# 3.0 PROJECT DESCRIPTION

Chapter 3.0 provides a description of the Mount Signal Solar Farm and Calexico Solar Farm Projects. This chapter also defines the goals and objectives of the proposed projects, provides details regarding the individual components that together comprise the projects, and identifies the discretionary approvals required for project implementation of each of the projects.

## 3.1 LOCATION OF PROJECTS AND STUDY AREAS

The solar farm portions of the project study areas are located on privately owned, undeveloped agricultural land encompassing approximately 4,228 acres within the eastern boundary, approximately three miles west of Calexico, California in southern Imperial County (County) (see Figure 3.0-1). The U.S./Mexico border is located immediately south of the project study areas. The project study areas include all or portions of Sections 17, 18, 19, 20 Township 17 south, Range 14 east and Sections 12, 13, 14, 15, 16, 17, 22, and 23 Township 17 south, Range 13 east San Bernardino baseline and meridian. The geographic center of the project study areas roughly correspond with 32.671 latitude, -16.600 longitude. Figure 3.0-1 illustrates the areas comprising the project study areas.

Five separate Conditional Use Permit (CUP) applications have been filed by the project applicant for the properties identified below. Additionally, a Variance application has been filed with the County for these properties in order to exceed the currently allowed height limit for transmission towers within the applicable zones:

- Mount Signal Solar Farm 1 (MSSF1)
- Calexico Solar Farm 1 Phase A (CSF1(A))
- Calexico Solar Farm 1 Phase B (CSF1(B))
- Calexico Solar Farm 2 Phase A (CSF2(A))
- Calexico Solar Farm 2 Phase B (CSF2(B)

In addition, the project study areas include a linear corridor that would contain off-site transmission facilities (OTF). A portion of the OTF corridor is located within private lands, incorporated within the boundaries of the solar farms, and a portion of the OTF is located in Bureau of Land Management (BLM) lands. The proposed projects would connect transmission facilities to the facilities that will be developed as part of the Imperial Solar Energy Center South project, located immediately west of the Mount Signal Solar Farm project site.

The projects also involve the construction of new transmission facilities that would extend from the approved Imperial Solar South transmission lines, extending north through public land approximately five miles to the Imperial Valley Substation. These lands are subject to administration by the BLM. The location of each of these individual project components is depicted in Figures 3.0-2a and 3.0-2b. Figure 3.0-3 provides an index of the major project components and the details of the projects are further described and depicted in Section 3.0.

Each individual site location comprising the project study areas is further described below.

### 3.1.1 Mount Signal Solar Farm 1

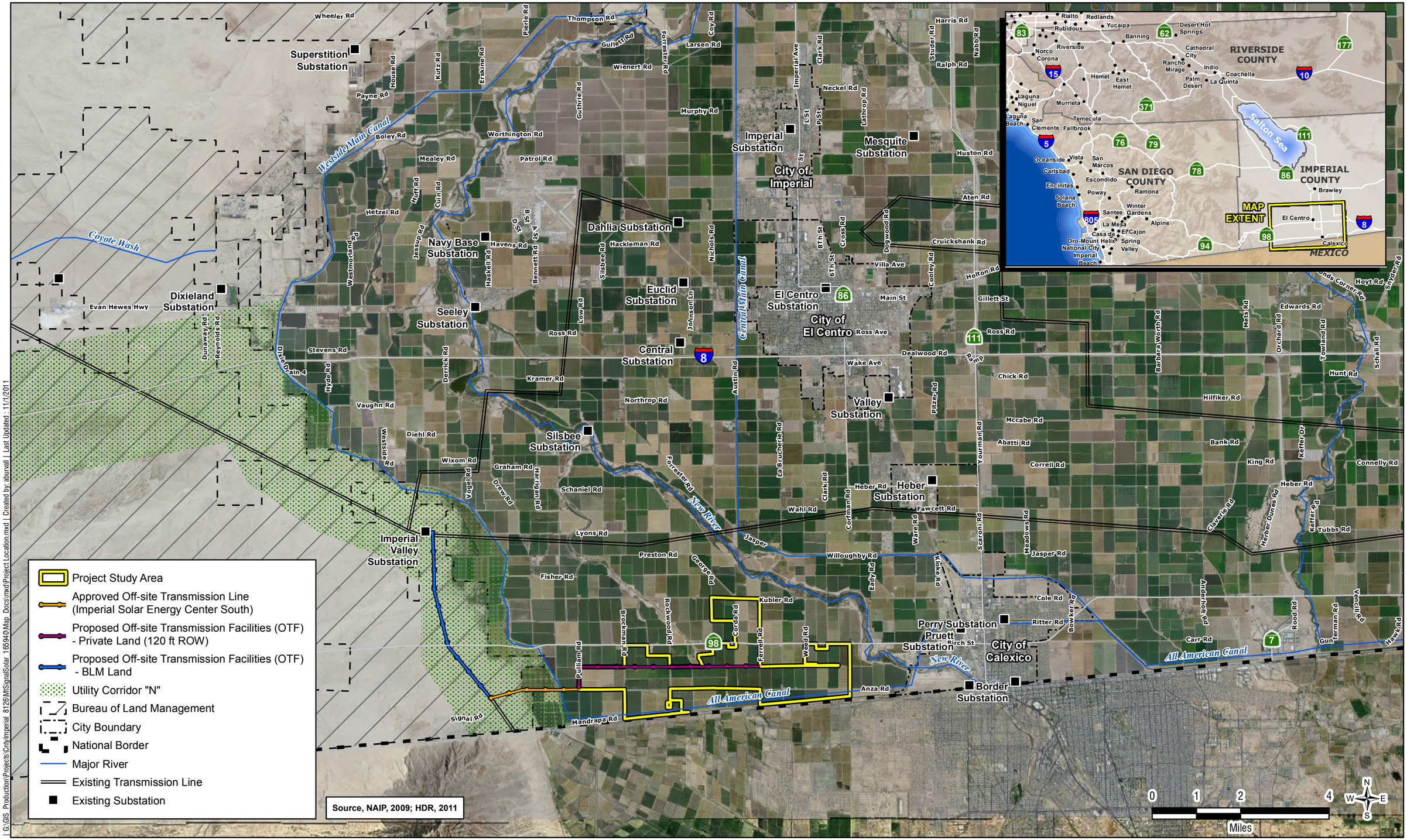
The MSSF1 project site consists of ten parcels totaling approximately 1,431 acres within the central and western portions of the project study areas. As shown on Figure 3.0-2a, the MSSF1 site is generally located between State Route (SR) 98 to the north and the US-Mexico border to the south, and between Pulliam Road to the west and Weed Road to the east. Primary access to MSSF1 is via SR 98 and Ferrell Road. The MSSF1 site includes the following County Assessor Parcel Numbers (APNs): 052-190-012; 052-210-013; 052-210-016; 052-210-034; 052-210-035; 052-210-036; 059-130-001; 059-130-002; 059-130-004; and 059-130-005. Table 3-1 identifies the individual APNs within MSSF1, their respective acreages, and zoning.

**TABLE 3-1. PROJECT STUDY AREAS APNS, ACREAGES, AND ZONING**

| | APN | Acreage | Zoning |
|---|---|---|---|
| Mount Signal Solar Farm 1 | 052-190-012 | 167 | A2R |
| | 052-210-013 | 167 | A2R |
| | 052-210-016 | 332 | A2R |
| | 052-210-034 | 14 | A2 |
| | 052-210-035 | 15 | A2 |
| | 052-210-036 | 364 | A2, A2R |
| | 059-130-001 | 82 | A2 |
| | 059-130-002 | 85 | A2 |
| | 059-130-004 | 96 | A2 |
| | 059-130-005 | 110 | A2 |
| *Subtotal* | | *1,431* | |
| Calexico Solar Farm 1(A) | 052-210-001 | 204 | A2R, A2 |
| | 052-210-002 | 41 | A2 |
| | 052-210-014 | 318 | A2R |
| | 052-210-015 | 156 | A2R |
| *Subtotal* | | *719* | A2R |
| Calexico Solar Farm 1(B) | 052-190-011 | 166 | A2R |
| | 052-210-018 | 48 | A3 |
| | 052-210-037 | 155 | A3 |
| | 052-210-038 | 139 | A3 |
| | 052-210-039 | 104 | A3 |
| *Subtotal* | | *613* | |
| Calexico Solar Farm 2(A) | 059-110-003 | 147 | A2 |
| | 059-110-006 | 134 | A2 |
| | 059-110-007 | 159 | A2 |
| | 059-110-008 | 332 | A2 |
| | 059-130-003 | 167 | A2 |
| *Subtotal* | | *940* | |
| Calexico Solar Farm 2(B) | 052-180-022 | 43 | A2R |
| | 052-180-043 | 169 | A2R |
| | 052-180-044 | 177 | A2R |
| | 052-180-050 | 46 | A2R |
| | 052-180-051 | 89 | A2 |
| *Subtotal* | | *525* | |
| *Total Project Study Areas* | | 4,228 | |

### 3.1.2 Calexico Solar Farm 1, Phase A

The CSF1(A) project site consists of four parcels totaling 719 acres within the central portions of the project study areas. As shown on Figure 3.0-2a, CSF1(A) is generally bounded by SR 98 to the north, Anza Road to the south, and between Brockman Road to the west and a private road to the east (east of Rockwood Road). Primary access to CSF1(A) occurs via SR 98, Brockman Road, and Rockwood Road. The CSF1(A) site includes the following APNs: 052-210-001; 052-210-002; 052-210-014; and 052-210-015. Table 3-1 identifies the individual APNs within CSF1(A), their respective acreages, and zoning.

