0	103	0	11.5	487.2	2,612.8
2028	3,100	105	200	67.7	0	103	0	11.5	487.2	2,612.8
2029-37	3,100	105	200	67.7	0	103	0	11.5	487.2	2,612.8
2038-47 [6]	3,100	105	200	67.7	0	103	0	11.5	487.2	2,612.8
2048-77 [7]	3,100	105	200	67.7	0	50 [8]	0	11.5	434.2	2,665.8

1. 2003 through 2019, volumes are adjusted for actual USBR Decree Accounting values; IID Total Reduction and Net Available for Consumptive Use may not equal Col 2 minus Col 10, if IID conservation/use was not included in Exhibit B.
2. 2014 Letter of Agreement provides that, effective January 2016 total amount of conserved water available is 105 KAFY
3. Salton Sea Mitigation volumes may vary based on conservation volumes and method of conservation.
4. *This transfer is not likely given lack of progress on Salton Sea restoration as of 2018; shaded entries represents volumes that may vary..*
5. Reductions include conservation for 1988 IID/MWD Transfer, IID/SDCWA Transfer, AAC Lining; SDCWA Transfer Mitigation, MWD Transfer w/Salton Sea Restoration (if any); Misc. PPRs. Amounts are independent of increases and reductions as allowed by the IOPP.
6. Assumes SDCWA does not elect termination in year 35.
7. Assumes SDCWA and IID mutually consent to renewal term of 30 years.
8. Modified from 100 KAFY in CRWDA Exhibit B; stating in 2018 MWD will provide CVWD 50 KAFY of the 100 KAFY.

Source: CRWDA: Federal QSA Exhibit B, p 13; updated values from 2019 QSA Implementation Report

Due to limits on annual consumptive use of Colorado River water under the QSA/Transfer Agreements, IID's water supply during a normal year is best represented by the CRWDA Exhibit B Net Available for Consumptive Use (**Table 14, Column 11**). The annual volume is IID Priority 3(a) Quantified Amount of 3.1 million acre-feet (MAF**) (Table 14, Column 2)** less the IID transfer program reductions for each year **(Table**

-14, Columns 3-9). IID suggests Table 14 which assumes full use of IID's quantified water supply, be used in determining base normal year water availability.

CRWDA Exhibit B Net Available for Consumptive Use volumes less system operation demand represents the amount of water available for delivery by IID Water Department to its customers each year. In a normal year, perhaps 50,000 to 100,000 AF of effective rainfall would fall in the IID water service area. However, rainfall is not evenly distributed throughout the IID water service area and is not taken into account by IID in the submittal of its Estimate of Diversion (annual water order) to the USBR.

10 Expected Water Availability – Single Dry and Multiple Dry Years

When drought conditions exist within the IID water service area, as has been the case for the past decade or so, the water supply available to meet agricultural and non-agricultural water demands remains the same as normal year water supply because IID continues to rely solely on its entitlement for Colorado River water. Due to the priority of IID water rights and other agreements, drought conditions affecting Colorado River water supplies cause shortages for Arizona, Nevada and Mexico, before impacting California and IID. Accordingly, the Net Available for Consumptive Use volumes in Table 14, Column 11 represents the water supply at Imperial Dam available for diversion by IID in single-dry year and multiple-dry year scenarios.

Under CRWDA Inadvertent Overrun Payback Policy (IOPP), IID has some flexibility to manage its water use. When the water level in Lake Mead is above 1,125 feet, an overrun of its USBR approved annual water order is permissible, and IID has up to three years to pay water use above the annual water order. When Lake Mead's water level is at or below 1,125 feet on January 1 in the calendar year after the overrun is reported in the USBR Lower Colorado Region Decree Accounting Report, the IOPP prohibits additional overruns and requires that outstanding overruns be paid back in the subsequent calendar year rather than in three years as allowed under normal conditions; that is, the payback is to be made in the calendar year following publication of the overrun in the USBR Decree Accounting Report. For historic IID annual rainfall, net consumptive use, transfers and IID underrun/overrun amounts see Table 14. For the purposes of the WSA, years with a shortage condition that impacts non-agricultural projects such as an IOPP payback obligation constitute "dry" years for IID.

In years of inadvertent overrun payback, conditions such as those in Sections 3.7 and 3.8 of the 2012 IWSP Water Agreement may go into effect, with the result that less water would be available for non-agricultural development contractors. Under such conditions, IID has requested that Consolidated Edison Development

(CED) (the "Applicant"), work with IID to ensure it can manage the reduction. IID has further indicated that, provided a water supply agreement is approved and executed by IID under the provisions of the IWSP, IID will have sufficient water to support the water of this Project.

Table 15: IID Annual Rainfall (In), Net Consumptive Use and Underrun/Overrun Amounts (AF), 1988-2018

Year	IID Total Annual Rainfall	IID Water Users	IID/MWD Transfer	IID/ SDCWA Transfer	SDCWA Transfer Salton Sea Mitigation	IID Underrun / Overrun	IID/CVWD Transfer	AAC Lining
1988		2,947,581						
1989		3,009,451						
1990	91,104	3,054,188	6,110					
1991	192,671	2,898,963	26,700					
1992	375,955	2,575,659	33,929					
1993	288,081	2,772,148	54,830					
1994	137,226	3,048,076	72,870					
1995	159,189	3,070,582	74,570					
1996	78,507	3,159,609	90,880					
1997	64,407	3,158,486	97,740					
1998	100,092	3,101,548	107,160					
1999	67,854	3,088,980	108,500					
2000	29,642	3,112,770	109,460					
2001	12,850	3,089,911	106,880					
2002	12,850	3,152,984	104,940					
2003	116,232	2,978,223	105,130	10,000	0	**6,555**		
2004	199,358	2,743,909	101,900	20,000	15,000	166,408		
2005	202,983	2,756,846	101,940	30,000	15,000	159,881		
2006	19,893	2,909,680	101,160	40,000	20,000	**12,414**		
2007	64,580	2,872,754	105,000	50,000	25,021	**6,358**		
2008	63,124	2,825,116	105,000	50,000	26,085	47,999	4,000	8,898
2009	30,0354	2,566,713	105,000	60,000	30,158	237,767	8,000	65,577
2010	189,566	2,545,593	105,000	70,000	33,736	207,925	12,000	67,700
2011	109,703	2,915,784	103,940	63,278	0	**82,662**	16,000	67,700
2012	133,526	2,903,216	104,140	106,722	15,182	**134,076**	21,000	67,700
2013	134,497	2,554,845	105,000	100,000	71,398	65,981	26,000	67,700
2014	53,517	2,533,414	104,100	100,000	89,168	797	31,000	67,700
2015	97,039	2,480,933	107,820	100,000	153,327	97,188	36,000	67,700
2016	90,586	2,504,258	105,000	100,000	130,796	62,497	41,000	67,700
2017	105,919	2,548,164	105,000	100,000	105,311	30,227	45,000	67,700
2018	63,318	2,625,422	105,000	130,000	0	0	63,000	67,700
2019	146,384	2,558,136	105,000	160,000	46,555	34,215	68,000	67,700

Notes: Volumes in acre-feet and except Total Annual Rainfall are USBR Decree Accounting Report record at Imperial Dam.
IID Total Annual Rainfall from IID Provisional Water Balance, first available calculations are for 1990
Not all IID QSA programs are shown on this table.
Source: USBR Decree Accounting reports, except IID Total Rainfall and IID Overrun/Underrun is a separate calculation
Source: 2019 IID QSA Implementation Report and 2019 IID SWRCB Report, page 31 of 335; IID Total Rainfall and IID Overrun/ Underrun is a separate calculation.

10.1 Equitable Distribution Plan

As previously noted, the Equitable Distribution Plan was repealed by the IID board on February 2018 as a result of a legal challenge that is still in the appeal process as of the date of this WSA. November 28, 2006, the IID Board of Directors adopted Resolution No 22-2006 approving development and implementation of an Equitable Distribution Plan to deal with times when customers' demand would exceed IID's Colorado River supply – scenarios such as 2 and 3, above. As part of this Resolution, the IID Board directed the General Manager to prepare the rules and regulations necessary or appropriate to implement the plan within the district, which the board adopted in November 2006. The 2009 Regulations for EDP were created to enable IID to implement a water management tool (apportionment) to address years in which water demand is expected to exceed supply. A 2006 study by Hanemann and Brookes suggested that such conditions were likely to occur 40-50% of the years during the decade following the report. So far, for the ten years from 2003 through 2012, demand has exceeded supply by some amount for a total of six years (see **Table 15,** above). IID has not experienced any overruns since 2014.

The EDP, adopted in 2007 allows the IID Board to institute an apportionment program. The 2006 Hanemann-Brookes study stated supply was likely to exceed demand "4 or 5 times out of the next 10 years".[27] In the eight years from 2004 through 2011, IID was accounted as overrunning its annual water limit four times and as noted above, as of 2013, IID had an outstand overrun balance of over 200,000 AF. As of 2019, IID did not have any outstanding overruns.

An annual EDP Apportionment will be established for each subsequent year from a favorable court decision, if not for the duration of the QSA/Transfer Agreements. The IID 2013 Revised EDP, adopted by the Board on October 28, 2013, allows IID to pay back its outstanding overruns using EDP Apportionment, and it is expected that an annual EDP Apportionment will be established for each of the next several years, if not for the duration of the QSA/Transfer Agreements. For purposes of this WSA, years with a shortage condition that impacts non-agricultural projects such as an IOPP payback obligation constitute "dry" years for IID.

For single-dry year and multiple-dry water year assessments, not only does IID's EDP govern; but when but so may provisions like sections 3.7 and 3.8 of the 2012 IWSP Water Agreement, as stated above. IOPP

[27] *Regarding the Equitable Distribution of Water in the Imperial Irrigation District* Draft Final Report, Hanemann & Brookes, 2006, <http://www.iid.com/Modules/ShowDocument.aspx?documentid=116> 8 Feb 2013

payback, EDP Apportionment, and the IWSP are further discussed under single-dry and multiple-dry year projections.

10.2 WATER MANAGEMENT UNDER INADVERTENT OVERRUN PAYBACK POLICY (IOPP)

On January 1, 2013, the water level in Lake Mead was 1120.5 feet, and for the first time since the IOPP came into effect Lower Colorado River Basin water users faced a shortage condition (Figure 6-IOPP Schematic). For IID, this means that outstanding overruns must be paid back to the river in calendar years 2013 and 2014 as described below and shown in Table 16.

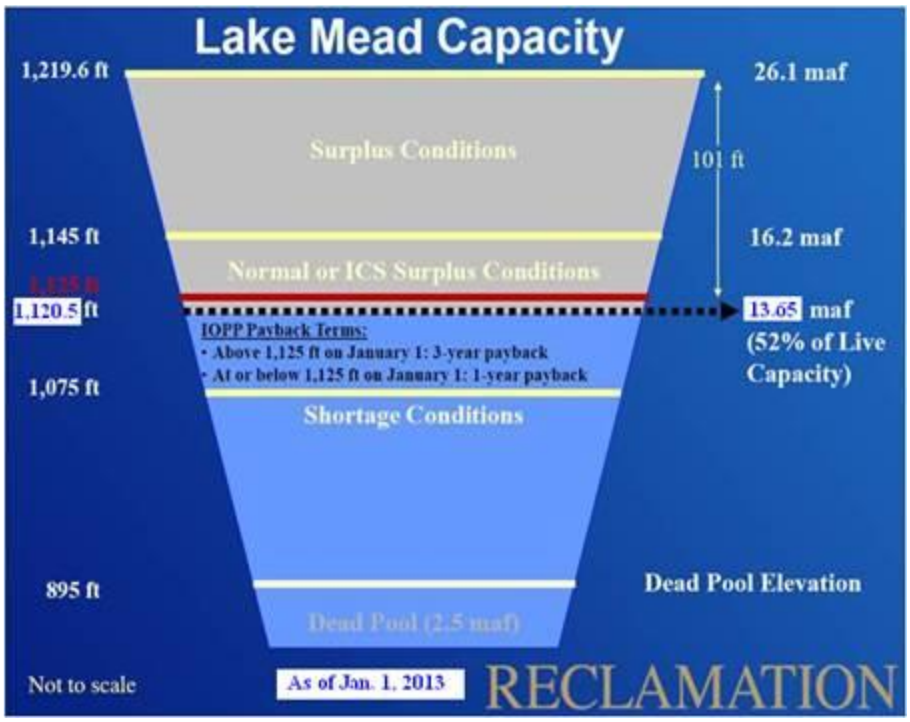


Figure 7 Lake Mead IOPP Schematic

IID's maximum allowable cumulative overrun account is 62,000 AF.[28] Thus, for IID's 2011 overrun of 82,662 AF (which was published in 2012), 62,000 AF were paid back at the river in calendar year 2013, with the remaining 20,662 AF paid back in 2014; however, due to an early payback of 6,290 AF in 2012, IID had 55,710 AF to pay back in 2013 and 20,662 AF of the 2011 overrun to pay back in 2014. In addition, because of the low level of Lake Mead on Jan 1, 2013, IID's entire 2012 overrun of 134,076 AF was paid back in

[28] For IID Quantified Amount: 3.1 MAFY *10 percent = 310,000 AF allowable cumulative overrun account amount; minimum repayment in a calendar year is the less of 310,000 * 20 percent = 62,000 or the amount in the account, if less than 62,000 AF.

2014, for a total of 154,738 AF in 2014. Furthermore, under the terms of the IOPP, no overruns are allowed in year when payback is required. IID has not experienced an overrun since 2012.

Table 16: IID Inadvertent Overrun Payback to the Colorado River under the IOPP, 2012-2019

Calendar Year of Payback	2011 Overrun Payback (AF)	2012 Overrun Payback (AF)	Payback Total for 2014 Calendar Year (AF)
2013	55,710	-	55,710
2014	20,662	134,076	154,738
Total Payback	76,372	134,076	210,448

The 2013 IOPP payback obligation and prohibition on overruns in payback years, led the IID Board to implement an apportionment program pursuant to the 2009 Regulations for EDP, which were subsequently revised and modified. The Revised 2013 EDP was version approved and adopted by the IID Board on October 28, 2013 (see Attachment B). The Revised 2013 EDP also establishes an agriculture water clearinghouse to facilitate the movement of apportioned water between agricultural water users and between farm units. This is to allow growers and IID to balance water demands for different types of crops and soils with the apportionment s that are made. IID's Water Conservation Committee agreed on a July 1, 2013 start date for the agricultural water clearinghouse

Generally, the EDP Apportionment is not expected to impact industrial use. However, given the possibility of continuing drought on the Colorado River and other stressors, provisions such as the 2012 IWSP Water Agreement sections 3.7 and 3.8 as well for dry and multiple dry year water assessment may come into effect. However, IID has agreed to work with project proponents to ensure to the extent possible that the IWSP Water Agreement terms will not negatively impact project operation.

11 PROJECT WATER AVAILABILITY FOR A 30-YEAR PERIOD TO MEET PROJECTED DEMANDS

The proposed Project will obtain drinking water from a certified State of California provider. The Applicant will be purchasing all potable drinking water from a local certified vendor approved through Imperial County Environmental Health Services. Untreated Colorado River water will be supplied to the project via the adjacent WSM underunder IID's Interim Water Supply Policy (IWSP) for non-agricultural projects or Schedule 7, General Industrial Water. Project Site and has not been farmed for the last 15 years. The Project totals to 163 Acres. Therefore by default, the proposed project would incur an increase in water usage.

The Project is proposing a General Plan Amendment and Rezone to change the land use designation and zoning for the Project site from Agriculture (A-3) to Industrial, with the Industrial zoning limited to Energy Production/Use.

As stated above the current land use for the project site is currently zoned A-3. The site does not currently receive water as shown in the historical data provided in **Table 18.** Although the site may have not used much water in the last 10 years, the site is able to receive water through the WSM Canal. The current gate (WSM Gate 6) is in operational condition, upgrades to any IID facilities will be designed and constructed by the IID Water Engineering Department.

Imperial County Entitlement Discretionary Permits Include:

- General Plan Amendment
- Zone Change
- Development Agreement
- Conditional Use Permit

As noted previously, under the terms of California legislation adopted to facilitate the QSA/Transfer Agreements and enacted in CWC Section 1013, the IID board adopted the TLCFP to address how to deal with any such temporary reduction of water use by projects like such as solar projects that are developed under a CUP.

While conserved water generated from the TLCFP is limited by law for use for water transfer or environmental purposes, by satisfying multiple district objectives the TLCFP serves to reduce the need for efficiency conservation and other water use reduction practices on the part of IID and its water users providing the district with wide benefits. One of the considerations in developing the TLCFP was to provide agricultural land owners with long-term assurances from IID that, at Project termination, irrigation service would be available for them to resume farming operations.

11.1 INTERIM WATER SUPPLY POLICY WATER

At the present time, IID is providing water for use by solar energy generation projects under Water Rate Schedule 7 General Industrial Use. If IID determines that the proposed Project should obtain water under IID's Interim Water Supply Policy (IWSP) for non-agricultural projects rather than Schedule 7 General Industrial Use, the Applicant will do so. IID will determine whether the Project should obtain water under IID's Interim Water Supply Policy (IWSP) for non-agricultural projects in addition to Schedule 7 General Industrial Water.

The IWSP, provided herein as Attachment A, designates up to 25,000 AFY of water for potential Non-Agricultural Projects within IID's water service area. As of June 2019, IID has 23,800 AF available under the IWSP for new projects such as the proposed project. The IWSP establishes a schedule for Processing Fees, Reservation Fees, and Connection Fees that change each year for all non-agricultural projects, and annual Water Supply Development fees for some non-agricultural projects. The proposed Project's water use will be subject to the annual Water Supply Development fee if IID determines that water for the Project is to be supplied under the IWSP.

The likelihood that IID will not receive its annual 3.1 MAF apportionment less QSA/Transfer Agreement obligations of Colorado River water is low due to the high priority of the IID entitlement relative to other Colorado River contractors; see IID's Water Rights section on **page 21**. If such reductions were to come into effect within the 30-year Project life, the Applicants are to work with IID to ensure any reduction can be managed.

As such, lower Colorado River water shortage does not present a material risk to the available water supply that would prevent the County from making the findings necessary to approve this WSA. IID, like any water provider, has jurisdiction to manage the water supply within its service area and impose conservation measures during a period of temporary water shortage. Furthermore, without the proposed Project, IID's task of managing water supply under the QSA/Transfer Agreements would be more difficult, because agricultural use on the proposed Project site would be significantly higher than the proposed demand for the proposed Project as explained in section Expected Water Demand for the Proposed Project that follows.

Water for construction (primarily for dust control) would be obtained from IID canals or laterals in conformance with IID rules and regulations for MCI temporary water use.[29] To obtain water delivery service, the Applicant will complete an IID-410 Certificate of Ownership and Authorization (Water Card), which allows the Water Department to provide the District with information needed to manage the District apportioned supply. Water cards are used for Agriculture, Municipal, Industrial and Service Pipe accounts.

[29] *Complete the Application for Temporary Water Use and submit to Division office. Complete encroachment permit through Real Estate – non-refundable application fee of $250, se. IID website: Real Estate / Encroachments, Permissions, and Other Permitting. Fee for temporary service water: Schedule No. 7 General Industrial Use / Temporary Service Minimum charge for up to 5 AF, pay full flat fee for 5 AF at General Industrial Use rate ($425); use more than 5 AF, pay fee for actual use at General Industrial Rate ($85/AF).*

If water is to be provided under IWSP in addition to Schedule 7, General Industrial Use, the Applicant will seek to enter into a IWSP Water Supply Agreement albeit currently fallowed land.

12 EXPECTED WATER DEMANDS FOR THE APPLICANT

Water for the Project will be needed on-site for construction, operations, and dust mitigation measures set forth by the County of Imperial. Raw Colorado River water will be supplied to the project via the adjacent canal WSM canal (Gate 6) under a water agreement with IID (Industrial Water Use Agreement, IWSP Water Supply Agreement), see Table 17. The project is anticipated to go through a Zone Change and General Plan Amendment. Please refer to Project Description. The proposed project is projected to increase the amount of water currently being used as recorded through IID Water History Logs. Project raw water uses are summarized in **in Table 17.**

Table 17: Project Water Uses (AFY)

Use	Acre-Feet Per Year
Raw Water for Construction (Years 1-10)	21.00*
Raw Water for Operations (Years 11-30)	11.20
Raw Water for Mitigation (Years 11-30)	3.07

(Construction water is Years 1-10, 210/10=21, As Average.)*

IID delivers untreated Colorado River water to the proposed Project site for agricultural uses through the following gates and laterals. The 10-year record for 2010-2019 of water delivery accounting is shown in

Table 18: Ten- Year Historic Delivery (AFY), 2010-2019

Canal/Gate	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
WSM/6	00	00	00	4.9	00	00	**00**	00	00	00
TOTAL	0	0	0	4.9	0	0	0	0	0	0

Source: *IID Staff, Nov. 18, 2019 (Jose Moreno), July, 14, 2020, (Justina Arce)*

The proposed Project has an estimated total water demand of 437.14 AF or 14.57 AFY amortized over a 30-year term (for all delivery gate for Project). Thus, the proposed Project demand is a 2,973% [30]increase from the .49 AFY from the historical 10-year average annual delivery for agricultural uses at the proposed Project site. The proposed Project's estimated water demand represents only .06 percent (.06%) of the 23,800 AYF balance of supply available for contracting under the IWSP.

[30] 2,973% % increase is not usually seen. The historic water use over 10 years average at .49 and the amortized annual increase of 14.57 AFY is the reason for the unusual increase. As the project age this number will begin to normalize to a more realistic number.

13 IID'S ABILITY TO MEET DEMANDS WITH WATER SUPPLY

Non-agricultural water demands for the IID water service area are projected for 2020-2055 in **Table 8**, and IID agricultural demands including system operation are projected for 2020-2055 in **Table 9**, all volumes within the IID water service area. IID water supplies available for consumptive use after accounting for mandatory transfers are projected to 2077 in **Table 14 (Column 11),** volumes at Imperial Dam.

To assess IID's ability to meet future water demands, IID historic and forecasted demands are compared with CRWDA Exhibit B net availability, volumes at Imperial Dam **Table 14 (Column 11**). The analysis requires accounting for system operation consumptive use within the IID water service area, from AAC at Mesa Lateral 5 to Imperial Dam, and for water pumped for use by the USBR Lower Colorado Water Supply Project (LCRWSP), an IID consumptive use component in the USBR Decree Accounting Report. IID system operation consumptive use for 2019 is provided in Table 19 to show the components included in the calculation and their 2019 volumes.

Table 19: IID System Operations Consumptive Use within IID Water Service Area and from AAC at Mesa Lateral 5 to Imperial Dam, (KAF), 2019

	Consumptive Use (KAF)
IID Delivery System Evaporation	24.6
IID Canal Seepage	91.7
IID Main Canal Spill	13.1
IID Lateral Canal Spill	118.1
IID Seepage Interception	-39.8
IID Unaccounted Canal Water	30.9
Total IID System Operational Use, within water service area	**238.6**
"Losses" from AAC @ Mesa Lat 5 to Imperial Dam	29.2
LCWSP pumpage	-10
Total System Operational Use in 2019	**257.8**

Sources: 2015 Water Balance rerun 04/22/2020, and 2016 IID Water Conservation Plan

IID's ability to meet customer water demands through 2055 as shown in **Table 20**.

- Non-agricultural use from **Table 8**
- Agricultural and Salton Sea mitigation uses from **Table 9**
- CRWDA Exhibit B net available for IID consumptive use from Table 14
- System operation consumptive use from 2015
-

Table 20: IID Historic and Forecasted Consumptive Use (CU) vs CRWDA Exhibit B IID Net Available Consumptive Use, volumes at Imperial Dam (KAFY), 2015-2055.

	2015	2020	2025	2030	2035	2040	2045	2050	2055
Non-Ag Delivery	**110.1**	123.4	133.1	142.9	151.4	163.2	175.4	188.4	199.3
Ag Delivery	**2,156.8**	2,309.6	2,259.5	2,209.5	2,209.5	2,209.5	2,209.5	2,209.5	2,209.5
QSA SS Mitigation Delivery	**153.3**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
System Op CU in IID & to Imperial Dam	**220.2**	235.6	230.5	225.4	225.4	225.4	225.4	225.4	225.4
IID CU at Imperial Dam	**2,480.9**	2,668.6	2,623.1	2,577.8	2,586.3	2,598.1	2,610.3	2,623.3	2,634.2
Exhibit B IID Net Available for CU at Imperial Dam	**2,480.9**	**2,649.8**	**2,617.8**	**2,612.8**	**2,612.8**	**2,612.8**	**2,612.8**	**2,665.8**	**2,665.8**
IID Underrun/Overrun at Imperial Dam	**90.0**	-18.80	-5.30	35.00	26.50	14.70	2.50	42.50	31.60

Notes: 2015 Provisional Water Balance rerun 06/28/2019
Non-Ag Delivery CI 15.0%, Ag Delivery CI 3.0%, QSA SS mitigation CI 15%
QSA Salton Sea Mitigation Delivery terminates on 12/31/2017
Underrun/Overrun = IID CU at Imperial Dam minus CRWDA Exhibit B Net Available
Notes: Ag Delivery for 2020-2055 does not take into account land conversion for solar use nor reduction in agricultural land area due to urban expansion.

As shown above, IID forecasted demand has the potential to exceed CRWDA Exhibit B Net Consumptive Use volumes during several time intervals through the lifespan projection for the Project. However, due to temporary land conversion throughout Imperial County for solar use and urban land expansion that will reduce agricultural acres in the future, a water savings of approximately 217,000 AFY will be generated into the future and for the lifetime of the Project.

In addition, USBR 2019 Decree Accounting Report states that IID Consumptive Use is 2,558.1 KAF (excludes 46,555 AF for water transfer associated with Salton Sea mitigation and 1,579 AF of ICS for storage in Lake Mead) with an underrun of -34.2 KAF, as reported by IID in 2019 Annual SWRCB Report per WRO 2002-2013; that is, IID uses less than the amount in its approved Water Order (2,629,675 AF).

Table 21: 2019 Approved Water Order, Actual CU (Decree Accounting Report) and IID Underrun, KAF at Imperial Dam

IID Approved Water Order	2,639.7 less 10 supplied by LCRWSP
IID Consumptive Use	2,558.1
IID **Underrun /Overrun**	**-34,215**
Sources: 2019 IID Revised Water Order, approved on March 10, 2020, *2019 Decree Accounting Report*, and *2019 Annual Report of IID Pursuant to SWRCB Revised Order WRO 2002-2013*	

As reported in the 2017-2018 IID QSA Implementation Report and 2019 SWRCB IID Report and presented in **Table 21** from 2013 to 2017 IID consumptive use (CU) resulted in underruns; i.e., annual CU was less than the district's QSA Entitlement of 3.1 MAFY minus QSA/Transfer Agreements obligations. This would indicate that even though **Table 15** shows IID Overrun/Underrun at Imperial Dam exceeding CRWDA Exhibit B Net Available for CU, for the 30-year life of the proposed Project, IID consumptive use may be less than forecasted. However, with repeal of the IID EDP in February 2018, it is uncertain whether underruns will continue.

Meanwhile, forecasted Ag Delivery reductions presented in **Table 9** are premised on implementation of on-farm practices that will result in efficiency conservation. These reductions do not take into account land conversion for solar projects nor reduction in agricultural land area due to urban expansion; that is to say, the forecasted Ag Delivery is for acreage in 2003 with reduction for projected on-farm conservation efficiency. Thus, Ag Delivery demand may well be less than forecasted in **Table 9**. In any case, the proposed Project will use less water than the historical agricultural demand of proposed Project site, so the proposed Project will ease rather than exacerbate overall IID water demands.

In the event that IID has issued water supply agreements that exhaust the 25 KAFY IWSP set aside, and it becomes apparent that IID delivery demands due to non-agriculture use are going to cause the district to exceed its quantified 3.1 MAFY entitlement less QSA/Transfer Agreements obligations, IID has identified options to meet these new non-agricultural demands. These options include (1) tracking water yield from temporary land conversion from agricultural to non-agricultural land uses (renewable solar energy); and (2) only if necessary, developing projects to expand the size of the district's water supply portfolio.

These factors will be discussed in the next two sections**, Tracking Water Savings from Growth of Non-Agricultural land Uses and Expanding Water Supply Portfolio.**

13.1.1 *Tracking Water Savings from Growth of Non-Agricultural Land Uses*

The Imperial County Board of Supervisors has targeted up to 25,000 acres of agricultural lands, about 5 percent (5%) of the farmable acreage served by IID, for temporary conversion to solar farms; because the board found that this level of reduction would not adversely affect agricultural production. As reported for IID's 2019 Temporary Land Conversion Fallowing Program existing solar developments at the end of 2019 have converted 10,146 acres of farmland. These projects had a yield at-river of 65,791 AF of water in 2019. The balance of the 25,000-acre agriculture-to-solar policy is 14,854 acres. On average, each agricultural acre converted reduces agricultural demand by 5.1 AFY, which results in a total at-river yield (reduction in consumptive use) of 127,500 AFY.

However, due to the nature of the conditional use permits under which solar farms are developed, IID cannot rely on this supply being permanently available. In fact, should a solar project decommission early, that land may go immediately back to agricultural use (it remains zoned an agricultural land). Nevertheless, during their operation, the solar farms do ameliorate pressure on IID to implement projects to meet demand from new non-agricultural projects.

Unlike the impact of solar projects, other non-agricultural uses are projected to grow, as reflected in the nearly 76 percent (76%) increase in non-agricultural water demand from 107.2 KAF in 2015 to 198.4 KAF in 2055 reflected herein in **Table 8**. This increase in demand of 91.2 KAFY will more than likely be met by solar development; however, as the land remains zoned as agricultural land, that source is not reliable to be permanently available to IID.

The amount of land developed for residential, commercial, and industrial purposes is projected to grow by 55,733 acres from 2015 to 2050[31] within the sphere of influence of the incorporated cities and specific plan areas in Imperial County. A conservative estimate is that such development will displace at least another 24,500 acres of farmland based on the Imperial Local Agency Formation Commission (LAFCO) sphere of influence maps and existing zoning and land use in Imperial County. At 5.13 AFY yield at-river, there would be a 125,000 AFY reduction IID net consumptive use.

[31] IRWMP, Chapter 5, Table 5-14.

The total foreseeable solar project temporary yield at-river (91,800 AFY) and municipal development permanent yield at-river (125,000 AFY) is to reduce forecasted IID net consumptive use at-river 216,800 AFY, which is more than enough to meet the forecast Demand minus Exhibit B Net Available volumes shown in Table 14. This Yield at-river is sufficient to meet the forecasted excess of non-agricultural use over Net Available supply within the IID service area for the next 20 years, as is required for SB 610 analysis.

Farmland retirement associated with municipal development would reduce IID agricultural delivery requirements beyond the efficiency conservation projections shown in **Table 9.** Therefore, in the event that Schedule 7 General Industrial Use water is unavailable, the Applicants will rely on IID IWSP water to supply the Project, as discussed above in the section **IID Water Supply Policy for Non-Agricultural Projects (September 2009).**

13.2 EXPANDING WATER SUPPLY PORTFOLIO

While forecasted long-term annual yield-at-river from the reduction in agricultural acreage due to municipal development in the IID service area is sufficient to meet the forecasted excess of non-agricultural use over CRWDA Net Available supply, **Table 14,** without expanding IID's Water Supply Portfolio, IID has also evaluated the feasibility of a number of capital projects to increase its water supply portfolio.

As reported in 2012 Imperial IRWMP Chapter 12, IID contracted with GEI Consultants, Inc. to identify a range of capital project alternatives that the District could implement. Qualitative and quantitative screening criteria and assumptions were developed in consultation with IID staff. Locations within the IID water service area with physical, geographical, and environmental characteristics most suited to implementing short- and long-term alternatives were identified. Technical project evaluation criteria included volumes of water that could be delivered and/or stored by each project, regulatory and permitting complexity, preliminary engineering components, land use requirements, and costs.

After preliminary evaluation, a total of 27 projects were configured:

- 17 groundwater or drain water desalination
- 2 groundwater blending
- 6 recycled water
- 1 groundwater banking
- 1 IID system conservation (concrete lining)

Projects were assessed at a reconnaissance level to allow for comparison of project costs. IID staff and the board identified key factors to categorize project alternatives and establish priorities. Lower priority projects were less feasible due to technical, political, or financial constraints. Preferential criteria were features that increased the relative benefits of a project and grant it a higher priority. Four criteria were used to prioritize the IID capital projects:

1. Financial Feasibility. Projects whose unit cost was more than $600/AF were eliminated from further consideration.
2. Annual Yield. Project alternatives generating 5,000 AF or less of total annual yield were determined not to be cost-effective and lacking necessary economies of scale.
3. Groundwater Banking. Groundwater banking to capture and store underruns is recognized as a beneficial use of Colorado River water. Project alternatives without groundwater banking were given a lower priority.
4. Partnering. Project alternatives in which IID was dependent on others (private and/or public agencies) for implementation were considered to have a lower priority in the IID review; this criterion was reserved for the IRWMP process, where partnering is a desirable attribute.

Based on these criteria, the top ten included six desalination, two groundwater blending, one system conservation, and one groundwater storage capital projects. These capital projects are listed Table 22 which follows.

Table 22: IID Capital Project Alternatives and Cost (May 2009 price levels $)

Name	Description	Capital Cost	O&M Cost	Equivalent Annual Cost	Unit Cost ($/AF)	In-Valley Yield (AF)
GW 18	Groundwater Blending E. Mesa Well Field Pumping to AAC	$39,501,517	$198,000	$2,482,000	$99	25,000
GW 19	Groundwater Blending: E. Mesa Well Field Pumping to AAC w/Percolation Ponds	$48,605,551	$243,000	$3,054,000	$122	25,000
WB 1	Coachella Valley Groundwater Storage	$92,200,000	$7,544,000	$5,736,746	$266	50,000

DES 8	E. Brawley Desalination with Well Field and Groundwater Recharge	$100,991,177	$6,166,000	$12,006,000	$480	25,000
AWC 1	IID System Conservation Projects	$56,225,000	N/A	$4,068,000	$504	8,000
DES 12	East Mesa Desalination with Well Field and Groundwater Recharge	$112,318,224	$6,336,000	$12,831,000	$513	25,000
DES 4	Keystone Desalination with IID Drainwater/ Alamo River	$147,437,743	$15,323,901	$23,849,901	$477	50,000
DES 14	So. Salton Sea Desalination with Alamo River Water and Industrial Distribution	$158,619,378	$15,491,901	$24,664,901	$493	50,000
DES 15	So. Salton Sea Desalination with Alamo River Water and MCI Distribution	$182,975,327	$15,857,901	$26,438,901	$529	50,000
DES 2	Keystone Desalination with Well Field and Groundwater Recharge	$282,399,468	$13,158,000	$29,489,000	$590	50,000

Source: Imperial IRWMP, Chapter 12; see also Imperial IRWMP Appendix N, IID Capital Projects

13.3 IID Near Term Water Supply Projections

As mentioned above, IID's quantified Priority 3(a) water right under the QSA/Transfer Agreements secures 3.1 MAF per year, less transfer obligations of water for IID's use from the Colorado River, without relying on rainfall in the IID service area. Even with this strong entitlement to water, IID actively promotes on-farm efficiency conservation and is implementing system efficiency conservation measures including seepage recovery from IID canals and the All-American Canal (ACC) and measures to reduce operational discharge. As the IID website Water Department states:

> Through the implementation of extraordinary conservation projects, the development of innovative efficiency measures and the utilization of progressive management tools, the IID Water Department is working to ensure both the long-term viability of agriculture and the continued protection of water resources within its service area.

Overall, agricultural water demand in the Imperial Valley will decrease due to IID system and grower on-farm efficiency conservation measures that are designed to maintain agricultural productivity at pre-QSA levels while producing sufficient yield-at-river to meet IID's QSA/Transfer Agreements obligations. These efficiencies combined with the conversion of some agricultural land uses to non-agricultural land uses (both solar and municipal), ensure that IID can continue to meet the water delivery demand of its existing and

future agricultural and non-agricultural water users, including this Project for the next 30 years and for the life of the proposed Project.

14 PUBLIC WATER SYSTEM/ LEAD AGENCY FINDINGS

IID serves as the regional wholesale water supplier, importing raw Colorado River water and delivering it, untreated, to agricultural, municipal, industrial, environmental, and recreational water users within its Imperial Unit water service area. The County of Imperial serves as the responsible agency with land use authority over the proposed project. Water Assessment findings are summarized as follows:

1. IID's annual entitlement to consumptive use of Colorado River water is capped at 3.1 MAF less water transfer obligations, pursuant to the QSA and Related Agreements. Under the terms of the CRWDA, IID is implementing efficiency conservation measure to reduce net consumptive use of Colorado River water needed to meet its QSA/Transfer Agreements obligations while retaining historical levels of agricultural productivity.
2. In 2019 IID consumptively used 2,588,136 AF of Colorado River water (volume at Imperial Dam); 2,315,988 AF were delivered to customers of which 2,225,089 AF or 96 percent went to agricultural users.
3. Reduction of IID's net consumptive use of Colorado River water under the terms of the Colorado River Water Delivery Agreement is to be the result of efficiency conservation measures. Agricultural consumptive use in the Imperial Valley will not decline. However, IID operational spill and tailwater will decline, impacting the Salton Sea.
4. Due to the dependability of IID's water rights, Colorado River flows, and Colorado River storage facilities for Colorado River water, it is unlikely that the water supply of IID would be disrupted, even in dry years or under shortage conditions because Mexico, Arizona and Nevada have lower priority and are responsible for reducing their water use during a declared Colorado River water shortage before impacting California.
5. Historically, IID has never been denied the right to use the annual volume of water it has available for its consumptive uses under its entitlement. Nevertheless, IID is participating in discussions for possible actions in response to extreme drought on the Colorado River.
6. The proposed Project has an estimated total water demand of 437.14 AF or 14.57 AFY amortized over a 30-year term (for the delivery gate for Project). Thus, the proposed Project demand is a

2,973% (increase) of **14.57** AFY from the historical 10-year average of **.49** percent of the historic 10-year average annual delivery for agricultural uses at the proposed Project site.