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# Project Location

**Figure 3.0-1**

Imperial County | Mount Signal Solar Farm and Calexico I and II Solar Farms | EIR

Mount Signal Solar Farm 1 - MSSF1 (1431 Acres)
Calexico Solar Farm 1 Phase A - CSF1(A) (719 Acres)
Calexico Solar Farm 1 Phase B - CSF1(B) (613 Acres)
Calexico Solar Farm 2 Phase A - CSF2(A) (940 Acres)
Calexico Solar Farm 2 Phase B - CSF2(B) (525 Acres)
Proposed Off-site Transmission Facilities (OTF) - Private Land (120 ft ROW)
Approved Off-site Transmission Line (Imperial Solar Energy Center South)
Imperial Solar Energy Center South (Approved Project)
National Border

Central Main Canal
George Rd
Rockwood Rd
Corda Rd
La Brucherie Rd
Willoughby Rd
Eady Rd
Kubler Rd
Weed Rd
New River
Cole Rd
Brockman Rd
Ferrell Rd
Weed Rd
Clark Rd
Hammers Rd
Anza Rd
Pullliam Rd
Cook Rd
Mandrapa Rd
Westside Main Canal
All American Canal
UNITED STATES OF AMERICA
MEXICO
98

052-180-044
052-180-043
052-180-050
052-180-022
052-180-051
052-210-034
052-210-035
052-210-036
052-210-002
052-210-001
052-190-012
052-190-011
052-210-016
052-210-015
052-210-014
052-210-013
052-210-037
052-210-038
052-210-039
052-210-018
059-130-001
059-130-002
059-130-003
059-110-008
059-130-005
059-130-004
059-110-003
059-110-006
059-110-007

OTF Connects to Imperial Solar Energy Center South

0 0.25 0.5 1 Miles
N W E S

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# Project Study Area, Solar Fields, and OTF Private Land

**Figure 3.0-2a**

Imperial County | Mount Signal Solar Farm and Calexico I and II Solar Farms | EIR

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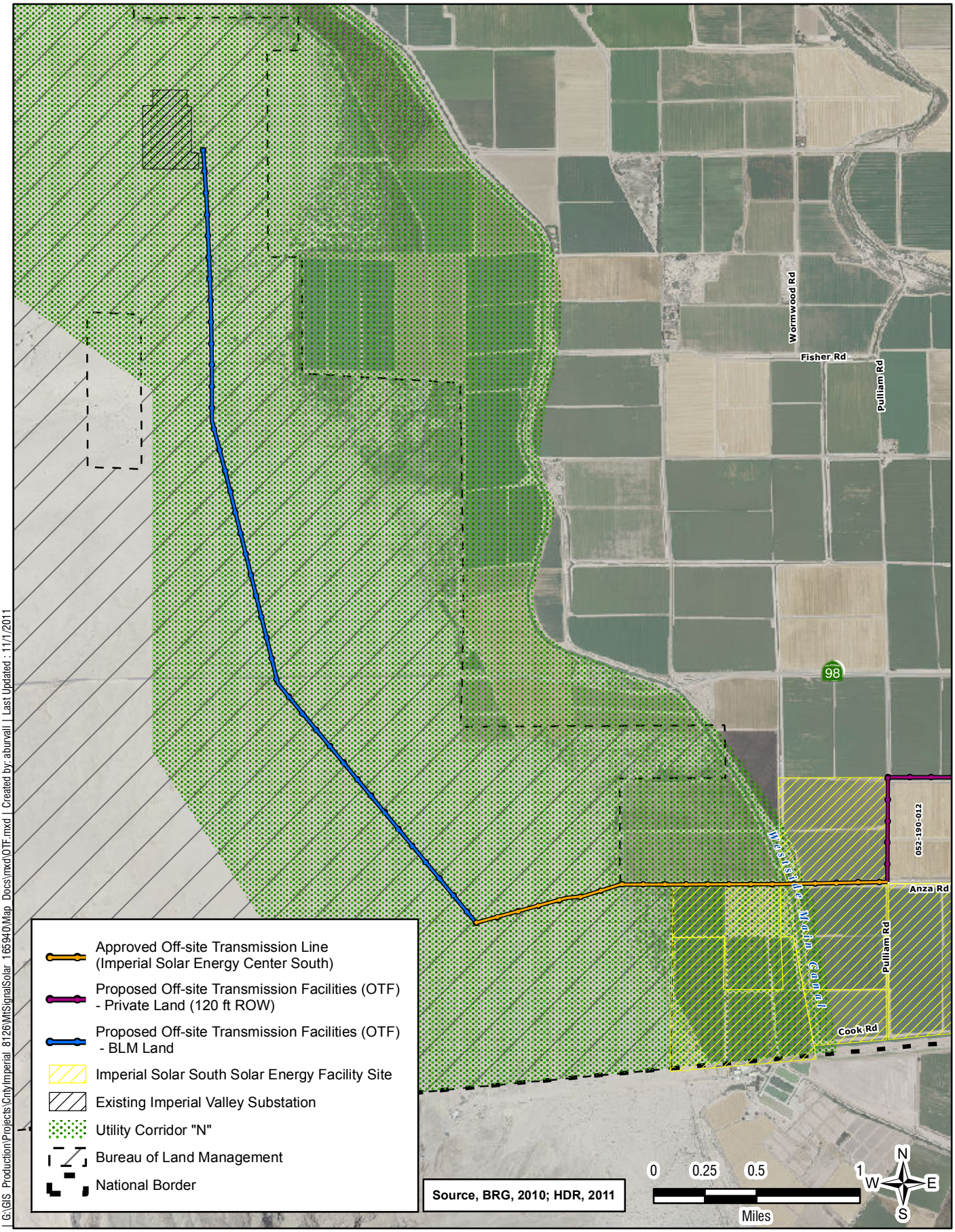


# Project Study Area - OTF within BLM Land

**FIGURE 3.0-2b**

Imperial County | Mount Signal Solar Farm and Calexico I and II Solar Farms | EIR

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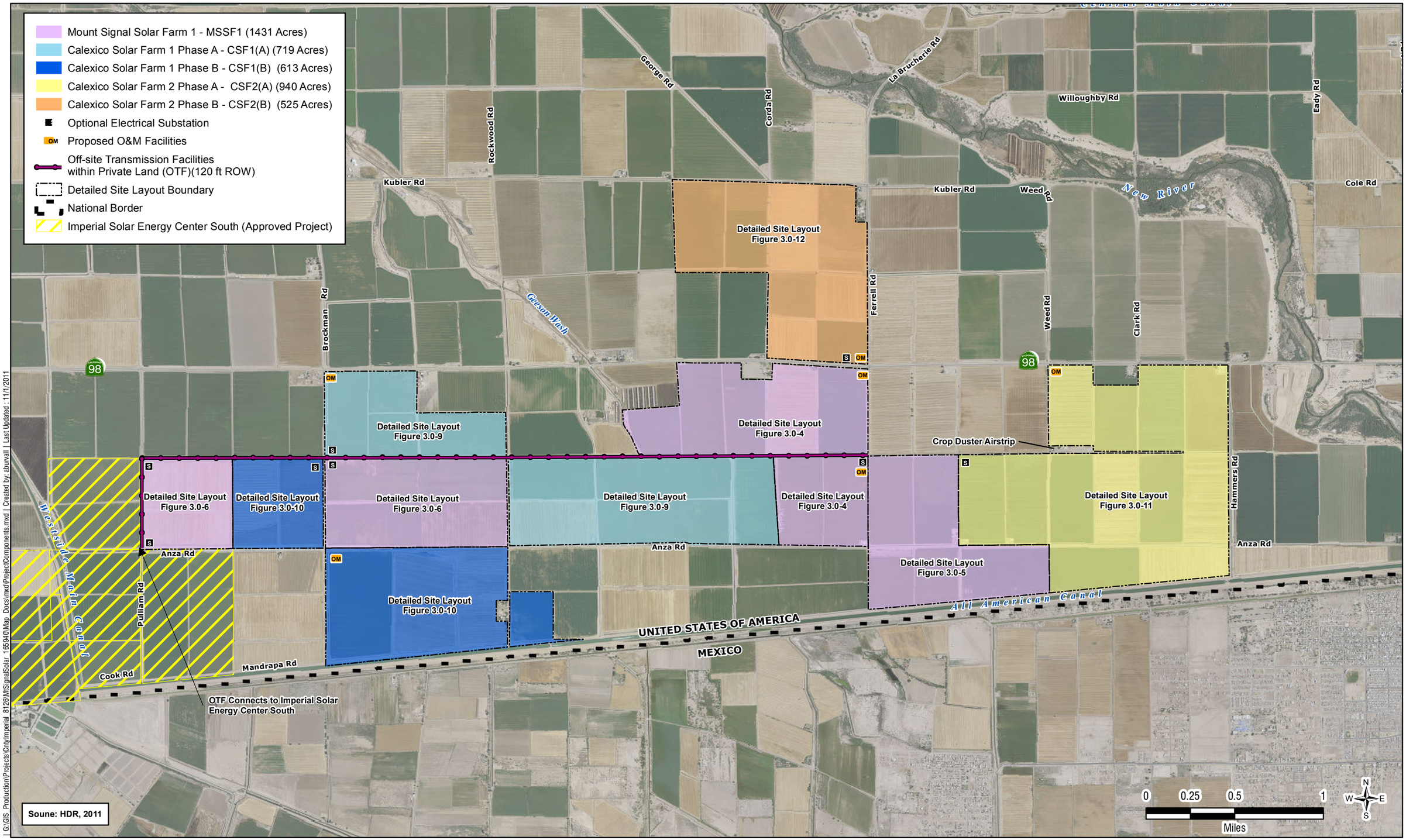


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## Index of Major Project Components

**Figure 3.0-3**

Imperial County | Mount Signal Solar Farm and Calexico I and II Solar Farms | EIR

### 3.1.3 Calexico Solar Farm 1, Phase B

The CSF1(B) project site location consists of five parcels totaling 613 acres within the southwestern portion of the project study areas. As shown on Figure 3.0-2a, CSF1(B) is generally located between SR 98 to the north and the US-Mexico border to the south, and between Pulliam Road to the west and a private road to the east (east of Rockwood Road). Primary access to the CASF1(B) is obtained via SR 98 and Anza Road. The CSF1(B) site location includes the following APNs: 052-190-011; 052-210-018; 052-210-037; 052-210-038; and 052-210-039. Table 3-1 identifies the individual APNs for CSF1(B), their respective acreages, and associated zoning.

### 3.1.4 Calexico Solar Farm 2, Phase A

The CSF2(A) project site location consists of five parcels totaling 940 acres within the eastern portion of the project study areas. As shown on Figure 3.0-2a, CSF2(A) is generally located between SR 98 to the north and the US-Mexico border to the south, and between Hammers Road to the east and a private road to the west (west of Weed Road). Johnson Brothers private airstrip, a small private airstrip used to support crop dusting operations in the area, transects the northwestern portion of CSF2(A). The CSF2(A) site includes the following APNs: 059-110-006; 059-110-008; 059-110-003; 059-110-007 and 059-130-003. Table 3-1 identifies the individual APNs within CSF2(A), their respective acreages, and zoning.

### 3.1.5 Calexico Solar Farm 2, Phase B (CSF2(B))

The CSF2(B) project site location consists of five parcels totaling 525 acres within the eastern portion of the project study areas. As shown on Figure 3.0-2a, CSF2(B) is generally located between Kubler Road to the north and SR 98 to the south, and between Ferrell Road to the east and a private road to the west (west of Corda Road). The CSF2(B) site includes the following APNs: 052-180-022; 052-180-043; 052-180-044; 052-180-050; and 052-180-051. Table 3-1 identifies the individual APNs within CSF2(B), their respective acreages, and associated zoning.

### 3.1.6 Off-Site Transmission Facilities

The projects would connect to existing and/or proposed electrical transmission infrastructure to enable the export and sale of electricity via the California Independent System Operator (ISO) grid. This connection would be accomplished through the construction of a new 230 kilovolt (kV) transmission line that would traverse both private and public land.

#### 3.1.6.1 Off-Site Transmission Facilities – Private Land

The portion of the OTF that would traverse private land would be located within a corridor confined to the solar field project sites, bisecting the project study areas from east to west along a private road just south of SR 98 (see Figure 3.0-2a). The transmission corridor would extend from a point near the intersection of Ferrell Road and a private road, approximately a ½ mile south of SR 98, west to Pulliam Road then south across Anza Road. These transmission facilities would then extend south along Pulliam Road to facilitate the interconnection of the projects to east-west transmission facilities currently being constructed as part of the recently approved Imperial Solar Energy Center South Project. The proposed interconnection point is located in the vicinity of the intersection of Pulliam Road and Anza Road.

#### 3.1.6.2 Off-Site Transmission Facilities – BLM Land

A portion of the OTF associated with the Imperial Solar Energy Center South Project is being constructed within BLM lands, the construction and operation of which, were addressed in BLM EA 2010-64/2011-0007. Transmission facilities currently being constructed in conjunction with the Solar Energy Center South Project would then connect with new transmission facilities proposed as part of these projects, on BLM lands from the westerly terminus of the Imperial Solar Energy Center South

Project transmission line (located within BLM lands) north to the existing Imperial Valley Substation (see Figure 3.0-2b). The proposed projects may involve overlapping right-of-ways (ROW) with the Imperial Solar Energy Center South Project, and the project applicant may either construct proposed transmission facilities independently or jointly with other parties. In any event, the project applicant is seeking its own ROW approval from the BLM for the construction of the transmission facilities.

## 3.2 PROJECT OBJECTIVES

The objective of the projects is to utilize Imperial County's abundance of available solar energy (sunlight) to generate renewable energy, consistent with the County General Plan renewable energy objectives. The project applicant and the County identified the following objectives for the projects:

- Construct and operate a solar energy facility capable of producing up to 600 megawatts (MW) of electricity to help meet the State-mandated Renewable Energy Portfolio Standard (RPS) of providing 33 percent renewable energy by 2020.
- Construct and operate a solar power facility with minimal impacts to the environment.
- Operate a facility at a location that ranks amongst the highest in solar resource potential in the nation.
- Construct a facility at a location near the U.S. border to avoid issues of leapfrog development and dividing up stretches of agricultural land.
- Interconnect with electrical transmission infrastructure either planned or being constructed by other nearby projects, interconnect to the ISO controlled transmission network, and maximize opportunities for the sharing or use of existing utility transmission corridor(s).
- Encourage economic investment and diversify the economic base for Imperial County.
- Operate a renewable energy facility that does not produce significant noise, emit any greenhouse gases, and minimizes water use.
- Help reduce reliance on foreign sources of fuel.
- Supply on-peak power to the electrical grid in California.
- Help California meet its statutory and regulatory goal of increasing renewable power generation, including greenhouse gas reduction goals of Assembly Bill (AB) 832 (California Global Warming Solutions Act of 2006).
- Sustain and stimulate the economy of Southern California by helping to ensure an adequate supply of renewable electrical energy while simultaneously creating additional construction and operations employment and increased expenditures in many local businesses.
- Contribute to Imperial County's economic growth and reputation as the renewable energy capital of the nation.

## 3.3 PROJECT CHARACTERISTICS

The proposed projects (MSSF1, CSF1(A), CSF1(B), CSF2(A), and CSF2(B) solar facility sites) would consist of two primary components: (1) the combined construction and operation of an expansive photovoltaic (PV) solar energy facility and supporting uses; and (2) the construction and operation of off-site electrical transmission infrastructure and associated interconnections. The primary components within the solar farms will be solar arrays, electrical substation facilities, and other operations and maintenance (O&M) facilities. Also, a major component of the projects would be restoration of the project study areas to agricultural use up to 40 years. Figure 3.0-3 provides an overview of the major project components.

The projects would employ the use of photovoltaic (PV) power systems to convert solar energy into electricity using non-reflective technology. The project facilities would consist of solar PV panels, inverter modules, pad mounted transformer(s), and optional, on-site substation(s). Up to five O&M buildings are contemplated. Each O&M building would include its own emergency power, fire suppression, potable water system and septic system. Additional auxiliary facilities would include lighting, grounding, backup uninterruptable power supply (UPS) systems and diesel power generators, fire and hazardous materials safety systems, security systems, chemical safety systems, and emergency response facilities.

At build-out, the proposed projects would facilitate the generation of up to 600 MW of alternating current (AC) on a daily basis. The project facilities would provide maximum electrical output during the daytime hours, which corresponds with peak energy demands associated with air conditioning use during the summer months. This peak period closely corresponds with the time period to where the peak solar energy and solar insulation values are the highest for the project study areas. Below is a description of each of the individual CUP applications that comprise the proposed projects.

## 3.3.1 Mount Signal Solar Farm 1

MSSF1 encompasses a total of 1,431 acres and includes ten parcels of land as described in Section 3.1. These parcels would be purchased by the applicant. Given that the MSSF1 site is characterized by a discontinuous layout within the project study areas, this site location is further divided into four constituent areas including: Parcel 1 (APNs 052-201-013, 034, 035, and 036), Parcel 2 (APNs 059-130-001,002, 004, and 005), Parcel 3 (APN 052-210-016), and Parcel 4 (APN 052-190-012) (8minutenergy Renewables 2011a). The site layouts for MSSF1, Parcels 1, 2, 3, and 4 are illustrated in Figures 3.0-4 through 3.0-6. In total, the MSSF1 site location would facilitate the placement of up to 1.6 million PV panels that would be capable of generating up to 200 MW AC (8minutenergy Renewables 2011a).

### 3.3.1.1 Photovoltaic Panels/Solar Arrays

The individual PV panels would either be installed on a fixed-tilt or tracker mounting system and would stand up to 15 feet high. Figure 3.0-7 provides a representative example of these two types of mounting systems. If the individual panels are installed on a fixed tilt system, they would be positioned 25 degrees from horizontal and face in a southerly direction. An east-west oriented row configuration would be required for optimal solar absorption. Conversely, a tracker mounting system can be oriented in either an east-west or north-south configuration and the PV panels would automatically be oriented towards the direction of the sun (8minutenergy Renewables 2011a).

The PV panels would be installed on a galvanized steel or aluminum mounting framework. Foundations for the mounting frames would be installed about 20 feet on center along the front and back of each panel row. Each foundation would consist of a 12 to 15-inch diameter drilled pier that would extend three to seven feet below existing grade The PV panels would be arranged in continuous rows of up to approximately 500 feet in length, with 10 feet between each row (per fire department requirements) and arrays would be grouped together to form up to 500-foot by 500-foot grids or solar array grids (8minutenergy Renewables 2011a). This grid pattern would be arranged to form “blocks” with the center of each block containing an inverter module and a pad mounted transformer (see Figures 3.0-4 through 3.0-6). The inverter module and transformer for each grid area would be housed within a 160-square-foot container or similar structure.

The inverter modules would receive direct current (DC) electricity directly from the PV solar array where it is then converted to AC electricity. The transformer receives the converted AC electricity where it is subsequently stepped up to approximately 20 kV to 70 kV. The converted power is then transferred to a substation via buried electrical conduits, electrical conductor wires, and/or overhead up to 230 kV transmission lines. If on-site substation(s) are ultimately required, one would be located in the southwestern corner of the intersection of Ferrell Road and a private road (see Figure 3.0-4) and/or the southeastern corner of the intersection of Brockman Road and a private road (see Figure 3.0-6) and would occupy an area of up to 500 feet by 500 feet (or approximately 5.7 acres). The MSSF1 project

intends to transfer its electrical power to the Imperial Valley substation from up to 2 on-site substations; any potential substation area that is not used will be instead utilized for solar panels. Also, MSSF1 may allow its transmission, substation, and/or O&M facilities to be shared with one or more solar projects in the vicinity. A representative example of a substation is presented in Figure 3.0-8. The substation areas would be secured by an 8-foot-high enhanced security chain-link fence.

#### 3.3.1.2 Operations and Maintenance Building

The MSSF1 site would also include a new O&M building and parking area in the northeastern corner of MSSF1, Parcel 1 at the intersection of Ferrell Road and SR 98 (see Figure 3.0-4). Alternatively, the O&M building site could be located near the southwest corner of Ferrel Road and a dirt road (½ mile south of SR-98). The O&M building would not exceed an area of approximately 3,200 square feet. The parking area would comprise an area of less than 0.25 acres. The O&M building would consist of a steel framed structure with metal siding and roof panels and painted to match the surrounding landscape (e.g., desert sand). The O&M building would include a small office, storage space, an electrical/array control room, restroom, and a compact water treatment facility. In total, the combined O&M facilities, including parking, would require up to one acre of land. If the O&M building is shared with an adjacent solar project, then this area would instead be covered with solar panels.

Heating, ventilation, and air-conditioning (HVAC) for the office and control area of the O&M building would consist of a ground-mounted, heat pump unit. Mechanical ventilation would be provided for the maintenance areas. Temperature control would be provided for both the equipment and personnel areas, and humidity control would be provided in the control and communications equipment rooms.