7. The Project's water use will be covered under the Schedule 7 General Industrial Use. In the event that IID determines that the proposed Project is to utilize IWSP for Non-Agricultural Projects water, the Applicant will enter into an IWSP Water Supply Agreement with IID. In which case, the proposed Project would use .06 percent (.06%) of the 23,800 AYF of IWSP water. Which would leave a remaining amount of 23,785.43 AFY.
8. Based on the Environmental Impact Report (EIR) prepared for this proposed Project pursuant to the CEQA, California Public Resources Code sections 21000, *et seq*., the Lead Agency hereby finds that the IID projected water supply will be sufficient to satisfy the demands of this proposed Project in addition to existing and planned future uses, including agricultural and non-agricultural uses for a 20-year Water Supply Assessment period and for the 30 -year proposed Project life. California State Clearing House Number: 2020040122, Westside Main Canal Battery Storage Project.

15 ASSESSMENT CONCLUSION

This Water Supply Assessment has determined that IID water supply is adequate for the proposed Project. The Imperial Irrigation District's IWSP for Non-Agricultural Projects dedicates 25,000 AF of IID's annual water supply to serve new projects. As of June 2020, 23,800 AF per year remain available for new projects ensuring reasonably sufficient supplies for new non-agricultural water users. The Project water demand of approximately 437.14 AF and 14.57 AFY amortized represents .06 % of the unallocated supply set aside in the IWSP for non-agricultural project, and approximately .06 percent (.06 %) of forecasted future non-agricultural water demands planned in the Imperial IRWMP through 2055. The water demand for the proposed Project at full build-out represents a 2,973% increase from the 10-year historic average agricultural water use for 2010-2019 at the proposed Project site.

For all the reasons described herein, the amount of water available and the stability of the IID water supply along with on-farm and system efficiency conservation and other measures being undertaken by IID and its customers ensure that the proposed Project 's water needs will be met for the next 30 years as assessed for compliance under SB-610.

16 RESOURCES AND REFERENCES

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Attachments

Attachment A: IID Interim Water Supply Policy for Non-Agricultural Projects

Attachment B: Colorado Water Delivery Agreement

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17 Attachment A: IID Interim Water Supply Policy for Non-Agricultural Projects[32]

1.0 Purpose.

Imperial Irrigation District (the District) is developing an Integrated Water Resources Management Plan (IWRMP).[33] that will identify and recommend potential programs and projects to develop new water supplies and new storage, enhance the reliability of existing supplies, and provide more flexibility for District water department operations, all in order to maintain service levels within the District's existing water service area. The first phase of the IWRMP is scheduled to be completed by the end of 2009 and will identify potential projects, implementation strategies and funding sources. Pending development of the IWRMP, the District is adopting this Interim Water Supply Policy (IWSP) for Non-Agricultural Projects, as defined below, in order to address proposed projects that will rely upon a water supply from the District during the time that the IWRMP is still under development. It is anticipated that this IWSP will be modified and/or superseded to take into consideration policies and data developed by the IWRMP.

2.0 Background.

The IWRMP will enable the District to more effectively manage existing water supplies and to maximize the District's ability to store or create water when the available water supplies exceed the demand for such water. The stored water can be made available for later use when there is a higher water demand. Based upon known pending requests to the District for water supply assessments/verifications and pending applications to the County of Imperial for various Non-Agricultural Projects, the District currently estimates that up to 50,000 acre feet per year (AFY) of water could potentially be requested for Non-Agricultural Projects over the next ten to twenty years. Under the IWRMP the District shall evaluate the projected water demand of such projects and the potential means of supplying that amount of water. This IWSP currently designates up to 25,000 AFY of water for potential Non-Agricultural Projects within IID's water service area. Proposed Non-Agricultural projects may be required to pay a Reservation Fee, further described below. The reserved water shall be available for other users until such Non-Agricultural projects are implemented and require the reserved water supply. This IWSP shall remain in effect pending the approval of further policies that will be adopted in association with the IWRMP.

[32] IID Board Resolution 31-2009. Interim Water Supply Policy for New Non-Agricultural Projects. September 29, 2009. < IID Interim Water Supply Policy for Non-Agricultural Projects>

[33] The 2009 Draft IID IWRMP has been superseded by the October 2012 Imperial IRWMP, which incorporates the conditions of the IWSP by reference.

3.0 Terms and Definitions.

3.1 Agricultural Use. Uses of water for irrigation, crop production and leaching.

3.2 Connection Fee. A fee established by the District to physically connect a new Water User to the District water system.

3.3 Industrial Use. Uses of water that are not Agricultural or Municipal, as defined herein, such as manufacturing, mining, cooling water supply, energy generation, hydraulic conveyance, gravel washing, fire protection, oil well re-pressurization and industrial process water.

3.4 Municipal Use. Uses of water for commercial, institutional, community, military, or public water systems, whether in municipalities or in unincorporated areas of Imperial County.

3.5 Mixed Use. Uses of water that involve a combination of Municipal Use and Industrial Use.

3.6 Non-Agricultural Project. Any project which has a water use other than Agricultural Use, as defined herein.

3.7 Processing Fee. A fee charged by the District Water Department to reimburse the District for staff time required to process a request for water supply for a Non-Agricultural Project.

3.8 Reservation Fee. A non-refundable fee charged by the District when an application for water supply for a Non-Agricultural Project is deemed complete and approved. This fee is intended to offset the cost of setting aside the projected water supply for the project during the period commencing from the completion of the application to start-up of construction of the proposed project and/or execution of a water supply agreement. The initial payment of the Reservation Fee will reserve the projected water supply for up to two years. The Reservations Fee is renewable for up to two additional two-year periods upon payment of an additional fee for each renewal.

3.9 Water Supply Development Fee. An annual fee charged to some Non-Agricultural Projects by the District, as further described in Section 5.2 herein. Such fees shall assist in funding IWRMP or related water supply projects,

3.10 Water User. A person or entity that orders or receives water service from the District.

4.0. CEQA Compliance.

4.1 The responsibility for CEQA compliance for new development projects within the unincorporated area of the County of Imperial attaches to the County of Imperial or, if the project is within the boundaries of a municipality, the particular municipality, or if the project is subject to the jurisdiction of another agency, such as the California Energy Commission, the particular agency. The District will coordinate with the

County of Imperial, relevant municipality, or other agency to help ensure that the water supply component of their respective general plans is comprehensive and based upon current information. Among other things, the general plans should assess the direct, indirect and cumulative potential impacts on the environment of using currently available water supplies for new industrial, municipal, commercial and/or institutional uses instead of the historical use of that water for agriculture. Such a change in land use, and the associated water use, could potentially impact land uses, various aquatic and terrestrial species, water quality, air quality and the conditions of drains, rivers and the Salton Sea.

4.2 When determining whether to approve a water supply agreement for any Non-Agricultural Project pursuant to this IWSP, the District will consider whether potential environmental and water supply impacts of such proposed projects have been adequately assessed, appropriate mitigation has been developed and appropriate conditions have been adopted by the relevant land use permitting/approving agencies, before the District approves any water supply agreement for such project.

5.0. Applicability of Fees for Non-Agricultural Projects.[34]

5.1 Pursuant to this Interim Water Supply Policy, applicants for water supply for a Non-Agricultural Project shall be required to pay a Processing Fee and may be required to pay a Reservation Fee as shown in Table A. All Water Users shall also pay the applicable Connection Fee, if necessary, and regular water service fees according to the District water rate schedules, as modified from time to time.

5.2 A Non-Agricultural Project may also be subject to an annual Water Supply Development Fee, depending upon the nature, complexity, and water demands of the proposed project. The District will determine whether a proposed Non-Agricultural Project is subject to the Water Supply Development Fee for water supplied pursuant to this IWSP as follows:

5.2.1. A proposed project that will require water for a Municipal Use shall be subject to an annual Water Supply Development Fee as set forth in Table B if the projected water demand for the project is in excess of the project's estimated population multiplied by the District-wide per capita usage. Municipal Use projects without an appreciable residential component will be analyzed under sub-section 5.2.3.

5.2.2. A proposed project that will require water for an Industrial Use located in an unincorporated area of the County of Imperial shall be subject to an annual Water Supply Development Fee as set forth in Table B.

5.2.3. The applicability of the Water Supply Development Fee set forth in Table B to Mixed Use projects, Industrial Use projects located within a municipality, or Municipal Use projects without an appreciable residential component, will be determined by the District on a case-by-case basis, depending upon the proportion of types of land uses and the water demand proposed for the project.

[34] The most recent fee schedules can be found in a link at IID/Water/ Municipal, Industrial and Commercial Customers; or visit by URL at Imperial Irrigation District : Water Rate Schedules

5.3. A proposed Water User for a Non-Agricultural Projects may elect to provide some or all of the required water supply by paying for and implementing some other means of providing water in a manner approved by the District, such as conservation projects, water storage projects and/or use of an alternative source of supply, such as recycled water or some source of water other than from the District water supply. Such election shall require consultation with the District regarding the details of such alternatives and a determination by the District, in its reasonable discretion, concerning how much credit, if any, should be given for such alternative water supply as against the project's water demand for purposes of determining the annual Water Supply Development Fee for such project.

5.4 The District Board shall have the right to modify the fees shown on Tables A and B from time to time.

6. Water Supply Development Fees collected by the District under this IWSP shall be accounted for independently, including reasonable accrued interest, and such fees shall only be used to help fund IWRMP or related District water supply projects.

7. Any request for water service for a proposed Non-Agricultural Project that meets the criteria for a water supply assessment pursuant to Water Code Sections 10910-10915 or a water supply verification pursuant to Government Code Section 66473.7 shall include all information required by Water Code Sections 10910 –10915 or Government Code Section 66473.7 to enable the District to prepare the water supply assessment or verification. All submittals should include sufficient detail and analysis regarding the project's water demands, including types of land use and per capita water usage, necessary to make the determinations outlined in Section 5.2.

8. Any request for water service for a proposed Non-Agricultural Project that does not meet the criteria for a water supply assessment pursuant to Water Code Section 10910-10915 or water supply verification pursuant to Government Code Section 66473.7 shall include a complete project description with a detailed map or diagram depicting the footprint of the proposed project, the size of the footprint, projected water demand at full implementation of the project and a schedule for implementing water service. All submittals should include sufficient detail and analysis regarding the project's water demands, including types of land use and per capita water usage, necessary to make the determinations outlined in Section 5.2.

9. All other District rules and policies regarding a project applicant or Water User's responsibility for paying connection fees, costs of capital improvements and reimbursing the District for costs of staff and consultant's time, engineering studies and administrative overhead required to process and implement projects remain in effect.

10. Municipal Use customers shall be required to follow appropriate water use efficiency best management practices (BMPs), including, but not limited to those established by the California Urban Water Conservation Council BMP's (see http://www.cuwcc.org/mou/exhibit-1-bmp-definitions-schedules-

requirements.aspx), or other water use efficiency standards, adopted by the District or local government agencies.

11. Industrial Use customers shall be required to follow appropriate water use efficiency BMP's, including but not limited to those established by the California Urban Water Conservation Council and California Energy Commission, as well as other water use efficiency standards, adopted by the District or local government agencies.

12. The District may prescribe additional or different BMPs for certain categories of Municipal and Industrial Water Users.

APPENDIX L – TRANSPORTATION

Transportation Impact Analysis, Westside Canal Battery Storage Complex Project

LINSCOTT LAW & GREENSPAN
engineers

TRANSPORTATION IMPACT ANALYSIS

WESTSIDE CANAL BATTERY STORAGE COMPLEX PROJECT

Imperial County, California
July 22, 2019

LLG Ref. 3-18-2960

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TRANSPORTATION IMPACT ANALYSIS

WESTSIDE CANAL BATTERY STORAGE COMPLEX PROJECT

Imperial County, California
July 22, 2019

1.0 INTRODUCTION

Linscott, Law & Greenspan Engineers (LLG) has been retained to assess the traffic impacts associated with the proposed Westside Canal Battery Storage Complex Project (Project). Development of the project will provide a utility-scale energy storage complex incorporating lithium ion battery systems and/or flow battery technologies throughout the site.

Included in this traffic report are the following.

- Project Description
- Existing Conditions Discussion
- Analysis Approach and Methodology
- Significance Criteria
- Existing Conditions Analysis
- Near-Term without Project Analysis
- Trip Generation/Distribution/Assignment
- Near-Term with Project Analysis
- Summary and Conclusions

2.0 PROJECT LOCATION AND DESCRIPTION

2.1 Project Location

The project will be located in the unincorporated Mount Signal area of the County, approximately 8.0 miles southwest of the city of El Centro and approximately 5.3 miles north of the U.S.-Mexico border. The project site is comprised of two parcels, Assessor Parcel Number (APN) 051-350-010 and APN 051-350-011, totaling approximately 148 acres. This land has limited access corridors for vehicular traffic and is less desirable for agricultural production, as reflected by the last 15 years without farming activity.

The project site is approximately one-third mile north of the Imperial Valley Substation (IV Substation) and directly south of the intersection of Liebert Road and the Imperial Irrigation District's (IID) Westside Main Canal. The project site is bounded by the Westside Main Canal to the north, Bureau of Land Management (BLM) lands to the south and west, and vacant private land to the east. The Campo Verde solar generation facility is located north of the project site, across the Westside Main Canal.

The two project parcels will be developed as the utility-scale energy storage complex. The project will also utilize portions of two parcels located north of the Westside Main Canal (APN 051-350-019 owned by IID and APN 051-350-018 owned by a private land owner) for site access and as a temporary construction staging area. The project will also access a small portion of APN 051-350-009 within an IID easement for connection to the existing IID Campo Verde Imperial Valley 230 kilovolt radial gen-tie line during the construction of a substation on the project site. The total proposed project development footprint, encompassing both temporary and permanent impacts, will be 163.32 acres.

Figure 2–1 shows the Project location.

2.2 Project Description

Development of the project will provide a utility-scale energy storage complex incorporating lithium ion battery systems and/or flow battery technologies throughout the site. The project will allow excess, intermittent renewable energy to be stored and later dispatched optimally back into the grid as firm, reliable generation when needed. The project complements solar and wind projects currently operating, and planned for development, in Imperial County (County), and supports the broader southern California bulk electric system by serving as a transmission asset.

The project is expected to be constructed in multiple phases, over multiple years, with each phase ranging from approximately 25 megawatts (MW) up to 350 MW per phase. Construction of the first phase includes roads, bridge and common facilities, and the first battery storage facility and is anticipated to begin in 2021 with completion expected in 2022. The project will store energy for up to a 12-hour duration based on grid and market conditions. The total nameplate capacity of the project at full build-out is approximately 2,025 MW.

On-site photovoltaic (PV) solar generation will serve as station auxiliary power and be deployed throughout the project site as rooftop solar on buildings, as well as ground-mounted solar, constructed during each phase. The timing and energy storage capacity of the project's phases will be dependent on commercial contracts for the energy/capacity to be stored/discharged in response to the need for energy storage to manage renewable energy growth throughout the greater southern California area. This energy storage complex would thus become a valuable tool for commercial customer(s) and system operators to better manage intermittent renewable generation by converting it into reliable, dispatchable generation. The date for project build-out is currently not known and would be dependent on the factors listed above.

The project is pursuing the following objectives:

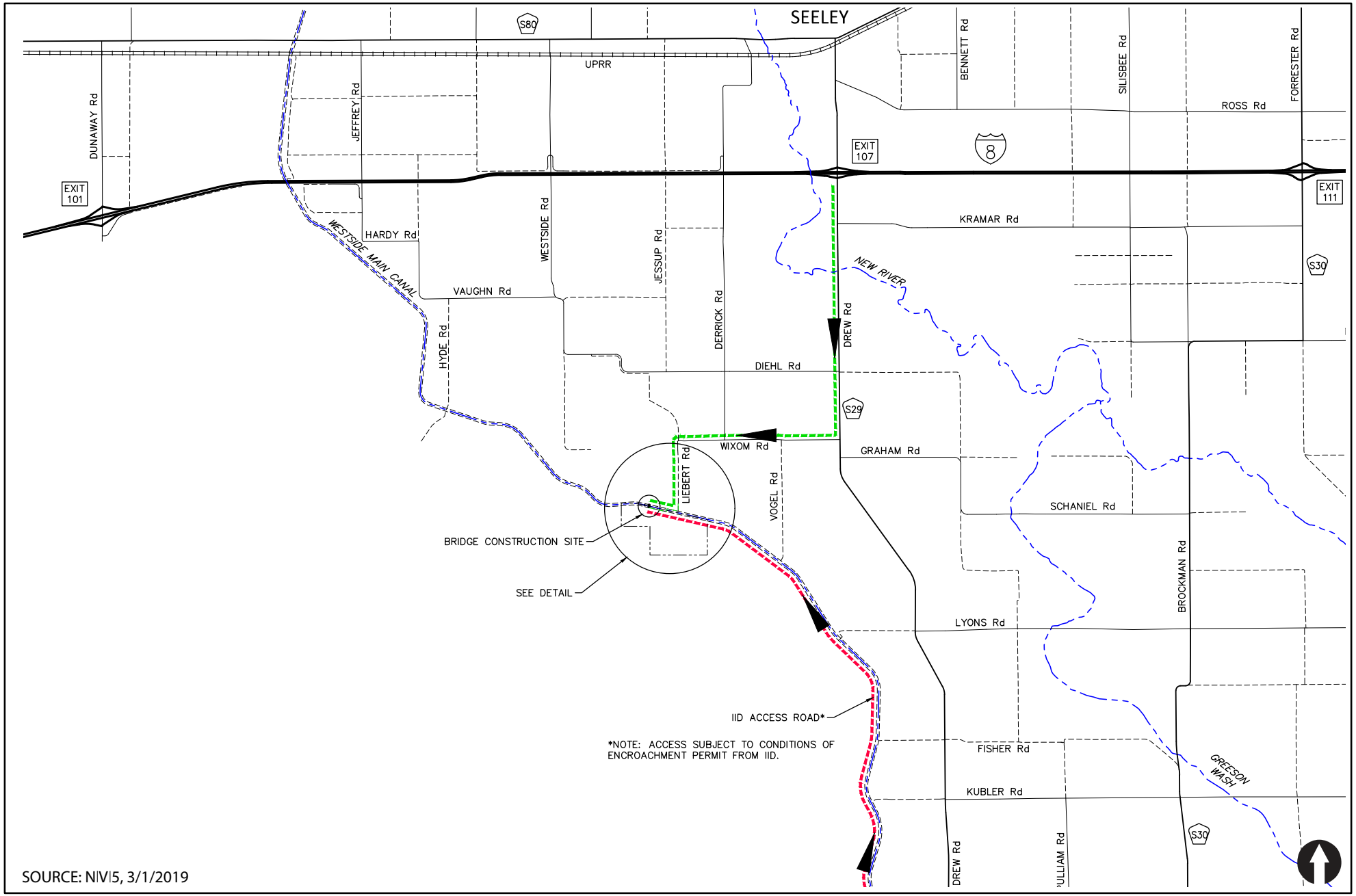
- To allow for the storage of power/renewable power to help meet the state energy needs.
- To be able to receive renewable generated electricity during times of excess generation or times of less desirable generation and store that power for release when the customer (i.e., a load-serving entity) deems it to be more valuable.
- To be a valuable tool in allowing the customer and system operators to manage and convert intermittent renewable generation into reliable, dispatchable generation.
- To build on available land that is a less desirable location for agricultural production due to 15-plus years of agricultural inactivity, but also due to limited access corridors for vehicular traffic to the remote property.

The project is surrounded by private land owners to the east, BLM land to the south and west, and IID maintenance roads and Westside Main Canal to the north. Due to the site having no direct vehicular access routes, the applicant is proposing to construct roads on both the north and south sides of the Westside Main Canal on private land, and a bridge over the Westside Main Canal. The project proposes a new clear-span Imperial County/California Department of Transportation (Caltrans) specified bridge to span the Westside Main Canal which would connect to a proposed access road easement on the north side of the Westside Main Canal. The north side proposed access road would ultimately connect the project to county road (CR) Liebert Road. The project also would dedicate to the County 60 feet of frontage along the north project fence line and south of the IID Westside Main Canal operation and maintenance road to be used for a south side proposed access road to the site and also for the public (principally the neighboring private landowners).

The major traffic effects of project development will occur during construction. The project may require up to 200 employees per day during the peak construction period. Construction activities would occur during daytime hours (up to eight hours per day).

Operation of the project would require routine maintenance and security. It is anticipated that the project would employ a plant manager and an operations and maintenance manager, as well as the addition of a facility manager once the complex deploys 500 MW of generation. The complex will

also employ staff technicians, with at least one additional technician for every approximately 250 MW of generation. It is estimated that the impacts of this operational traffic will be very small (up to 20 employees). As such, the focus of this transportation impact analysis will be on the peak construction period.



SOURCE: NV5, 3/1/2019

LINSCOTT LAW & GREENSPAN engineers

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Date: 07/18/19

Figure 2-1

Project Area Map

WESTSIDE CANAL BATTERY STORAGE COMPLEX PROJECT

3.0 EXISTING CONDITIONS

The intersections and roadway segments included in the study area are listed below. These locations were chosen since they will carry the majority of Project traffic. The study area includes locations within the jurisdictions of Caltrans and Imperial County.

Intersections

1. I-8 WB Ramps / Drew Road (*Caltrans*)
2. I-8 EB Ramps / Drew Road (*Caltrans*)
3. Drew Road / Wixom Road (*Imperial County*)

Street Segments

a. Drew Road: I-8 to Wixom Road (*Imperial County*)
b. Wixom Road: Liebert Road to Drew Road (*Imperial County*)

3.1 Existing Transportation Conditions

The following is a description of the nearby roadway network:

Drew Road is classified as a Collector in the Imperial County Circulation Element Plan. It is currently constructed as a two-lane roadway in the study area. The posted speed limit is 55 mph. There are no bike lanes provided.

Wixom Road is an unclassified roadway in the Imperial County Circulation Element Plan. It is currently constructed as a two-lane roadway in the study area. There is no posted speed limit. There are no bike lanes provided.

Figure 3–1 depicts the existing traffic conditions of the study area intersections and street segments graphically.

3.2 Existing Traffic Volumes

Weekday AM/PM peak hour intersection turning movement and bi-directional daily traffic counts were conducted in March 2019. The peak hour counts were conducted between the hours of 7:00-9:00 AM and 4:00-6:00 PM. Minor adjustments were made to manually balance peak hour volumes between the freeway ramp intersections.

Daily street segment (ADT) counts were conducted in March 2019 and are shown on ***Table 3–1***.

Appendix A contains the manual count sheets.

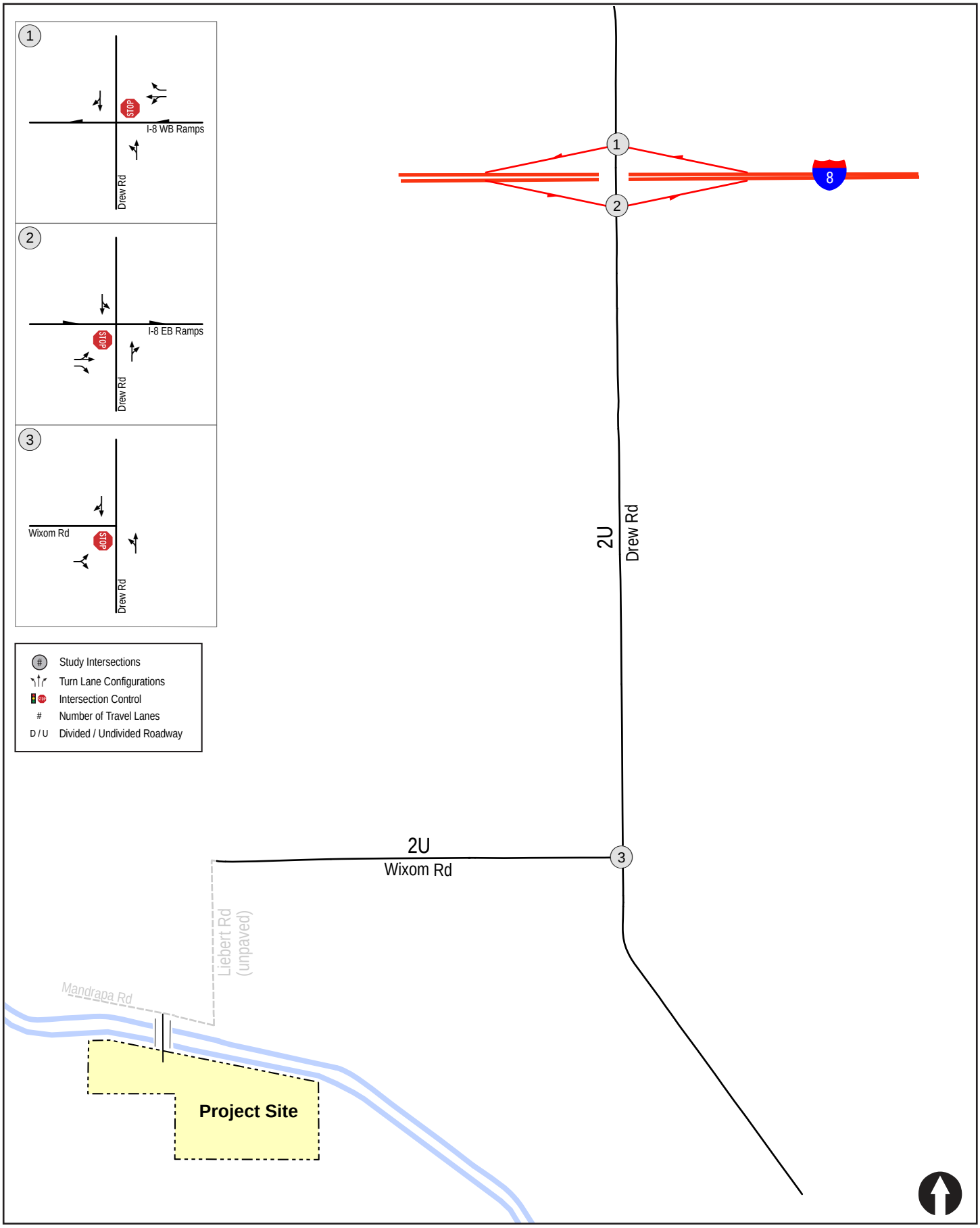
TABLE 3–1
EXISTING STREET SEGMENT TRAFFIC VOLUMES

Street Segment	ADT [a]	Date	Source
Drew Road			
I-8 to Wixom Road	541	2019	LLG Engineers
Wixom Road			
Liebert Road to Drew Road	89	2019	LLG Engineers

Footnotes:

a. ADT = Average Daily Traffic volumes.

Figure 3–2 depicts the peak hour intersection turning movement and street segment volumes on study area facilities.



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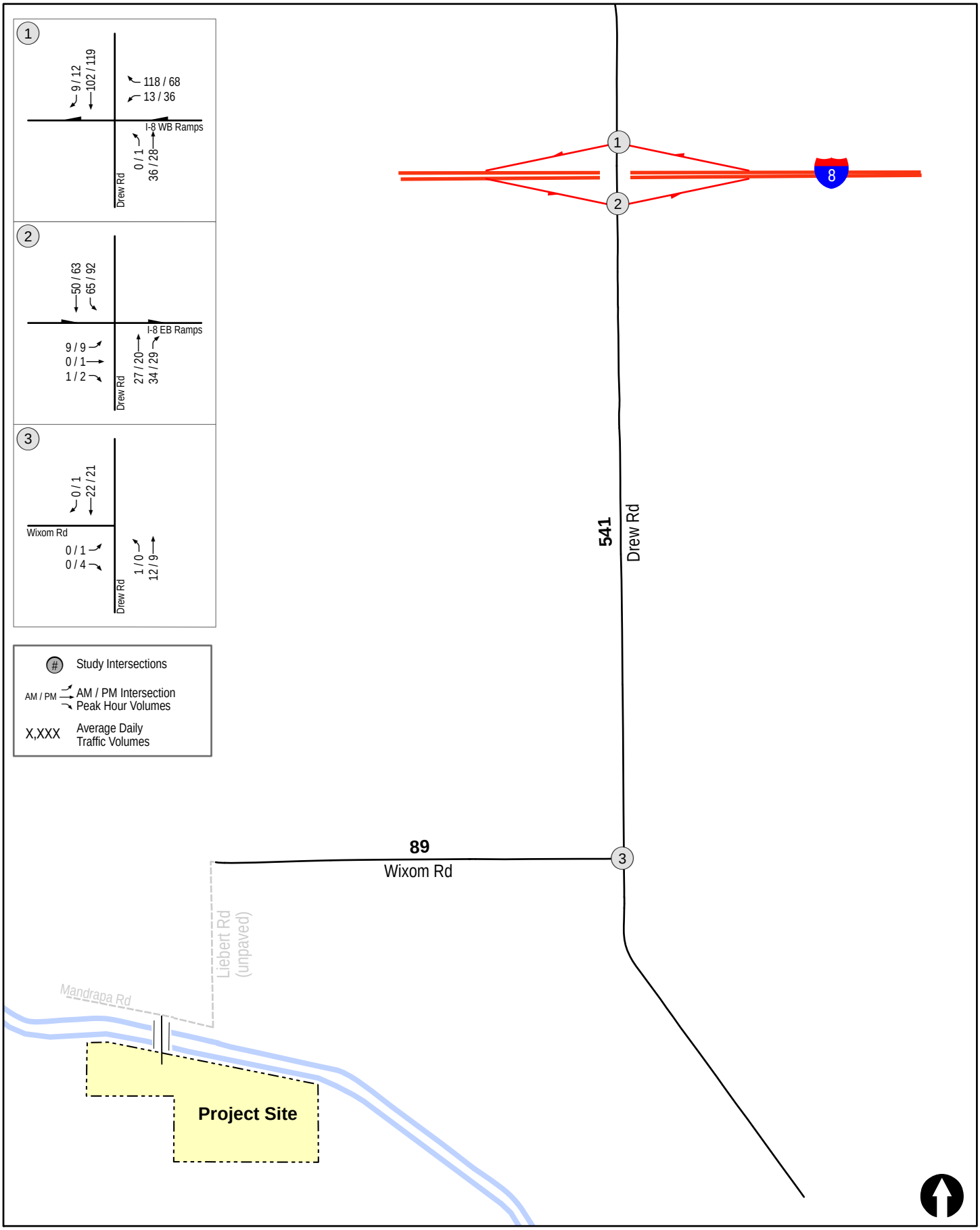
Date: 07/18/19

Figure 3-1

Existing Conditions Diagram

WESTSIDE CANAL BATTERY STORAGE COMPLEX PROJECT



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Date: 07/18/19

Figure 3-2

Existing Traffic Volumes

WESTSIDE CANAL BATTERY STORAGE COMPLEX PROJECT

4.0 ANALYSIS APPROACH AND METHODOLOGY

Level of service (LOS) is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis taking into account factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. Level of service provides an index to the operational qualities of a roadway segment or an intersection. Level of service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. Level of service designation is reported differently for intersections and roadway segments.

4.1 Intersections

All study area intersections are unsignalized. ***Unsignalized intersections*** were analyzed under AM and PM peak hour conditions. Average vehicle delay and Levels of Service (LOS) were determined based upon the procedures found in Chapter 20 and Chapter 21 of the *HCM 6* with the assistance of the *Synchro 10* computer software. A more detailed explanation of the methodology are attached in ***Appendix B***.

4.2 Street Segments

Street segment analysis is based upon the comparison of daily traffic volumes (ADTs) to Imperial County's *Standard Street Classification Table*. This table provides segment capacities for different street classifications, based on traffic volumes and roadway characteristics. Imperial County's *Standard Street Classification Table* is attached in ***Appendix C.***

5.0 SIGNIFICANCE CRITERIA

Street segments and intersections are located in both the County of Imperial's and Caltrans' jurisdictions. Therefore, the applicable significance criteria for each was utilized.

5.1 County of Imperial

The County of Imperial does not have published significance criteria. However, the County General Plan does state that the LOS goal for intersections and roadway segments is to operate at LOS C or better. Therefore, if an intersection or segment degrades from LOS C or better to LOS D or worse with the addition of Project traffic, the impact is considered significant. If the location operates at LOS D or worse with and without Project traffic, the impact is considered significant if the Project causes the intersection delta to increase by more than two (2) seconds, or the segment volume to capacity (V/C) ratio to increase by more than 0.02.

5.2 Caltrans

A project is considered to have a significant impact if the new project traffic decreases the operations of surrounding roadways by a defined threshold. The defined thresholds for roadway segments and intersections are defined in ***Table 5–1*** for this rural area. If the project exceeds the thresholds in *Table 5–1,* then the project may be considered to have a significant project impact. A feasible mitigation measure will need to be identified to return the impact within the thresholds (pre-project + allowable increase) or the impact will be considered significant and unmitigated.

TABLE 5–1
TRAFFIC IMPACT SIGNIFICANT THRESHOLDS

Level of Service with Project [a]	Allowable Increase Due to Project Impacts [b]					
	Freeways		Roadway Segments		Intersections	Ramp Metering
	V/C	Speed (mph)	V/C	Speed (mph)	Delay (sec.)	Delay (min.)
D, E & F (*or ramp meter delays above 15 minutes*)	0.01	1	0.02	1	2	2 [c]

Footnotes:

a. All level of service measurements are based upon HCM procedures for peak-hour conditions. However, V/C ratios for Roadway Segments may be estimated on an ADT/24-hour traffic volume basis (using Table 4-3 or a similar LOS chart for each jurisdiction). The acceptable LOS for freeways, roadways, and intersections is generally "D" ("C" for undeveloped or not densely developed locations per jurisdiction definitions). For metered freeway ramps, LOS does not apply. However, ramp meter delays above 15 minutes are considered excessive.

b. If a proposed project's traffic causes the values shown in the table to be exceeded, the impacts are deemed to be significant. These impact changes may be measured from appropriate computer programs or expanded manual spreadsheets. The project applicant shall then identify feasible mitigations (within the Traffic Impact Study [TIS] report) that will maintain the traffic facility at an acceptable LOS. If the LOS with the proposed project becomes unacceptable (see note a above), or if the project adds a significant amount of peak hour trips to cause any traffic queues to exceed on- or off-ramp storage capacities, the project applicant shall be responsible for mitigating significant impact changes.

c. The allowable increase in delay at a ramp meter with more than 15 minutes of delay and freeway LOS E is 2 minutes and at LOS F is 1 minute.

General Notes:

1. V/C = Volume to Capacity Ratio.
2. Speed = Arterial speed measured in miles per hour.
3. Delay = Average stopped delay per vehicle measured in seconds for intersections, or minutes for ramp meters.
4. LOS = Level of Service.

6.0 ANALYSIS OF EXISTING CONDITIONS

6.1 Peak Hour Intersection Levels of Service

Table 6–1 summarizes the existing intersections' level of service. As seen in *Table 6–1*, all intersections are calculated to currently operate at LOS A.

Appendix D contains the Existing intersection analysis worksheets.

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

Intersection	Jurisdiction	Control Type	Critical Movement	Peak Hour	Existing	
					Delay [b]	LOS [c]
1. Drew Road / I-8 WB Ramps	Caltrans	MSSC [a]	WB	AM PM	9.3 9.0	A A
2. Drew Road / I-8 EB Ramps	Caltrans	MSSC	EB	AM PM	10.4 10.5	B B
3. Drew Road / Wixom Road	Imperial County	MSSC	EB	AM PM	0.0 8.5	A A

Footnotes:
a. MSSC = Minor Street Stop-Control.
b. Average delay expressed in seconds per vehicle.
c. LOS = Level of Service.

UNSIGNALIZED

DELAY/LOS THRESHOLDS

Delay	LOS
0.0 ≤ 10.0	A
10.1 to 15.0	B
15.1 to 25.0	C
25.1 to 35.0	D
35.1 to 50.0	E
≥ 50.1	F

6.2 Daily Street Segment Levels of Service

Table 6–2 summarizes the existing daily street segment level of service. As seen in *Table 6–2*, both roadway segments are calculated to currently operate at LOS A.

TABLE 6–2
EXISTING STREET SEGMENT OPERATIONS

Street Segment	Classification	Capacity (LOS E) [a]	ADT [b]	LOS [c]
Drew Road				
I-8 to Wixom	Collector	8,100 [d]	541	A
Wixom Road				
Liebert Road to Drew Road	None	8,100 [d]	89	A

Footnotes:

a. Capacities based on Imperial County Standard Street Classification table.

b. ADT = Average Daily Traffic volumes.

c. LOS = Level of Service.

d. Both roadway segments are currently built as two-lane roads. Roadway capacities were conservatively assumed as half of the Local Collector capacities from the Imperial County Standard Street Classification table.

7.0 NEAR-TERM ANALYSIS

7.1 Growth Factor

Using current knowledge of local traffic patterns and engineering judgement, a growth factor of 2% was applied to the existing volumes for two (2) years to account for worst-case traffic volume at the time of construction.

Figure 7–1 shows the Near-Term without Project volumes based on the 4% growth factor over existing.

7.2 Analysis of Near-Term without Project

7.2.1 *Peak Hour Intersection Levels of Service*

Table 7–1 summarizes the Near-Term without Project intersections level of service. As seen in *Table 7–1*, all intersections are calculated to operate at acceptable LOS B or better in the near-term.

Appendix E contains the Near-Term without Project intersection analysis worksheets.

TABLE 7–1
NEAR-TERM WITHOUT PROJECT INTERSECTION OPERATIONS

Intersection	Juris.	Control Type	Critical Movement	Peak Hour	Existing		Near-Term without Project	
					Delay [a]	LOS [b]	Delay	LOS
1. Drew Road / I-8 WB Ramps	Caltrans	MSSC [c]	WB	AM	9.3	A	9.4	A
				PM	9.0	A	9.0	A
2. Drew Road / I-8 WB Ramps	Caltrans	MSSC	EB	AM	10.4	B	10.6	B
				PM	10.5	B	10.6	B
3. Drew Road / Wixom Road	Imperial County	MSSC	EB	AM	0.0	A	0.0	A
				PM	8.5	A	8.5	A

Footnotes:
a. Average delay expressed in seconds per vehicle.
b. LOS = Level of Service.
c. MSSC = Minor Street Stop-Control.

UNSIGNALIZED

DELAY/LOS THRESHOLDS

Delay	LOS
0.0 ≤ 10.0	A
10.1 to 15.0	B
15.1 to 25.0	C
25.1 to 35.0	D
35.1 to 50.0	E
≥ 50.1	F

7.2.2 *Daily Street Segment Levels of Service*

Table 7–2 summarizes the Near-Term without Project street segment level of service. As seen in *Table 7–2*, both segments are calculated to operate at LOS A.

TABLE 7–2
NEAR-TERM WITHOUT PROJECT STREET SEGMENT OPERATIONS

Street Segment	Classification	Capacity (LOS E) [a]	Existing			Near-Term without Project		
			ADT [b]	LOS [c]	V/C [d]	ADT	LOS	V/C
Drew Road I-8 to Wixom Road	Collector	8,100 [e]	541	A	0.067	563	A	0.070
Wixom Road Liebert Road to Drew Road	None	8,100 [e]	89	A	0.011	93	A	0.011

Footnotes:

a. Capacities based on Imperial County Standard Street Classification Table.
b. ADT = Average Daily Traffic Volumes.
c. LOS = Level of Service.
d. V/C = Volume to Capacity ratio.
e. Both roadway segments are currently built as two-lane roads. Roadway capacities were conservatively assumed as half of the Local Collector capacities from the Imperial County Standard Street Classification table.

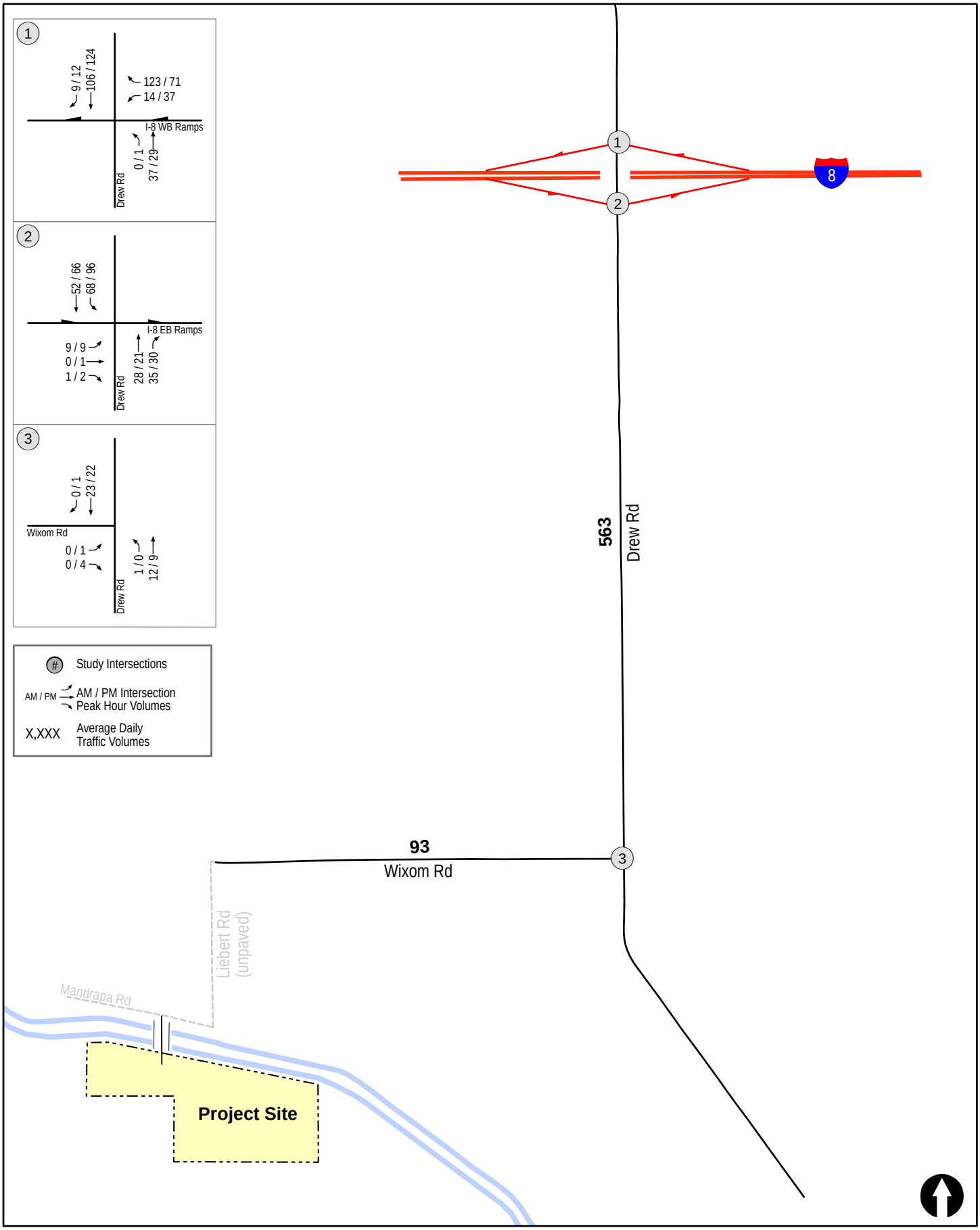

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Figure 7-1

Near-Term without Project Traffic Volumes

WESTSIDE CANAL BATTERY STORAGE COMPLEX PROJECT

8.0 PROJECT TRIP GENERATION, DISTRIBUTION, AND ASSIGNMENT

8.1 Project Trip Generation

The project will generate traffic in two distinct construction periods. The initial construction period would consist of the access road and bridge across the Westside Main Canal, which would require approximately 8 workers per day and would last for eight to nine months. Following completion of the access road and bridge over the Westside Main Canal, the project would grade the entire project site and begin construction of the utility-scale energy storage complex, lasting up to 32 months. This second construction period will have a maximum of 200 workers and 30 trucks per day. Since this second construction period would generate the greatest amount of trips on the roadway, it is the subject of this analysis.

Daily and peak hour trip generation rates and in/out splits were calculated for the peak construction period using detailed data developed for analysis of the Project's impacts. Construction activities would generally occur during an 8-hour-shift day. Generally, all employees would arrive prior to the morning peak commuter period (7:00 – 9:00 a.m.) and depart within the evening peak period (4:00 – 6:00 p.m.). Delivery truck trips are anticipated to be distributed generally evenly throughout the 8-hour-shift day. In order to provide a conservative analysis, all employees were assumed to arrive and depart during peak commute periods. In addition, no carpooling for construction employees was assumed.

A passenger-car-equivalent (PCE) factor of 2.5 was applied to heavy vehicles (per the Highway Capacity Manual or HCM) to account for their reduced performance characteristics in the traffic stream (e.g. starting, stopping, and maneuvering). This information was used in calculating the Project-generated average daily traffic (ADT).

Table 8–1 tabulates the total daily and peak hour Project traffic volumes. The Project trip generation is calculated to be 550 ADT with 200 inbound/ 20 outbound trips during the AM peak hour and 20 inbound/ 200 outbound trips during the PM peak hour. These values include the heavy-vehicle PCE-adjustment.

Post-construction, the facility will operate with up to 20 full-time employees on site. Therefore, an analysis of the post-construction scenario was not conducted.

TABLE 8-1
PHASE 2 CONSTRUCTION PROJECT TRIP GENERATION

Use	Size	PCE [a]	Daily Trips		AM Peak Hour		PM Peak Hour	
			Rate (In + Out)	Volume (ADT) [b]	Volume		Volume	
					In	Out	In	Out
Personnel	200	1.0	2.0 /personnel	400	190	10	10	190
Trucks	30	2.5	2.0 /truck	150	10	10	10	10
Subtotal	**-**	**-**	**-**	***550***	***200***	***20***	***20***	***200***

Footnotes:

a. PCE = Passenger Car Equivalent.

b. ADT = Average Daily Traffic.

General Notes:

1. To estimate the employee traffic, it is conservatively assumed that 100% of the employee traffic would access the work area during the normal commuter peak hours (7:00 – 9:00 a.m. & 4:00 – 6:00 p.m.).
2. The In/Out splits assumed are 95:5 during AM peak hour and 5:95 during the PM peak hour.
3. Truck trips are estimated to occur relatively evenly throughout an 8-hour construction hours proposed for the Project. For 30 trucks with an equivalent of 150 ADT, this calculates to approximately 20 trucks/hour.

8.2 Project Trip Distribution and Assignment

Based on the information provided by the applicant, the personnel and construction truck trips will come from both east and west of the Project site via I-8.

A trip distribution and assignment were prepared for truck and employee trips to represent the distribution of Project traffic. The construction route is assumed to be I-8 to Drew Road to Wixom Road to Liebert Road.

Figure 8–1 depicts the Project Traffic Distribution, while ***Figure 8–2*** depicts the Project Traffic Volumes.

Figure 8–3 shows the Near-Term with Project Construction Traffic Volumes.

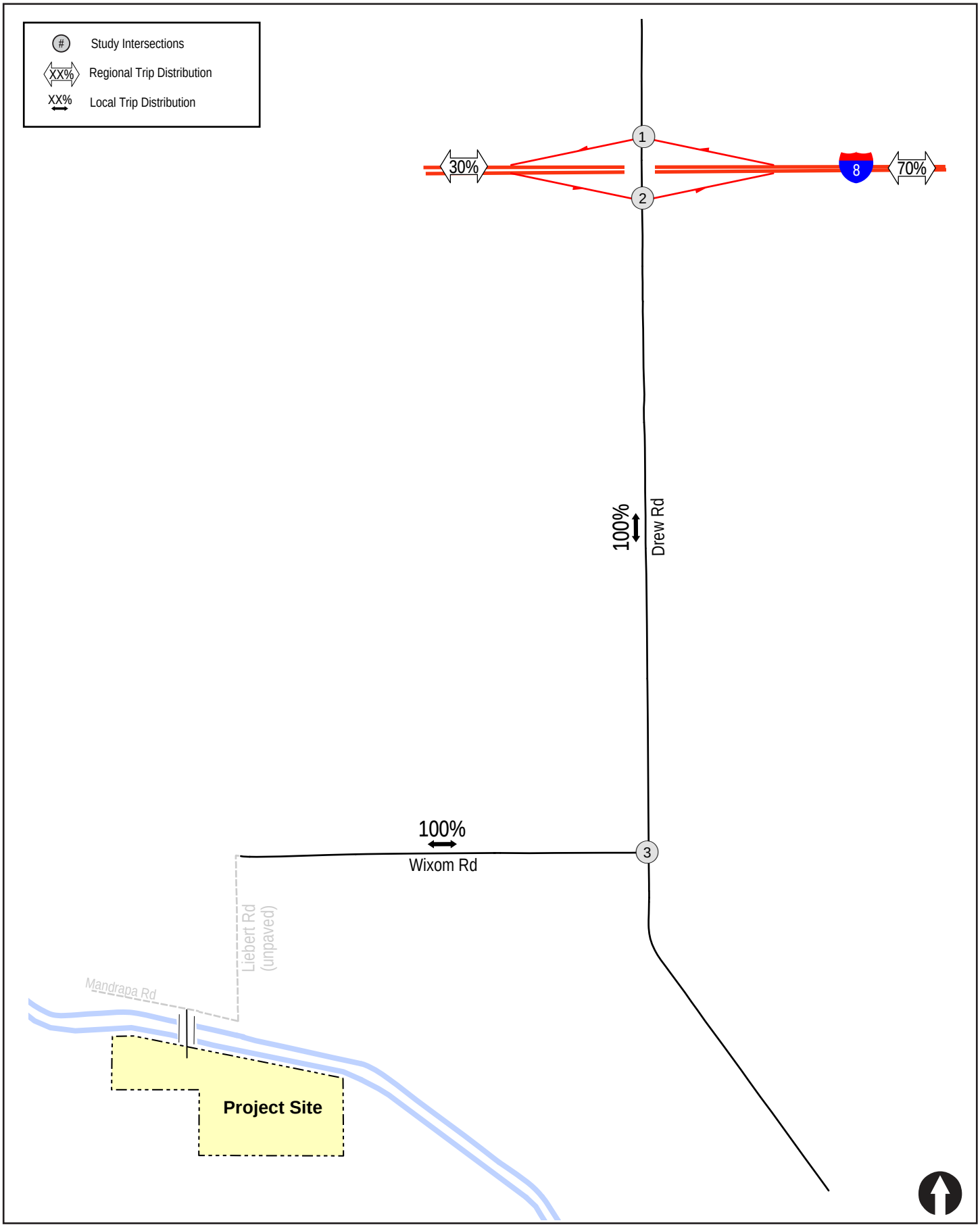

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Figure 8-1

Project Traffic Distribution

WESTSIDE CANAL BATTERY STORAGE COMPLEX PROJECT

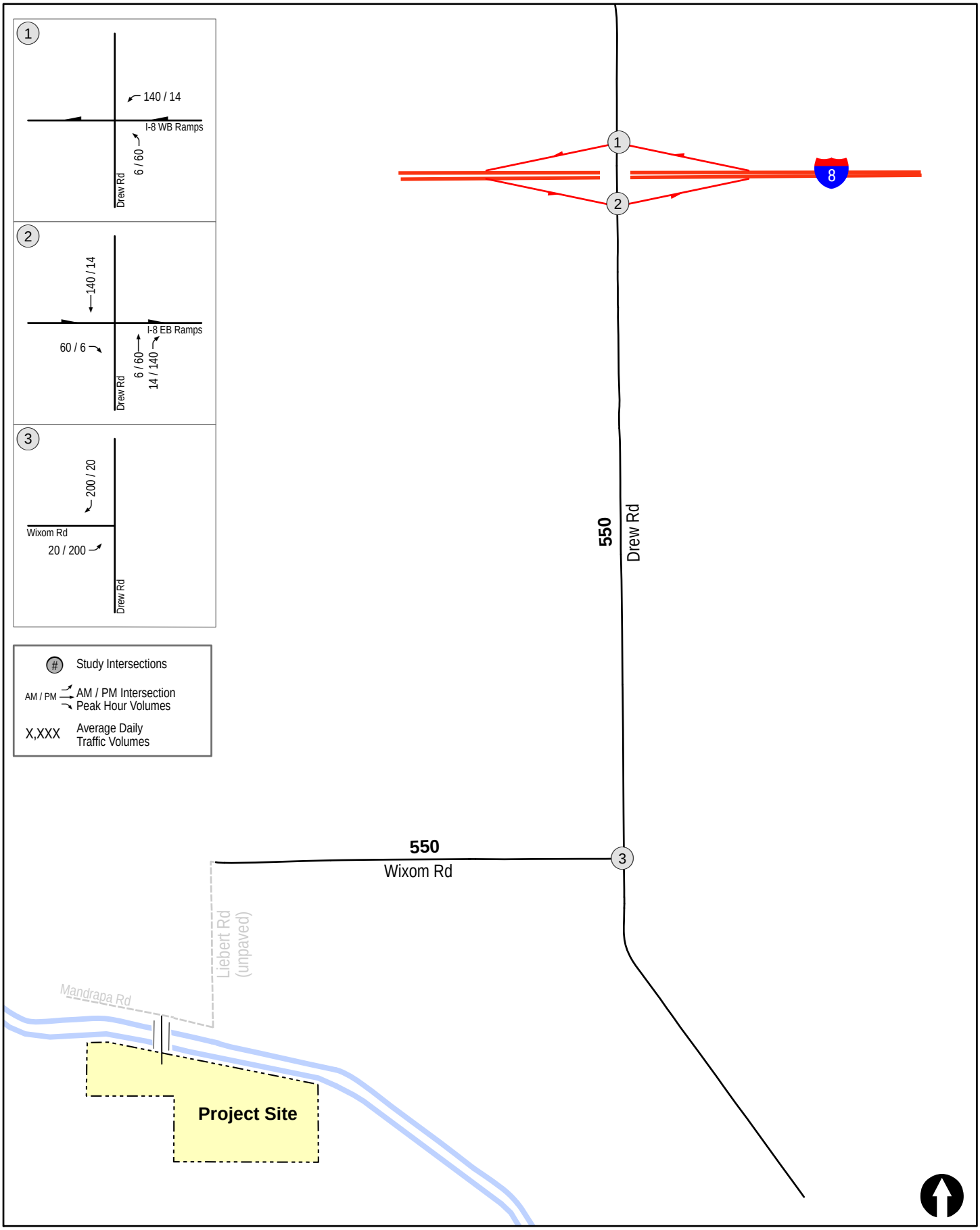

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Fig 8-2

Project Traffic Volumes

WESTSIDE CANAL BATTERY STORAGE COMPLEX PROJECT

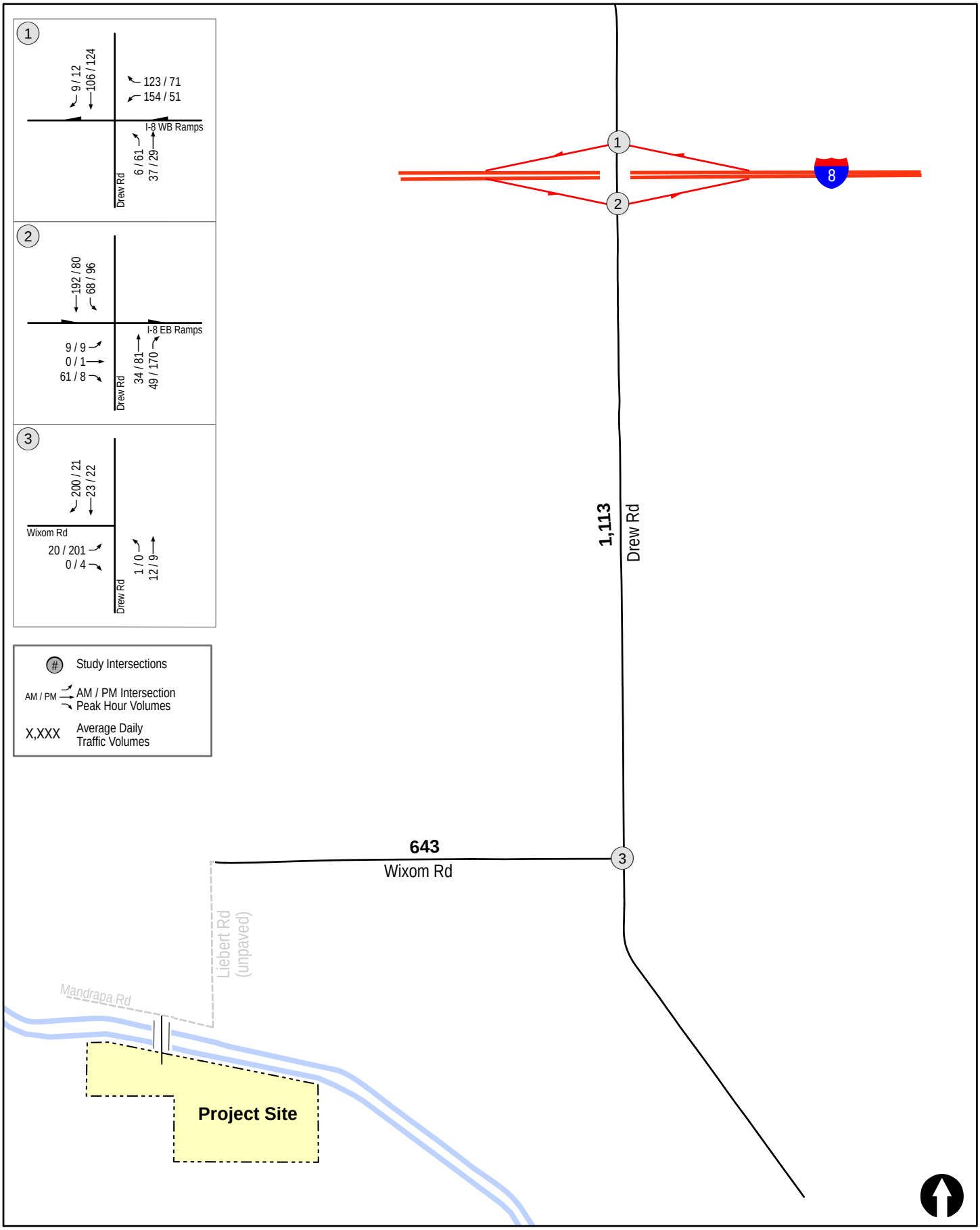

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Fig 8-3

Near-Term with Project Traffic Volumes

WESTSIDE CANAL BATTERY STORAGE COMPLEX PROJECT

9.0 ANALYSIS OF NEAR-TERM WITH PROJECT CONDITIONS

9.1 Peak Hour Intersection Levels of Service

Table 9–1 summarizes the Near-Term with Project intersections level of service. As seen in *Table 9–1*, with the addition of Project traffic, all intersections are calculated to operate at acceptable LOS B or better.

No significant Project impacts are calculated.

Appendix F contains the Near-Term with Project intersection analysis worksheets.

TABLE 9–1
NEAR-TERM INTERSECTION OPERATIONS

Intersection	Jurisdiction	Control Type	Critical Movement	Peak Hour	Existing		Near-Term without Project		Near-Term with Project			Impact Type
					Delay [a]	LOS [b]	Delay	LOS	Delay	LOS	Δ [c]	
1. Drew Road / I-8 WB Ramps	Caltrans	MSSC [d]	WB	AM	9.3	A	9.4	A	10.7	B	1.3	None
				PM	9.0	A	9.0	A	9.7	A	0.7	None
2. Drew Road / I-8 WB Ramps	Caltrans	MSSC	EB	AM	10.4	B	10.6	B	10.6	B	0.0	None
				PM	10.5	B	10.6	B	11.0	B	0.4	None
3. Drew Road / Wixom Road	Imperial County	MSSC	EB	AM	0.0	A	0.0	A	10.3	B	10.3	None
				PM	8.5	A	8.5	A	10.5	B	2.0	None

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. LOS = Level of Service.
c. "Δ" denotes the increase in delay of the Critical Movement due to Project Traffic.
d. MSSC = Minor Street Stop-Control.

UNSIGNALIZED

DELAY/LOS THRESHOLDS

Delay	LOS
0.0 ≤ 10.0	A
10.1 to 15.0	B
15.1 to 25.0	C
25.1 to 35.0	D
35.1 to 50.0	E
≥ 50.1	F

9.2 Daily Street Segment Levels of Service

Table 9–2 summarizes the Near-Term with Project street segment level of service. As seen in *Table 9–2*, with the addition of Project traffic, both roadway segments are calculated to operate at LOS B or better.

No significant Project impacts are calculated.

TABLE 9–2
NEAR-TERM WITH PROJECT STREET SEGMENT OPERATIONS

Street Segment	Classification	Capacity (LOS E) [a]	Existing			Near-Term without Project			Near-Term with Project				Impact Type
			ADT [b]	LOS [c]	V/C [d]	ADT	LOS	V/C	ADT	LOS	V/C	Δ [e]	
Drew Road													
I-8 to Wixom Road	Collector	8,100 [f]	541	A	0.067	563	A	0.070	1,113	B	0.137	0.067	None
Wixom Road													
Liebert Road to Drew Road	None	8,100 [f]	89	A	0.011	93	A	0.011	643	A	0.079	0.068	None

Footnotes:

a. Capacities based on Imperial County Standard Street Classification Table.
b. ADT = Average Daily Traffic Volumes.
c. LOS = Level of Service.
d. V/C = Volume to Capacity ratio.
e. "Δ" denotes the increase in V/C ratio due to the addition of Project traffic.
f. Both roadway segments are currently built as two-lane roads. Roadway capacities were conservatively assumed as half of the Local Collector capacities from the Imperial County Standard Street Classification table.

10.0 SUMMARY AND CONCLUSIONS

Per the established significance thresholds and the analysis methodology presented in this report, Project-related traffic is not calculated to cause any significant impacts within the study area. No mitigation measures are required or proposed.

LINSCOTT LAW & GREENSPAN engineers

TECHNICAL APPENDICES

WESTSIDE CANAL BATTERY STORAGE COMPLEX PROJECT

Imperial County, California
July 22, 2019

LLG Ref. 3-18-2960

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APPENDIX A

INTERSECTION AND ROADWAY SEGMENT COUNT SHEETS

Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#01	File Name:	ITM-19-028-01
Intersection:	Drew Road & I-8 Westbound Ramps	Project:	LLG Ref. 3-18-2960
Date of Count:	Wednesday, March 13, 2019		El Centro-Calexico

AM	Drew Road Southbound			I-8 Westbound Off Ramp Westbound			Drew Road Northbound			I-8 Westbound On Rmap Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	0	16	2	6	0	16	0	6	0	0	0	0	46
7:15	0	20	2	2	0	24	0	7	0	0	0	0	55
7:30	0	24	1	0	0	30	0	6	0	0	0	0	61
7:45	0	30	4	3	0	48	0	9	0	0	0	0	94
8:00	0	15	1	4	0	19	0	6	0	0	0	0	45
8:15	0	19	3	7	0	17	0	10	0	0	0	0	56
8:30	0	32	3	9	0	7	0	8	0	0	0	0	59
8:45	0	28	3	9	0	8	0	10	0	0	0	0	58
Total	0	184	19	40	0	169	0	62	0	0	0	0	474
Approach%	-	90.6	9.4	19.1	-	80.9	-	100.0	-	-	-	-	
Total%	-	38.8	4.0	8.4	-	35.7	-	13.1	-	-	-	-	

AM Intersection Peak Hour: **07:00 to 08:00**

Volume	-	90	9	11	-	118	-	28	-	-	-	-	256
Approach%	-	90.9	9.1	8.5	-	91.5	-	100.0	-	-	-	-	
Total%	-	35.2	3.5	4.3	-	46.1	-	10.9	-	-	-	-	
PHF			0.73			0.63			0.78			#DIV/0!	0.68

PM	Drew Road Southbound			I-8 Westbound Off Ramp Westbound			Drew Road Northbound			I-8 Westbound On Rmap Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	0	39	4	5	0	15	0	9	0	0	0	0	72
16:15	0	28	2	7	0	22	0	5	0	0	0	0	64
16:30	0	30	5	12	0	12	1	6	0	0	0	0	66
16:45	0	20	1	11	0	19	0	8	0	0	0	0	59
17:00	0	24	1	7	0	8	0	6	0	0	0	0	46
17:15	0	19	1	17	0	24	1	8	0	0	0	0	70
17:30	0	16	1	9	0	23	1	5	0	0	0	0	55
17:45	0	21	1	8	0	24	0	5	0	0	0	0	59
Total	0	197	16	76	0	147	3	52	0	0	0	0	491
Approach%	-	92.5	7.5	34.1	-	65.9	5.5	94.5	-	-	-	-	
Total%	-	40.1	3.3	15.5	-	29.9	0.6	10.6	-	-	-	-	

PM Intersection Peak Hour: **16:00 to 17:00**

Volume	-	117	12	35	-	68	1	28	-	-	-	-	261
Approach%	-	90.7	9.3	34.0	-	66.0	3.4	96.6	-	-	-	-	
Total%	-	44.8	4.6	13.4	-	26.1	0.4	10.7	-	-	-	-	
PHF			0.75			0.86			0.81			#DIV/0!	0.91

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

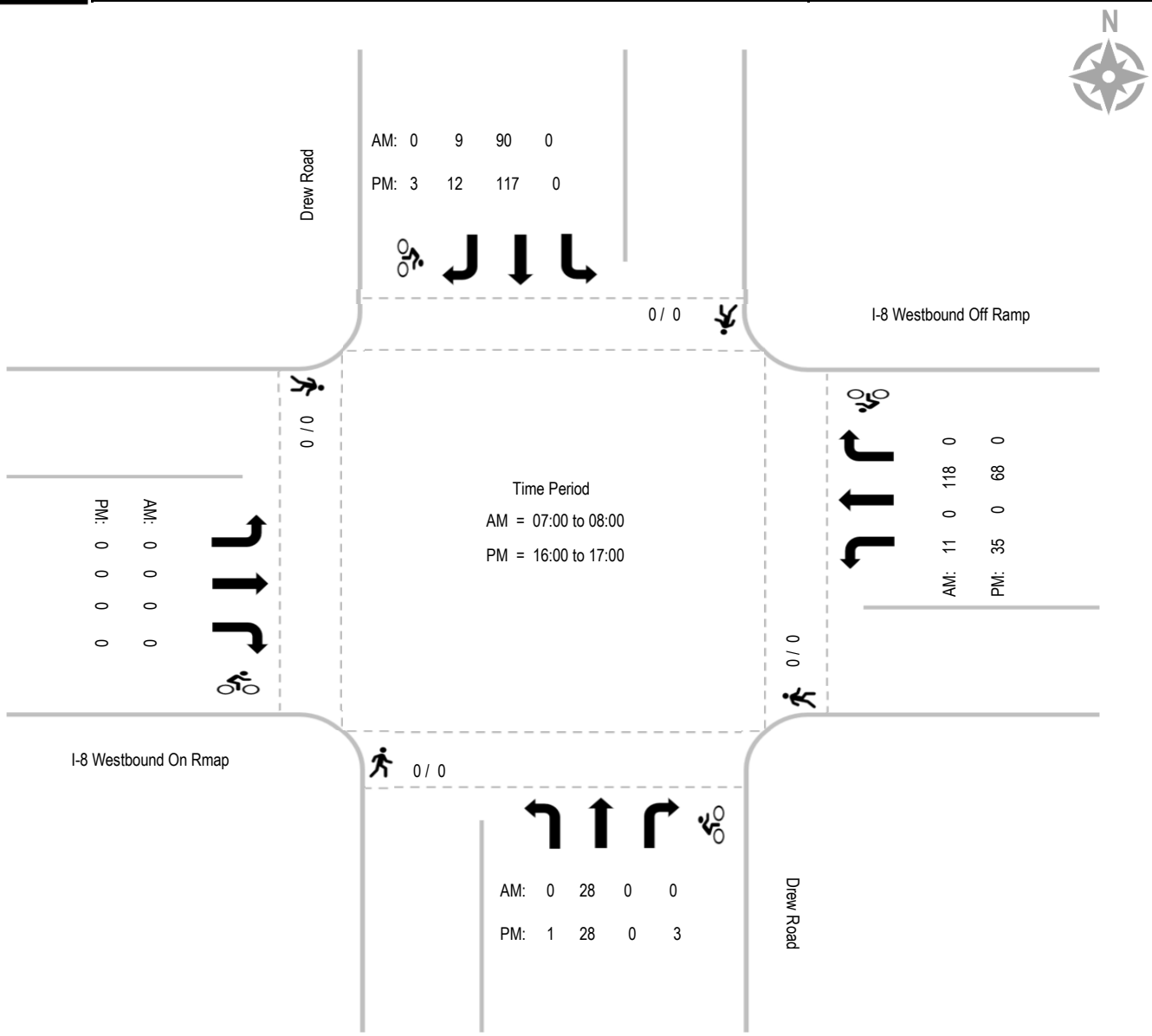
Location:	#01	File Name:	ITM-19-028-01
Intersection:	Drew Road & I-8 Westbound Ramps	Project:	LLG Ref. 3-18-2960
Date of Count:	Wednesday, March 13, 2019		El Centro-Calexico

AM	Drew Road Southbound				I-8 Westbound Off Ramp Westbound				Drew Road Northbound				I-8 Westbound On Rmap Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				0				0	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	Drew Road Southbound				I-8 Westbound Off Ramp Westbound				Drew Road Northbound				I-8 Westbound On Rmap Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
17:00	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				0				0	
Bike Total		0	3	0		0	0	0		0	3	0		0	0	0		6

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#01	File Name:	ITM-19-028-01
	Intersection:	Drew Road & I-8 Westbound Ramps	Project:	LLG Ref. 3-18-2960
	Date of Count:	Wednesday, March 13, 2019		El Centro-Calexico



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#02	File Name:	ITM-19-028-02
Intersection:	Drew Road & I-8 Eastbound Ramps	Project:	LLG Ref. 3-18-2960
Date of Count:	Wednesday, March 13, 2019		El Centro-Calexico

AM	Drew Road Southbound			I-8 Eastbound On Ramp Westbound			Drew Road Northbound			I-8 Eastbound Off Rmap Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	12	10	0	0	0	0	0	5	5	2	0	0	34
7:15	12	2	0	0	0	0	0	5	12	0	0	0	31
7:30	21	4	0	0	0	0	0	6	5	0	0	0	36
7:45	23	10	0	0	0	0	0	6	8	2	0	0	49
8:00	13	6	0	0	0	0	0	5	7	2	0	0	33
8:15	13	12	0	0	0	0	0	8	6	3	0	0	42
8:30	16	22	0	0	0	0	0	8	13	2	0	1	62
8:45	21	15	0	0	0	0	0	5	2	5	0	0	48
Total	131	81	0	0	0	0	0	48	58	16	0	1	335
Approach%	61.8	38.2	-	-	-	-	-	45.3	54.7	94.1	-	5.9	
Total%	39.1	24.2	-	-	-	-	-	14.3	17.3	4.8	-	0.3	

AM Intersection Peak Hour: **07:45 to 08:45**

Volume	65	50	-	-	-	-	-	27	34	9	-	1	186
Approach%	56.5	43.5	-	-	-	-	-	44.3	55.7	90.0	-	10.0	
Total%	34.9	26.9	-	-	-	-	-	14.5	18.3	4.8	-	0.5	
PHF			0.76			#DIV/0!			0.73			0.83	0.75

PM	Drew Road Southbound			I-8 Eastbound On Ramp Westbound			Drew Road Northbound			I-8 Eastbound Off Rmap Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	34	10	0	0	0	0	0	7	7	2	0	0	60
16:15	17	20	0	0	0	0	0	2	5	3	1	0	48
16:30	24	18	0	0	0	0	0	5	12	2	0	1	62
16:45	17	15	0	0	0	0	0	5	5	2	0	1	45
17:00	15	13	0	0	0	0	0	5	8	2	0	0	43
17:15	17	18	0	0	0	0	0	5	4	2	0	1	47
17:30	9	16	0	0	0	0	0	6	10	0	0	1	42
17:45	17	14	0	0	0	0	0	1	2	3	0	1	38
Total	150	124	0	0	0	0	0	36	53	16	1	5	385
Approach%	54.7	45.3	-	-	-	-	-	40.4	59.6	72.7	4.5	22.7	
Total%	39.0	32.2	-	-	-	-	-	9.4	13.8	4.2	0.3	1.3	

PM Intersection Peak Hour: **16:00 to 17:00**

Volume	92	63	-	-	-	-	-	19	29	9	1	2	215
Approach%	59.4	40.6	-	-	-	-	-	39.6	60.4	75.0	8.3	16.7	
Total%	42.8	29.3	-	-	-	-	-	8.8	13.5	4.2	0.5	0.9	
PHF			0.88			#DIV/0!			0.71			0.75	0.87