### 3.3.2 Calexico Solar Farm 1, Phase A

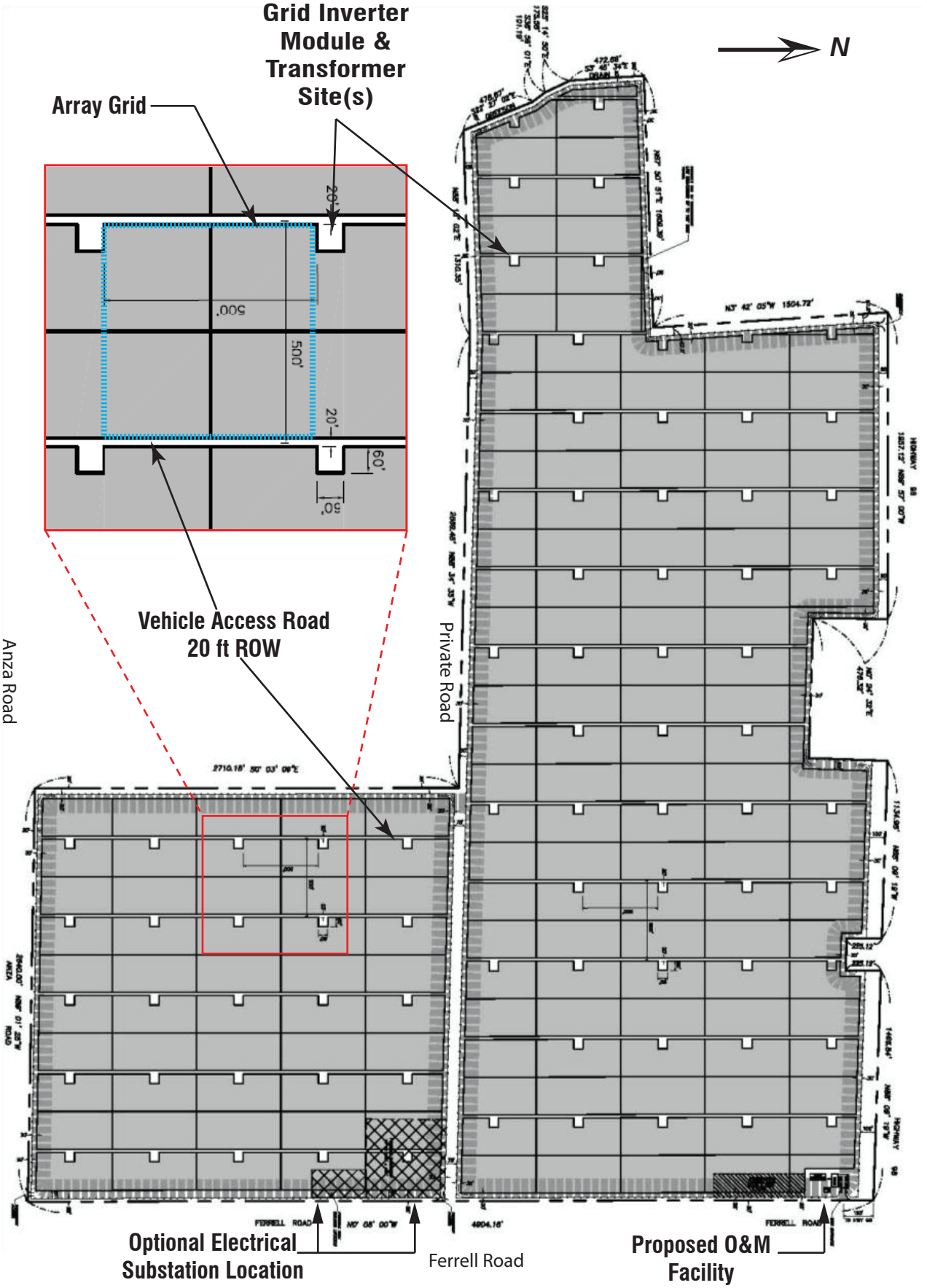
The CSF1(A) site location encompasses a total of 719 acres and includes four parcels of land as described in Section 3.1. Unlike MSSF1, these parcels would be leased to the applicant for up to 40 years, which is the anticipated duration of the project. The site layout for CSF1(A) is illustrated in Figure 3.0-9. In total, the combined CSF1(A) and CSF1(B) (described below) site location would facilitate the placement of up to 1.6 million PV panels that would be capable of generating up to 200 MW AC depending on the technology used (8minutenergy Renewables 2011b). The 200 MV is the combined total of CSF1(A) and CSF1(B) (described below). Similar to the MSSF1 site description, individual PV panels would either be installed on a fixed-tilt or tracker mounting system and would stand up to 15 feet high. The PV panels would be installed on a galvanized steel or aluminum mounting framework and arranged in continuous rows of up to approximately 500 feet in length and grouped to form solar array grids.

If required, an on-site substation would be located at the northeastern corner of the intersection of a private road and Brockman Road (see Figure 3.0-9). The substation would be constructed similar to that described for the MSSF1 site location. Additionally, it is possible that the substation facility could be consolidated at the located described for CSF1(B). If the substation is shared with an adjacent solar project, then this area would instead be covered with solar panels.

The O&M building for the CSF1(A) site would be located in the southeastern corner of the intersection of Brockman Road and SR 98 (see Figure 3.0-9). The O&M building would be constructed similarly to that described for MSSF1. If the O&M building is shared with an adjacent solar project, then this area would instead be covered with solar panels.

### 3.3.3 Calexico Solar Farm 1, Phase B

The CSF1(B) site location encompasses a total of 613 acres and includes five parcels of land as described in Section 3.1. Similar to CSF1(A), these parcels would be leased by the applicant for up to 40 years, which is the anticipated duration of the project. The site layout for CSF1(B) is illustrated in Figure 3.0-10. In total, the combined CSF1(A) and CSF1(B) site locations would facilitate the placement




Not to Scale

Source: 8-minute energy, 2011(a)

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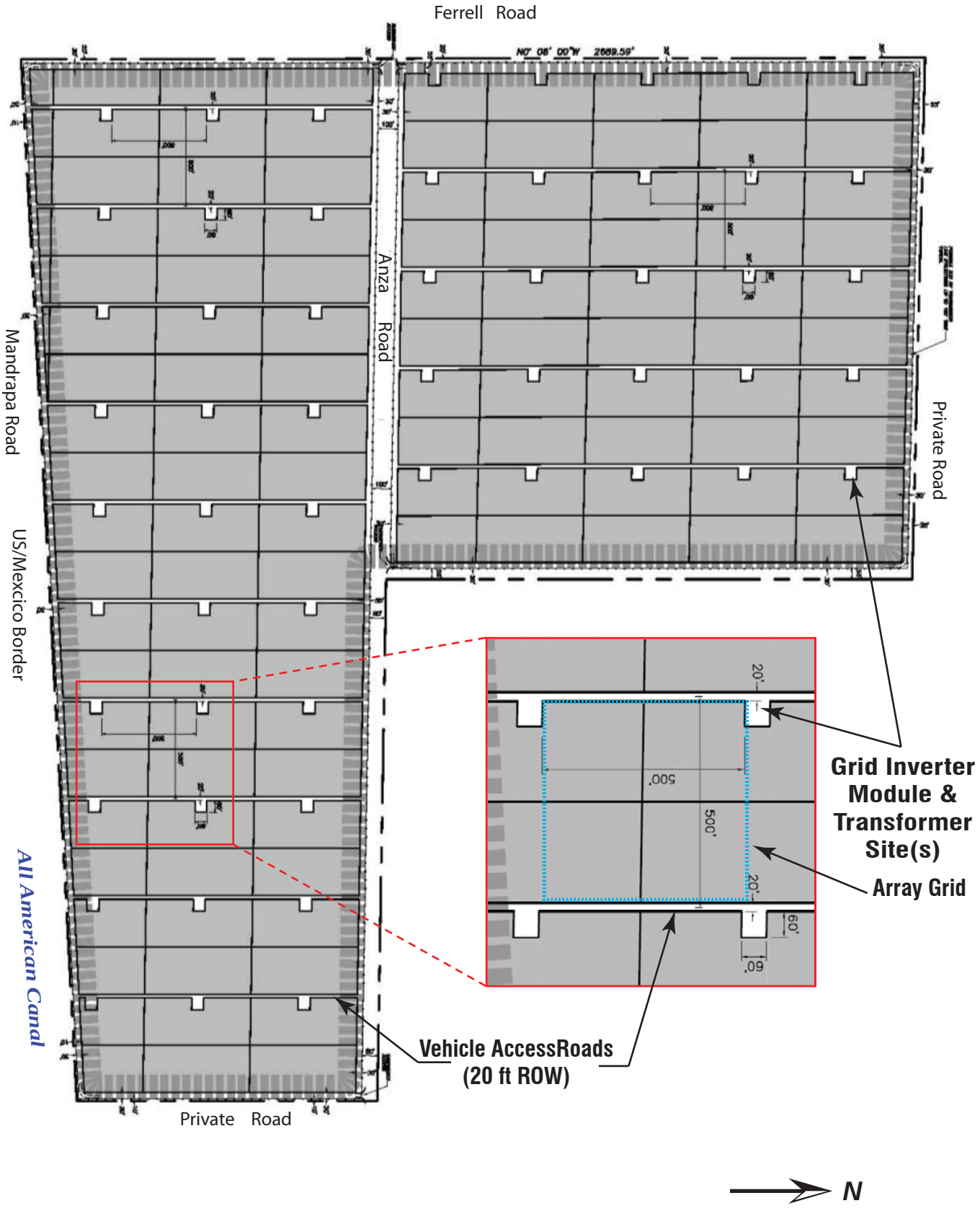
# Mount Signal Solar Farm Site Layout - Parcel 1

**FIGURE 3.0-4**




Not to Scale

Source: 8-minute Energy, 2011 (a)

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# Mount Signal Solar Farm Site Layout - Parcel 2

**FIGURE 3.0-5**

Mt Signal Solar Farm 1 (MSSF1) (1431 Acres)
Calexico Solar Farm 1, Phase A (CSF1(A)) (719 Acres)
Calexico Solar Farm 1, Phase B (CSF1(B)) (613 Acres)
Calexico Solar Farm 2, Phase A (CSF2(A)) (940 Acres)
Calexico Solar Farm 2, Phase B (CSF2(B)) (525 Acres)
National Border

George Rd
Corda Rd
La Brucherie Rd
Willoughby Rd
Eady Rd
Cole Rd
Pullium Rd
Rockwood Rd
Kubler Rd
Brockman Rd
Ferrell Rd
Weed Rd
Clark Rd
Hammers Rd
Anza Rd
Cook Rd
Mandrapa Rd
98

052-180-044
052-180-043
052-180-050
052-180-022
052-180-051
052-210-034
052-210-035
052-210-036
052-210-002
052-210-001
052-190-012
052-190-011
052-210-016
052-210-015
052-210-014
052-210-013
059-130-001
059-130-002
059-130-003
059-110-008
059-110-006
059-110-007
059-110-003
059-130-005
059-130-004
052-210-037
052-210-038
052-210-039
052-210-018

UNITED STATES OF AMERICA
MEXICO

0 0.25 0.5 1 Miles
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# Project Phasing

**Figure 3.0-6**

Imperial County | Mount Signal Solar Farm Project | EIR

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Fixed-tilt Solar Panel

Typical Fixed-tilt Solar Panel Rows

Typical Single-axis Tracking Solar Panel Rows

Typical Single-axis Tracking Solar Panel Rows

*Source: 8-minute energy, 2011(a)*



## Representative Examples of Optional Solar Panel Configurations

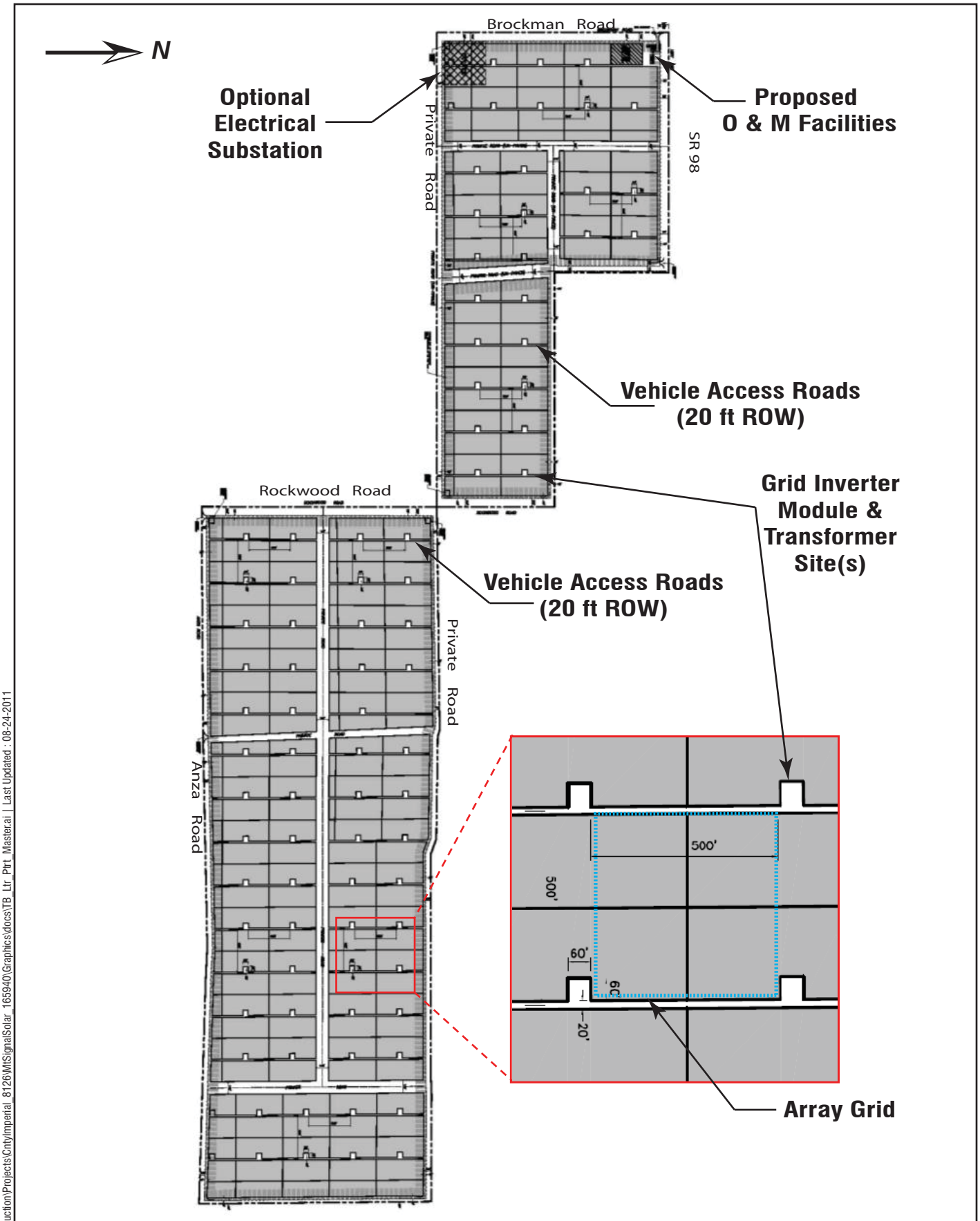
**FIGURE 3.0-7**

Typical Substation Design

Typical Substation Design
(Midway Substation)

*Source: 8-minute energy, 2011(a)*

**Representative Examples of Typical Substation Design**
**FIGURE 3.0-8**

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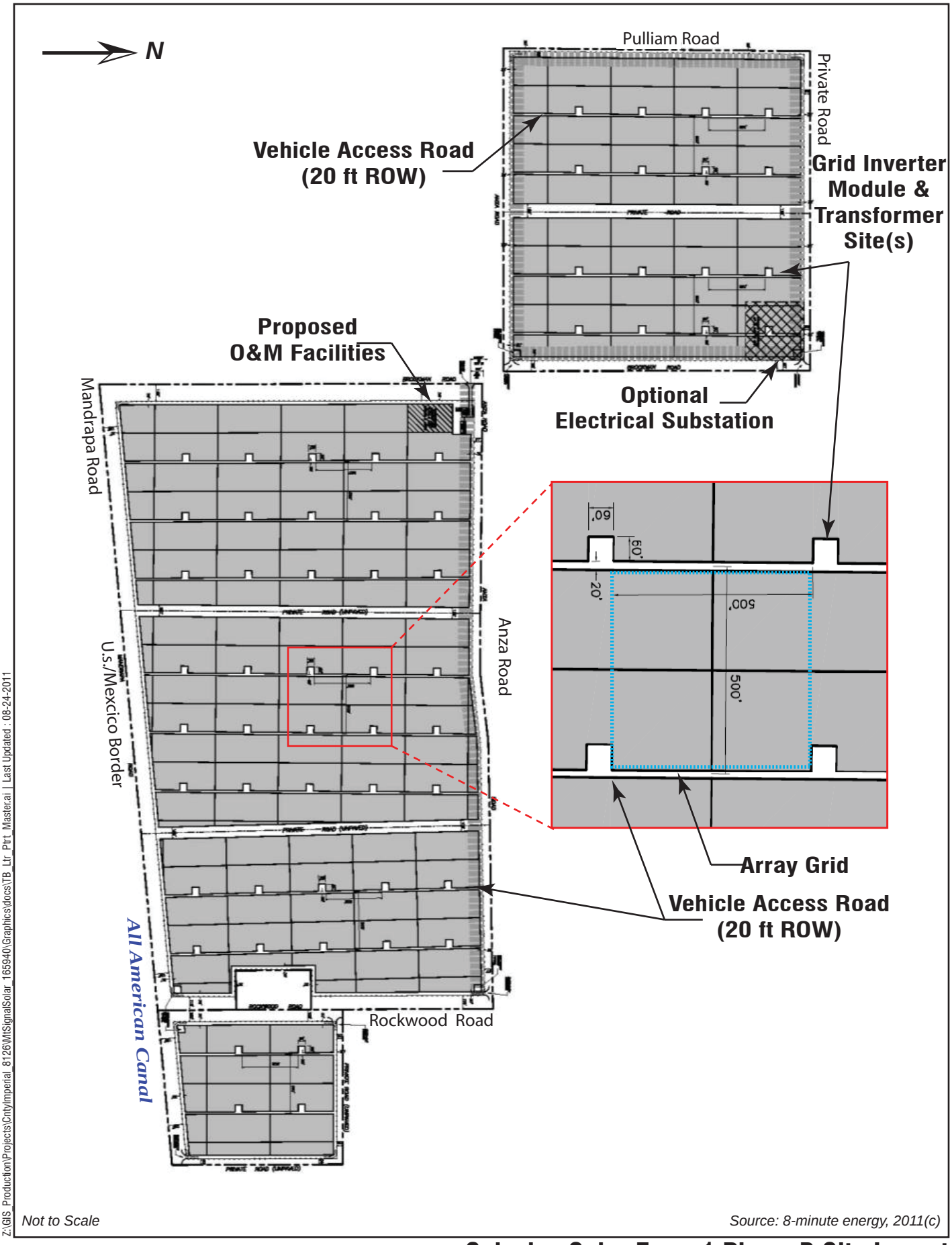
*Not to Scale*

*Source: 8-minute energy, 2011(b)*

## Calexico Solar Farm 1 Phase A Site Layout

**FIGURE 3.0-9**

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*Not to Scale*

*Source: 8-minute energy, 2011(c)*

## Calexico Solar Farm 1 Phase B Site Layout

**FIGURE 3.0-10**

of up to 1.6 million PV panels that would be capable of generating up to 200 MW AC (8minutenergy Renewables 2011c) depending on the technology. Similar to the MSSF1 site description, individual PV panels would either be installed on a fixed-tilt or tracker mounting system and would stand up to 15 feet high. The PV panels would be installed on a galvanized steel or aluminum mounting framework and arranged in continuous rows of up to approximately 500 feet in length and grouped together to form solar array grids. If required, an on-site substation would be located at the southwestern corner of the intersection of Brockman Road and a private road (see Figure 3.0-10). The substation would be constructed similar to that described for the MSSF1 site location. Additionally, it is possible that the substation facility could be consolidated at the location described for CSF1(A).

The O&M building for the CSF1(B) site would be located in the southeastern corner of the intersection of Brockman Road and Anza Road (see Figure 3.0-10). The O&M building would be constructed similarly to that described for MSSF1.

### 3.3.4 Calexico Solar Farm 2, Phase A

The CSF2(A) site location encompasses a total of 940 acres and includes five parcels of land as described in Section 3.1. Similar to CSF1(A), these parcels would be leased by the applicant for up to 40 years, the anticipated duration of the project. The site layout for CSF2(A) is illustrated in Figure 3.0-11. In total, the combined CSF2(A) and CSF2(B) (described below) site locations would facilitate the placement of up to 1.6 million PV panels that would be capable of generating up to 200 MW AC (8minutenergy Renewables 2011d) depending on the technology utilized. Similar to the MSSF1 site description, individual PV panels would either be installed on a fixed-tilt or tracker mounting system and would stand up to 15 feet high. The PV panels would be installed on a galvanized steel or aluminum mounting framework and arranged in continuous rows of up to approximately 500 feet in length and arrays would be grouped together to form solar array grids.

If required, an on-site substation would be located at the southeastern corner of two private roads (½ mile west of Weed Road and ½ mile south of SR 98) (see Figure 3.0-11). The substation would be constructed similar to that described for the MSSF1 site location. If the substation is shared with an adjacent solar project, then this area would instead be covered with solar panels.

The O&M building for the CSF2(A) site would be located in the southeastern corner of the intersection of Weed Road and SR 98 (see Figure 3.0-11). The O&M building would be constructed similarly to that described for MSSF1. If the O&M building is shared with an adjacent solar project, then this area would instead be covered with solar panels.

### 3.3.5 Calexico Solar Farm 2, Phase B

The CSF2(B) site location encompasses a total of 525 acres and includes five parcels of land as described in Section 3.1. Similar to CSF2(A), these parcels would be leased by the applicant for up to 40 years, the anticipated duration of the project. The site layout for CSF2(B) is illustrated in Figure 3.0-12. In total, the combined CSF2(A) and CSF2(B) site locations would facilitate the placement of up to 1.6 million PV panels that would be capable of generating up to 200 MW AC (8minutenergy Renewables 2011d) depending on the technology utilized. Similar to the MSSF1 site description, individual PV panels would either be installed on a fixed-tilt or tracker mounting system and would stand approximately 15 feet high. The PV panels would be installed on a galvanized steel or aluminum mounting framework and arranged in continuous rows of up to approximately 500 feet in length and arrays would be grouped together to form solar array grids.