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

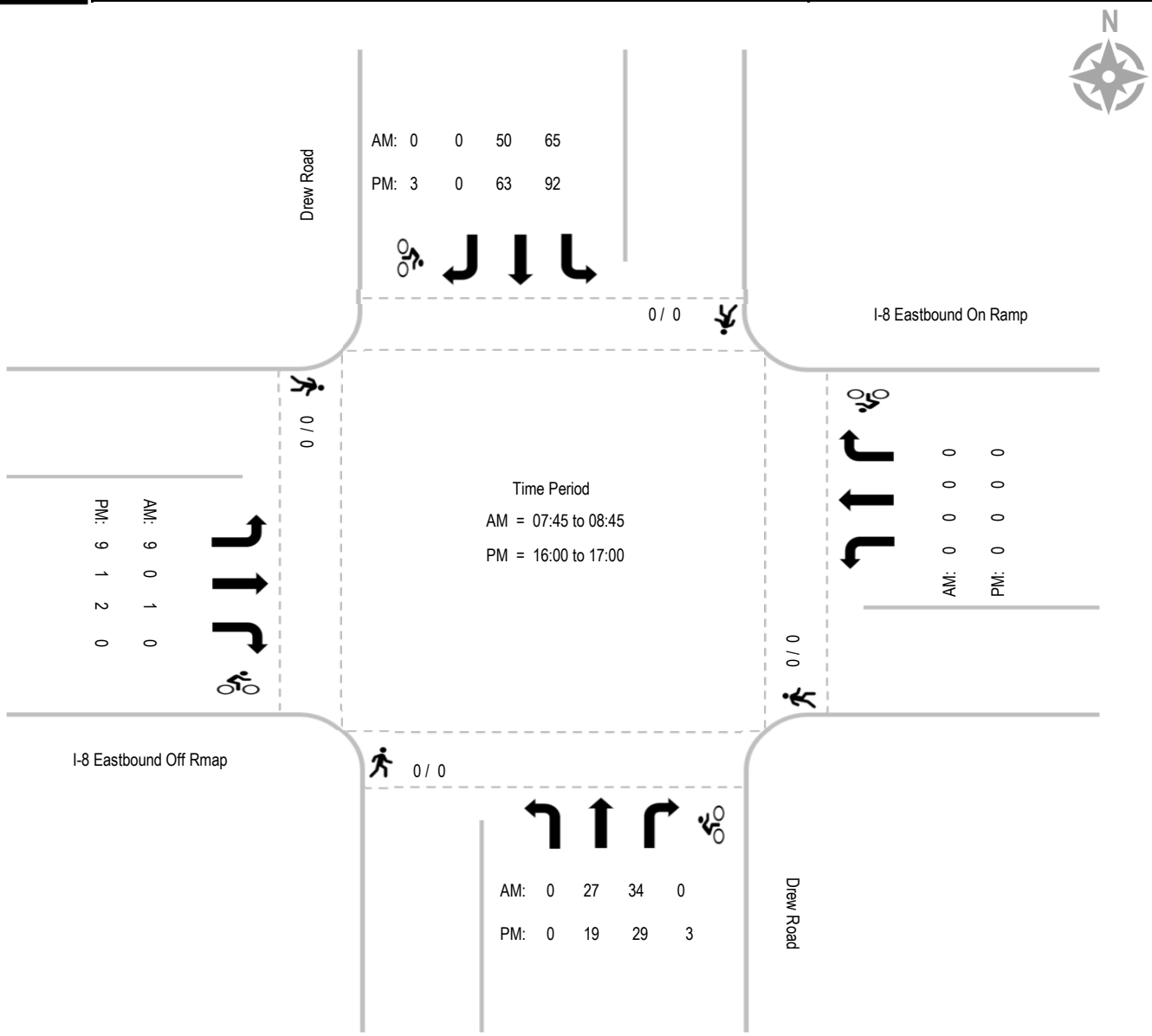
Location:	#02	File Name:	ITM-19-028-02
Intersection:	Drew Road & I-8 Eastbound Ramps	Project:	LLG Ref. 3-18-2960
Date of Count:	Wednesday, March 13, 2019		El Centro-Calexico

AM	Drew Road Southbound				I-8 Eastbound On Ramp Westbound				Drew Road Northbound				I-8 Eastbound Off Rmap Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				0				0	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	Drew Road Southbound				I-8 Eastbound On Ramp Westbound				Drew Road Northbound				I-8 Eastbound Off Rmap Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
17:00	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				0				0	
Bike Total		0	3	0		0	0	0		0	3	0		0	0	0		6

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#02	File Name: ITM-19-028-02
	Intersection:	Drew Road & I-8 Eastbound Ramps	Project: LLG Ref. 3-18-2960
	Date of Count:	Wednesday, March 13, 2019	El Centro-Calexico



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#03	File Name:	ITM-19-028-03
Intersection:	Drew Road & Wixom Road	Project:	LLG Ref. 3-18-2960
Date of Count:	Wednesday, March 13, 2019		El Centro-Calexico

AM	Drew Road Southbound			- Westbound			Drew Road Northbound			Wixom Road Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	0	3	1	0	0	0	0	5	0	0	0	0	9
7:15	0	2	0	0	0	0	0	5	0	1	0	0	8
7:30	0	1	0	0	0	0	1	4	0	0	0	0	6
7:45	0	2	0	0	0	0	0	1	0	0	0	0	3
8:00	0	2	0	0	0	0	0	5	0	0	0	0	7
8:15	0	2	0	0	0	0	0	5	0	0	0	0	7
8:30	0	15	0	0	0	0	1	1	0	0	0	0	17
8:45	0	3	0	0	0	0	0	1	0	0	0	0	4
Total	0	30	1	0	0	0	2	27	0	1	0	0	61
Approach%	-	96.8	3.2	-	-	-	6.9	93.1	-	100.0	-	-	
Total%	-	49.2	1.6	-	-	-	3.3	44.3	-	1.6	-	-	

AM Intersection Peak Hour: **08:00 to 09:00**

Volume	-	22	-	-	-	-	1	12	-	-	-	-	35
Approach%	-	100.0	-	-	-	-	7.7	92.3	-	-	-	-	
Total%	-	62.9	-	-	-	-	2.9	34.3	-	-	-	-	
PHF			0.37			#DIV/0!			0.65			#DIV/0!	0.51

PM	Drew Road Southbound			- Westbound			Drew Road Northbound			Wixom Road Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	0	0	0	0	0	0	0	4	0	0	0	1	5
16:15	0	10	0	0	0	0	0	1	0	1	0	1	13
16:30	0	7	0	0	0	0	0	1	0	0	0	2	10
16:45	0	4	1	0	0	0	0	3	0	0	0	0	8
17:00	0	3	1	0	0	0	0	1	0	0	0	0	5
17:15	0	3	0	0	0	0	0	2	0	0	0	0	5
17:30	0	5	0	0	0	0	0	5	0	1	0	0	11
17:45	0	7	1	0	0	0	0	2	0	0	0	0	10
Total	0	39	3	0	0	0	0	19	0	2	0	4	67
Approach%	-	92.9	7.1	-	-	-	-	100.0	-	33.3	-	66.7	
Total%	-	58.2	4.5	-	-	-	-	28.4	-	3.0	-	6.0	

PM Intersection Peak Hour: **16:00 to 17:00**

Volume	-	21	1	-	-	-	-	9	-	1	-	4	36
Approach%	-	95.5	4.5	-	-	-	-	100.0	-	20.0	-	80.0	
Total%	-	58.3	2.8	-	-	-	-	25.0	-	2.8	-	11.1	
PHF			0.55			#DIV/0!			0.56			0.63	0.69

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

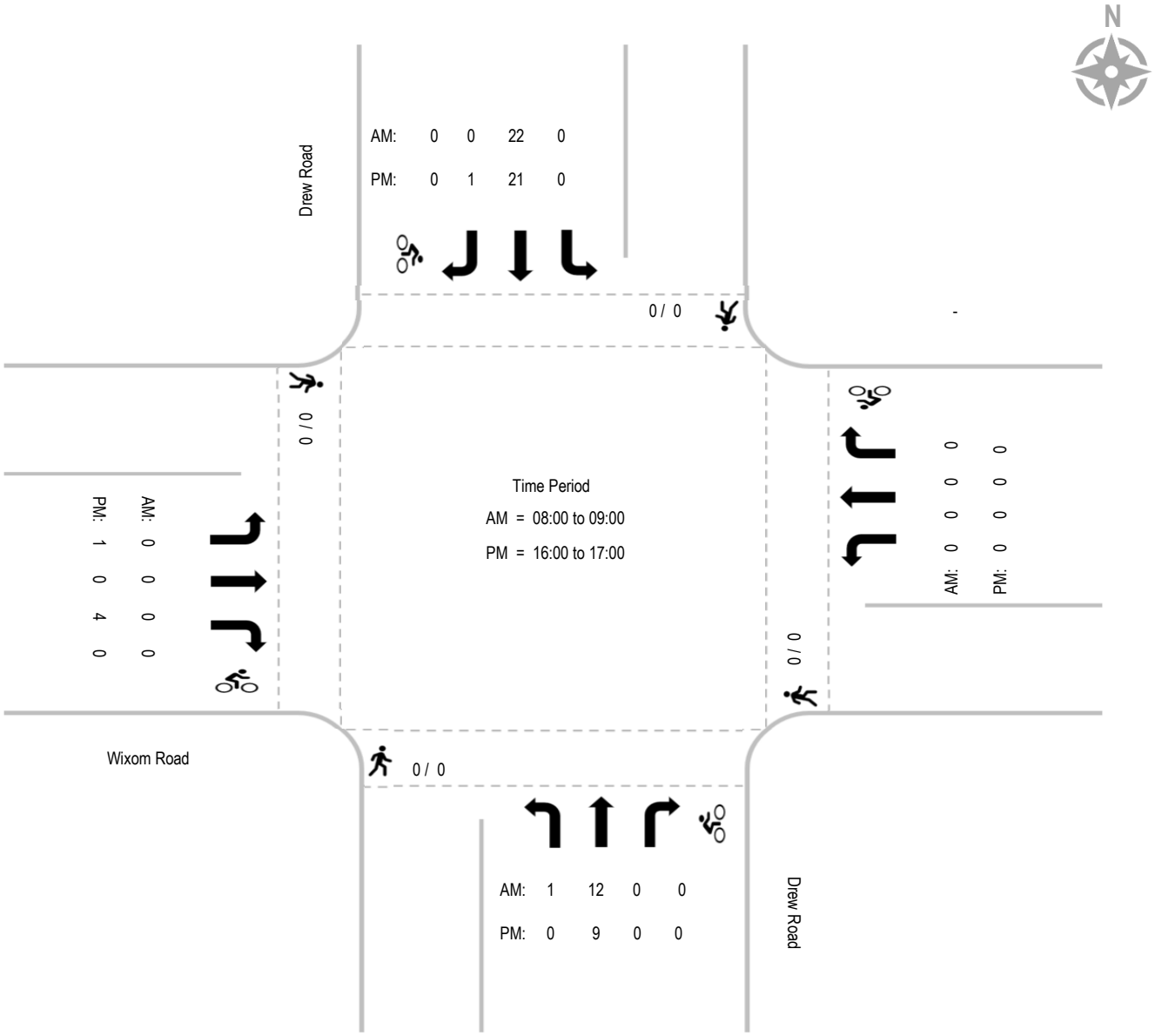
Location:	#03	File Name:	ITM-19-028-03
Intersection:	Drew Road & Wixom Road	Project:	LLG Ref. 3-18-2960
Date of Count:	Wednesday, March 13, 2019		El Centro-Calexico

AM	Drew Road Southbound				- Westbound				Drew Road Northbound				Wixom Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				0				0	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	Drew Road Southbound				- Westbound				Drew Road Northbound				Wixom Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				0				0	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#03	File Name: ITM-19-028-03
	Intersection:	Drew Road & Wixom Road	Project: LLG Ref. 3-18-2960
	Date of Count:	Wednesday, March 13, 2019	El Centro-Calexico



Linscott, Law & Greenspan, Engineers

4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **Drew Road, between I-8 Ramps and Diehl Road**

Date: **Wednesday, March 13, 2019** Total Daily Volume: **541** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
4	1	4	4	4	19	44	33	47	25	40	25	28	41	40	41	38	34	26	16	12	3	8	4
2	1	1	2	1	2	13	8	11	3	9	7	3	9	10	18	7	6	8	6	1	1	2	0
0	0	0	0	1	4	7	10	9	6	15	6	7	11	13	9	13	9	8	5	6	1	0	2
2	0	3	2	1	4	17	9	24	10	9	4	8	9	7	8	12	11	6	1	3	0	3	1
0	0	0	0	1	9	7	6	3	6	7	8	10	12	10	6	6	8	4	4	2	1	3	1

Date: **Wednesday, March 13, 2019** Total Daily Volume: **253** Description: **Northbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
3	0	1	1	1	11	15	21	14	11	23	14	21	21	18	22	11	14	13	8	4	1	4	1
2	0	0	1	0	2	3	4	3	1	1	5	2	3	3	6	4	2	4	3	0	0	0	0
0	0	0	0	0	4	2	6	7	2	13	4	6	9	5	6	3	5	6	3	4	1	0	1
1	0	1	0	1	1	5	7	3	6	5	3	6	5	6	5	2	5	3	1	0	0	3	0
0	0	0	0	0	4	5	4	1	2	4	2	7	4	4	5	2	2	0	1	0	0	1	0

Date: **Wednesday, March 13, 2019** Total Daily Volume: **288** Description: **Southbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
1	1	3	3	3	8	29	12	33	14	17	11	7	20	22	19	27	20	13	8	8	2	4	3
0	1	1	1	1	0	10	4	8	2	8	2	1	6	7	12	3	4	4	3	1	1	2	0
0	0	0	0	1	0	5	4	2	4	2	2	1	2	8	3	10	4	2	2	2	0	0	1
1	0	2	2	0	3	12	2	21	4	4	1	2	4	1	3	10	6	3	0	3	0	0	1
0	0	0	0	1	5	2	2	2	4	3	6	3	8	6	1	4	6	4	3	2	1	2	1

Linscott, Law & Greenspan, Engineers

4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **Wixom Road, between Derrick Road and Drew Road**

Date: **Wednesday, March 13, 2019** Total Daily Volume: **89** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
4	2	2	3	2	8	2	3	1	4	4	2	7	6	7	11	6	3	1	3	3	1	2	2
2	1	0	2	0	1	1	1	0	0	2	0	0	0	2	3	1	1	0	2	2	0	2	0
1	0	1	1	2	1	0	1	0	3	1	0	4	0	1	1	2	0	0	1	1	0	0	0
0	1	0	0	0	0	0	0	1	1	0	0	1	3	1	7	2	1	0	0	0	1	0	1
1	0	1	0	0	6	1	1	0	0	1	2	2	3	3	0	1	1	1	0	0	0	0	1

Date: **Wednesday, March 13, 2019** Total Daily Volume: **47** Description: **Eastbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
3	2	2	1	1	3	0	1	0	3	4	1	2	4	3	6	5	1	0	3	1	1	0	0
2	1	0	1	0	1	0	0	0	0	2	0	0	0	1	1	1	0	0	2	0	0	0	0
1	0	1	0	1	0	0	1	0	2	1	0	0	0	1	1	2	0	0	1	1	0	0	0
0	1	0	0	0	0	0	0	0	1	0	0	0	2	1	4	2	1	0	0	0	1	0	0
0	0	1	0	0	2	0	0	0	0	1	1	2	2	0	0	0	0	0	0	0	0	0	0

Date: **Wednesday, March 13, 2019** Total Daily Volume: **42** Description: **Westbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
1	0	0	2	1	5	2	2	1	1	0	1	5	2	4	5	1	2	1	0	2	0	2	2
0	0	0	1	0	0	1	1	0	0	0	0	0	0	1	2	0	1	0	0	2	0	2	0
0	0	0	1	1	1	0	0	0	1	0	0	4	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	3	0	0	0	0	0	0	0	1
1	0	0	0	0	4	1	1	0	0	0	1	0	1	3	0	1	1	1	0	0	0	0	1

APPENDIX B

HCM INTERSECTION METHODOLOGY

HIGHWAY CAPACITY 6th EDITION MANUAL
LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

In the Highway Capacity Manual 6th Edition (HCM 6), Level of Service for unsignalized intersections is determined by the computed or measured control delay and is defined for each minor movement. Level of Service is not defined for the intersection as a whole. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. The criteria are given in the following the table, and are based on the average control delay for any particular minor movement.

LEVEL OF SERVICE	AVERAGE CONTROL DELAY SEC/VEH			EXPECTED DELAY TO MINOR STREET TRAFFIC
A	0.0	≤	10.0	Little or no delay
B	10.1	to	15.0	Short traffic delays
C	15.1	to	25.0	Average traffic delays
D	25.1	to	35.0	Long traffic delays
E	35.1	to	50.0	Very long traffic delays
F		>	50.0	Severe congestion

Level of Service F exists when there are insufficient gaps of suitable size to allow a side street demand to safely cross through a major street traffic stream. This Level of Service is generally evident from extremely long control delays experienced by side-street traffic and by queuing on the minor-street approaches. The method, however, is based on a constant critical gap size; that is, the critical gap remains constant no matter how long the side-street motorist waits. LOS F may also appear in the form on side-street vehicles selecting smaller-than-usual gaps. In such cases, safety may be a problem, and some disruption to the major traffic stream may result. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal gap acceptance behavior, which are more difficult to observe in the field than queuing.

In most cases at Two-Way Stop Controlled (TWSC) intersections, the critical movement is the minor-street left-turn movement. As such, the minor-street left-turn movement can generally be considered the primary factor affecting overall intersection performance. The lower threshold for LOS F is set at 50 seconds of delay per vehicle. There are many instances, particularly in urban areas, in which the delay equations will predict delays of 50 seconds (LOS F) or more for minor-street movements under very low volume conditions on the minor street (less than 25 vehicle/hour). Since the first term of the equation is a function only of the capacity, the LOS F threshold of 50 sec/vehicle is reached with a movement capacity of approximately 85 vehicle/hour or less.

This procedure assumes random arrivals on the major street. For a typical four-lane arterial with average daily traffic volumes in the range of 15,000 to 20,000 vehicles per day (peak hour, 1,500 to 2,000 vehicle/hour), the delay equation used in the TWSC capacity analysis procedure will predict 50 seconds of delay or more (LOS F) for many urban TWSC intersections that allow minor-street left-turn movements. **The LOS F threshold will be reached regardless of the volume of minor-street left-turn traffic.** Not-withstanding this fact, most low-volume minor-street approaches would not meet any of the volume or delay warrants for signalization of the *Manual on Uniform Traffic Control Devices* (MUTCD) since the warrants define an asymptote at 100 vehicle/hour on the minor approach. As a result, many public agencies that use the HCM 6 Level of Service thresholds to determine the design adequacy of TWSC intersections may be forced to eliminate the minor-street left-turn movement, even when the movement may not present any operational problem, such as the formation of long queues on the minor street or driveway approach.

APPENDIX C

IMPERIAL COUNTY STANDARD STREET CLASSIFICATION TABLE

IMPERIAL COUNTY STANDARD STREET CLASSIFICATION
AVERAGE DAILY VEHICLE TRIPS

ROAD		LEVEL OF SERVICE				
CLASS	**X-SECTION**	**A**	**B**	**C**	**D**	**E**
Expressway	128/210	30,000	42,000	60,000	70,000	80,000
Prime Arterial	106/136	22,200	37,000	44,600	50,000	57,000
Minor Arterial	82/102	14,800	24,700	29,600	33,400	37,000
Collector	64/84	13,700	22,800	27,400	30,800	34,200
Local Collector	40/70	1,900	4,100	7,100	10,900	16,200
Residential Street	40/60	*	*	<1,500	*	*
Residential Cul-de-Sac / Loop Street	40/60	*	*	< 200	*	*
Industrial Collector	76/96	5,000	10,000	14,000	17,000	20,000
Industrial Local Street	44/64	2,500	5,000	7,000	8,500	10,000

* Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

APPENDIX D

EXISTING INTERSECTION ANALYSIS WORKSHEETS

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	13	0	118	0	36	0	0	102	9
Future Vol, veh/h	0	0	0	13	0	118	0	36	0	0	102	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	40	-	-	-	-	-	-
Veh in Median Storage, #	-	2	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	68	68	68	68	68	68	68	68	68	68	68	68
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	19	0	174	0	53	0	0	150	13

Major/Minor	Minor1			Major1			Major2			
Conflicting Flow All	210	216	53	163	0	-	-	-	0
Stage 1	53	53	-	-	-	-	-	-	-
Stage 2	157	163	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	778	682	1014	1416	-	0	0	-	-
Stage 1	970	851	-	-	-	0	0	-	-
Stage 2	871	763	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	778	0	1014	1416	-	-	-	-	-
Mov Cap-2 Maneuver	778	0	-	-	-	-	-	-	-
Stage 1	970	0	-	-	-	-	-	-	-
Stage 2	871	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1416	-	778	1014	-	-
HCM Lane V/C Ratio	-	-	0.025	0.171	-	-
HCM Control Delay (s)	0	-	9.7	9.3	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	0.6	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	0	1	0	0	0	0	27	34	65	50	0
Future Vol, veh/h	9	0	1	0	0	0	0	27	34	65	50	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	40	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	0	1	0	0	0	0	36	45	87	67	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	300	322	67	-	0	0	81	0	0
Stage 1	241	241	-	-	-	-	-	-	-
Stage 2	59	81	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	691	595	997	0	-	-	1517	-	0
Stage 1	799	706	-	0	-	-	-	-	0
Stage 2	964	828	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	650	0	997	-	-	-	1517	-	-
Mov Cap-2 Maneuver	650	0	-	-	-	-	-	-	-
Stage 1	799	0	-	-	-	-	-	-	-
Stage 2	906	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	0	4.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	650	997	1517	-
HCM Lane V/C Ratio	-	-	0.018	0.001	0.057	-
HCM Control Delay (s)	-	-	10.6	8.6	7.5	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	0.2	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	1	12	22	0
Future Vol, veh/h	0	0	1	12	22	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	51	51	51	51	51	51
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	2	24	43	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	71	43	43	0	-	0
Stage 1	43	-	-	-	-	-
Stage 2	28	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	933	1027	1566	-	-	-
Stage 1	979	-	-	-	-	-
Stage 2	995	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	932	1027	1566	-	-	-
Mov Cap-2 Maneuver	932	-	-	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	995	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1566	-	-	-	-
HCM Lane V/C Ratio	0.001	-	-	-	-
HCM Control Delay (s)	7.3	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	36	0	68	1	28	0	0	119	12
Future Vol, veh/h	0	0	0	36	0	68	1	28	0	0	119	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	40	-	-	-	-	-	-
Veh in Median Storage, #	-	2	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	40	0	75	1	31	0	0	131	13

Major/Minor	Minor1			Major1			Major2			
Conflicting Flow All	171	177	31	144	0	-	-	-	0	
Stage 1	33	33	-	-	-	-	-	-	-	
Stage 2	138	144	-	-	-	-	-	-	-	
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-	
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-	
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-	
Pot Cap-1 Maneuver	819	717	1043	1438	-	0	0	-	-	
Stage 1	989	868	-	-	-	0	0	-	-	
Stage 2	889	778	-	-	-	0	0	-	-	
Platoon blocked, %					-			-	-	
Mov Cap-1 Maneuver	818	0	1043	1438	-	-	-	-	-	
Mov Cap-2 Maneuver	818	0	-	-	-	-	-	-	-	
Stage 1	988	0	-	-	-	-	-	-	-	
Stage 2	889	0	-	-	-	-	-	-	-	

Approach	WB	NB	SB
HCM Control Delay, s	9	0.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1438	-	818	1043	-	-
HCM Lane V/C Ratio	0.001	-	0.048	0.072	-	-
HCM Control Delay (s)	7.5	0	9.6	8.7	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	0.2	-	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	1	2	0	0	0	0	20	29	92	63	0
Future Vol, veh/h	9	1	2	0	0	0	0	20	29	92	63	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	40	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	1	2	0	0	0	0	23	33	106	72	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	324	340	72	-	0	0	56	0	0
Stage 1	284	284	-	-	-	-	-	-	-
Stage 2	40	56	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	670	582	990	0	-	-	1549	-	0
Stage 1	764	676	-	0	-	-	-	-	0
Stage 2	982	848	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	622	0	990	-	-	-	1549	-	-
Mov Cap-2 Maneuver	622	0	-	-	-	-	-	-	-
Stage 1	764	0	-	-	-	-	-	-	-
Stage 2	912	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	0	4.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	622	990	1549	-
HCM Lane V/C Ratio	-	-	0.018	0.002	0.068	-
HCM Control Delay (s)	-	-	10.9	8.6	7.5	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	0.2	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	4	0	9	21	1
Future Vol, veh/h	1	4	0	9	21	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	69	69	69	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	6	0	13	30	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	44	31	31	0	-	0
Stage 1	31	-	-	-	-	-
Stage 2	13	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	967	1043	1582	-	-	-
Stage 1	992	-	-	-	-	-
Stage 2	1010	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	967	1043	1582	-	-	-
Mov Cap-2 Maneuver	967	-	-	-	-	-
Stage 1	992	-	-	-	-	-
Stage 2	1010	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1582	-	1027	-	-
HCM Lane V/C Ratio	-	-	0.007	-	-
HCM Control Delay (s)	0	-	8.5	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

APPENDIX E

NEAR-TERM WITHOUT PROJECT INTERSECTION ANALYSIS WORKSHEETS

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	14	0	123	0	37	0	0	106	9
Future Vol, veh/h	0	0	0	14	0	123	0	37	0	0	106	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	40	-	-	-	-	-	-
Veh in Median Storage, #	-	2	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	68	68	68	68	68	68	68	68	68	68	68	68
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	21	0	181	0	54	0	0	156	13

Major/Minor	Minor1			Major1			Major2			
Conflicting Flow All	217	223	54	169	0	-	-	-	0
Stage 1	54	54	-	-	-	-	-	-	-
Stage 2	163	169	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	771	676	1013	1409	-	0	0	-	-
Stage 1	969	850	-	-	-	0	0	-	-
Stage 2	866	759	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	771	0	1013	1409	-	-	-	-	-
Mov Cap-2 Maneuver	771	0	-	-	-	-	-	-	-
Stage 1	969	0	-	-	-	-	-	-	-
Stage 2	866	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1409	-	771	1013	-	-
HCM Lane V/C Ratio	-	-	0.027	0.179	-	-
HCM Control Delay (s)	0	-	9.8	9.3	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	0.6	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	0	1	0	0	0	0	28	35	68	52	0
Future Vol, veh/h	9	0	1	0	0	0	0	28	35	68	52	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	40	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	0	1	0	0	0	0	37	47	91	69	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	312	335	69	-	0	0	84	0	0
Stage 1	251	251	-	-	-	-	-	-	-
Stage 2	61	84	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	681	585	994	0	-	-	1513	-	0
Stage 1	791	699	-	0	-	-	-	-	0
Stage 2	962	825	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	638	0	994	-	-	-	1513	-	-
Mov Cap-2 Maneuver	638	0	-	-	-	-	-	-	-
Stage 1	791	0	-	-	-	-	-	-	-
Stage 2	901	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.6	0	4.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	638	994	1513	-
HCM Lane V/C Ratio	-	-	0.019	0.001	0.06	-
HCM Control Delay (s)	-	-	10.8	8.6	7.5	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	0.2	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	1	12	23	0
Future Vol, veh/h	0	0	1	12	23	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	51	51	51	51	51	51
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	2	24	45	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	73	45	45	0	-	0
Stage 1	45	-	-	-	-	-
Stage 2	28	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	931	1025	1563	-	-	-
Stage 1	977	-	-	-	-	-
Stage 2	995	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	930	1025	1563	-	-	-
Mov Cap-2 Maneuver	930	-	-	-	-	-
Stage 1	976	-	-	-	-	-
Stage 2	995	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1563	-	-	-	-
HCM Lane V/C Ratio	0.001	-	-	-	-
HCM Control Delay (s)	7.3	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	37	0	71	1	29	0	0	124	12
Future Vol, veh/h	0	0	0	37	0	71	1	29	0	0	124	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	40	-	-	-	-	-	-
Veh in Median Storage, #	-	2	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	41	0	78	1	32	0	0	136	13

Major/Minor	Minor1			Major1			Major2			
Conflicting Flow All	177	183	32	149	0	-	-	-	0
Stage 1	34	34	-	-	-	-	-	-	-
Stage 2	143	149	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	813	711	1042	1432	-	0	0	-	-
Stage 1	988	867	-	-	-	0	0	-	-
Stage 2	884	774	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	812	0	1042	1432	-	-	-	-	-
Mov Cap-2 Maneuver	812	0	-	-	-	-	-	-	-
Stage 1	987	0	-	-	-	-	-	-	-
Stage 2	884	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1432	-	812	1042	-	-
HCM Lane V/C Ratio	0.001	-	0.05	0.075	-	-
HCM Control Delay (s)	7.5	0	9.7	8.7	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	0.2	-	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	1	2	0	0	0	0	21	30	96	66	0
Future Vol, veh/h	9	1	2	0	0	0	0	21	30	96	66	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	40	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	1	2	0	0	0	0	24	34	110	76	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	337	354	76	-	0	0	58	0	0
Stage 1	296	296	-	-	-	-	-	-	-
Stage 2	41	58	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	658	571	985	0	-	-	1546	-	0
Stage 1	755	668	-	0	-	-	-	-	0
Stage 2	981	847	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	609	0	985	-	-	-	1546	-	-
Mov Cap-2 Maneuver	609	0	-	-	-	-	-	-	-
Stage 1	755	0	-	-	-	-	-	-	-
Stage 2	908	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.6	0	4.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	609	985	1546	-
HCM Lane V/C Ratio	-	-	0.019	0.002	0.071	-
HCM Control Delay (s)	-	-	11	8.7	7.5	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	0.2	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	4	0	9	22	1
Future Vol, veh/h	1	4	0	9	22	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	69	69	69	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	6	0	13	32	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	46	33	33	0	-	0
Stage 1	33	-	-	-	-	-
Stage 2	13	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	964	1041	1579	-	-	-
Stage 1	989	-	-	-	-	-
Stage 2	1010	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	964	1041	1579	-	-	-
Mov Cap-2 Maneuver	964	-	-	-	-	-
Stage 1	989	-	-	-	-	-
Stage 2	1010	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1579	-	1025	-	-
HCM Lane V/C Ratio	-	-	0.007	-	-
HCM Control Delay (s)	0	-	8.5	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

APPENDIX F

NEAR-TERM WITH PROJECT INTERSECTION ANALYSIS WORKSHEETS

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	154	0	123	6	37	0	0	106	9
Future Vol, veh/h	0	0	0	154	0	123	6	37	0	0	106	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	40	-	-	-	-	-	-
Veh in Median Storage, #	-	2	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	68	68	68	68	68	68	68	68	68	68	68	68
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	226	0	181	9	54	0	0	156	13

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	235	241	54	169	0	-	-	-	0
Stage 1	72	72	-	-	-	-	-	-	-
Stage 2	163	169	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	753	660	1013	1409	-	0	0	-	-
Stage 1	951	835	-	-	-	0	0	-	-
Stage 2	866	759	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	748	0	1013	1409	-	-	-	-	-
Mov Cap-2 Maneuver	748	0	-	-	-	-	-	-	-
Stage 1	944	0	-	-	-	-	-	-	-
Stage 2	866	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	1.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1409	-	748	1013	-	-
HCM Lane V/C Ratio	0.006	-	0.303	0.179	-	-
HCM Control Delay (s)	7.6	0	11.9	9.3	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	1.3	0.6	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	0	61	0	0	0	0	34	49	68	192	0
Future Vol, veh/h	9	0	61	0	0	0	0	34	49	68	192	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	40	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	0	81	0	0	0	0	45	65	91	256	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	516	548	256	-	0	0	110	0	0
Stage 1	438	438	-	-	-	-	-	-	-
Stage 2	78	110	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	519	444	783	0	-	-	1480	-	0
Stage 1	651	579	-	0	-	-	-	-	0
Stage 2	945	804	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	482	0	783	-	-	-	1480	-	-
Mov Cap-2 Maneuver	482	0	-	-	-	-	-	-	-
Stage 1	651	0	-	-	-	-	-	-	-
Stage 2	877	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	0	2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	482	783	1480	-
HCM Lane V/C Ratio	-	-	0.025	0.104	0.061	-
HCM Control Delay (s)	-	-	12.7	10.1	7.6	0
HCM Lane LOS	-	-	B	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.3	0.2	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	0	1	12	23	200
Future Vol, veh/h	20	0	1	12	23	200
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	51	51	51	51	51	51
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	0	2	24	45	392

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	269	241	437	0	-	0
Stage 1	241	-	-	-	-	-
Stage 2	28	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	720	798	1123	-	-	-
Stage 1	799	-	-	-	-	-
Stage 2	995	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	719	798	1123	-	-	-
Mov Cap-2 Maneuver	719	-	-	-	-	-
Stage 1	797	-	-	-	-	-
Stage 2	995	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.3	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1123	-	719	-	-
HCM Lane V/C Ratio	0.002	-	0.055	-	-
HCM Control Delay (s)	8.2	0	10.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	51	0	71	61	29	0	0	124	12
Future Vol, veh/h	0	0	0	51	0	71	61	29	0	0	124	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	40	-	-	-	-	-	-
Veh in Median Storage, #	-	2	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	56	0	78	67	32	0	0	136	13

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	309	315	32	149	0	-	-	-	0
Stage 1	166	166	-	-	-	-	-	-	-
Stage 2	143	149	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	683	601	1042	1432	-	0	0	-	-
Stage 1	863	761	-	-	-	0	0	-	-
Stage 2	884	774	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	650	0	1042	1432	-	-	-	-	-
Mov Cap-2 Maneuver	650	0	-	-	-	-	-	-	-
Stage 1	822	0	-	-	-	-	-	-	-
Stage 2	884	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	5.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1432	-	650	1042	-	-
HCM Lane V/C Ratio	0.047	-	0.086	0.075	-	-
HCM Control Delay (s)	7.6	0	11.1	8.7	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	0.2	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	1	8	0	0	0	0	81	170	96	80	0
Future Vol, veh/h	9	1	8	0	0	0	0	81	170	96	80	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	40	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	1	9	0	0	0	0	93	195	110	92	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	503	600	92	-	0	0	288	0	0
Stage 1	312	312	-	-	-	-	-	-	-
Stage 2	191	288	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	528	415	965	0	-	-	1274	-	0
Stage 1	742	658	-	0	-	-	-	-	0
Stage 2	841	674	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	480	0	965	-	-	-	1274	-	-
Mov Cap-2 Maneuver	480	0	-	-	-	-	-	-	-
Stage 1	742	0	-	-	-	-	-	-	-
Stage 2	764	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11	0	4.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	480	965	1274	-
HCM Lane V/C Ratio	-	-	0.024	0.01	0.087	-
HCM Control Delay (s)	-	-	12.7	8.8	8.1	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	0.3	-

Intersection	
Int Delay, s/veh	8.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	201	4	0	9	22	21
Future Vol, veh/h	201	4	0	9	22	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	69	69	69	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	291	6	0	13	32	30

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	60	47	62	0	-	0
Stage 1	47	-	-	-	-	-
Stage 2	13	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	947	1022	1541	-	-	-
Stage 1	975	-	-	-	-	-
Stage 2	1010	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	947	1022	1541	-	-	-
Mov Cap-2 Maneuver	947	-	-	-	-	-
Stage 1	975	-	-	-	-	-
Stage 2	1010	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1541	-	948	-	-
HCM Lane V/C Ratio	-	-	0.313	-	-
HCM Control Delay (s)	0	-	10.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	1.3	-	-

APPENDIX M – NOISE

Noise Analysis for the Westside Canal Battery Storage Project

RECON

Noise Analysis for the Westside Canal Battery Storage Project Imperial County, California

Prepared for
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Prepared by
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RECON Number 8888
January 18, 2021

Jessica Fleming
Senior Environmental Specialist

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Acronyms and Abbreviations

APN	Assessor Parcel Numbers
Caltrans	California Department of Transportation
CNEL	community noise equivalent level
County	County of Imperial
dB	decibel
dB(A)	A-weighted decibel
FHWA	Federal Highway Administration
HVAC	heating, ventilation, and air conditioning
I-8	Interstate 8
IID	Imperial Irrigation District
IV Substation	Imperial Valley Substation
kV	kilovolt
L_{eq}	equivalent noise level
$L_{eq(8h)}$	8-hour equivalent noise level
L_{pw}	sound power
MW	megawatt
O&M	Operations & Maintenance
Project	Westside Canal Battery Storage Project
Project Proponent	Westside Canal Battery Storage, LLC
PV	photovoltaic
SoundPLAN	SoundPlan Essential
SR-98	State Route 98

Executive Summary

This report provides the results of the noise analysis performed for the proposed Westside Canal Battery Storage Project (Project) in Imperial County, California. The Project site consists of approximately 148 acres of agriculturally-zoned land located in the unincorporated Mount Signal area of the County, approximately 8.0 miles southwest of the city of El Centro (Assessor Parcel Numbers [APNs] 051-350-010 and 051-350-011). The Project site is located approximately one-third mile north of the Imperial Valley Substation (IV Substation) and directly south of the intersection of Liebert Road and the Imperial Irrigation District's (IID) Westside Main Canal. The Project site is bounded by the Westside Main Canal to the north, Bureau of Land Management (BLM) lands to the south and west, and vacant private land to the east. The Campo Verde solar generation facility is located north of the Project site, across the Westside Main Canal.

The two Project parcels are proposed for development as a utility-scale energy storage complex. The Project would also utilize portions of two parcels located north of the Westside Main Canal (APN 051-350-019 owned by IID and APN 051-350-018 owned by a private landowner) for site access and as a temporary construction staging area. The Project would also access a small portion of APN 051-350-009 within an IID easement for connection to the existing IID Campo Verde – Imperial Valley 230 kilovolt radial gen-tie line during the construction of a switching station on the Project site.