If required, an on-site substation would be located at the northwestern corner of the intersection of Kubler Road and SR 98 (see Figure 3.0-12). The substation would be constructed similar to that described for the MSSF1 site location. If the substation is shared with an adjacent solar project, then this area would instead be covered with solar panels.

The O&M building for the CSF2(B) site would be located in the northwestern corner of the intersection of Ferrell Road and SR 98 (see Figure 3.0-12). The O&M building would be constructed similarly to that described for MSSF1. If the O&M building is shared with an adjacent solar project, then this area would instead be covered with solar panels.

### 3.3.6 Auxiliary Facilities

This section describes the auxiliary facilities that would be constructed and operated in conjunction with the project solar array and O&M facilities.

#### 3.3.6.1 Site Security, Fencing, and Access Gates

The perimeter of the project facilities would be secured with low voltage security fencing (i.e., for security camera's and sensors), with barbed wire, and no less than eight feet high along each public road. The fence would be screened with neutral colors using polyvinyl chloride (PVC) slats. Access to each of the site locations would be provided using a 20 feet minimum swinging or sliding gate. Additionally, controlled access gates would be maintained at entrances into the each of the project site locations. Emergency response personnel would be provided with manual override capability in order to access the site facilities.

#### 3.3.6.2 Lighting System

Project lighting would include emergency egress identification and path lighting pursuant to County of Imperial Building Code Requirements (see Title 9, Division 3, Chapter 1: Special Development Standards, of the County's Zoning Ordinance). Energy-efficient lighting would be installed at the O&M building. All lighting features would be compliant with the County Zoning Ordinance.

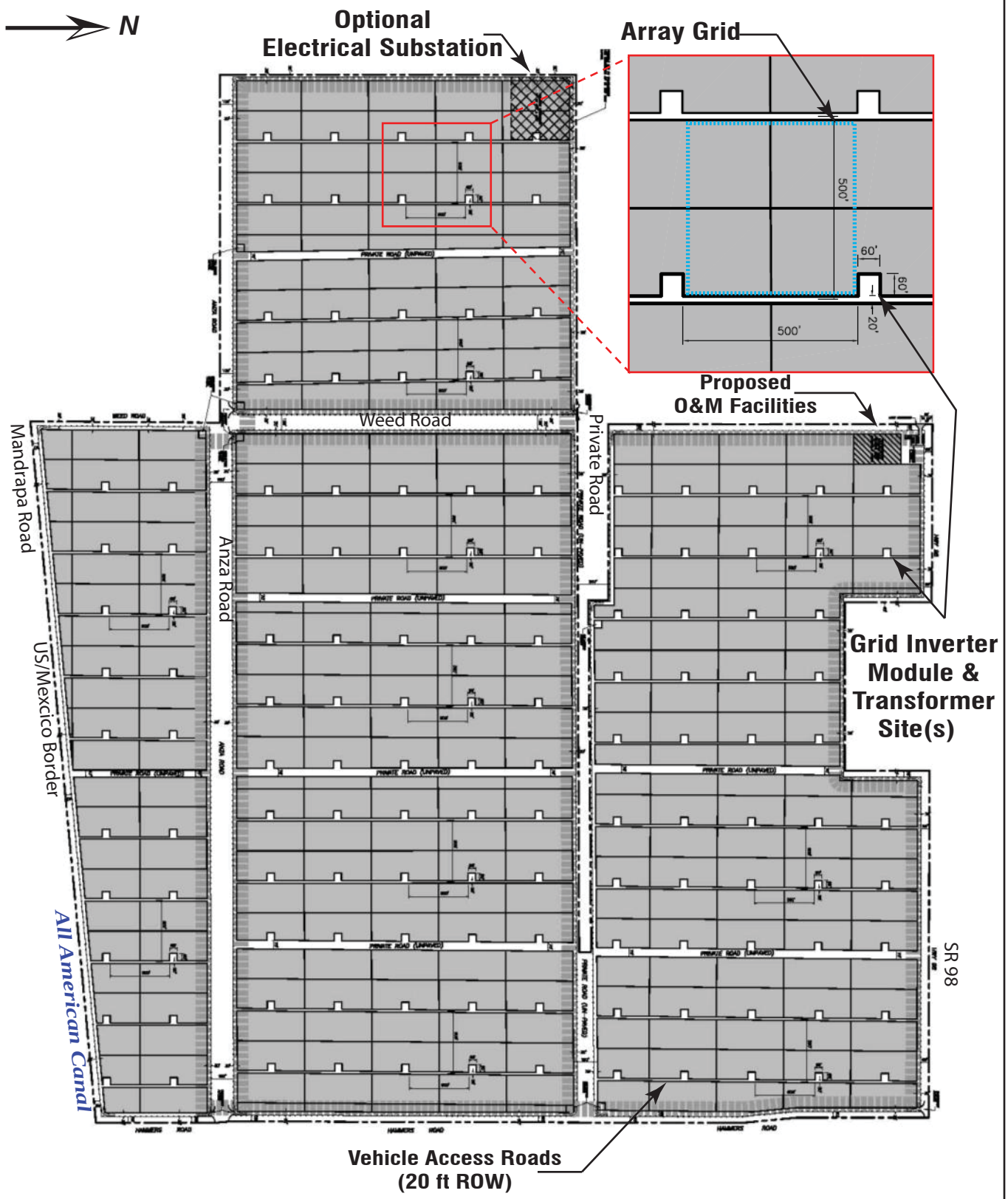
#### 3.3.6.3 Access Roads

To accommodate emergency access, PV panels would be spaced to maintain proper clearance. An additional 20-foot-wide, all weather access road would be integrated into the project design and located within each solar array grid to facilitate access to the inverter modules and transformers. These access roads would consist of an unpaved roadway surface within an aggregate base and capable of facilitating emergency vehicle access. Additionally, a 20-foot-wide all weather gravel road would be constructed along the perimeter fence and solar panels to facilitate vehicle access and maneuverability for emergency unit vehicles.

#### 3.3.6.4 Fire Protection

The projects are located within the jurisdiction of Imperial County Fire Department. On-site fire protection would be provided via portable and fixed fire suppression systems throughout each of the projects. Portable fire extinguishers would be provided at various locations throughout the solar farms, while fixed fire suppressions systems would be available in the form of dedicated 10,000-gallon on-site storage tank(s). A 10,000-gallon on-site water storage tank would be provided for each of the O&M buildings constructed and are intended for the fire protection of the O&M buildings. The O&M building would have access to a wet-fire connection to provide sufficient fire protection. Both the access and service roads (along the perimeter of the project facilities) would have turnaround areas to allow clearance for fire trucks per fire department standards (70 feet by 70 feet, and 20-foot-wide access road).

To support County Fire Department and Office of Emergency Services (OES) operational expenditures in support of project construction and operations, the applicant will be responsible for covering expenses for potential service calls within the project's utility/transmission corridor(s).

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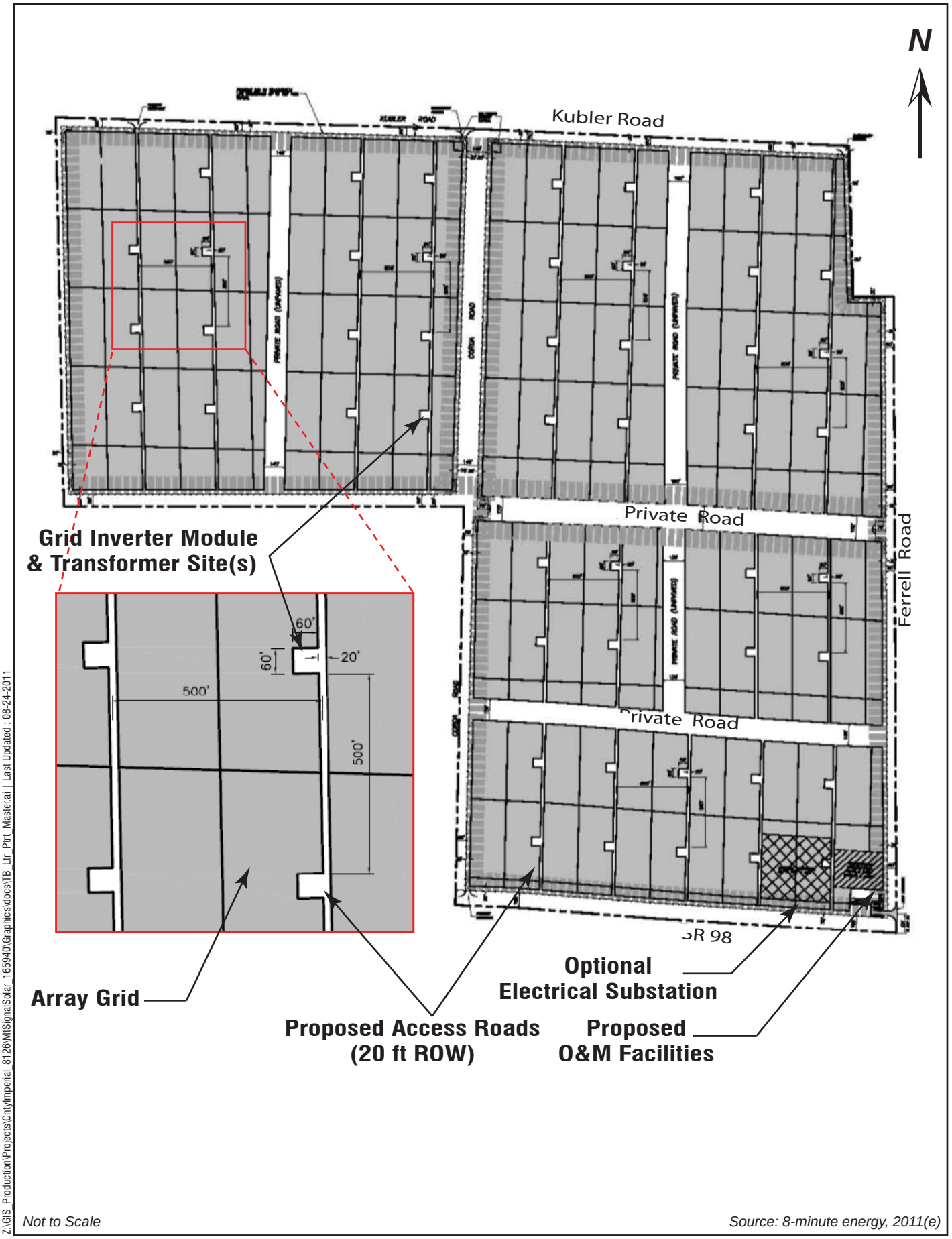
*Not to Scale*

*Source: 8-minute energy, 2011(d)*

# Calexco Solar Farm 2 Phase A Site Layout

**FIGURE 3.0-11**

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*Not to Scale*

*Source: 8-minute energy, 2011(e)*

## Calexco Solar Farm 2 Phase B Site Layout

**FIGURE 3.0-12**

### 3.3.6.6 Electrical Grounding

A grounding system would be installed to permit dissipation of ground fault currents and minimize ground potential rise[1].