Construction Noise

Noise associated with the site preparation and facility installation would potentially result in short-term impacts to surrounding properties. Construction would include the use of a variety of noise-generating equipment such as scrapers, excavators, loaders, and water trucks, along with others. Construction of the access road and the bridge over the Westside Main Canal and would last for eight to nine months. The Project would then grade the entire site and construct the utility-scale energy storage complex, which would last for up to 32 months.

The County of Imperial (County) General Plan Noise Element establishes construction time of day restrictions and noise level limits. Construction activities may only occur Monday through Friday between the hours of 7:00 a.m. and 7:00 p.m. or Saturday between the hours of 9:00 a.m. and 5:00 p.m., excluding holidays. Additionally, construction noise may not exceed 75 A-weighted decibel [dB(A)] 8-hour equivalent noise level [$L_{eq(8h)}$] at the nearest sensitive receptor. Noise levels were modeled at six specific receivers located at the nearest residential properties. As calculated in this analysis, maximum construction noise levels would be well less than 75 dB(A) $L_{eq(8h)}$. Additionally, noise levels associated with temporary construction traffic (workers and deliveries) would be well below75 dB(A) $L_{eq(8h)}$. Impacts would be less than significant.

Operational Noise

Stationary sources of noise associated with the operation of the Project would include air cooling units, inverters, transformers, a substation, and transmission gen-tie lines. The Operations & Maintenance (O&M) building would also include a heating, ventilation, and air conditioning (HVAC) unit(s). The County Code of Ordinances establishes property line noise standards for residential, commercial, light industrial, and general industrial zoning districts. The Project site and all surrounding properties are in agricultural zoning districts. The Project proposes a General Plan Amendment and Rezone to change land use designation and zoning for the Project site Agriculture (A3) to Industrial. The applicable noise level limit for the adjacent agricultural uses is 70 dB(A) L_{eq} at the receiving property line. As calculated in this analysis, noise associated with Project operation would not exceed the applicable property line noise level limit of 70 dB(A) L_{eq} at the adjacent properties. Additionally, noise levels would be less than the most restrictive noise limit of 45 dB(A) L_{eq} for low-density residential uses at the nearest residential receivers. Impacts due to on-site generated noise would be less than significant.

Traffic Noise

During operations, Project-generated traffic would increase volumes on local roadways and thereby increase traffic noise levels in the Project area. Project trip generation would be extremely limited–up to 40 trips per day. Operational ambient noise level increases attributable to Project-generated traffic are anticipated to be less than 3 dB(A) and thus would be less than barely perceptible. Impacts would be less than significant.

1.0 Introduction

1.1 Purpose of the Report

This report evaluates the significance of potential noise impacts associated with the Westside Canal Battery Storage Project (Project) in comparison to noise limits established by Imperial County.

1.2 Project Description

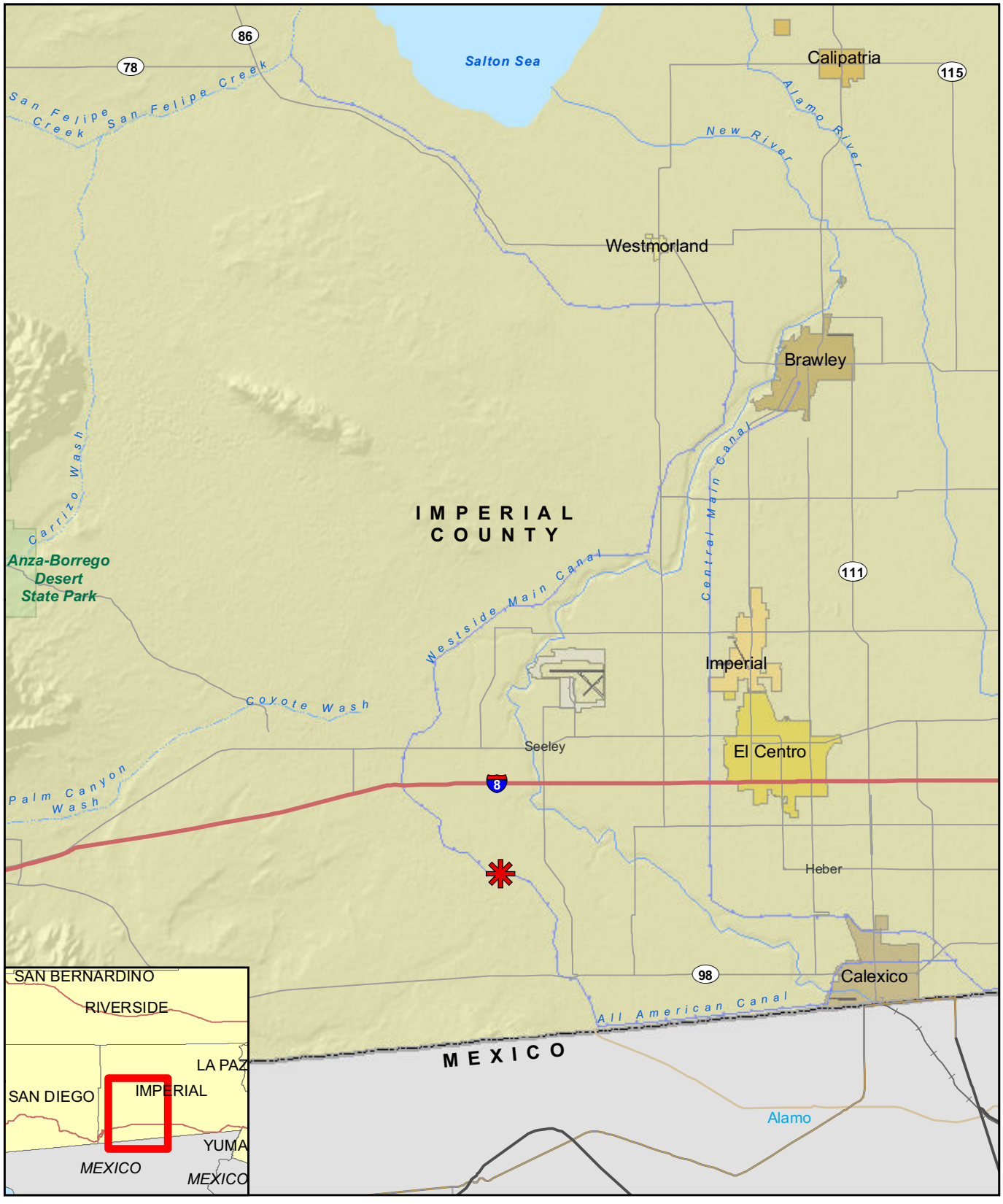
Westside Canal Battery Storage, LLC (Project Proponent), a subsidiary of Con Edison Clean Energy Businesses, is proposing to develop, design, construct, own, operate, and maintain the Westside Canal Battery Storage Project (Project), a utility-scale energy storage complex with a capacity of up to 2,000 megawatts (MW). The Project would store energy generation from the electrical grid, and optimally discharge that energy back into the grid as firm, reliable generation and/or grid services.

The Project would be comprised of lithium-ion battery and/or flow battery energy storage facilities, a behind-the-meter solar energy facility, a new on-site 230 kilovolt (kV) loop-in switching station, a 34.5 kV to 230 kV substation, underground electrical cables, and permanent vehicular access to and from the site over a proposed bridge spanning Imperial Irrigation District's (IID's) Westside Main Canal. The proposed loop-in switching station would connect the Project to the existing IID Campo Verde – Imperial Valley 230 kV radial gen-tie line, which connects to the Imperial Valley Substation (IV Substation) and the California Independent System Operator (CAISO), approximately one-third mile south of the Project site. The Project Proponent has submitted the necessary Interconnection Request Applications to the CAISO and IID.

The Project would complement both the existing operational renewable energy facilities, as well as those planned for future development in Imperial County (County), and would support the broader southern California bulk electric transmission system by serving as a firm, dispatchable resource.

The Project is pursuing the following objectives:

- To receive grid energy during beneficial market and operational periods and store that energy for dispatch when the customer (i.e., a load-serving entity) deems it to be more valuable.
- To be a valuable resource in allowing the customer and system operators to manage the effect of intermittent renewable generation on the grid and create reliable, dispatchable generation upon demand.
- To utilize available land that has not been used for agricultural production for more than 15 years, and enhance the site location by providing for permanent vehicular access.



Project Location

FIGURE 1
Regional Location

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1.2.1 Project Location

The Project would be located in the unincorporated Mount Signal area of the County, approximately 8.0 miles southwest of the city of El Centro and approximately 5.3 miles north of the U.S.-Mexico border. Figure 1 shows the regional location of the Project. The Project site is comprised of two parcels owned by the Project Proponent, Assessor Parcel Number (APN) 051-350-010 and APN 051-350-011, totaling approximately 148 acres. These parcels have limited access corridors for vehicular traffic and are considered less desirable for agricultural production, as reflected by the last 15 years during which no farming activity has occurred. The Project site is approximately one-third mile north of the IV Substation and directly south of the intersection of Liebert Road and the IID's Westside Main Canal. The Project site is bounded by the Westside Main Canal to the north, Bureau of Land Management (BLM) lands to the south and west, and vacant private land to the east. The Campo Verde solar generation facility is located north of the Project site, across the Westside Main Canal. Figure 2 shows an aerial photograph of the Project site and the above-mentioned nearby facilities.

The two Project parcels are proposed for development as a utility-scale energy storage complex. The Project would also utilize portions of two parcels located north of the Westside Main Canal (APN 051-350-019 owned by IID and APN 051-350-018 owned by a private landowner) for site access and as a temporary construction staging area. The Project would also access a small portion of APN 051-350-009 within an IID easement for connection to the existing IID Campo Verde – Imperial Valley 230 kV radial gen-tie line during the construction of a substation on the Project site. The total proposed Project development footprint, encompassing both temporary and permanent impacts, would be approximately 163 acres.

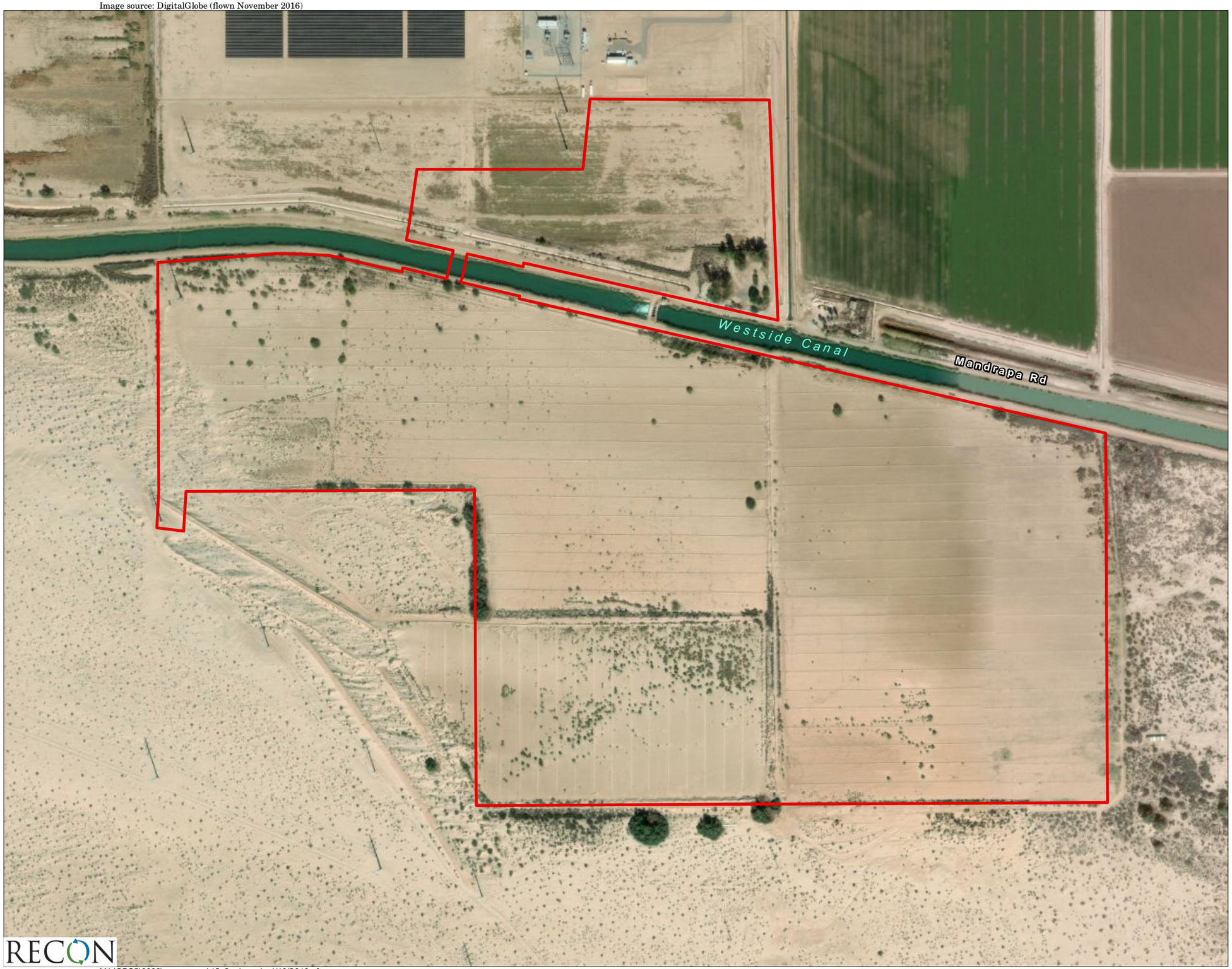
1.2.2 Project Components

Figure 3a shows the conceptual site plan for the Project with a representation of the various energy storage technologies, behind-the-meter ground- and roof-mounted solar, common facilities within the Project site, and permanent vehicular access to the Project site. The actual configuration of the Project would depend on the size of individual phases and the type of battery technology deployed. Specific Project components are described below.

1.2.2.1 Phasing and Schedule

The Project would be constructed in three to five phases over a 10-year period, with each phase ranging from approximately 25 MW up to 400 MW per phase. Depending on the size of the battery system for a given phase, construction and commissioning (approval to operate) is anticipated to take approximately 6 to 12 months. For the purposes of this analysis, the applicant has assumed that construction activities would last for approximately 32 months to complete the full Project build-out.

Image source: DigitalGlobe (flown November 2016)



Project Boundary

0 Feet 400

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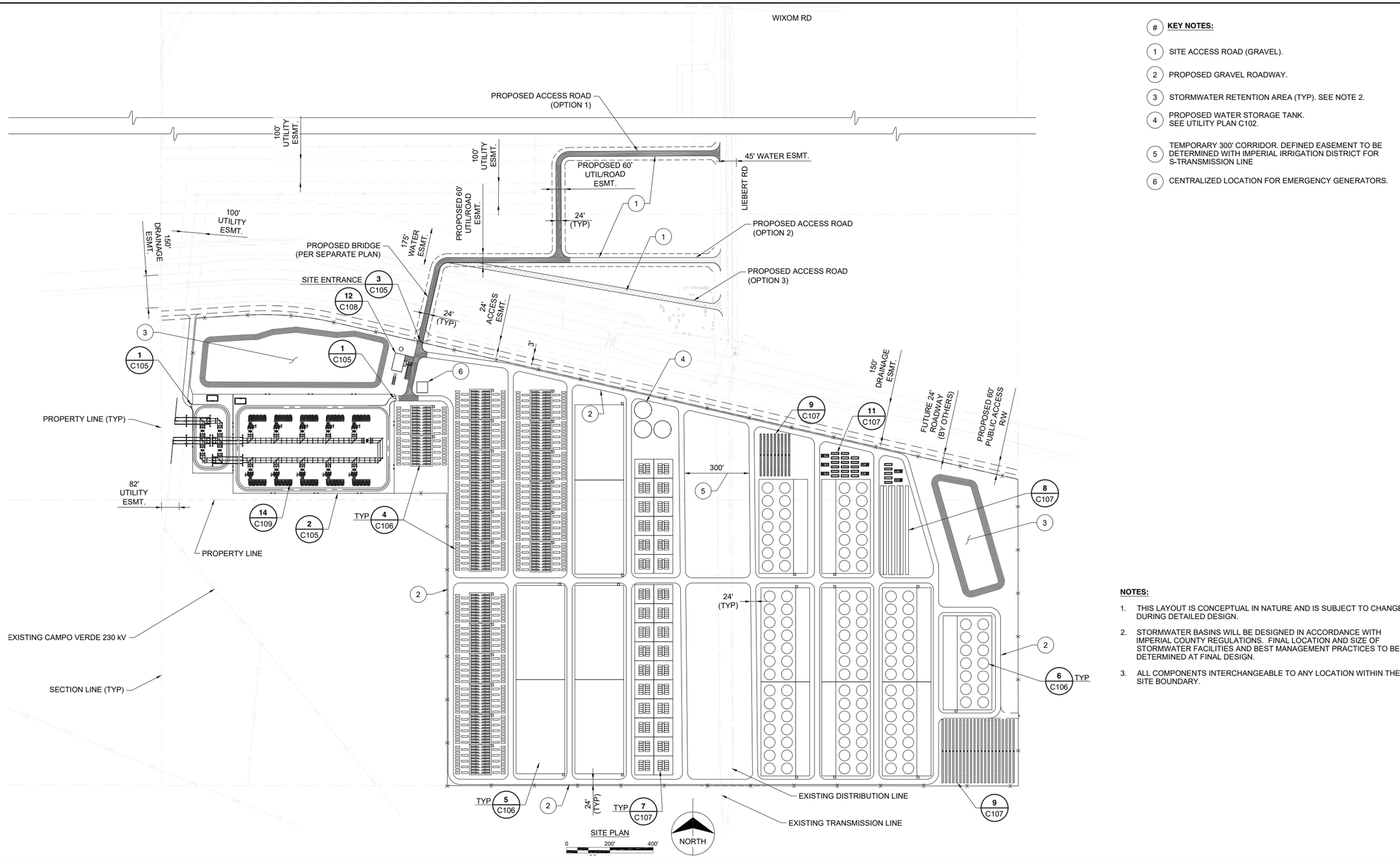
FIGURE 2
Project Location on
Aerial Photograph

Map Source: Burns McDonnell



KEY NOTES:

1. SITE ACCESS ROAD (GRAVEL).
2. PROPOSED GRAVEL ROADWAY.
3. STORMWATER RETENTION AREA (TYP). SEE NOTE 2.
4. PROPOSED WATER STORAGE TANK. SEE UTILITY PLAN C102.
5. TEMPORARY 300' CORRIDOR. DEFINED EASEMENT TO BE DETERMINED WITH IMPERIAL IRRIGATION DISTRICT FOR S-TRANSMISSION LINE
6. CENTRALIZED LOCATION FOR EMERGENCY GENERATORS.

NOTES:

1. THIS LAYOUT IS CONCEPTUAL IN NATURE AND IS SUBJECT TO CHANGE DURING DETAILED DESIGN.
2. STORMWATER BASINS WILL BE DESIGNED IN ACCORDANCE WITH IMPERIAL COUNTY REGULATIONS. FINAL LOCATION AND SIZE OF STORMWATER FACILITIES AND BEST MANAGEMENT PRACTICES TO BE DETERMINED AT FINAL DESIGN.
3. ALL COMPONENTS INTERCHANGEABLE TO ANY LOCATION WITHIN THE SITE BOUNDARY.

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FIGURE 3a
Site Plan

Construction of the 100- to 200-MW first phase would include roads, a permanent clear-span bridge across the Westside Main Canal, the Operations and Maintenance (O&M) facilities, water connections and water-mains, storm water retention, switching station and Project substation, legal permanent vehicle access, as well as the first energy storage facility. To access the Project site, construction workers would travel along Interstate 8 (I-8) and head 4.6 miles south to the Project site, and would utilize the IID Fern Check Bridge as a temporary pedestrian bridge until the permanent bridge is constructed. During peak construction activities, approximately 200 workers and approximately 30 daily deliveries would be required. If approved, it is anticipated that construction of the first phase would begin in 2021.

It is anticipated that each subsequent phase would be constructed within one to two years of each other, with the timing and size of each phase dependent on market conditions and the applicant's ability to secure commercial contracts with prospective customers. With the Project being built in phases, the necessary infrastructure, such as water mains, retention ponds, and access roads, would be built out to serve the Project phases from west to east and expanded over time to serve each phase. These subsequent phases would require improvements such as additional substation equipment, water main and site road extension, but would not require construction of additional common facilities which would be completed during the first phase. The total nameplate (or rated capacity) capacity of the Project at full build-out (all phases completed) would be approximately 2,000 MW.

- Construction activities during all project phases would only occur Monday through Friday, between the hours of 7:00 a.m. and 7:00 p.m. or Saturday between the hours of 9:00 a.m. and 5:00 p.m., excluding holidays, per County Ordinance.

1.2.2.2 Common Components

As shown on the site plan (see Figure 3a), the northwest area of the Project serves as the location for the common facilities, which include the switching station and Project substation and the O&M facilities. A summary of the common facilities is presented below:

- 230 kV loop-in switching station
  - Connection to Campo Verde – Imperial Valley 230 kV radial transmission line
  - Located on applicant property
- Project substation
- O&M facilities
- Project parking
- Storm water retention basins
- Fencing and gates
- Interior access roads

Industrial buildings, warehouses, engineered containers, and/or electrolyte storage tanks would be the primary structures needed to house the main Project components. Other components to be located on the Project site and adjacent to the proposed buildings, warehouses, containers, and tanks include the following:

- Inverters, transformers, power distribution panels
- Underground water-main loop for Project operation and fire prevention
- Underground cable to connect to Project substation
- Project site access roads (unpaved/crushed rock)
- Fire water storage tanks
- Above ground water storage tanks
- Heating, Ventilation, and Air Conditioning (HVAC) units
- Ground-mounted or roof-mounted photovoltaic (PV) arrays
- Emergency backup generator(s)

a. O&M Facilities

The O&M facilities are expected to be the only manned facility on the site. It would include up to approximately 20 full-time employees depending upon the number of phases and type of energy storage facility constructed. O&M employees would work typical weekday hours but may work extended hours, including weekends and 24 hours a day, depending upon the operations and maintenance needs. No offices or staffed control centers would be located within the storage-specific warehouses/buildings. For sanitary waste, the Project would include a septic leach field to be located near the O&M facilities. The proposed O&M facilities would also require an HVAC unit.

b. Permanent Vehicle Access

There are no circulation element roadways in the immediate vicinity of the Project site. The nearest freeways are I-8, located 4.6 miles north of the Project site, and State Route 98 (SR-98), located 5.2 miles south of the Project site. Drew Road, a two-lane collector, is located 1.3 miles east of the Project site. All other roadways in the immediate vicinity of the Project site are rural roadways. All roadways that would be used to access the Project site from I-8 are currently paved, except for the portion of Liebert Road south of Wixom Road. However, this segment would be paved or graveled prior to Project operation.

The Project is surrounded by private landowners to the east, BLM land to the south and west, and IID maintenance roads and Westside Main Canal to the north. Due to the Project site having no direct vehicular access routes, the applicant is proposing to construct roads on both the north and south sides of the Westside Main Canal on private land, and a new clear-span Imperial County-specified bridge over the Westside Main Canal.

The permanent new clear-span County-specified bridge would span the Westside Main Canal to connect to a proposed access road easement on the north side of the Westside Main Canal. The north side proposed access road would ultimately connect the Project to county road (CR) Liebert Road.

Construction of the permanent clear-span bridge spanning the IID's Westside Main Canal requires the Project Proponent to have access to both the north side and the south of the Canal to perform the necessary construction activities. In addition to being necessary to facilitate construction of the new permanent clear-span bridge, access from the south side of the Canal would allow the Project Proponent to commence construction on the first phase of the Project simultaneously, thereby shortening the duration of construction and potentially minimizing the associated impacts. The Project Proponent is evaluating various options for temporary construction access, including accessing the Project site from the south side of the Westside Main Canal off SR-98, as well as options involving access from the north side of the Westside Main Canal from I-8.

Option 1 would use the existing SDG&E maintenance road off Highway 98, which extends approximately 4.4 miles to the IV Substation. Option 1 would then continue along an existing 1.2-mile-long dirt access road that leads north, then east, outside the western and northern boundaries of the substation. Option 1 then continues northwest along an existing dirt access road that parallels two power lines until the access road connects with the western edge of the Project. The existing dirt road was constructed for the construction and maintenance of the existing Campo Verde – Imperial Valley gen-tie line. Option 2 would use the existing IID Westside Main Canal access road. The selected temporary access option would be used until construction of the permanent bridge is completed. Both temporary construction access routes are presented in Figure 3b.

1.2.2.3 Battery Storage Components

The first phase of site construction would consist of either a lithium-ion battery storage facility or a flow battery storage facility. This first phase would be dependent on the first commercial contract awarded to the applicant by a customer. Large industrial buildings, warehouses, and/or containers to house the storage equipment, including battery cells, modules, racks, and controls for lithium-ion technologies, would be needed. For flow battery technologies, cell stack modules, pumps, and controls may be installed inside industrial buildings or pre-engineered outdoor enclosures. Electrolyte storage tanks and associated piping may be located indoors or outdoors, depending on the technology.

a. Battery Modules Technology

Energy Storage

Energy storage is the capture of energy produced at one time for use at a later time. A device that stores energy is generally called an accumulator or battery. Energy storage involves converting energy from forms that are difficult to store to more conveniently or economically storable forms. For the purpose of grid connected energy storage, electrical energy will be stored in the form of chemical energy in lithium-ion and/or flow batteries. Energy storage technology may be centralized or may be distributed throughout the plant. Due to requirements for energy storage, the Project components such as the switching station, substation, transformers, and inverters would be energized at all times with the potential to charge or discharge.

Map Source: conEdison Development

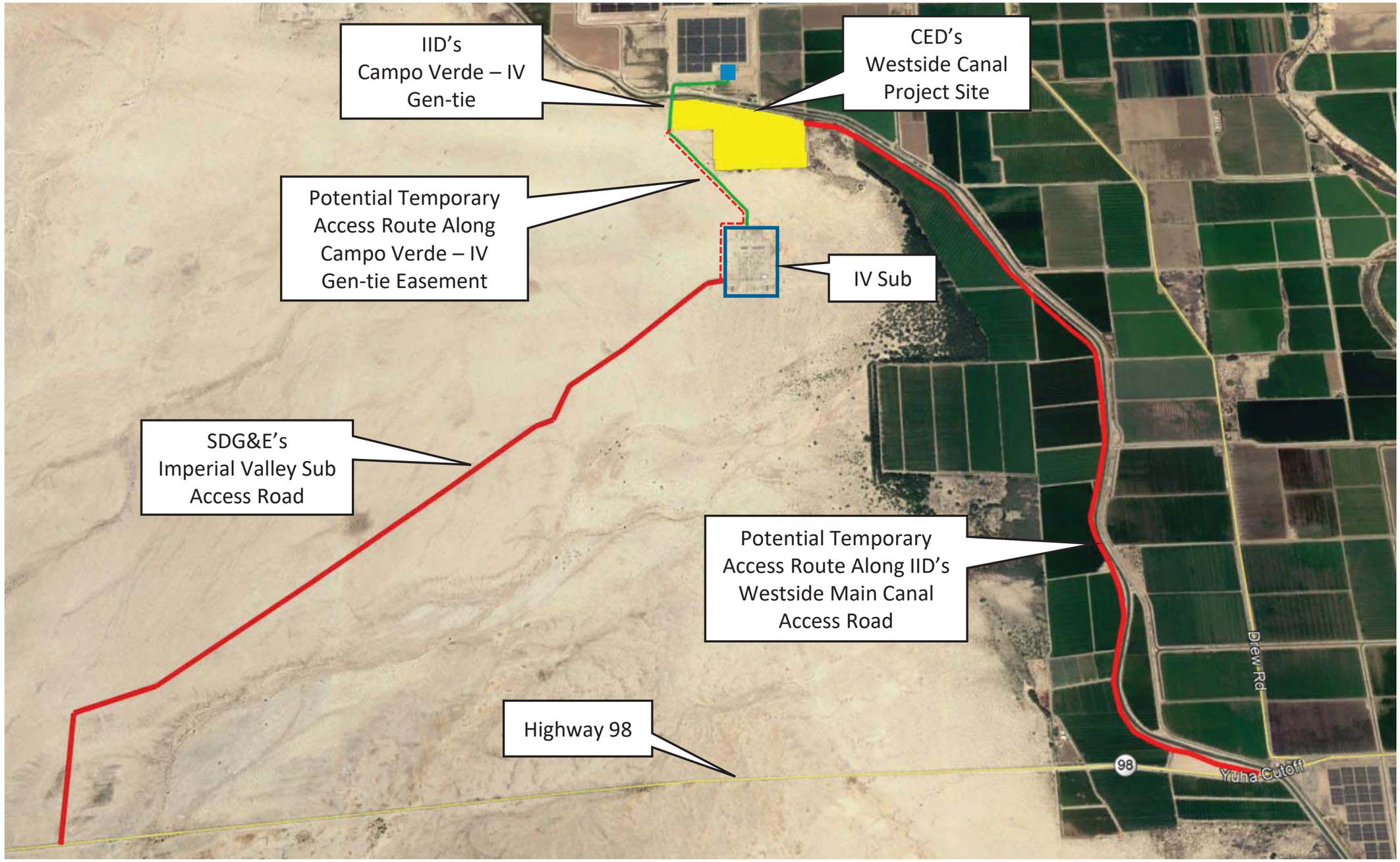

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FIGURE 3b
Temporary Construction Access Routes

Lithium-Ion Battery

A lithium-ion battery is a type of rechargeable battery in which lithium ions move from the negative electrode through an electrolyte to the positive electrode during discharge, and back when charging. Lithium-ion batteries use an intercalated lithium compound as the material at the positive electrode and typically graphite at the negative electrode. The batteries have a high energy density, no memory effect and low self-discharge.

Flow Battery

A flow battery is a rechargeable fuel cell in which an electrolyte containing one or more dissolved electroactive elements flows through an electrochemical cell that reversibly converts chemical energy directly to electricity. Additional electrolyte is stored externally, generally in tanks, and is usually pumped through the cell (or cells) of the reactor, although gravity feed systems are also known to be used. Flow batteries can be rapidly "recharged" by replacing the electrolyte liquid while simultaneously recovering the spent material for re-energization. Many flow batteries use carbon felt electrodes due to its low cost and adequate electrical conductivity.

b. Backup Generators

The Project would include emergency backup generator(s) to supply auxiliary power to the facility during rare events in which the entire facility or portions of the facility are disconnected from the electrical grid. The Project would use a hybrid approach to emergency backup power supply. Rather than relying exclusively on backup generators, the hybrid approach involves dedicating a portion of the batter storage system capacity as a source of emergency backup power. The reserved batter storage capacity would be approximately 3 to 4 percent of the size of the constructed battery storage system. This hybrid approach would also rely on the use of on-site, behind-the-meter solar power generation to supplement the facility's backup power supply needs. Additionally, propane-fueled generators would augment the backup battery storage capacity and the behind-the-meter solar power generation.

The generators would be sized to accommodate control systems and HVAC loads for equipment protection. Approximately 1.25 MW of backup power generation would be needed for every 100 MW of installed battery storage capacity. Each propane-fueled generator would have a capacity of 150 kW or larger. The purpose of the generators would be to provide system safety for events in which the transmission interconnection and the on-site solar generation system are not available, by supplying the battery HVAC system to maintain battery safety and warranty temperature parameters.

The propone-fueled generators would be installed in a central location near the common facilities or distributed among individual buildings or containers. The generators would be periodically tested (monthly) to maintain backup capability in the event of a grid outage. All generators would be subject to Imperial County Air Pollution Control District review and permitting requirements.

1.2.2.4 Solar Facility Components

Photovoltaic solar cells, also called PV cells, convert sunlight directly into electricity. PV gets its name from the process of converting light (photons) to electricity (voltage), which is called the PV effect. The panels are mounted at a fixed angle facing south, or they can be mounted on a tracking device that follows the sun, allowing them to capture the most sunlight. Many solar panels combined together to create one system is called a solar array. On-site, behind the meter, PV solar generation would serve as station auxiliary power and be deployed throughout the Project site.

1.2.3 Site Security

A six-foot-tall fence (e.g., chain-link) topped with one-foot-tall barbed wire would be installed around the entire Project site for safety and in order to control access. The switching station and each substation proposed on the site plan would also have fences installed around its perimeter. A camera-equipped call button would be installed at the front entry gate to the site which would be monitored from the Project's O&M facilities. Throughout the site at various points, security cameras may be installed to monitor other areas of the Project site. During the construction of each Project phase, the applicant would have on-site security personnel between dusk and dawn and during hours of non-active construction.

1.2.4 Interconnection Options

The proposed point of interconnection for the Project is the IV Substation 230 kilovolt (kV) bus. As reflected in the conceptual site plan, to achieve this, the applicant plans to build a new loop-in switching station on the Project site and connect to the existing IID Campo Verde – Imperial Valley 230 kV radial gen-tie line. This existing gen-tie line ultimately connects to the IV Substation one-third mile south of the Project site. This location would serve as the Project's point of interconnection to the CAISO grid. The applicant has submitted the necessary Interconnection Request Applications to the CAISO.

1.2.5 Existing and Proposed Utility Easements

a. Existing Easements

The Project site (APNs 051-350-10 and 051-350-011) has three major easements lying across the site. The first is for overhead collector transmission circuits and utility facilities, as well as access. This is for the IID Campo Verde – Imperial Valley 230 kV transmission line easement, which lies inside and along the west property line and runs north/south.

The second major easement is a prescriptive easement for an overhead transmission circuit and a utility distribution line that runs north and south and lies directly in the center of the Project site. The IID transmission line within this prescriptive easement is known as the S-Transmission line (S-Line). The third major easement lies along the north property line. This easement was granted to IID for the purposes of the existing Westside Main Canal and

appropriate infrastructure and operation and maintenance roads adjacent to the Westside Main Canal.

b. Proposed Easements

The applicant and IID are in the process of determining the width of this S-Line easement to create a non-exclusive easement. This easement would also include the existing distribution line that lies within the easement. Until this new easement agreement is in place, the applicant has planned for a 300-foot temporary corridor on the Project site plan (centerline of 300-foot corridor is the S-Line) to allow the IID energy engineering team to design and implement an appropriate new easement. Once the width and location of the new easement is determined, all other areas not part of the new S-Line easement lying within the 300-foot corridor will become part of the Project site.

1.2.6 Project Operation

Operation of the Project would require routine maintenance and security. It is anticipated that the Project would employ a plant manager and an O&M manager, as well as the addition of a facility manager once the complex deploys approximately 500 MW of generation. The complex will also employ staff technicians, with at least one additional technician for every approximately 250 MW of capacity.

Operation of the Project at full build-out would require up to approximately 20 full-time employees depending upon the number of phases and type of energy storage facility constructed. The Project may require fewer full-time equivalent employees, but 20 were assumed to provide a conservative estimate. O&M employees would work typical weekday hours but may work extended hours, including weekends and 24 hours a day, depending upon the operations and maintenance needs. Assuming two one-way trips per employee, the Project would be anticipated to generate up to 40 trips per day from all maintenance and security personnel.

Figure 3a shows the conceptual site plan for the Project with a representation of lithium-ion buildings and containers as well as flow buildings and containers. The components that make up the energy storage systems and common facilities require various preventative maintenance and at times corrective maintenance. The O&M staff would maintain the Project in accordance with manufacturer and industry best practice maintenance schedules and requirements. Depending on the technology selected for the energy storage component, the substation and transmission lines as well as the behind-the-meter solar inverters and transformers would be energized at all times.

1.2.7 Discretionary Actions

1.2.7.1 General Plan Amendment and Rezone

The Project proposes a General Plan Amendment and Rezone to change the land use designation and zoning for the Project site from Agriculture (A3) to Industrial. The Industrial zoning would be limited to Energy Production/Use.

1.2.7.2 Development Agreement

The applicant may pursue a development agreement with the County of Imperial for this project.

1.3 Fundamentals of Noise

Noise is defined as a loud or unpleasant sound that causes disturbance. Sound levels are described in units called the decibel (dB). Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; a halving of the energy would result in a 3 dB decrease.

In technical terms, sound levels are described as either a "sound power level" or a "sound pressure level," which while commonly confused are two distinct characteristics of sound. Sound pressure levels are a measured or modeled noise level at a certain distance from the noise source, while sound power levels are the rate at which sound energy is emitted, reflected, transmitted, or received, per unit time, and is not dependent on distance from the noise source. Both share the same unit of measure, the dB. However, sound power, expressed as L_{pw}, is the energy converted into sound by the source. As sound energy travels through the air, it creates a sound wave that exerts pressure on receivers such as an eardrum or microphone, the sound pressure level. Sound measurement instruments only measure sound pressure, and limits used in standards are generally sound pressure levels.

The human ear is not equally sensitive to all frequencies within the sound spectrum. To accommodate this phenomenon, the A-scale, which approximates the frequency response of the average young ear when listening to most ordinary everyday sounds, was devised. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the A-scale levels of those sounds. Therefore, the "A-weighted" noise scale is used for measurements and standards involving the human perception of noise.