### 3.3.6.7 Dust Suppression and Erosion Control

Groundcover, in the form of salt grasses (or similar plant types), would be planted in between the solar arrays to provide dust suppression. This type of cover crop generally has minimal irrigation requirements and, thus, minimal vegetation management (e.g., mowing) is anticipated. An alternative to using a cover crop would include the use of permeable soil stabilizing polymers, which would also provide dust suppression and erosion control against wind and water. Likewise, a combination of the two control measures may be employed.

## 3.3.7 Water Supply, Treatment, and Storage

Once the projects are operational, water would be required for domestic use, solar panel washing, fire protection, and irrigation. The projects would utilize water supplies currently delivered to the project study area by the Imperial Irrigation District (IID) and maximize the use of existing on-site water system(s). Total annual average water demands for project operations (post-2015) are estimated at 1,310 acre-feet per year (AFY); a substantial reduction in current agricultural water use. Maximum water use would occur during concurrent construction and operations in 2012 and is estimated at 2,415 AFY (see Table 3-2). Water use for each component of the project is described further in Table 3-2.

**Table 3-2. Project Water Supply Demands**

| Site Location | Construction Water Use (AFY) | Operational Water Use (AFY) | Total (AFY) |
|---|---|---|---|
| MSSF1 (2012) | 2,200 (2012) | 215 | 2,415 |
| MSSF1 (Post 2013) | -- | 430 | 430 |
| CSF1(A) (2013) | 500 | 232 | 732 |
| CSF1(A) (Post 2014) | -- | 232 | 232 |
| CSF1(B) (2013) | 500 | -- | 500 |
| CSF1(B) (Post 2014) | -- | 198 | 198 |
| CSF2(A)(2014) | 500 | 288 | 788 |
| CSF2(A)(Post-2015) | -- | 288 | 288 |
| CSF2(B)(2014) | 500 | -- | 500 |
| CSF2(B)(Post-2015) | -- | 162 | 162 |
| Total Project Operations (Post-2015) | | | 1,310 |

Source: DD&E 2011.

Panel washing would require approximately 80 acre feet (AF) per year (approximately one quart of water for each panel per month) for each of the five projects. On-site water would be stored in above-ground steel tank(s) located in proximity to each of the O&M buildings with a storage capacity of up to 40,000 gallons. Of this total storage capacity, 10,000 gallons of water would be dedicated for fire protection for the O&M building(s). A small Point of Entry (POE) Water Treatment System may be required to reduce sediment levels prior to panel cleaning use and, if required, would be placed at the O&M building(s). The point of entry system requires filtration and disinfection treatment or an alternative

[1] Ground potential rise is caused by electrical currents that occur at electrical substations, power plants, or high-voltage transmission lines and are injected into the earth at the grounding electrode. The resulting potential rise can cause hazardous voltage, many hundreds of yards away from the grounding electrode location.

treatment technology such as reverse osmosis. The remaining water supply would be used for irrigation to maintain a suitable crop cover (salt grass or similar).

### 3.3.8 Off-site Transmission Infrastructure

As described in Section 3.1.6, interconnection for the projects to the ISO would occur at the Imperial Valley Substation, located approximately 7 miles northwest of the project study areas, via a 230 kV transmission structure shared with one or more solar projects in the project vicinity and/or constructed as part of the proposed projects (see Figure 3.0-13). The projects would interconnect with one of several transmission facilities currently planned and approved to the west of the study area. All electrical power generated by the projects would be transferred to off-site transmission infrastructure via a shared transmission facility constructed during the implementation of MSSF1. This transmission facility corridor is illustrated in Figure 3.0-13. The proposed ROW for the electrical transmission line corridor would be up to 120 feet wide. Within private lands, no ROW is anticipated.

#### OTF-Private Land

The OTF within Private Land will consist of a series of monopole structures. Figure 3.0-14 depicts a typical monopole structure which could be constructed in either a single, double, or triple circuit configuration.

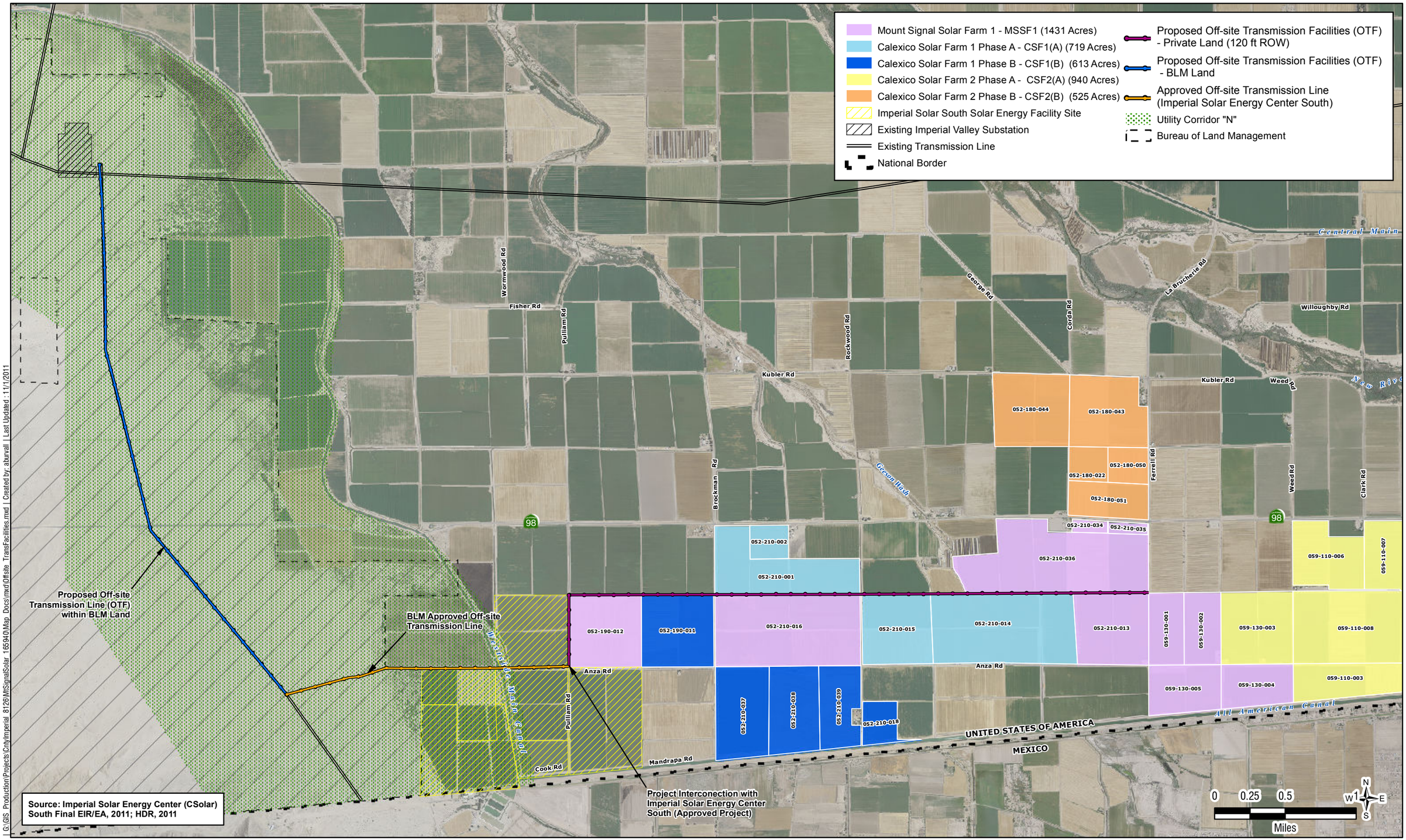
#### OTF-BLM Land

Three types of steel lattice transmission towers and two types of steel monopoles would be used for the proposed transmission infrastructure, depending on function. These different types are depicted in Figures 3.0-15 through 3.0-17. The three types of steel lattice towers are suspension, deflection, and dead-end. The two types of steel monopoles are suspension and deflection. Suspension towers (or monopoles) are used where cables are strung in a straight line from one tower to an adjacent one. Deflection towers (or monopoles) are used where transmission lines turn gradual angles and dead-end lattice towers are used where transmission lines turn large angles or where a transmission line is brought into an electric substation. Suspension, deflection and dead-end towers are up to 140 feet high, while both deflection and suspension monopoles are about 100 feet high.

The towers would be anchored to concrete foundations at each of the four corners at the base of the tower. The tower base dimensions would range from approximately 30 feet by 30 feet for suspension towers to 40 feet by 40 feet for the deflection and dead-end towers. At the top, the suspension towers would be approximately 6.6 feet square, the deflection towers would be approximately 7.5 feet square and the dead-end towers would be approximately 13 square feet. Conductors (or wires) would be supported by single or double insulators. The minimum ground clearance of the conductor would be 36 feet. The average horizontal distance between circuits would range from 25 to 35 feet depending on the structure.

### 3.3.9 Operations and Maintenance

The combined projects would be staffed with up to 30 full-time employees (up to six for each site) to maintain the project facilities seven days a week during normal daylight hours. Typically, up to 15 staff would work during the day shift (sunrise to sunset), and the remainder during the night shifts and weekend. To ensure optimal PV output, the solar panels would be maintained 24 hours a day/7 days a week. Each of the individual site components would be staffed by up to four employees during the day. Equipment and supply deliveries would typically occur during the week and, on average, could entail up to two daily truck trips.