Noise levels using A-weighted measurements are designated with the notation dB(A). Changes in noise levels are generally perceived by the average human ear as follows: 3 dB(A) is barely perceptible, 5 dB(A) is readily perceptible, and 10 dB(A) is perceived as a doubling or halving of noise (Caltrans 2013).

1.3.1 Descriptors

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important. In addition, most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors has been developed. Consistent with the County's General Plan Noise Element, the noise descriptors used for this study are the equivalent noise level (L_{eq}) and the community noise equivalent level (CNEL). The L_{eq} is the equivalent steady-state noise level in a stated period of time that is calculated by averaging the sound energy over a time period; when no period is specified, a 1-hour period is assumed. The CNEL is a 24-hour equivalent sound level.

The CNEL calculation applies an additional 5 A-weighted decibels dB(A) penalty to noise occurring during evening hours, between 7:00 p.m. and 10:00 p.m., and a 10 dB(A) penalty is added to noise occurring during the night, between 10:00 p.m. and 7:00 a.m. These increases for certain times are intended to account for the added sensitivity of humans to noise during the evening and night.

1.3.2 Propagation

Sound from a small, localized source (approximating a "point" source) radiates uniformly outward as it travels away from the source in a spherical pattern, known as geometric spreading. The sound level decreases or drops off at a rate (drop-off rate) of 6 dB(A) for each doubling of the distance.

Traffic noise is not a single, stationary point source of sound. The movement of vehicles makes the source of the sound appear to emanate from a line (line source) rather than a point when viewed over some time interval. The drop off rate for a line source is 3 dB(A) for each doubling of distance.

The propagation of noise is also affected by the intervening ground, known as ground absorption. A hard site (such as parking lots or smooth bodies of water) receives no additional ground attenuation, and the changes in noise levels with distance are simply the geometric spreading from the source, which equates to 6 dB(A) per doubling distance. A soft site (such as soft dirt, grass, or scattered bushes and trees) provides an additional ground attenuation value of 1.5 dB(A) per doubling of distance. Thus, a point source over a soft site would drop off at 7.5 dB(A) per doubling of distance.

2.0 Existing Conditions

2.1 Land Use Environment

The Project site was previously graded and used as farmland and has been fallow for more than 15 years. The General Plan land use designation and zoning for the Project site and all surrounding parcels to the north and east is Agriculture (A3). The General Plan land use designation for parcels to the south and west are designated open space/recreation areas;

zoning does not apply to these BLM lands. The Campo Verde solar generation facility is located north of the Project site and agricultural uses are located northeast of the Project site. Parcels farther north of the Project site also include a mix of agricultural uses and solar generation facilities. The parcel immediately east of the Project site is undeveloped. BLM land south and west of the Project site is generally undeveloped, relatively flat, and barren. The IV Substation is located approximately one-third mile south of the southern property line of the site.

2.2 Ambient Noise Environment

Existing noise levels at the Project site are typical of any rural agricultural environment, and are generally quiet. Existing noise levels at the Project site were measured on May 2, 2019 using one Larson-Davis LxT Sound Expert Sound Level Meter, serial number 3894. The following parameters were used:

Filter:	A-weighted
Response:	Slow
Time History Period:	5 seconds

The meter was calibrated before each measurement. The meter was set 5 feet above the ground level for each measurement. Noise measurements were taken to obtain typical ambient noise levels at the Project site and in the vicinity. The weather was warm and sunny. Two 30-minute measurements were taken, as described below. The measurement locations are shown on Figure 4, and detailed data is contained in Attachment 1.

Measurement 1 was located at the northern Project boundary, north of the Westside Canal and southeast of Campo Verde substation. The main source of noise at this location was the substation. Other sources of noise included occasional airplane and helicopter flyovers. The average measured noise level was 50.5 dB(A) L_{eq}.

Measurement 2 was located near the center of the Project site. The main source of noise at this location was humming from the existing power line. Other sources of noise included occasional airplane and helicopter flyovers. The average measured noise level was 45.9 dB(A) L_{eq}.

Image source: DigitalGlobe (flown November 2017)

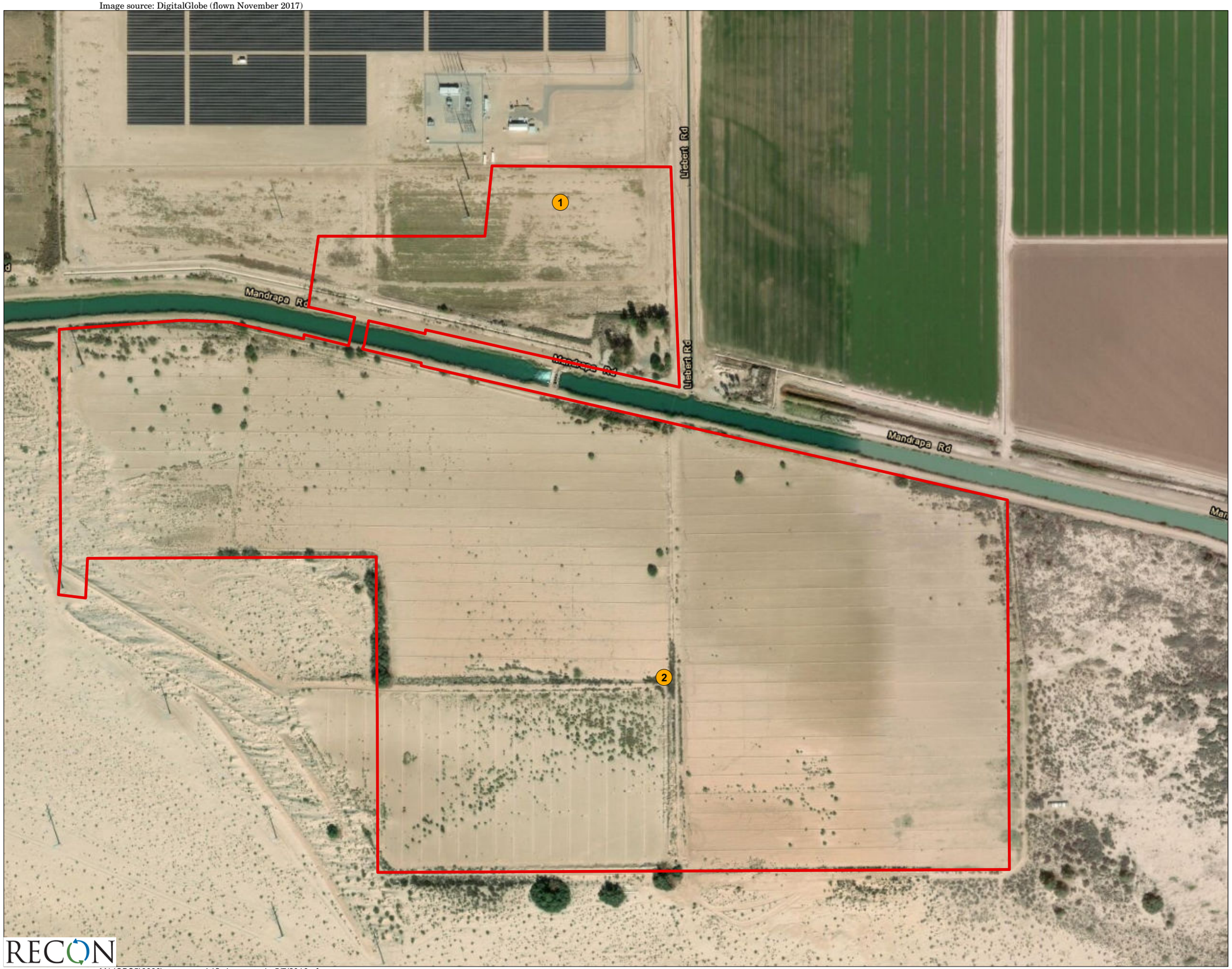

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FIGURE 4

Noise Measurement Location

3.0 Applicable Standards

3.1 Imperial County General Plan Noise Element

3.1.1 Property Line Noise Level Limits

The County General Plan Noise Element (Imperial County 2015) identifies property line noise level limits that apply to noise generation from one property to an adjacent property (excluding construction noise). As stated in the Noise Element, the property line noise level limits imply the existence of a sensitive receptor on the adjacent, or receiving, property. In the absence of a sensitive receptor, an exception or variance to the standards may be appropriate. The property line noise standards are codified in the County Code or Ordinances and thus are enumerated in the subsequent section (see Section 3.2).

3.1.2 Construction Noise Standards

County General Plan Noise Element Section IV.C.3 addresses noise generated by construction activities. It states:

- Construction noise, from a single piece of equipment or a combination of equipment, shall not exceed 75 dB L_{eq}, when averaged over an eight (8) hour period, and measured at the nearest sensitive receptor. This standard assumes a construction period, relative to an individual sensitive receptor of days or weeks. In cases of extended length construction times, the standard may be tightened so as not to exceed 75 dB L_{eq} when averaged over a one (1) hour period.
- Construction equipment operation shall be limited to the hours of 7 a.m. to 7 p.m., Monday through Friday, and 9 a.m. to 5 p.m. Saturday. No commercial construction operations are permitted on Sunday or holidays. In cases of a person constructing or modifying a residence for himself/herself, and if the work is not being performed as a business, construction equipment operations may be performed on Sundays and holidays between the hours of 9 a.m. and 5 p.m. Such non-commercial construction activities may be further restricted where disturbing, excessive, or offensive noise causes discomfort or annoyance to reasonable persons of normal sensitivity residing in an area.

Based on these standards, the applicable limit for Project construction activities is 75 dB(A) L_{eq} at the nearest sensitive receptor.

3.2 Imperial County Noise Abatement and Control

County Code of Ordinances Title 9, Division 7: Noise Abatement and Control, specifies noise level limits. Noise level limits are summarized in Table 1. Noise level limits do not apply to construction equipment.

Table 1
Imperial County Property Line Noise Limits

Zone	Time	One-Hour Average Sound Level [dB(A) L_{eq}]
Low-Density Residential Zones	7:00 a.m. to 10:00 p.m.	50
	10:00 p.m. to 7:00 a.m.	45
Medium to High-Density Residential Zones	7:00 a.m. to 10:00 p.m.	55
	10:00 p.m. to 7:00 a.m.	50
Commercial Zones	7:00 a.m. to 10:00 p.m.	60
	10:00 p.m. to 7:00 a.m.	55
Manufacturing/Light Industrial/ Industrial Park Zones including agriculture	(anytime)	70
General Industrial Zones	(anytime)	75
SOURCE: Imperial County Noise Abatement and Control Ordinance, Tit. 9, Div. 7, § 90702.00(A).		

The Project would be zoned Medium Industrial (M2), which would be considered a General Industrial Zone, and all the surrounding properties are zoned Agriculture (A-3). When the noise-generating property and the receiving property have different uses, the more restrictive standards apply. Therefore, for Project operation, the property line noise level limit of 70 dB(A) L_{eq} for agricultural uses applies.

4.0 Analysis Methodology

Noise level predictions and contour mapping were developed using noise modeling software, SoundPlan Essential, version 4.1 (SoundPLAN; Navcon Engineering 2018). SoundPLAN calculates noise propagation based on the International Organization for Standardization method (ISO 9613-2–Acoustics, Attenuation of Sound during Propagation Outdoors). The model calculates noise levels at selected receiver locations using input parameter estimates such as total noise generated by each noise source; distances between sources, barriers, and receivers; and shielding provided by intervening terrain, barriers, and structures. The model outputs can be developed as noise level contour maps or noise levels at specific receivers. In all cases, receivers were modeled at 5 feet above ground elevation, which represents the average height of the human ear.

4.1 Construction Noise

As described in Section 1.2.2.1, the Project would be constructed in three to five phases over a 10-year period, with each phase ranging from approximately 25 MW up to 400 MW per phase. Depending on the size of the battery system for a given phase, construction and commissioning (approval to operate) is anticipated to take approximately 6 to 12 months. For the purposes of this analysis, the applicant has assumed that construction activities would last for approximately 32 months to complete the full Project build-out.

Construction of the 100 to 200 MW first phase would include roads, a permanent clear-span bridge across the Westside Main Canal, the Operations and Maintenance (O&M) facilities, water connections and water-mains, storm water retention, switching station and Project substation, legal permanent vehicle access, as well as the first energy storage facility. To access the Project site, construction workers would travel along Interstate 8 (I-8) and head 4.6 miles south to the Project site, and would utilize the IID Fern Check Bridge as a pedestrian bridge until the permanent bridge is constructed. During peak construction activities, approximately 200 workers and approximately 30 daily deliveries would be required. If approved, it is anticipated that construction of the first phase would begin in 2021. Construction staff and equipment will be determined based on the size and design specifications of each phase.

The equipment anticipated to be used in Project construction was provided by the applicant and is shown below in Table 2.

Table 2
Anticipated Construction Schedule and Equipment

Construction Activity/ Equipment Type	Phase 1 (12 months)		Phases 2–5 (20 months)	Noise Level at 50 Feet [dB(A) L_{eq}]	Typical Duty Cycle
	Common Facilities	Battery Storage	Battery Storage		
Air Compressor	1	2	2	80	40%
Backhoe	2	2	2	80	40%
Concrete Pump	1	1	1	82	20%
Crane	3	1	1	85	20%
Dozer	2	--	--	85	40%
Drill Rig	1	--	--	85	20%
Excavator	1	1	1	85	40%
Forklift[1]	2	2	2	68	--
Generator	2	3	3	82	50%
Grader	2	--	--	85	40%
Paver	1	--	--	85	50%
Roller	3	2	2	74	40%
Scraper	1	1	1	85	40%
Water Truck[2]	2	1	1	73	--
Wheeled Loader	1	1	1	80	40%
Wheeled Tractor	1	--	--	84	40%

Sources: Federal Highway Administration [FHWA] 2006, Federal Transit Administration 2006.
[1]The FHWA source does not provide forklift noise levels. Average noise level for a forklift was obtained from the SoundPLAN database (Navcon Engineering 2018).
[2]The FHWA source does not provide water truck noise levels. Average noise level for a water truck was obtained from the City of Los Angeles (City of Los Angeles 2012).

Construction equipment is not a fixed, stationary source of noise because equipment would move throughout the Project site. Sources the emit noise over a specified area, such as construction equipment over a Project site, are considered area sources. Construction noise levels were modeled as an area source over the anticipated construction area with the simultaneous operation of all required equipment listed in Table 2. It is unlikely that all equipment would operate at the same time. This is therefore a conservative analysis of maximum average hourly noise levels.

The Project site and the area surrounding all off-site roadway extensions are relatively flat. This analysis conservatively assumes no attenuation from barriers and topography.

Ground conditions typically change during construction due to fugitive dust control practices such as soil stabilization through site watering and best management practices such as subgrade compaction. This analysis conservatively models ground conditions as acoustically hard. Thus, construction noise would be characterized by hard site attenuation rate of 6 dB(A) per doubling of distance.

4.2 Operational Noise

Stationary sources of noise associated with the operation of the Project would include air cooling units, inverters, transformers, a substation, and transmission gen-tie lines. The O&M building would also include an HVAC unit.

Figure 5 shows the floor plan for each lithium-ion 50 MW building. As shown, each building would include 10 air cooling units (5 on each side of the building) and 20 transformers and inverters (10 on each side of the building). The current site plan includes 20 of these buildings, and more would be constructed during subsequent phases as the market demands.

The main source of noise on the Project site would be generated by the air cooling units. The Project would include Carrier AC Chillers Model 30XV450 (Attachment 2) or equivalent. Based on manufacturer specifications, these units generate a sound power level of 106 dB(A) when operating at full capacity. This sound power level is equivalent to a sound pressure level of 74.4 dB(A) L_{eq} at 50 feet. As shown in Figure 5, these units would be located within a container enclosure. Based on standard attenuation rates, it is estimated that metal insulated containers could achieve an interior to exterior noise reduction of at least 15 dB(A). However, as a conservative analysis, no noise reduction was modeled. All air cooling units were modeled at full capacity during the daytime and nighttime hours.

As the solar generation facility would only generate electricity between sunrise and sunset, noise from solar field inverters and transformers would likely be limited to daylight hours. After daylight hours energy storage facilities may continue to contribute energy to the grid.

A single technology or provider has not been selected for the energy storage component of the Project. Energy storage technology may be centralized or may be distributed throughout the plant. Depending on the technology selected for the energy storage component, the substation and transmission lines as well as the solar field inverters and transformers may be active during both daylight and nighttime hours.

Map Source: Burns McDonnell

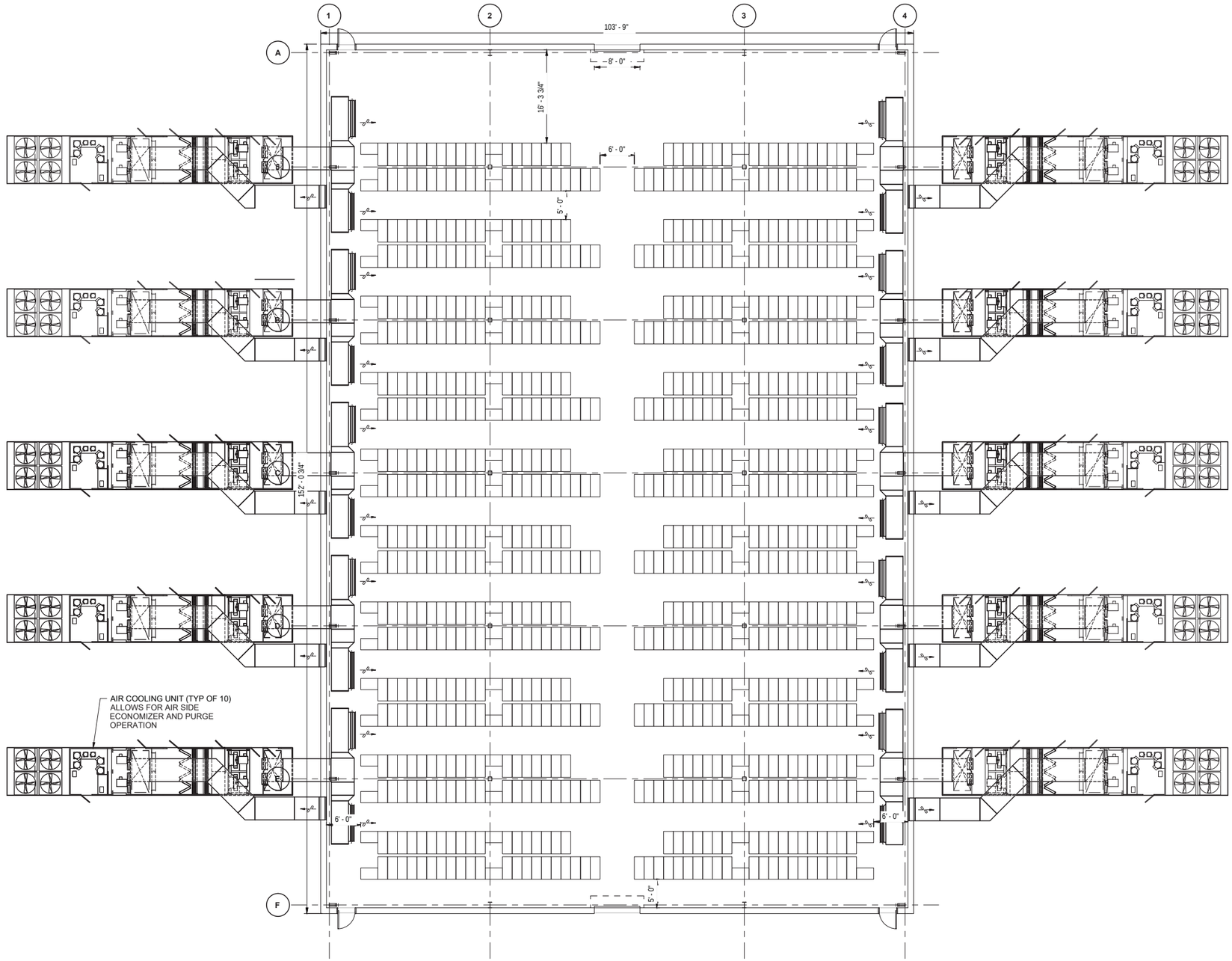

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FIGURE 5
Lithium Ion Building Floor Plan

Each lithium-ion building would also include 20 transformers and inverters. Based on information provided by the Project engineer, transformers generate a noise level of 85 dB(A) Leq at 3 feet, which is equivalent to a sound power level of 92.2 dB(A), and inverters generate a noise level of 80 dB(A) Leq at 3 feet, which is equivalent to a sound power level of 87.2 dB(A).

The Project would include the construction of a substation located at the western Project boundary. The substation would include equipment such as switches, circuit breakers, and transformers. Switches and circuit breakers do not typically generate substantial noise. The power rating for substation transformers would be several times higher than the power rating for transformers distributed throughout the facility at each solar array block. Based on National Electrical Manufacturers Association standards for oil-immersed transformers, a sound level of 67 dB(A) at 5 feet would be representative of the substation (National Electrical Manufacturers Association 2013). This equates to a sound power level of 97 dB(A).

The Project would also include transmission lines to connect the facility to neighboring substations. Corona discharge results from the partial breakdown of the electrical insulating properties of the air surrounding the conductors; energy discharged from the line may form small local pressure changes that result in audible hissing or crackling noises. The intensity of corona noise varies depending on the atmospheric conditions such as atmospheric moisture and pressure (which is related to altitude). The noise generated by similar transmission lines (i.e., approximately 230 kV) has previously been analyzed to be 25 dB(A) at 50 feet. This equates to a sound power level per length of 45 dB(A) per meter.

The proposed O&M building would also require an HVAC unit. Based on review of various manufacturer specifications, a representative sound power level of 79 dB(A) for a 10-ton unit was selected for analysis (Attachment 3). This HVAC unit was modeled at full capacity during the daytime and nighttime hours.

Based on these noise levels and the floor plan and the number of air cooling units, inverters, and transformers proposed for each lithium-ion building shown in Figure 5, and total composite noise level for each building was calculated. Table 3 summarizes noise levels for each noise source, and the total composite noise level for each lithium-ion building.

Table 3
Project Equipment Modeling Parameters

Equipment	Exterior Sound Power Level
Lithium-ion Buildings	
Air Cooling Units	*106.0*
Inverter	*87.2*
Transformer	*92.2*
Total Composite Sound Power Level per Building	95.4
Substation	97.0
Gen-Tie Line	45 dB(A) per meter
O&M HVAC	79

4.3 Traffic Noise

Vehicle traffic would be generated during operation of the Project. It has been assumed that operation of the Project would require up to 20 employees. Assuming two one-way trips per employee, Project operation would be anticipated to generate up to 40 trips per day. Off-site traffic noise was modeled using the Federal Highway Administration (FHWA) Traffic Noise Prediction Model algorithms and reference levels.

5.0 Impact Analysis and Noise Environment

The following is a discussion of impacts associated with construction noise, operational noise, and off-site vehicle traffic noise. Impacts were evaluated using the following standards:

- Construction Noise: Construction noise may not exceed 75 dB(A) $L_{eq(8h)}$ at the nearest sensitive receptor (County General Plan Noise Element Section IV.C.3)
- Operational Noise: Noise due to operation of the project shall not exceed 70 dB(A) L_{eq} at the property line (Imperial County Noise Abatement and Control Ordinance, Tit. 9, Div. 7, § 90702.00(A))
- Off-Site Traffic Noise: A permanent increase in ambient noise levels that is less than 3 dB(A) would be less than significant.

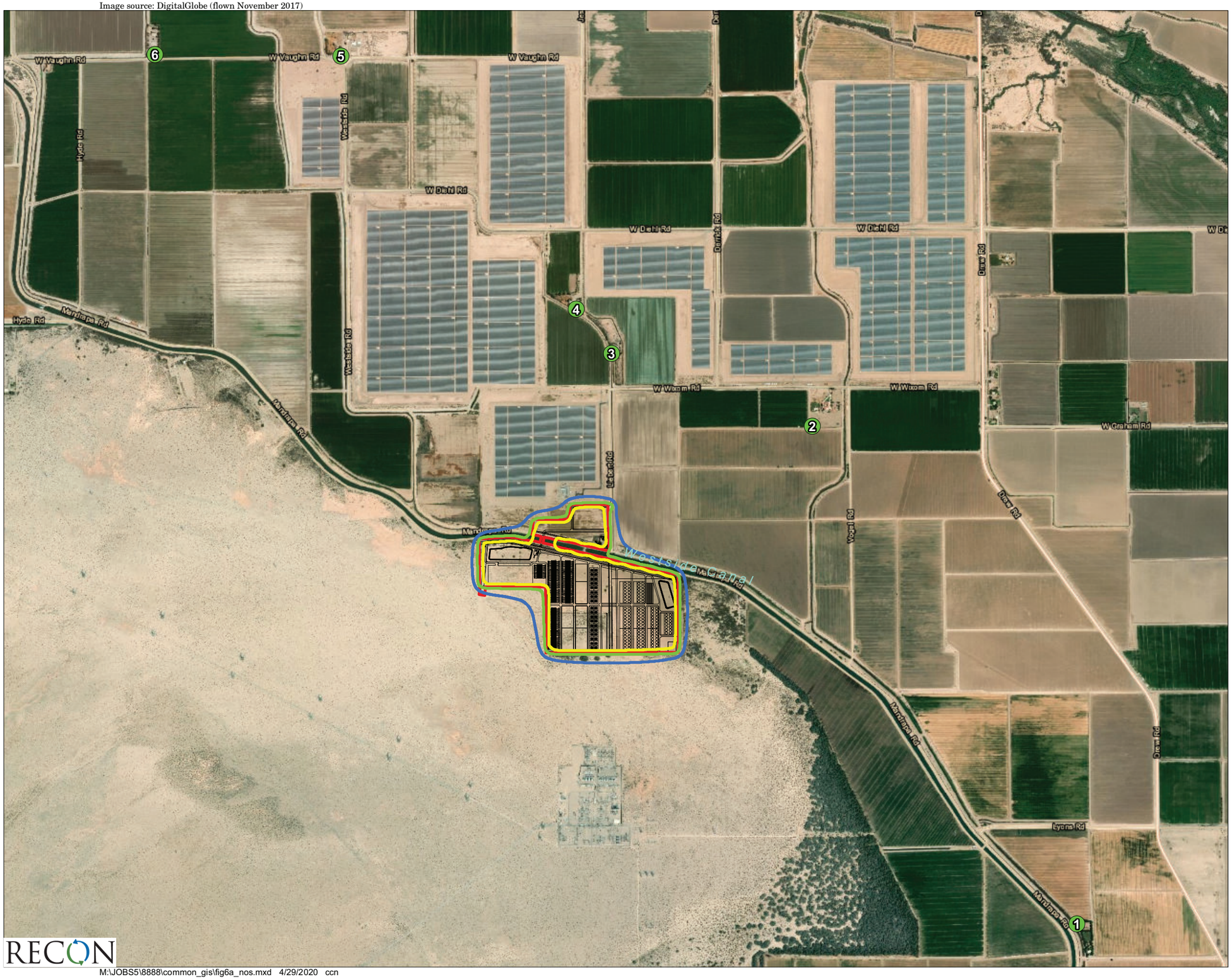
5.1 Construction Noise

Noise associated with the site preparation and facility installation would potentially result in short-term impacts to surrounding properties. As discussed in Section 4.1, noise levels were modeled as an area source over the anticipated construction area with the simultaneous operation of all required equipment listed in Table 1.

As discussed in Section 3.1, the County General Plan Noise Element establishes construction time of day restrictions and noise level limits. Construction activities may only occur Monday through Friday between the hours of 7:00 a.m. and 7:00 p.m. or Saturday between the hours of 9:00 a.m. and 5:00 p.m., excluding holidays. Additionally, construction noise may not exceed 75 dB(A) $L_{eq(8h)}$ at the nearest sensitive receptor. Noise levels were modeled at six specific receivers located at the nearest residential properties.

Table 4 summarizes the maximum noise levels due to each construction activity. Construction noise contours are shown in Figures 6a and 6b. SoundPLAN data is provided in Attachment 4.

Image source: DigitalGlobe (flown November 2017)



Project Boundary

Site Plan

Receivers

Noise Contours

60 dB(A) Leq

65 dB(A) Leq

70 dB(A) Leq

0 Feet 2,000

FIGURE 6a
Construction Noise Contours – Common Facilities

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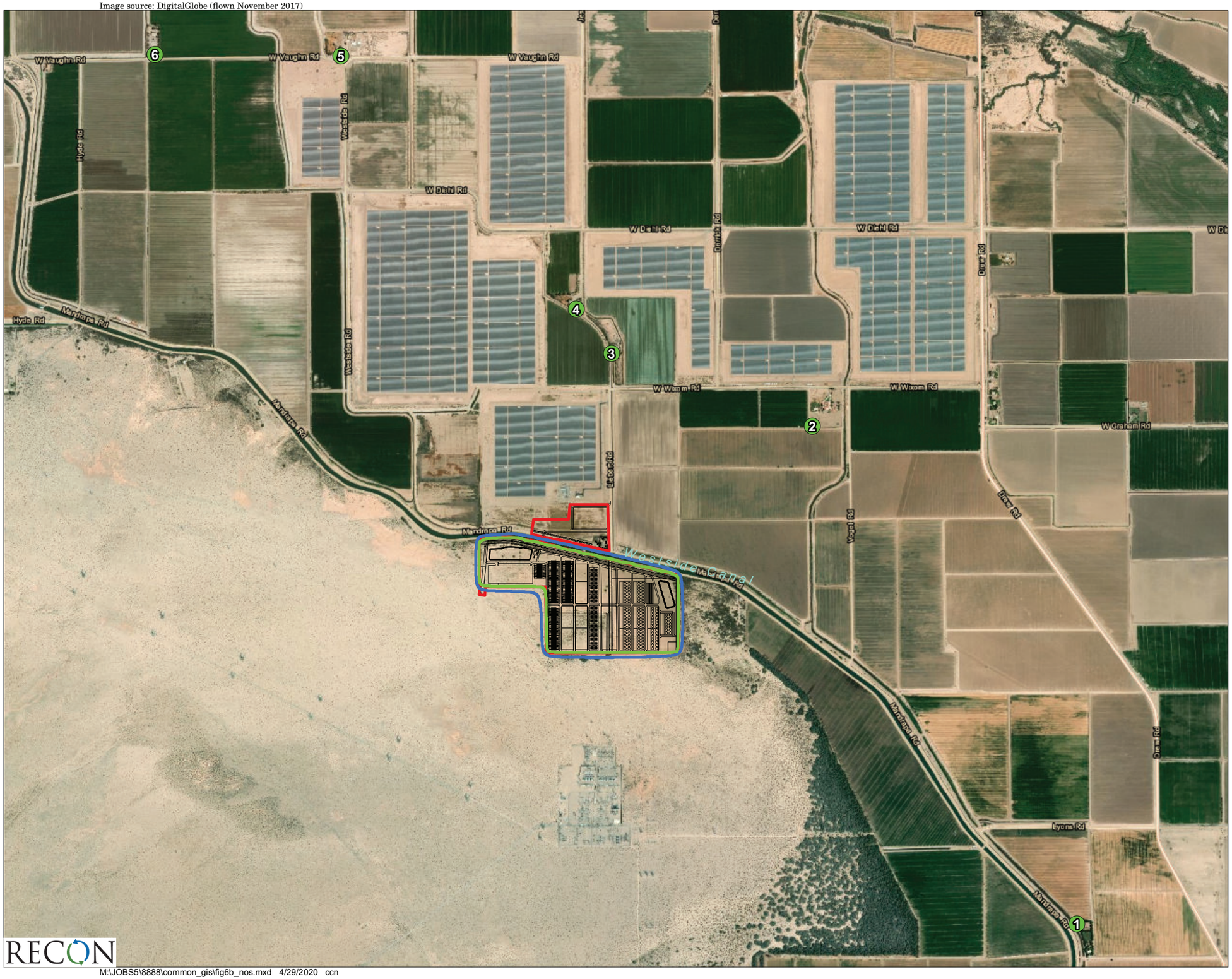
Image source: DigitalGlobe (flown November 2017)



Project Boundary

Site Plan

Receivers

Noise Contours

60 dB(A) Leq

65 dB(A) Leq

0 Feet 2,000

FIGURE 6b
Construction Noise Contours – Battery Storage

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Table 4 Construction Noise Levels [dB(A) L_{eq}]			
	Phase 1		Phase 2-5
Receiver	Common Facilities	Battery Storage	Battery Storage
1	33	30	30
2	44	40	40
3	46	42	42
4	44	40	40
5	33	30	30
6	31	28	28

As shown, maximum construction noise levels would be well less than 75 dB(A) $L_{eq(8h)}$. Because these noise levels account for the simultaneous operation of all required equipment for each construction activity, actual noise levels would be less than those shown in Table 4. Therefore, impacts would be less than significant.

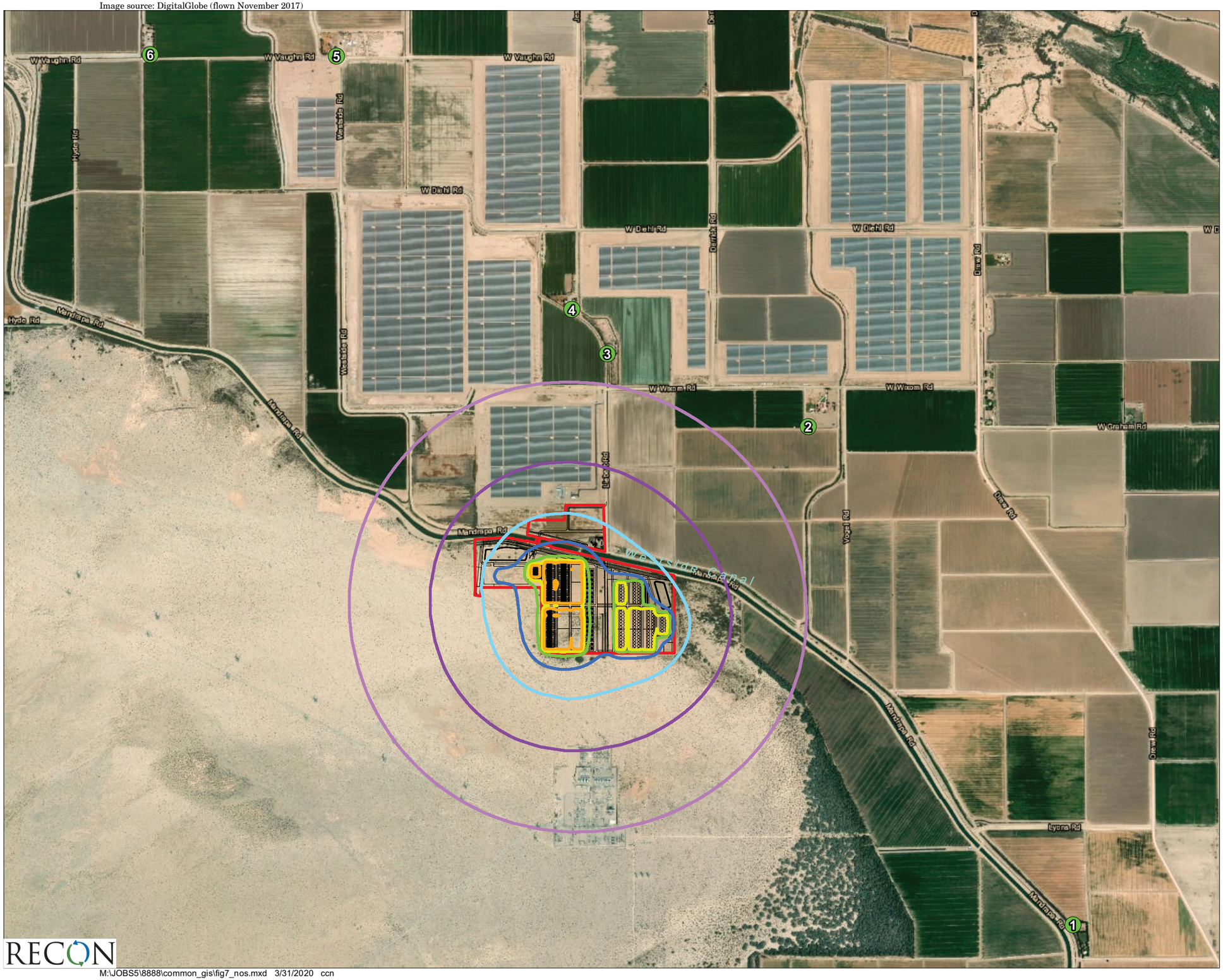
During peak construction activities, approximately 200 workers and approximately 30 daily deliveries would be required. There are residential uses located adjacent to the northern access route that would be used by construction workers during the entire construction phase and would be used by delivery trucks once the bridge construction is complete. Based on FHWA Traffic Noise Prediction Model, trips associated with 200 worker trips over a 1-hour period would generate a maximum noise level of 49 dB(A) L_{eq} at 50 feet from the roadway. Additionally, the delivery trucks, when distributed throughout the daytime hours, would generate a noise level of 50 dB(A) L_{eq} at 50 feet from the roadway. All residential uses are located more than 50 feet from the roadways. Noise levels associated with these trips would not exceed 75 dB(A) L_{eq}, and would be less than significant.

5.2 Operational Noise

Following the methodology discussed in Section 4.2, Operations Analysis, ground-floor noise level contours were modeled. Noise levels were also calculated at the six specific receivers located at the nearest residential properties. Noise contours are shown on Figure 7. SoundPLAN data for on-site generated noise modeling are contained in Attachment 5.

As discussed in Section 3.2, the County Code of Ordinances establishes property line noise standards for residential, commercial, light industrial, and general industrial zoning districts. The Project site and all surrounding properties are in agricultural zoning districts. The Project proposes a General Plan Amendment and Rezone to change land use designation and zoning for the Project site Agriculture (A3) to Industrial. The applicable noise level limit for the adjacent agricultural uses is 70 dB(A) L_{eq}.

Image source: DigitalGlobe (flown November 2017)



- Project Boundary
- Site Plan
- Receivers

Noise Contours

- 45 dB(A) Leq
- 50 dB(A) Leq
- 55 dB(A) Leq
- 60 dB(A) Leq
- 65 dB(A) Leq
- 70 dB(A) Leq
- 75 dB(A) Leq

0 Feet 2,000

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FIGURE 7

Operational Noise Contours

As shown in Figure 7, noise associated with Project operation would not exceed the applicable limit of 70 dB(A) L_{eq} at the property line. Additionally, Table 5 summarizes the noise levels at the nearest residential properties. As shown, due to the distance between the Project site and these residential properties, noise levels would be less than the most restrictive noise limit of 45 dB(A) L_{eq} for low-density residential uses. Therefore, impacts related to on-site generated noise would be less than significant.

Table 5
Operational Noise Levels
[dB(A) L_{eq}]

Receiver	Noise Level
1	32
2	42
3	44
4	42
5	32
6	30

5.3 Traffic Noise

Vehicle traffic would be generated during construction and operation of the Project. As discussed in Sections 1.2, a doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB(A) and would generally be perceived by the average human ear as barely perceptible. For the purposes of this analysis, a permanent increase in the ambient noise levels that is less than 3 dB(A) would be less than significant.

During operations, the Project would require up to approximately 20 full-time equivalent employees, which would generate up to 40 trips per day. As Project trip generation would be extremely limited, the Project is not anticipated to result in a doubling of traffic along any well-traveled roadway. Based on FHWA Traffic Noise Prediction Model, roadways with traffic volumes of 20 average daily traffic and a speed limit of 25 miles per hour would result in a noise level of 33 dB(A) L_{eq} at 50 feet from the centerline of the roadway. For roadways where existing traffic volumes are equal to or less than 20 average daily traffic, Project-generated traffic may result in a 3 dB(A) traffic noise increase, however resulting traffic noise levels would remain less than generally ambient noise levels attributable to other sources. Ambient noise level increases attributable to Project-generated traffic are anticipated to be less than 3 dB(A). Therefore, impacts would be less than significant.

6.0 Conclusions

6.1 Construction Noise

Noise associated with the site preparation and facility installation would potentially result in short-term impacts to surrounding properties. Construction would include use of a variety of noise-generating equipment such as scrapers, excavators, loaders, and water trucks, along with others. Construction of the access road and the bridge over the IID canal and would last

for eight to nine months. Construction activities for the utility-scale energy storage complex would last for up to 32 months. The County General Plan Noise Element establishes construction time of day restrictions and noise level limits. Construction activities may only occur Monday through Friday between the hours of 7:00 a.m. and 7:00 p.m. or Saturday between the hours of 9:00 a.m. and 5:00 p.m., excluding holidays. Additionally, construction noise may not exceed 75 dB(A) $L_{eq(8h)}$ at the nearest sensitive receptor.

Noise levels were modeled at six specific receivers located at the nearest residential properties. As shown in Table 4, maximum construction noise levels would be well below 75 dB(A) $L_{eq(8h)}$. Additionally, noise levels associated with temporary construction traffic (workers and deliveries) would be well below75 dB(A) $L_{eq(8h)}$. Therefore, impacts would be less than significant.

6.2 Operational Noise

Stationary sources of noise associated with the operation of the Project would include air cooling units, inverters, transformers, a substation, and transmission gen-tie lines. The O&M building would also include an HVAC unit. Noise associated with Project operation would not exceed the applicable property line noise level limit of 70 dB(A) L_{eq} at the adjacent properties. Additionally, as shown in Table 5, noise levels would be below the most restrictive noise limit of 45 dB(A) L_{eq} for low-density residential uses at the nearest residential receivers. Therefore, impacts related to on-site generated noise would be less than significant.

6.3 Traffic Noise

During operations, Project-generated traffic would increase volumes on local roadways and thereby increase traffic noise levels in the Project area. Project trip generation would be extremely limited–up to 40 trips per day. Ambient noise level increases attributable to Project-generated traffic are anticipated to be less than 3 dB(A) along all roadways. Therefore, impacts associated with traffic noise would be less than significant.

7.0 References Cited

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2006 FHWA Roadway Construction Noise Model User's Guide, Final Report. January.

Federal Transit Administration (FTA)
2006 Transit Noise and Vibration Impact Assessment. Office of Planning and Environment. FTA-VA-90-1003-06. May.

Imperial, County of
2015 Imperial County General Plan Noise Element. Approved October 6.

Los Angeles, City of
2012 Initial Study/Negative Declaration for the Central Outfall Sewer at 59th Street and 4th Avenue Project. W.O. SZC11942. City of Los Angeles Department of Public Works, Bureau of Engineering. January 2012.

National Electrical Manufacturers Association (NEMA)
2013 NEMA TR 1-2013 Transformers, Step Voltage Regulators and Reactors.

Navcon Engineering, Inc.
2018 SoundPLAN Essential version 4.1. November.

ATTACHMENTS

ATTACHMENT 1

Noise Measurement Data

Summary				
Filename	LxT_Data.032			
Serial Number	3894			
Model	SoundTrack LxT®			
Firmware Version	2.301			
User	Carmen			
Location	Westside Canal Energy Center			
Job Description	8888.0			
Note				
Measurement Description				
Start	2019/05/02 10:42:41			
Stop	2019/05/02 11:15:46			
Duration	0:33:04.4			
Run Time	0:30:28.2			
Pause	0:02:36.2			
Pre Calibration	2019/05/02 10:40:58			
Post Calibration	None			
Calibration Deviation	---			
Overall Settings				
RMS Weight	A Weighting			
Peak Weight	A Weighting			
Detector	Slow			
Preamp	PRMLxT1			
Microphone Correction	Off			
Integration Method	Linear			
Overload	144.9 dB			
	A		**C**	**Z**
Under Range Peak	**101.2**		98.2	103.2 dB
Under Range Limit	**37.6**		35.6	43.6 dB
Noise Floor	24.8		25.3	32.8 dB
Results				
LAeq	50.5 dB			
LAE	83.1 dB			
EA	22.875 µPa²h			
EA8	360.357 µPa²h			
EA40	1.802 mPa²h			
LApeak (max)	2019/05/02 10:42:56		103.9 dB	
LASmax	2019/05/02 10:42:56		79.6 dB	
LASmin	2019/05/02 11:06:32		33.6 dB	
SEA	-99.9 dB			
LAS > 60.0 dB (Exceedence Counts / Duration)	4		7.1 s	
LAS > 70.0 dB (Exceedence Counts / Duration)	1		1.9 s	
LApeak > 135.0 dB (Exceedence Counts / Duration)	0		0.0 s	
LApeak > 137.0 dB (Exceedence Counts / Duration)	0		0.0 s	
LApeak > 140.0 dB (Exceedence Counts / Duration)	0		0.0 s	
LCeq	66.4 dB			
LAeq	50.5 dB			
LCeq - LAeq	15.9 dB			
LAleq	59.8 dB			
LAeq	50.5 dB			
LAleq - LAeq	9.2 dB			
# Overloads	0			
Overload Duration	0.0 s			
Dose Settings				
Dose Name	OSHA-1	OSHA-2		
Exch. Rate	5	5 dB		
Threshold	90	80 dB		
Criterion Level	90	90 dB		
Criterion Duration	8	8 h		
Results				
Dose	-99.9	-99.9 %		
Projected Dose	-99.9	-99.9 %		
TWA (Projected)	-99.9	-99.9 dB		
TWA (t)	-99.9	-99.9 dB		
Lep (t)	38.5	38.5 dB		
Statistics				
LAS5.00	53.2 dB			
LAS10.00	49.2 dB			
LAS33.30	40.6 dB			
LAS50.00	38.3 dB			
LAS66.60	36.4 dB			
LAS90.00	35.0 dB			

8888 Westside Canal Energy Center
Noise Measurement Data

Summary				
Filename	LxT_Data.035			
Serial Number	3894			
Model	SoundTrack LxT®			
Firmware Version	2.301			
User	Carmen			
Location	Westside Canal Energy Center			
Job Description	8888.0			
Note				
Measurement Description				
Start	2019/05/02 12:57:47			
Stop	2019/05/02 13:28:48			
Duration	0:31:01.6			
Run Time	0:31:01.6			
Pause	0:00:00.0			
Pre Calibration	2019/05/02 10:40:41			
Post Calibration	None			
Calibration Deviation	---			
Overall Settings				
RMS Weight	A Weighting			
Peak Weight	A Weighting			
Detector	Slow			
Preamp	PRMLxT1			
Microphone Correction	Off			
Integration Method	Linear			
Overload	144.9 dB			
	A		**C**	**Z**
Under Range Peak	**101.2**		98.2	103.2 dB
Under Range Limit	**37.6**		35.6	43.6 dB
Noise Floor	24.8		25.3	32.8 dB
Results				
LAeq	45.9 dB			
LAE	78.6 dB			
EA	8.081 µPa²h			
EA8	125.022 µPa²h			
EA40	625.110 µPa²h			
LApeak (max)	2019/05/02 12:57:56		110.5 dB	
LASmax	2019/05/02 12:57:56		72.8 dB	
LASmin	2019/05/02 13:12:51		32.1 dB	
SEA	-99.9 dB			
LAS > 60.0 dB (Exceedence Counts / Duration)	2		20.6 s	
LAS > 70.0 dB (Exceedence Counts / Duration)	1		1.3 s	
LApeak > 135.0 dB (Exceedence Counts / Duration)	0		0.0 s	
LApeak > 137.0 dB (Exceedence Counts / Duration)	0		0.0 s	
LApeak > 140.0 dB (Exceedence Counts / Duration)	0		0.0 s	
LCeq	58.7 dB			
LAeq	45.9 dB			
LCeq - LAeq	12.8 dB			
LAleq	56.7 dB			
LAeq	45.9 dB			
LAleq - LAeq	10.8 dB			
# Overloads	0			
Overload Duration	0.0 s			
Dose Settings				
Dose Name	OSHA-1		OSHA-2	
Exch. Rate	5		5 dB	
Threshold	90		80 dB	
Criterion Level	90		90 dB	
Criterion Duration	8		8 h	
Results				
Dose	-99.9		-99.9 %	
Projected Dose	-99.9		-99.9 %	
TWA (Projected)	-99.9		-99.9 dB	
TWA (t)	-99.9		-99.9 dB	
Lep (t)	34.0		34.0 dB	
Statistics				
LAS5.00	49.1 dB			
LAS10.00	44.6 dB			
LAS33.30	36.3 dB			
LAS50.00	34.7 dB			
LAS66.60	34.0 dB			
LAS90.00	33.1 dB			

ATTACHMENT 2

Air Cooling Unit Specifications

SUBMITTAL

Project

Burns and McDonnell - AC Chillers 091418

Date

Friday, September 14, 2018

General Contractor

Mechanical Contractor

Mechanical Engineer

Table Of Contents

Project: Burns and McDonnell - AC Chillers 091418 10/12/2018
Prepared By: 02:11PM

Unit Report For 30XV450

Project: Burns and McDonnell - AC Chillers 091418 10/12/2018
Prepared By: 02:11PM

Unit Information

Tag Name:	**30XV450**	
Model Number:	**30XV450**	
Condenser Type:	**Air Cooled**	
Compressor Type:	**VFD Screw**	
Nameplate Voltage:	**460-3-60**	V-Ph-Hz
Quantity:	**1**	
Manufacturing Source:	**Charlotte, NC USA**	
Refrigerant:	**R134A**	
Independent Refrigerant Circuits:	**2**	
Capacity Control Steps:	**0**	
Minimum Capacity:	**15.0**	%
Shipping Weight:	**28780**	lb
Operating Weight:	**29477**	lb
Unit Length:	**594**	in
Unit Width:	**88**	in
Unit Height:	**99**	in

Accessories and Installed Options

- Isolation Valve(s)
- Suction Line Insulation
- Control Transformer
- Non-Fused Disconnect
- Al Fin/Cu Tube
- Flooded Evaporator, 2 pass, with heater
- Low Sound Kit
- BACnet / Modbus Translator
- Coil Trim Panels
- Low Ambient Head Pressure Control
- High Tier

Chiller Warranty Information (Note: for US & Canada only)

First Year - Parts Only (Standard)
Start up, First Unit

Ordering Information

Part Number	Description	Quantity
30XV-4506H-016410	Packaged Chiller	1
	Base Unit	
	Isolation Valve(s)	
	Suction Line Insulation	
	Control Transformer	
	Non-Fused Disconnect	
	Al Fin/Cu Tube	
	Flooded Evaporator, 2 pass, with heater	
	Low Sound Kit	
	BACnet / Modbus Translator	
	Coil Trim Panels	

:

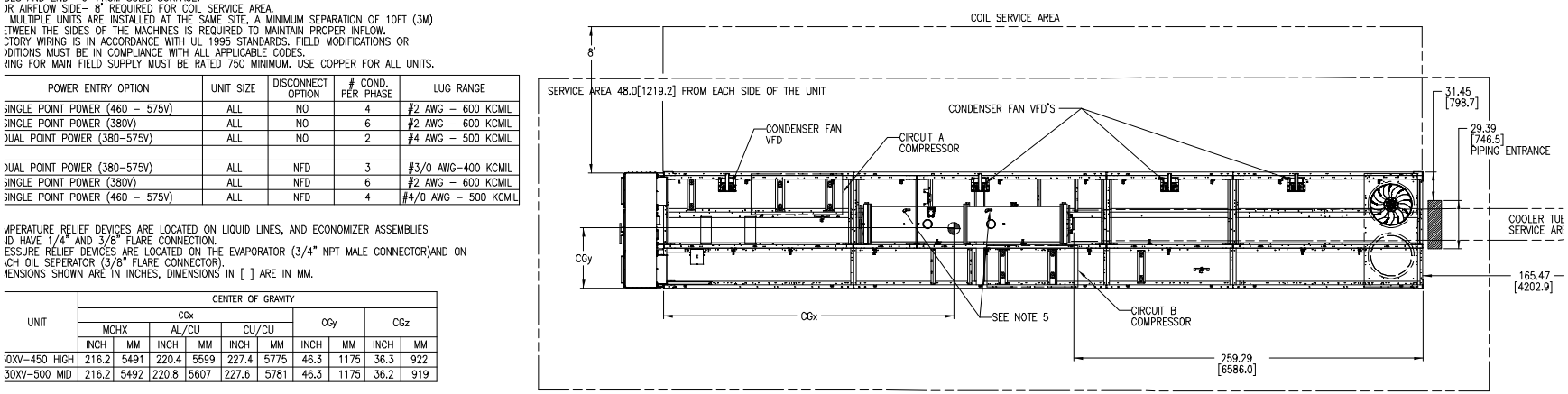
IT MUST HAVE CLEARANCES AS FOLLOWS:
)P– DO NOT RESTRICT.
DES AND END– 6' FROM SOLID SURFACE.
)R AIRFLOW SIDE– 8' REQUIRED FOR COIL SERVICE AREA.
MULTIPLE UNITS ARE INSTALLED AT THE SAME SITE, A MINIMUM SEPARATION OF 10FT (3M)
ETWEEN THE SIDES OF THE MACHINES IS REQUIRED TO MAINTAIN PROPER INFLOW.
CTORY WIRING IS IN ACCORDANCE WITH UL 1995 STANDARDS. FIELD MODIFICATIONS OR
)DITIONS MUST BE IN COMPLIANCE WITH ALL APPLICABLE CODES.
RING FOR MAIN FIELD SUPPLY MUST BE RATED 75C MINIMUM. USE COPPER FOR ALL UNITS.

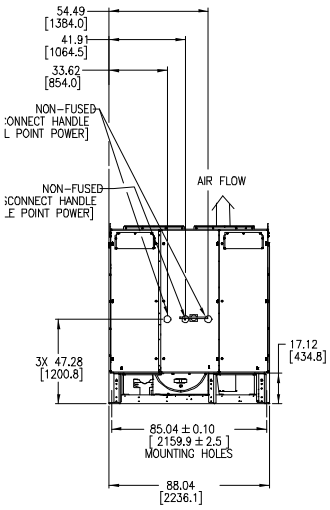
POWER ENTRY OPTION	UNIT SIZE	DISCONNECT OPTION	# COND. PER PHASE	LUG RANGE
SINGLE POINT POWER (460 – 575V)	ALL	NO	4	#2 AWG – 600 KCMIL
SINGLE POINT POWER (380V)	ALL	NO	6	#2 AWG – 600 KCMIL
DUAL POINT POWER (380–575V)	ALL	NO	2	#4 AWG – 500 KCMIL
DUAL POINT POWER (380–575V)	ALL	NFD	3	#3/0 AWG–400 KCMIL
SINGLE POINT POWER (380V)	ALL	NFD	6	#2 AWG – 600 KCMIL
SINGLE POINT POWER (460 – 575V)	ALL	NFD	4	#4/0 AWG – 500 KCMIL

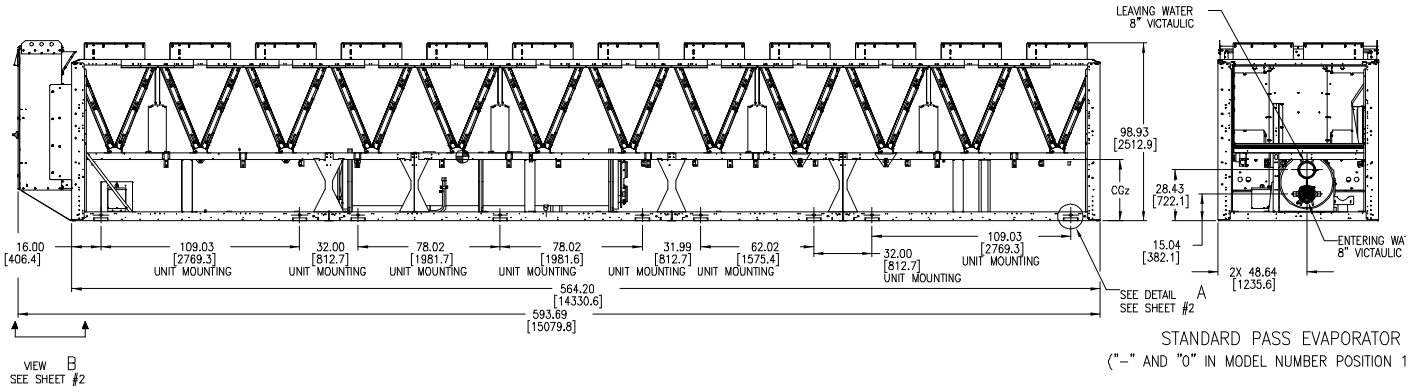
MPERATURE RELIEF DEVICES ARE LOCATED ON LIQUID LINES, AND ECONOMIZER ASSEMBLIES
ID HAVE 1/4" AND 3/8" FLARE CONNECTION.
ESSURE RELIEF DEVICES ARE LOCATED ON THE EVAPORATOR (3/4" NPT MALE CONNECTOR)AND ON
ACH OIL SEPERATOR (3/8" FLARE CONNECTOR).
MENSIONS SHOWN ARE IN INCHES, DIMENSIONS IN [ ] ARE IN MM.

UNIT	CENTER OF GRAVITY									
	CGx						CGy		CGz	
	MCHX		AL/CU		CU/CU					
	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
30XV–450 HIGH	216.2	5491	220.4	5599	227.4	5775	46.3	1175	36.3	922
30XV–500 MID	216.2	5492	220.8	5607	227.6	5781	46.3	1175	36.2	919

SYMBOL DENOTES CG

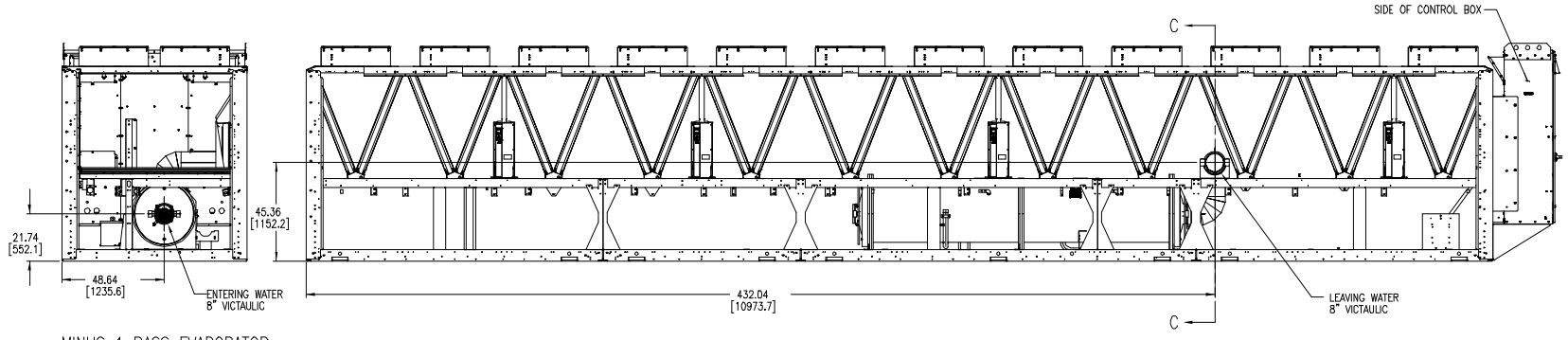




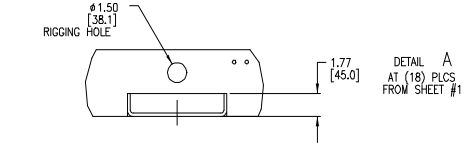


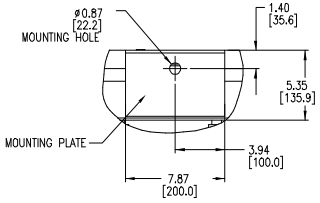
STANDARD PASS EVAPORATOR
("–" AND "0" IN MODEL NUMBER POSITION 1

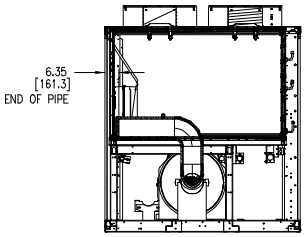
ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	30XV 450 HIGH TIER, 500 MID TIER AIR COOLED CHILLER	30XV60002700
U.S. ECCN:EAR99	1 OF 3	05/12/17	–		



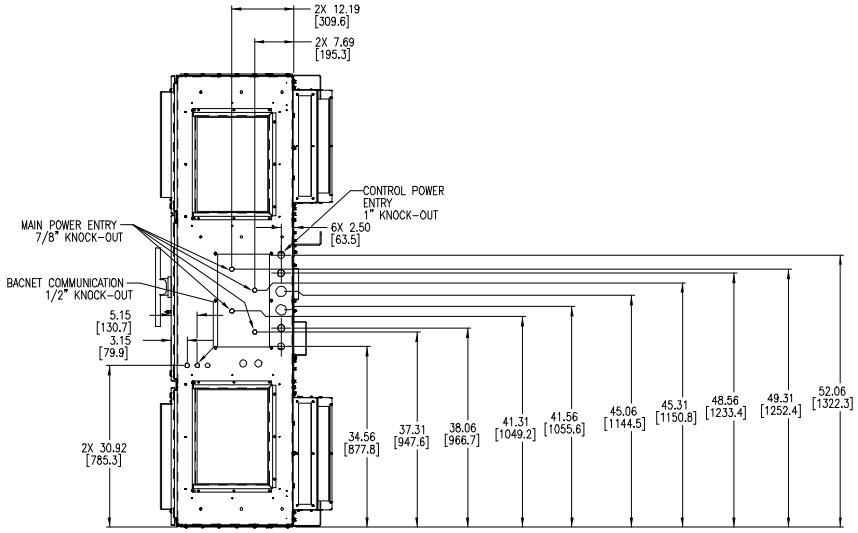
MINUS 1 PASS EVAPORATOR
("1" IN MODEL NUMBER POSITION 12)





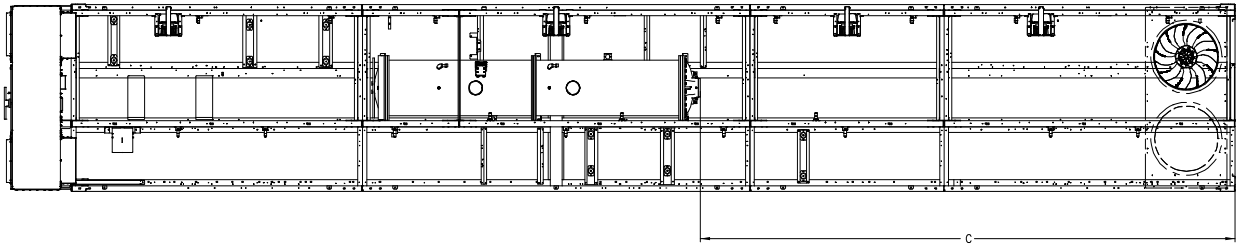


SECTION C–C

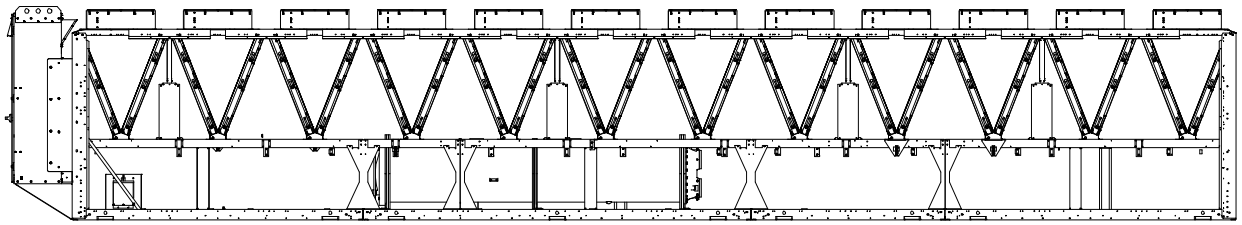


VIEW B
FROM SHEET #1

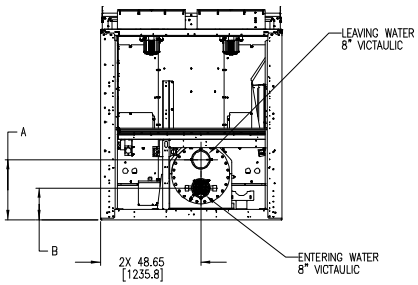
ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:EAR99	2 OF 3	05/12/17	–	30XV 450 HIGH TIER, 500 MID TIER AIR COOLED CHILLER	30XV60002700	B



UNIT	A	B	C
450 HIGH	27.44[696.9]	14.05[357.0]	259.92[6601.9]
500 MID	28.43[722.1]	15.05[382.1]	259.19[6583.4]



BRINE COOLER OPTION



BRINE EVAPORATOR

("2" IN MODEL NUMBER POSITION 12)

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:EAR99	3 OF 3	05/12/17	–	30XV 450 HIGH TIER, 500 MID TIER AIR COOLED CHILLER	30XV60002700	B

AquaForce™ Air-Cooled Variable Speed Screw Chiller

Unit Information

Tag Name:	**30XV450**	
Model Number:	**30XV450H**	
Quantity:	**1**	
Manufacturing Source:	**Charlotte, NC USA**	
ASHRAE 90.1:	**2013/2016, 2010, 2007**	
Refrigerant:	**R-134a**	
Independent Refrigerant Circuits:	**2**	
Shipping Weight:	**28780**	lb
Operating Weight:	**29477**	lb
Refrigerant Weight (Circuit A):	**456**	lb
Refrigerant Weight (Circuit B):	**456**	lb
Unit Length:	**594**	in
Unit Width:	**88**	in
Unit Height:	**99**	in
Required Pad Length:	**564**	in

Evaporator Information

Fluid Type:	**Propylene Glycol**	
Brine Concentration:	**30.00**	%
Fouling Factor:	**0.000100**	(hr-sqft-F)/BTU
Leaving Temperature:	**50.00**	°F
Entering Temperature:	**60.00**	°F
Fluid Flow:	**1,160.**	gpm
Pressure Drop:	**29.7**	ft H2O

Condenser Information

Altitude:	**0.000**	ft
Number of Fans:	**24**	
Total Condenser Fan Air Flow:	**315,400**	CFM
Entering Air Temperature:	**95.0**	°F

Integrated Pump Information

No Pump Selected

Performance Information

Cooling Capacity:	**462.5**	Tons
Total Compressor Power:	**486.0**	kW
Total Fan Motor Power:	**32.67**	kW
Total Unit Power (without pump):	**527.3**	kW
Efficiency (without pump) (EER):	**10.52**	BTU/Wh
IPLV:.IP:	**19.63**	BTU/Wh

Accessories and Installed Options

Isolation Valve(s)
Suction Line Insulation
Control Transformer
Non-Fused Disconnect
Al Fin/Cu Tube
Flooded Evaporator, 2 pass, with heater
Low Sound Kit
BACnet / Modbus Translator
Coil Trim Panels
Low Ambient Head Pressure Control
High Tier

Electrical Information

Unit Voltage: **460-3-60** V-Ph-Hz
Connection Type: **Single Point**
Minimum Voltage: **414** Volts
Maximum Voltage: **506** Volts

Amps	Electrical Circuit 1	Electrical Circuit 2
MCA	793.3	---
MOCP	1000.0	---
Rec Fuse Size	1000.0	---

Sound power measured in accordance with ANSI/AHRI Standard 370-2015.

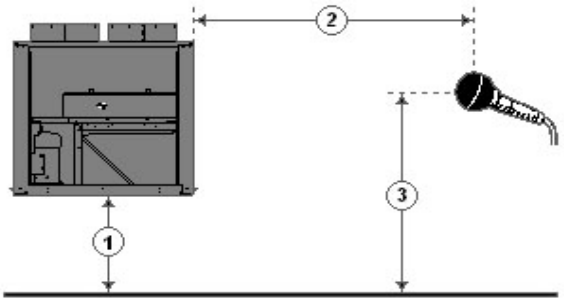
Certified in accordance with the AHRI Air-Cooled Water-Chilling Packages Certification Program, which is based on AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI). Certified units may be found in the AHRI Directory at www.ahridirectory.org. Unit contains freeze protection fluids in the evaporator with a leaving chilled fluid temperature above 32°F [0°C] is certified when rated per the Standard with water.

Summary Performance Report For 30XV450

Project: Burns and McDonnell - AC Chillers 091418 10/12/2018
Prepared By: 02:11PM

Unit Parameters

Tag Name:	**30XV450**	
Model Number:	**30XV450H**	
Condenser Type:	**Air Cooled**	
Compressor Type:	**VFD Screw**	
Chiller Nameplate Voltage:	**460-3-60**	V-Ph-Hz
Quantity:	**1**	
Manufacturing Source:	**Charlotte, NC USA**	
Refrigerant:	**R-134a**	
Shipping Weight:	**28780**	lb
Operating Weight:	**29477**	lb
Refrigerant Weight (Circuit A):	**456**	lb
Refrigerant Weight (Circuit B):	**456**	lb
Unit Length:	**594**	in
Unit Width:	**88**	in
Unit Height:	**99**	in



1 - Chiller Height Above Ground
2 - Horizontal Distance From Chiller to Receiver
3 - Receiver Height Above Ground
(See Note 3)

Accessories and Installed Options

Isolation Valve(s)	Flooded Evaporator, 2 pass, with heater
Suction Line Insulation	Low Sound Kit
Control Transformer	BACnet / Modbus Translator
Non-Fused Disconnect	Coil Trim Panels
Al Fin/Cu Tube	

Acoustic Information

Table 1. A-Weighted Sound Power Levels (dB re 1 picowatt). See note #1.

Octave Band Center Frequency, Hz	63	125	250	500	1k	2k	4k	8k	Overall
100% Load	71	83	87	97	101	101	99	87	106
75% Load	68	79	85	97	93	94	87	82	100
50% Load	62	71	85	86	89	86	78	79	93
25% Load	59	67	83	83	86	84	76	76	91

Table 2. A-Weighted Sound Pressure Levels (dB re 20 micropascals) calculated based upon user defined input for dimensions 1, 2 and 3 as shown in above diagram. See note #2 and #3.

Octave Band Center Frequency, Hz	63	125	250	500	1k	2k	4k	8k	Overall
100% Load	37	49	53	63	67	67	65	53	72
75% Load	34	45	52	63	59	60	54	48	66
50% Load	28	37	51	52	55	52	45	45	59
25% Load	25	33	49	50	52	50	42	42	57

Notes: (1) Measurements performed in accordance with AHRI Standard 370-2015 for air cooled Chillers.
(2) Chiller is assumed to be a point source on a reflecting plane.
(3) Without user defined input, the default dimensions used to construct Table 2 are as follows:
1 - Chiller Height Above Ground = 0.0 ft
2 - Horizontal Distance From Chiller to Receiver = 30.0 ft
3 - Receiver Height Above Ground = 3.0 ft

AquaForce™ Air-Cooled Variable Speed Screw Chiller

Unit Information

Tag Name:	**30XV450**	
Model Number:	**30XV450H**	
Condenser Type:	**Air Cooled**	
Compressor Type:	**VFD Screw**	
Nameplate Voltage:	**460-3-60**	V-Ph-Hz
Quantity:	**1**	
Manufacturing Source:	**Charlotte, NC USA**	
ASHRAE 90.1:	**2013/2016, 2010, 2007**	
Refrigerant:	**R-134a**	
Minimum Capacity:	**15.00**	%
Shipping Weight:	**28780**	lb
Operating Weight:	**29477**	lb
Refrigerant Weight (Circuit A):	**456**	lb
Refrigerant Weight (Circuit B):	**456**	lb
Unit Length:	**594**	in
Unit Width:	**88**	in
Unit Height:	**99**	in
Required Pad Length:	**564**	in
Minimum Outdoor Operating Temp:	**-20.0**	°F

Performance Information

Cooling Capacity:	**462.5**	Tons
Total Compressor Power:	**486.0**	kW
Total Fan Motor Power:	**32.67**	kW
Total Unit Power (without pump):	**527.3**	kW
Efficiency (without pump) (EER):	**10.52**	BTU/Wh

Evaporator Information

Fluid Type:	**Propylene Glycol**	
Brine Concentration:	**30.00**	%
Fouling Factor:	**0.000100**	(hr-sqft-F)/BTU
Leaving Temperature:	**50.00**	°F
Entering Temperature:	**60.00**	°F
Fluid Flow:	**1,160.**	gpm
Fluid Flow Min:	**600.5**	gpm
Fluid Flow Max:	**2,136**	gpm
Pressure Drop:	**29.7**	ft H2O

Condenser Information

Altitude:	**0.000**	ft
Number of Fans:	**24**	
Total Condenser Fan Air Flow:	**315,400**	CFM
Entering Air Temperature:	**95.0**	°F

Integrated Pump Information

No Pump Selected

Accessories and Installed Options

Isolation Valve(s)
Suction Line Insulation
Control Transformer
Non-Fused Disconnect
Al Fin/Cu Tube
Flooded Evaporator, 2 pass, with heater
Low Sound Kit
BACnet / Modbus Translator
Coil Trim Panels
Low Ambient Head Pressure Control
High Tier

Electrical Information

Unit Voltage: **460-3-60** V-Ph-Hz
Connection Type: **Single Point**
Minimum Voltage: **414** Volts
Maximum Voltage: **506** Volts

Amps	Electrical Circuit 1	Electrical Circuit 2
MCA	793.3	---
MOCP	1000.0	---
Rec Fuse Size	1000.0	

Detailed Performance Summary For 30XV450

Project: Burns and McDonnell - AC Chillers 091418 10/12/2018
Prepared By: 02:11PM

Integrated Part Load Value (AHRI)

IPLV.IP: **19.63** BTU/Wh

Unit Performance				
Percent of Full Load Capacity, %	100.00	75.00	50.00	25.00
Percent of Full Load Power, %	100.00	51.92	23.45	9.97
Unloading Sequence	A	A	A	A
Cooling Capacity, Tons	452.1	339.1	226.1	113.0
Total Unit Power, kW	518.8	269.3	121.6	51.74
Efficiency (EER), BTU/Wh	10.46	15.11	22.30	26.22
Evaporator Data				
Fluid Entering Temperature, °F	54.00	51.49	48.99	46.50
Fluid Leaving Temperature, °F	44.00	44.00	44.00	44.00
Fluid Flow Rate, gpm	1,081	1,081	1,081	1,081
Fouling Factor, (hr-sqft-F)/BTU	0.000100	0.000100	0.000100	0.000100
Condenser Data				
Entering Air Temperature, °F	95.0	80.0	65.0	55.0

Sound power measured in accordance with ANSI/AHRI Standard 370-2015.

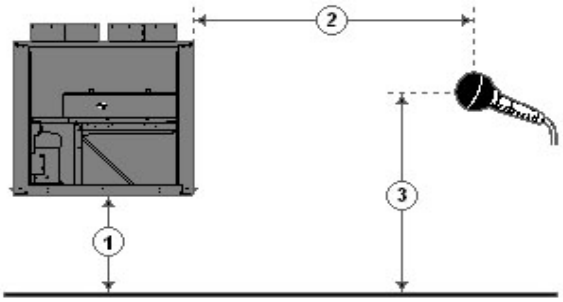
Certified in accordance with the AHRI Air-Cooled Water-Chilling Packages Certification Program, which is based on AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI). Certified units may be found in the AHRI Directory at www.ahridirectory.org. Unit contains freeze protection fluids in the evaporator with a leaving chilled fluid temperature above 32°F [0°C] is certified when rated per the Standard with water.

Detailed Performance Summary For 30XV450

Project: Burns and McDonnell - AC Chillers 091418 10/12/2018
Prepared By: 02:11PM

Unit Parameters

Tag Name:	**30XV450**	
Model Number:	**30XV450**	
Condenser Type:	**Air Cooled**	
Compressor Type:	**VFD Screw**	
Chiller Nameplate Voltage:	**460-3-60**	V-Ph-Hz
Quantity:	**1**	
Manufacturing Source:	**Charlotte, NC USA**	
Refrigerant:	**R-134a**	
Shipping Weight:	**28780**	lb
Operating Weight:	**29477**	lb
Refrigerant Weight (Circuit A):	**456**	lb
Refrigerant Weight (Circuit B):	**456**	lb
Unit Length:	**594**	in
Unit Width:	**88**	in
Unit Height:	**99**	in
Required Pad Length:	**564**	in



1 - Chiller Height Above Ground
2 - Horizontal Distance From Chiller to Receiver
3 - Receiver Height Above Ground
(See Note 3)

Accessories and Installed Options

Isolation Valve(s)
Suction Line Insulation
Control Transformer
Non-Fused Disconnect
Al Fin/Cu Tube
Flooded Evaporator, 2 pass, with heater
Low Sound Kit
BACnet / Modbus Translator
Coil Trim Panels

Acoustic Information

Table 1. A-Weighted Sound Power Levels (dB re 1 picowatt). See note #1.

Octave Band Center Frequency, Hz	63	125	250	500	1k	2k	4k	8k	Overall
100% Load	71	83	87	97	101	101	99	87	106
75% Load	68	79	85	97	93	94	87	82	100
50% Load	62	71	85	86	89	86	78	79	93
25% Load	59	67	83	83	86	84	76	76	91

Table 2. A-Weighted Sound Pressure Levels (dB re 20 micropascals) calculated based upon user defined input for dimensions 1, 2 and 3 as shown in above diagram. See note #2 and #3.

Octave Band Center Frequency, Hz	63	125	250	500	1k	2k	4k	8k	Overall
100% Load	37	49	53	63	67	67	65	53	72
75% Load	34	45	52	63	59	60	54	48	66
50% Load	28	37	51	52	55	52	45	45	59
25% Load	25	33	49	50	52	50	42	42	57

Notes: (1) Measurements performed in accordance with AHRI Standard 370-2015 for air cooled Chillers.
(2) Chiller is assumed to be a point source on a reflecting plane.
(3) Without user defined input, the default dimensions used to construct Table 2 are as follows:
1 - Chiller Height Above Ground = 0.0 ft
2 - Horizontal Distance From Chiller to Receiver = 30.0 ft
3 - Receiver Height Above Ground = 3.0 ft

ATTACHMENT 3

O&M HVAC Unit Specifications

Fan Performance

Table 6. Standard motor & low static drive accessory sheave/fan speed (rpm)

Tons	Unit Model Number	Fan Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
5	WSC060ED	AK44x3/4"	N/A	720	791	861	931	1002	1072
6	WSC072ED	AK56x1"	N/A	558	612	665	718	772	825
7½	WSC090ED	AK57x1"	N/A	688	737	787	837	887	N/A
10	WSC120ED	AK105X1"	N/A	724	776	828	880	932	984

Note: Factory set at 3 turns open.

Table 7. Standard motor & high static drive accessory sheave/fan speed (rpm)

Tons	Unit Model Number	Fan Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
6	WSC072ED	AK56x1"	N/A	968	1018	1068	1118	1169	1219
7½	WSC090ED	AK57x1"	1053	1091	1129	1166	1204	1242	N/A
10	WSC120ED	AK105X1"	1110	1159	1209	1258	1308	1357	N/A

Note: Factory set at 3 turns open.

Table 8. Oversized motor & high static drive accessory sheave/fan speed (rpm)

Tons	Unit Model Number	Fan Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
7½	WSC090ED	AK85x1"	1186	1249	1311	1373	1436	N/A	N/A

Note: Factory set at 3 turns open.

Table 9. Outdoor sound power level—dB (ref. 10—2 W)

Tons	Unit Model Number	Octave Center Frequency								Overall dBA
		63	125	250	500	1000	2000	4000	8000	
5	T/YSC060ED	84	91	79	77	74	71	68	63	80
6	T/YSC072ED	83	90	86	82	79	75	70	63	85
7½	T/YSC090ED	83	90	86	83	80	75	71	64	85
8.5	T/YSC102ED	83	89	84	81	77	72	69	62	83
10	T/YSC120ED	83	86	80	77	73	69	66	60	79

Note: Tests follow ARI270-95.

Table 10. Outdoor sound power level—dB (ref. 10—12 W)

Tons	Unit Model Number	Octave Center Frequency								Overall dBA
		63	125	250	500	1000	2000	4000	8000	
5	WSC060ED	84	91	79	77	74	71	68	63	80
6	WSC072ED	83	90	86	82	79	75	70	63	85
7½	WSC090ED	83	90	86	83	80	75	71	64	85
10	WSC120ED	83	86	80	77	73	69	66	60	79

Note: Tests follow ARI270-95.

ATTACHMENT 4

SoundPLAN Data – Construction

8888 Westside Canal Energy Center
SoundPLAN Data - Construction

Source name	Reference	Level	Corrections		
		Leq1	Cwall	CI	CT
		dB(A)	dB(A)	dB(A)	dB(A)
Construction - Common Facilities	Lw/unit	123.9	-	-	-
Construction - Battery Storage 1	Lw/unit	120.8	-	-	-
Construction - Battery Storage 2-5	Lw/unit	120.8	-	-	-

8888 Westside Canal Energy Center
SoundPLAN Data - Construction

No.	Coordinates X	Coordinates Y	Floor	Height	Limit Leq1	Common Facilities Level without Noise Protection Leq1	Battery Storage 1 Level without Noise Protection Leq1	Battery Storage 2-5 Level without Noise Protection Leq1
	in meter			m	dB(A)	dB(A)	dB(A)	dB(A)
1	623318.8	3619986	1.Fl	1.5	75	33.3	30.3	30.3
2	621691.4	3622998	1.Fl	1.5	75	43.6	40.3	40.3
3	620468.1	3623432	1.Fl	1.5	75	45.5	41.7	41.7
4	620250.8	3623697	1.Fl	1.5	75	43.6	39.9	39.9
5	618809.7	3625227	1.Fl	1.5	75	33.4	30.0	30.0
6	617680.6	3625229	1.Fl	1.5	75	30.9	27.6	27.6

Receivers

ATTACHMENT 5

SoundPLAN Data – Operation

8888 Westside Canal Energy Center
SoundPLAN Data - On-Site Generated Noise

Source name	Reference	Level Leq1 dB(A)	Corrections Cwall dB(A)	Corrections CI dB(A)	Corrections CT dB(A)
Lithium Ion 50 MW Building1	Lw/unit	106.2	-	-	-
Lithium Ion 50 MW Building2	Lw/unit	106.2	-	-	-
Lithium Ion 50 MW Building3	Lw/unit	106.2	-	-	-
Lithium Ion 50 MW Building4	Lw/unit	106.2	-	-	-
Lithium Ion 50 MW Building5	Lw/unit	106.2	-	-	-
Lithium Ion 50 MW Building6	Lw/unit	106.2	-	-	-
Lithium Ion 50 MW Building7	Lw/unit	106.2	-	-	-
Lithium Ion 50 MW Building8	Lw/unit	106.2	-	-	-
Lithium Ion 50 MW Building9	Lw/unit	106.2	-	-	-
Lithium Ion 50 MW Building10	Lw/unit	106.2	-	-	-
Lithium Ion 50 MW Building11	Lw/unit	106.2	-	-	-
Lithium Ion 50 MW Building12	Lw/unit	106.2	-	-	-
Lithium Ion 50 MW Building13	Lw/unit	106.2	-	-	-
Lithium Ion 50 MW Building14	Lw/unit	106.2	-	-	-
Lithium Ion 50 MW Building15	Lw/unit	106.2	-	-	-
Lithium Ion 50 MW Building16	Lw/unit	106.2	-	-	-
Lithium Ion 50 MW Building17	Lw/unit	106.2	-	-	-
Lithium Ion 50 MW Building18	Lw/unit	106.2	-	-	-
Lithium Ion 50 MW Building19	Lw/unit	106.2	-	-	-
Lithium Ion 50 MW Building20	Lw/unit	106.2	-	-	-
Substation	Lw/unit	97	-	-	-
Additional Lithium Ion 50 MW Building21	Lw/unit	106.2	-	-	-
Additional Lithium Ion 50 MW Building22	Lw/unit	106.2	-	-	-
Additional Lithium Ion 50 MW Building23	Lw/unit	106.2	-	-	-
Additional Lithium Ion 50 MW Building24	Lw/unit	106.2	-	-	-
Additional Lithium Ion 50 MW Building25	Lw/unit	106.2	-	-	-
Additional Lithium Ion 50 MW Building26	Lw/unit	106.2	-	-	-
Additional Lithium Ion 50 MW Building27	Lw/unit	106.2	-	-	-
Additional Lithium Ion 50 MW Building28	Lw/unit	106.2	-	-	-
Additional Lithium Ion 50 MW Building29	Lw/unit	106.2	-	-	-
Additional Lithium Ion 50 MW Building30	Lw/unit	106.2	-	-	-
Additional Lithium Ion 50 MW Building31	Lw/unit	106.2	-	-	-
Additional Lithium Ion 50 MW Building32	Lw/unit	106.2	-	-	-
Additional Lithium Ion 50 MW Building33	Lw/unit	106.2	-	-	-
Additional Lithium Ion 50 MW Building34	Lw/unit	106.2	-	-	-
Additional Lithium Ion 50 MW Building35	Lw/unit	106.2	-	-	-
Additional Lithium Ion 50 MW Building36	Lw/unit	106.2	-	-	-
Additional Lithium Ion 50 MW Building37	Lw/unit	106.2	-	-	-
Additional Lithium Ion 50 MW Building38	Lw/unit	106.2	-	-	-
Battery Storage1	Lw/unit	106.2	-	-	-
Battery Storage2	Lw/unit	106.2	-	-	-
Battery Storage3	Lw/unit	106.2	-	-	-
Battery Storage4	Lw/unit	106.2	-	-	-
Battery Storage5	Lw/unit	106.2	-	-	-
Battery Storage6	Lw/unit	106.2	-	-	-
Battery Storage7	Lw/unit	106.2	-	-	-
Battery Storage8	Lw/unit	106.2	-	-	-
Battery Storage9	Lw/unit	106.2	-	-	-
Transmission Line 1	Lw/m,m2	45	-	-	-
Transmission Line 2	Lw/m,m2	45	-	-	-
Transmission Line 3	Lw/m,m2	45	-	-	-
O&M HVAC	Lw/unit	79	-	-	-

8888 Westside Canal Energy Center
SoundPLAN Data - On-Site Generated Noise

No.	Coordinates X	Y	Floor	Height	Limit Leq1	Level without Noise Protection Leq1
	in meter			m	dB(A)	dB(A)
1	623318.8	3619986	1.Fl	1.5	-	32.3
2	621691.4	3622998	1.Fl	1.5	-	41.8
3	620468.1	3623432	1.Fl	1.5	-	43.5
4	620250.8	3623697	1.Fl	1.5	-	41.7
5	618809.7	3625227	1.Fl	1.5	-	32.0
6	617680.6	3625229	1.Fl	1.5	-	29.5

8888 Westside Canal Energy Center
SoundPLAN Data - On-Site Generated Noise

Source name	Level without Noise Protection Leq1 dB(A)
1 1.Fl 32.3 0.0	
Additional Lithium Ion 50 MW Building21	15.5
Additional Lithium Ion 50 MW Building22	15.3
Additional Lithium Ion 50 MW Building23	15.7
Additional Lithium Ion 50 MW Building24	15.6
Additional Lithium Ion 50 MW Building25	15.2
Additional Lithium Ion 50 MW Building26	15.4
Additional Lithium Ion 50 MW Building27	16.0
Additional Lithium Ion 50 MW Building28	15.6
Additional Lithium Ion 50 MW Building29	15.6
Additional Lithium Ion 50 MW Building30	15.9
Additional Lithium Ion 50 MW Building31	15.8
Additional Lithium Ion 50 MW Building32	15.7
Additional Lithium Ion 50 MW Building33	15.3
Additional Lithium Ion 50 MW Building34	15.2
Additional Lithium Ion 50 MW Building35	15.1
Additional Lithium Ion 50 MW Building36	14.9
Additional Lithium Ion 50 MW Building37	15.0
Additional Lithium Ion 50 MW Building38	15.4
Battery Storage1	17.0
Battery Storage2	16.6
Battery Storage3	17.0
Battery Storage4	17.3
Battery Storage5	17.6
Battery Storage6	17.3
Battery Storage7	17.7
Battery Storage8	16.2
Battery Storage9	16.5
Lithium Ion 50 MW Building1	14.3
Lithium Ion 50 MW Building2	14.4
Lithium Ion 50 MW Building3	14.5
Lithium Ion 50 MW Building4	14.6
Lithium Ion 50 MW Building5	14.7
Lithium Ion 50 MW Building6	14.8
Lithium Ion 50 MW Building7	15.1
Lithium Ion 50 MW Building8	15.0
Lithium Ion 50 MW Building9	14.9
Lithium Ion 50 MW Building10	14.8
Lithium Ion 50 MW Building11	14.7
Lithium Ion 50 MW Building12	14.6
Lithium Ion 50 MW Building13	14.0
Lithium Ion 50 MW Building14	14.1
Lithium Ion 50 MW Building15	14.9
Lithium Ion 50 MW Building16	15.0
Lithium Ion 50 MW Building17	15.1
Lithium Ion 50 MW Building18	15.2
Lithium Ion 50 MW Building19	15.3
Lithium Ion 50 MW Building20	15.4
O&M HVAC	-13.5
Substation	4.3
Transmission Line 1	-29.1
Transmission Line 2	-23.5

Contributions

Transmission Line 3	-17.3
2 1.Fl 41.8 0.0	
Additional Lithium Ion 50 MW Building21	23.9
Additional Lithium Ion 50 MW Building22	24.3
Additional Lithium Ion 50 MW Building23	23.6
Additional Lithium Ion 50 MW Building24	23.7
Additional Lithium Ion 50 MW Building25	24.4
Additional Lithium Ion 50 MW Building26	24.1
Additional Lithium Ion 50 MW Building27	23.9
Additional Lithium Ion 50 MW Building28	24.9
Additional Lithium Ion 50 MW Building29	24.7
Additional Lithium Ion 50 MW Building30	24.1
Additional Lithium Ion 50 MW Building31	24.3
Additional Lithium Ion 50 MW Building32	24.5
Additional Lithium Ion 50 MW Building33	25.3
Additional Lithium Ion 50 MW Building34	25.5
Additional Lithium Ion 50 MW Building35	25.7
Additional Lithium Ion 50 MW Building36	26.0
Additional Lithium Ion 50 MW Building37	25.8
Additional Lithium Ion 50 MW Building38	25.2
Battery Storage1	25.4
Battery Storage2	26.1
Battery Storage3	26.5
Battery Storage4	25.8
Battery Storage5	26.2
Battery Storage6	27.0
Battery Storage7	27.1
Battery Storage8	26.9
Battery Storage9	27.4
Lithium Ion 50 MW Building1	25.0
Lithium Ion 50 MW Building2	24.9
Lithium Ion 50 MW Building3	24.7
Lithium Ion 50 MW Building4	24.6
Lithium Ion 50 MW Building5	24.4
Lithium Ion 50 MW Building6	24.3
Lithium Ion 50 MW Building7	24.7
Lithium Ion 50 MW Building8	24.9
Lithium Ion 50 MW Building9	25.1
Lithium Ion 50 MW Building10	25.2
Lithium Ion 50 MW Building11	25.4
Lithium Ion 50 MW Building12	25.5
Lithium Ion 50 MW Building13	24.4
Lithium Ion 50 MW Building14	24.3
Lithium Ion 50 MW Building15	24.0
Lithium Ion 50 MW Building16	23.8
Lithium Ion 50 MW Building17	23.7
Lithium Ion 50 MW Building18	23.5
Lithium Ion 50 MW Building19	23.3
Lithium Ion 50 MW Building20	23.2
O&M HVAC	-2.7
Substation	14.1
Transmission Line 1	-19.5
Transmission Line 2	-13.8
Transmission Line 3	-7.3
3 1.Fl 43.5 0.0	

Additional Lithium Ion 50 MW Building21	25.4
Additional Lithium Ion 50 MW Building22	26.0
Additional Lithium Ion 50 MW Building23	24.9
Additional Lithium Ion 50 MW Building24	25.1
Additional Lithium Ion 50 MW Building25	26.3
Additional Lithium Ion 50 MW Building26	25.7
Additional Lithium Ion 50 MW Building27	24.9
Additional Lithium Ion 50 MW Building28	26.4
Additional Lithium Ion 50 MW Building29	26.1
Additional Lithium Ion 50 MW Building30	25.2
Additional Lithium Ion 50 MW Building31	25.5
Additional Lithium Ion 50 MW Building32	25.8
Additional Lithium Ion 50 MW Building33	27.3
Additional Lithium Ion 50 MW Building34	27.6
Additional Lithium Ion 50 MW Building35	28.0
Additional Lithium Ion 50 MW Building36	28.7
Additional Lithium Ion 50 MW Building37	28.3
Additional Lithium Ion 50 MW Building38	26.9
Battery Storage1	25.3
Battery Storage2	26.2
Battery Storage3	26.2
Battery Storage4	25.2
Battery Storage5	25.2
Battery Storage6	26.1
Battery Storage7	25.7
Battery Storage8	27.4
Battery Storage9	27.3
Lithium Ion 50 MW Building1	28.4
Lithium Ion 50 MW Building2	28.1
Lithium Ion 50 MW Building3	27.7
Lithium Ion 50 MW Building4	27.4
Lithium Ion 50 MW Building5	27.1
Lithium Ion 50 MW Building6	26.8
Lithium Ion 50 MW Building7	26.9
Lithium Ion 50 MW Building8	27.2
Lithium Ion 50 MW Building9	27.6
Lithium Ion 50 MW Building10	27.9
Lithium Ion 50 MW Building11	28.2
Lithium Ion 50 MW Building12	28.6
Lithium Ion 50 MW Building13	28.0
Lithium Ion 50 MW Building14	27.7
Lithium Ion 50 MW Building15	26.2
Lithium Ion 50 MW Building16	25.9
Lithium Ion 50 MW Building17	25.6
Lithium Ion 50 MW Building18	25.3
Lithium Ion 50 MW Building19	25.1
Lithium Ion 50 MW Building20	24.8
O&M HVAC	1.5
Substation	18.0
Transmission Line 1	-15.2
Transmission Line 2	-9.8
Transmission Line 3	-6.3
4 1.Fl 41.7 0.0	
Additional Lithium Ion 50 MW Building21	23.8
Additional Lithium Ion 50 MW Building22	24.3

Additional Lithium Ion 50 MW Building23	23.3
Additional Lithium Ion 50 MW Building24	23.5
Additional Lithium Ion 50 MW Building25	24.6
Additional Lithium Ion 50 MW Building26	24.1
Additional Lithium Ion 50 MW Building27	23.3
Additional Lithium Ion 50 MW Building28	24.6
Additional Lithium Ion 50 MW Building29	24.3
Additional Lithium Ion 50 MW Building30	23.5
Additional Lithium Ion 50 MW Building31	23.8
Additional Lithium Ion 50 MW Building32	24.1
Additional Lithium Ion 50 MW Building33	25.4
Additional Lithium Ion 50 MW Building34	25.7
Additional Lithium Ion 50 MW Building35	26.0
Additional Lithium Ion 50 MW Building36	26.6
Additional Lithium Ion 50 MW Building37	26.3
Additional Lithium Ion 50 MW Building38	25.1
Battery Storage1	23.4
Battery Storage2	24.2
Battery Storage3	24.1
Battery Storage4	23.3
Battery Storage5	23.2
Battery Storage6	24.0
Battery Storage7	23.6
Battery Storage8	25.2
Battery Storage9	25.1
Lithium Ion 50 MW Building1	26.6
Lithium Ion 50 MW Building2	26.3
Lithium Ion 50 MW Building3	26.0
Lithium Ion 50 MW Building4	25.7
Lithium Ion 50 MW Building5	25.4
Lithium Ion 50 MW Building6	25.1
Lithium Ion 50 MW Building7	25.1
Lithium Ion 50 MW Building8	25.4
Lithium Ion 50 MW Building9	25.7
Lithium Ion 50 MW Building10	26.0
Lithium Ion 50 MW Building11	26.3
Lithium Ion 50 MW Building12	26.7
Lithium Ion 50 MW Building13	26.4
Lithium Ion 50 MW Building14	26.1
Lithium Ion 50 MW Building15	24.6
Lithium Ion 50 MW Building16	24.3
Lithium Ion 50 MW Building17	24.0
Lithium Ion 50 MW Building18	23.8
Lithium Ion 50 MW Building19	23.5
Lithium Ion 50 MW Building20	23.2
O&M HVAC	-0.2
Substation	16.6
Transmission Line 1	-16.4
Transmission Line 2	-11.1
Transmission Line 3	-8.4
5 1.Fl 32.0 0.0	
Additional Lithium Ion 50 MW Building21	14.7
Additional Lithium Ion 50 MW Building22	15.0
Additional Lithium Ion 50 MW Building23	14.3
Additional Lithium Ion 50 MW Building24	14.5

Additional Lithium Ion 50 MW Building25	15.2
Additional Lithium Ion 50 MW Building26	14.8
Additional Lithium Ion 50 MW Building27	14.2
Additional Lithium Ion 50 MW Building28	15.0
Additional Lithium Ion 50 MW Building29	14.9
Additional Lithium Ion 50 MW Building30	14.4
Additional Lithium Ion 50 MW Building31	14.5
Additional Lithium Ion 50 MW Building32	14.7
Additional Lithium Ion 50 MW Building33	15.5
Additional Lithium Ion 50 MW Building34	15.6
Additional Lithium Ion 50 MW Building35	15.8
Additional Lithium Ion 50 MW Building36	16.2
Additional Lithium Ion 50 MW Building37	16.0
Additional Lithium Ion 50 MW Building38	15.3
Battery Storage1	13.9
Battery Storage2	14.4
Battery Storage3	14.2
Battery Storage4	13.8
Battery Storage5	13.6
Battery Storage6	14.1
Battery Storage7	13.8
Battery Storage8	15.0
Battery Storage9	14.8
Lithium Ion 50 MW Building1	16.5
Lithium Ion 50 MW Building2	16.3
Lithium Ion 50 MW Building3	16.1
Lithium Ion 50 MW Building4	16.0
Lithium Ion 50 MW Building5	15.8
Lithium Ion 50 MW Building6	15.6
Lithium Ion 50 MW Building7	15.5
Lithium Ion 50 MW Building8	15.6
Lithium Ion 50 MW Building9	15.8
Lithium Ion 50 MW Building10	16.0
Lithium Ion 50 MW Building11	16.1
Lithium Ion 50 MW Building12	16.3
Lithium Ion 50 MW Building13	16.5
Lithium Ion 50 MW Building14	16.4
Lithium Ion 50 MW Building15	15.3
Lithium Ion 50 MW Building16	15.1
Lithium Ion 50 MW Building17	15.0
Lithium Ion 50 MW Building18	14.8
Lithium Ion 50 MW Building19	14.6
Lithium Ion 50 MW Building20	14.4
O&M HVAC	-10.2
Substation	7.4
Transmission Line 1	-25.2
Transmission Line 2	-20.2
Transmission Line 3	-18.5
6 1.Fl 29.5 0.0	
Additional Lithium Ion 50 MW Building21	12.4
Additional Lithium Ion 50 MW Building22	12.7
Additional Lithium Ion 50 MW Building23	12.1
Additional Lithium Ion 50 MW Building24	12.3
Additional Lithium Ion 50 MW Building25	12.8
Additional Lithium Ion 50 MW Building26	12.5

Additional Lithium Ion 50 MW Building27	11.9
Additional Lithium Ion 50 MW Building28	12.6
Additional Lithium Ion 50 MW Building29	12.5
Additional Lithium Ion 50 MW Building30	12.1
Additional Lithium Ion 50 MW Building31	12.2
Additional Lithium Ion 50 MW Building32	12.3
Additional Lithium Ion 50 MW Building33	13.0
Additional Lithium Ion 50 MW Building34	13.1
Additional Lithium Ion 50 MW Building35	13.2
Additional Lithium Ion 50 MW Building36	13.5
Additional Lithium Ion 50 MW Building37	13.4
Additional Lithium Ion 50 MW Building38	12.8
Battery Storage1	11.5
Battery Storage2	11.9
Battery Storage3	11.6
Battery Storage4	11.3
Battery Storage5	11.0
Battery Storage6	11.4
Battery Storage7	11.1
Battery Storage8	12.3
Battery Storage9	12.1
Lithium Ion 50 MW Building1	14.0
Lithium Ion 50 MW Building2	13.8
Lithium Ion 50 MW Building3	13.7
Lithium Ion 50 MW Building4	13.5
Lithium Ion 50 MW Building5	13.4
Lithium Ion 50 MW Building6	13.3
Lithium Ion 50 MW Building7	13.0
Lithium Ion 50 MW Building8	13.2
Lithium Ion 50 MW Building9	13.3
Lithium Ion 50 MW Building10	13.5
Lithium Ion 50 MW Building11	13.6
Lithium Ion 50 MW Building12	13.7
Lithium Ion 50 MW Building13	14.1
Lithium Ion 50 MW Building14	14.0
Lithium Ion 50 MW Building15	13.0
Lithium Ion 50 MW Building16	12.9
Lithium Ion 50 MW Building17	12.7
Lithium Ion 50 MW Building18	12.6
Lithium Ion 50 MW Building19	12.5
Lithium Ion 50 MW Building20	12.3
O&M HVAC	-12.7
Substation	5.2
Transmission Line 1	-27.3
Transmission Line 2	-22.4
Transmission Line 3	-21.1

Notice of Availability of Draft Environmental Impact Report for the Westside Canal Battery Energy Storage Project

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Stantec Consulting Services Inc. has prepared a Draft Environmental Impact Report (EIR) for the Westside Canal Battery Energy Storage Project (Project) on behalf of the Imperial County Planning and Development Services described below. The Imperial County Planning and Development Services Department held a public scoping meeting for the Project was held on May 28, 2020 at 1:30PM at the Imperial County Board of Supervisors Chambers, 2nd Floor of the County Administration Center located at 940 Main Street, El Centro, CA 92243.

REFERENCE: Westside Canal Battery Energy Storage Project

PROJECT LOCATION: Consolidated Edison Development Inc. (CED) is proposing to develop the Westside Canal Battery Energy Storage Project, a utility-scale energy storage complex with the capacity of up 2,000 megawatts (MW) at full build out in Imperial County, California. The Project would be located on approximately 163 acres of land in the unincorporated Mount Signal area of the County, approximately eight miles southwest of the City of El Centro and approximately 5 miles north of the U.S.-Mexico border.

PROJECT DESCRIPTION: The Project would be comprised of lithium-ion and/or flow battery energy storage system facilities, a behind-the-meter solar energy facility, a new on-site 230 kilovolt (kV) loop-in switching station, a 34.5 kV to 230 kV Project substation, underground electrical cables, and permanent vehicular access to and from the Project Site over a proposed clear-span bridge spanning IID's Westside Main Canal. The proposed loop-in switching station would connect the Project to the existing IID Campo Verde-Imperial Valley 230 kV radial gen-tie line, which connects to the Imperial Valley (IV) Substation and the California Independent System Operator (CAISO), approximately one-third mile south of the Project Site. CED has submitted the necessary Interconnection Request Applications to the California Independent System Operator (CAISO) and Imperial Irrigation District (IID). The Project compliments both the existing operational renewable energy facilities, and those planned for future development in the County, and supports the broader Southern California's bulk electric transmission system by serving as a firm, dispatchable resource.

DESIGNATED AREA PLAN: The Project area is designated as Agriculture by the Imperial County General Plan. The Project site and immediate adjacent parcels are zoned as A-3.

BOARD OF SUPERVISORS DISTRICT: District 2, Supervisor Luis A. Plancarte

ANTICIPATED SIGNIFICANT EFFECTS: The Draft EIR analyzed potential impacts associated with the following: Aesthetics; Agriculture; Air Quality; Biological Resources; Geology and Soils; Greenhouse Gas Emissions; Hazards and Hazardous Materials; Hydrology and Water Quality; Land Use and Planning; Tribal Cultural Resources; Utilities and Service Systems; and Cumulative Impacts.

COMMENTS REQUESTED: Your comments may be submitted in writing to David Black, Senior Planner, located at 801 Main Street, El Centro, CA 92243. A hard copy of the Draft EIR is available for review at the Imperial County Planning and Development Services Department located at 801 Main Street, El Centro, CA 92243 from 7:00 am thru 5:00 pm Monday thru Friday.

DRAFT EIR REVIEW PERIOD: April 7, 2021 to May 27, 2021. Copies of the Draft EIR will be available for review at the local libraries and the Imperial County Planning and Development Services Department will post the Draft EIR on the Imperial County Website (www.icpds.com).

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH # 2020040122

Project Title: Westside Canal Battery Energy Storage Project

Lead Agency: Imperial County Planning & Development Services | Contact Person: David Black, Planner III

Mailing Address: 801 Main Street | Phone:

City: El Centro, California | Zip: 92243 | County: Imperial

Project Location: County: Imperial | City/Nearest Community: Unincorporated Mount Signal

Cross Streets: Westside Main Canal, Liebert Rd, and Mandrapa Rd | Zip Code: 92243

Longitude/Latitude (degrees, minutes and seconds): 32 ° 43 ′ 44.74 ″ N / 115 ° 42 ′ 58.04 ″ W Total Acres: 163

Assessor's Parcel No.: 051-350-010, 051-350-011, 051-350-009, 051-350-019, 051-350-018 Section: Twp.: Range: Base:

Within 2 Miles: State Hwy #: Waterways:

Airports: Railways: Schools:

Document Type:

CEQA: ☐ NOP ☐ Early Cons ☐ Neg Dec ☐ Mit Neg Dec ☒ Draft EIR ☐ Supplement/Subsequent EIR (Prior SCH No.) ☐ Other:

NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI

Other: ☐ Joint Document ☐ Final Document ☐ Other:

Local Action Type:

☐ General Plan Update ☒ General Plan Amendment ☐ General Plan Element ☐ Community Plan
☐ Specific Plan ☐ Master Plan ☐ Planned Unit Development ☐ Site Plan
☒ Rezone ☐ Prezone ☒ Use Permit ☐ Land Division (Subdivision, etc.)
☐ Annexation ☐ Redevelopment ☐ Coastal Permit ☐ Other:

Development Type:

☐ Residential: Units Acres
☐ Office: Sq.ft. Acres Employees
☐ Commercial: Sq.ft. Acres Employees
☐ Industrial: Sq.ft. Acres Employees
☐ Educational:
☐ Recreational:
☐ Water Facilities: Type MGD
☐ Transportation: Type
☐ Mining: Mineral
☒ Power: Type Battery Energy Storage MW 2,000
☐ Waste Treatment: Type MGD
☐ Hazardous Waste: Type
☐ Other:

Project Issues Discussed in Document:

☒ Aesthetic/Visual
☒ Agricultural Land
☒ Air Quality
☐ Archeological/Historical
☒ Biological Resources
☐ Coastal Zone
☒ Drainage/Absorption
☐ Economic/Jobs
☐ Fiscal
☐ Flood Plain/Flooding
☐ Forest Land/Fire Hazard
☒ Geologic/Seismic
☐ Minerals
☐ Noise
☐ Population/Housing Balance
☐ Public Services/Facilities
☐ Recreation/Parks
☐ Schools/Universities
☒ Septic Systems
☐ Sewer Capacity
☒ Soil Erosion/Compaction/Grading
☐ Solid Waste
☒ Toxic/Hazardous
☐ Traffic/Circulation
☐ Vegetation
☒ Water Quality
☒ Water Supply/Groundwater
☐ Wetland/Riparian
☒ Growth Inducement
☒ Land Use
☒ Cumulative Effects
☒ Other: Greenhouse Gas, Tribal

Present Land Use/Zoning/General Plan Designation:

Agricultural (A-3); adjacent parcels are designated as Recreation/Open Space

Project Description: *(please use a separate page if necessary)*

Consolidated Edison Development (CED) Westside Canal Battery Storage, LLC (Applicant), is proposing to develop, design, construct, own, operate, and maintain, and eventually decommission the CED Westside Canal Battery Storage Project (Project), a utility-scale energy storage complex with the capacity of up to 2,000 Megawatts (MW) at full build-out. The proposed Project would store energy generated from the electrical grid , and optimally discharge that energy back into the grid as a firm, dispatchable resource. The Project Site is located on approximately 163 acres of land, 148 of which are owned by the Applicant, and the remaining land is owned by the Bureau of Land Management (BLM), IID, and a private landowner. The proposed Project would be constructed in 3 to 5 multiple phases over a 10-year period with each phase ranging from approximately 25 MW to 400 MW. Given the approximately 10-year development of the Project, the expected end date of the Project life cycle would be 30 years from the construction of the final phase, or no more than 40 years after the effective date of the Conditional Use Permit.

The Project would be comprised of lithium-ion and/or flow battery energy storage system facilities, a behind-the-meter solar energy facility, a new on-site 230 kilovolt (kV) loop-in switching station, a 34.5 kV to 230 kV Project substation, underground electrical cables, and permanent vehicular access to and from the Project Site over a proposed clear-span bridge spanning IID's Westside Main Canal. The proposed loop-in switching station would connect the Project to the existing IID Campo Verde-Imperial Valley 230 kV radial gen-tie line, which connects to the Imperial Valley (IV) Substation and the California Independent System Operator (CAISO), approximately one-third mile south of the Project Site. CED has submitted the necessary Interconnection Request Applications to the CAISO and IID.

The Project complements both the existing operational renewable energy facilities, and those planned for future development in the County, and supports the broader Southern California's bulk electric transmission system by serving as a firm, dispatchable resource.

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "**X**".
If you have already sent your document to the agency please denote that with an "**S**".

x	Air Resources Board	x	Office of Historic Preservation
	Boating & Waterways, Department of		Office of Public School Construction
	California Emergency Management Agency		Parks & Recreation, Department of
	California Highway Patrol		Pesticide Regulation, Department of
x	Caltrans District # 11	x	Public Utilities Commission
	Caltrans Division of Aeronautics	x	Regional WQCB # 7
	Caltrans Planning		Resources Agency
	Central Valley Flood Protection Board	x	Resources Recycling and Recovery, Department of
	Coachella Valley Mtns. Conservancy		S.F. Bay Conservation & Development Comm.
	Coastal Commission		San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
	Colorado River Board		San Joaquin River Conservancy
	Conservation, Department of		Santa Monica Mtns. Conservancy
	Corrections, Department of		State Lands Commission
	Delta Protection Commission		SWRCB: Clean Water Grants
	Education, Department of	x	SWRCB: Water Quality
x	Energy Commission		SWRCB: Water Rights
x	Fish & Game Region # 6		Tahoe Regional Planning Agency
	Food & Agriculture, Department of	x	Toxic Substances Control, Department of
	Forestry and Fire Protection, Department of	x	Water Resources, Department of
	General Services, Department of		
	Health Services, Department of		Other:
	Housing & Community Development		Other:
x	Native American Heritage Commission		

Local Public Review Period (to be filled in by lead agency)

Starting Date April 7, 2021 Ending Date May 27, 2021

Lead Agency (Complete if applicable):

Consulting Firm: Stantec Consulting Services Inc
Address: 290 Conejo Ridge Ave
City/State/Zip: Thousand Oaks, CA 91361
Contact: Kevin Kohan
Phone: 805-338-2163

Applicant: Consolidated Edison Development Inc
Address: 101 West Broadway, Suite 1120
City/State/Zip: San Diego, CA 10595
Phone: 609-318-6735

Signature of Lead Agency Representative: Michael Abraham Digitally signed by Michael Abraham Date: 2021.04.05 15:08:25 -07'00' **Date:** 4-1-2021

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.