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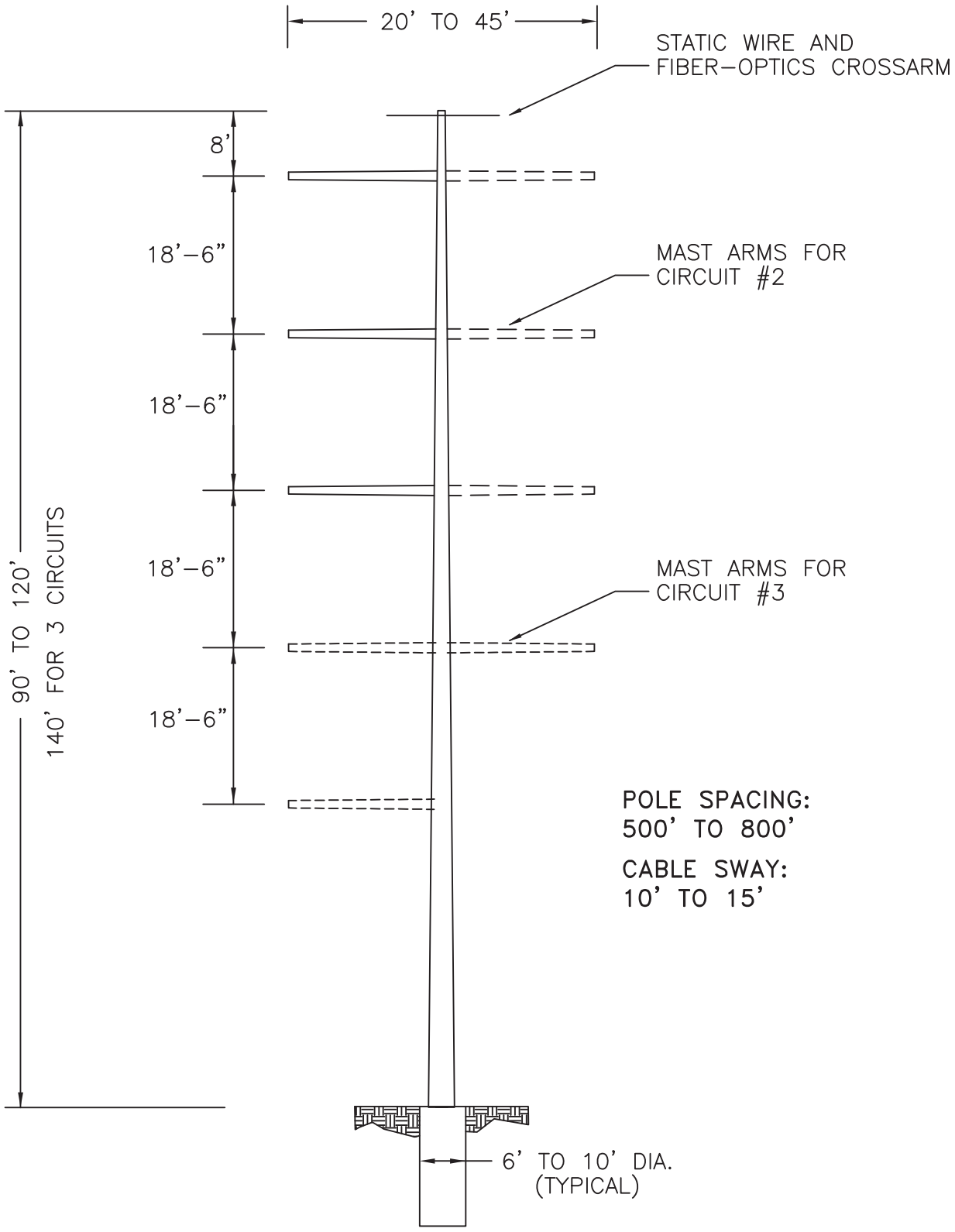
# Off-site Transmission Facilities and Interconnections

**Figure 3.0-13**

Imperial County | Mount Signal Solar Farm and Calexico I and II Solar Farms | EIR

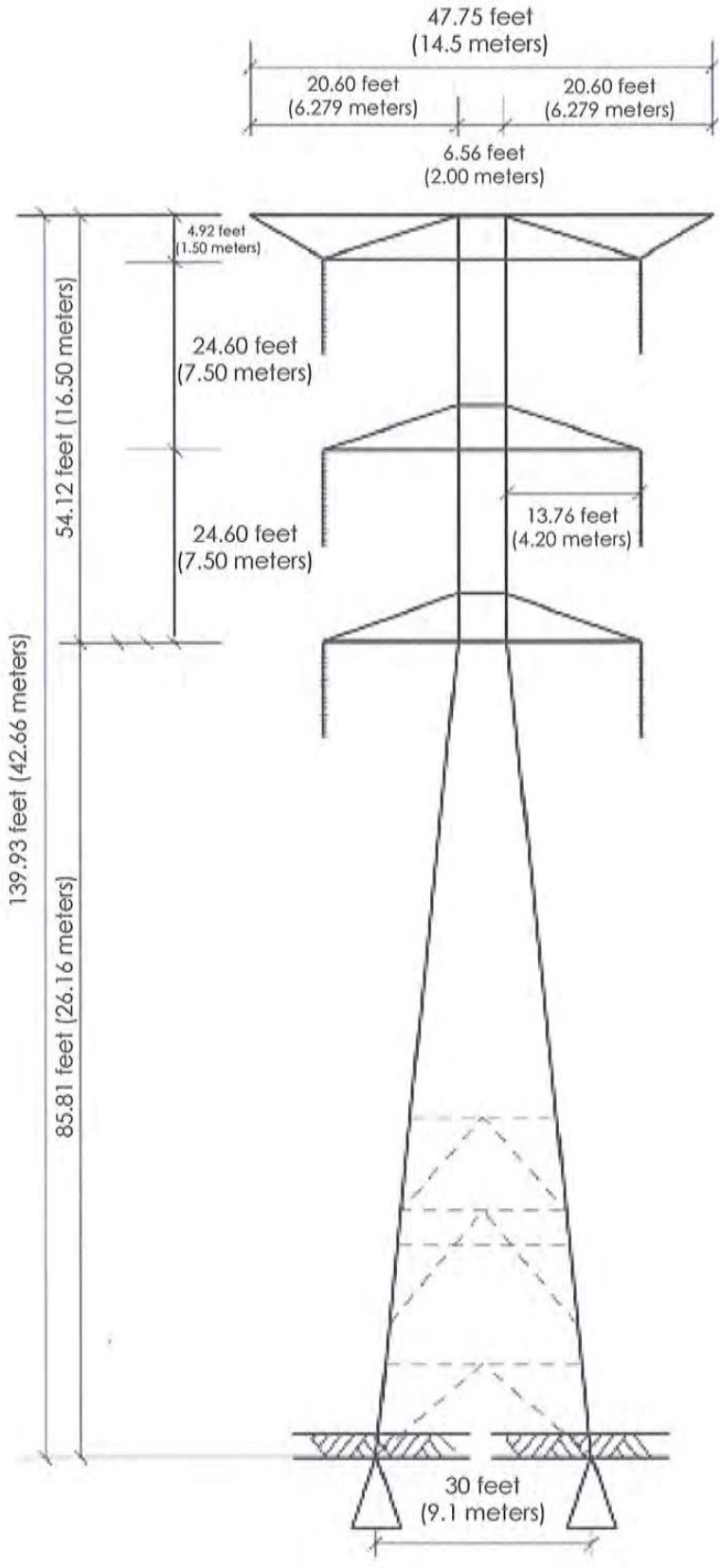
HDR
ONE COMPANY | *Many Solutions*™




*Source: 8 minutes energy, 2011*

## Typical Monopole Structure (Single/Double/Triple Circuit)

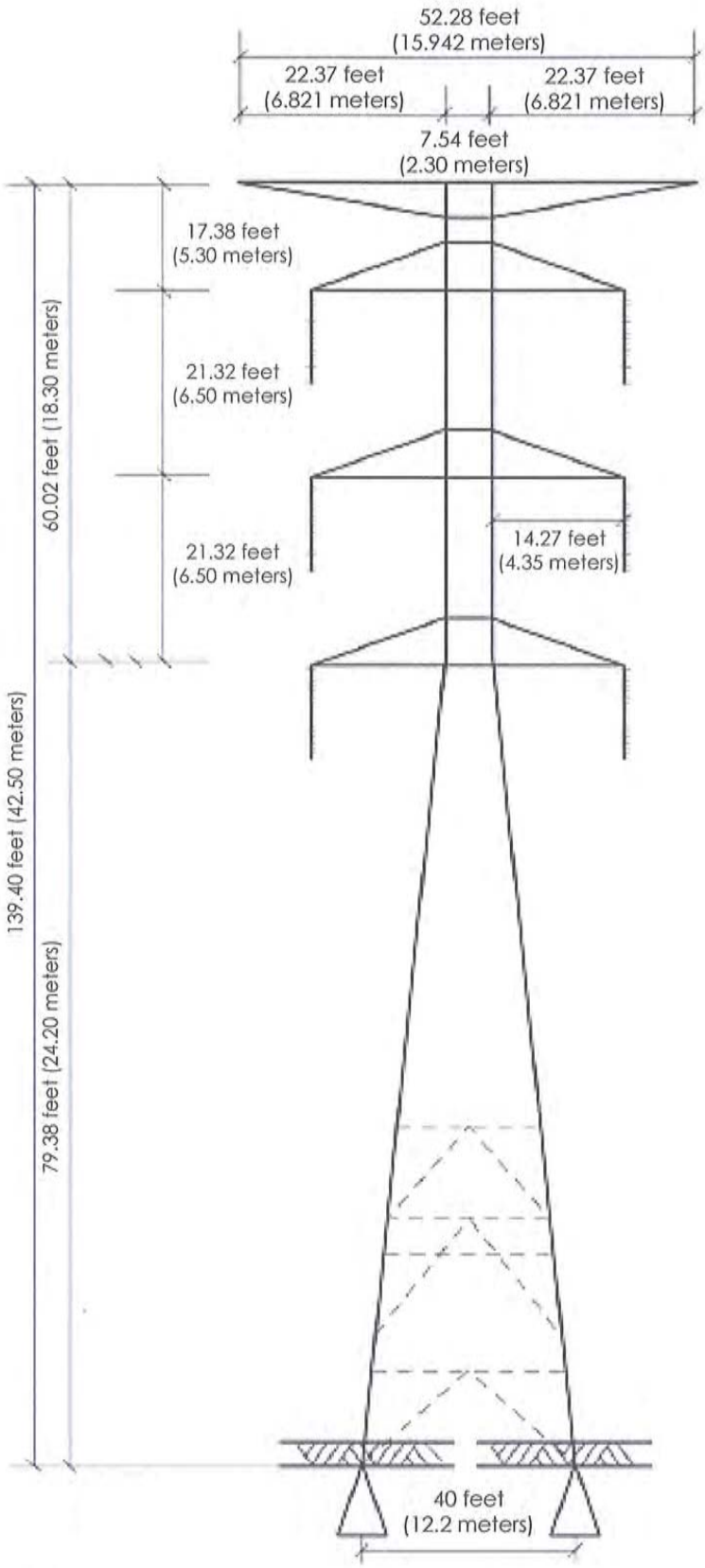
**FIGURE 3.0-14**




*Source: BRG, 2010*

## Typical Suspension Tower

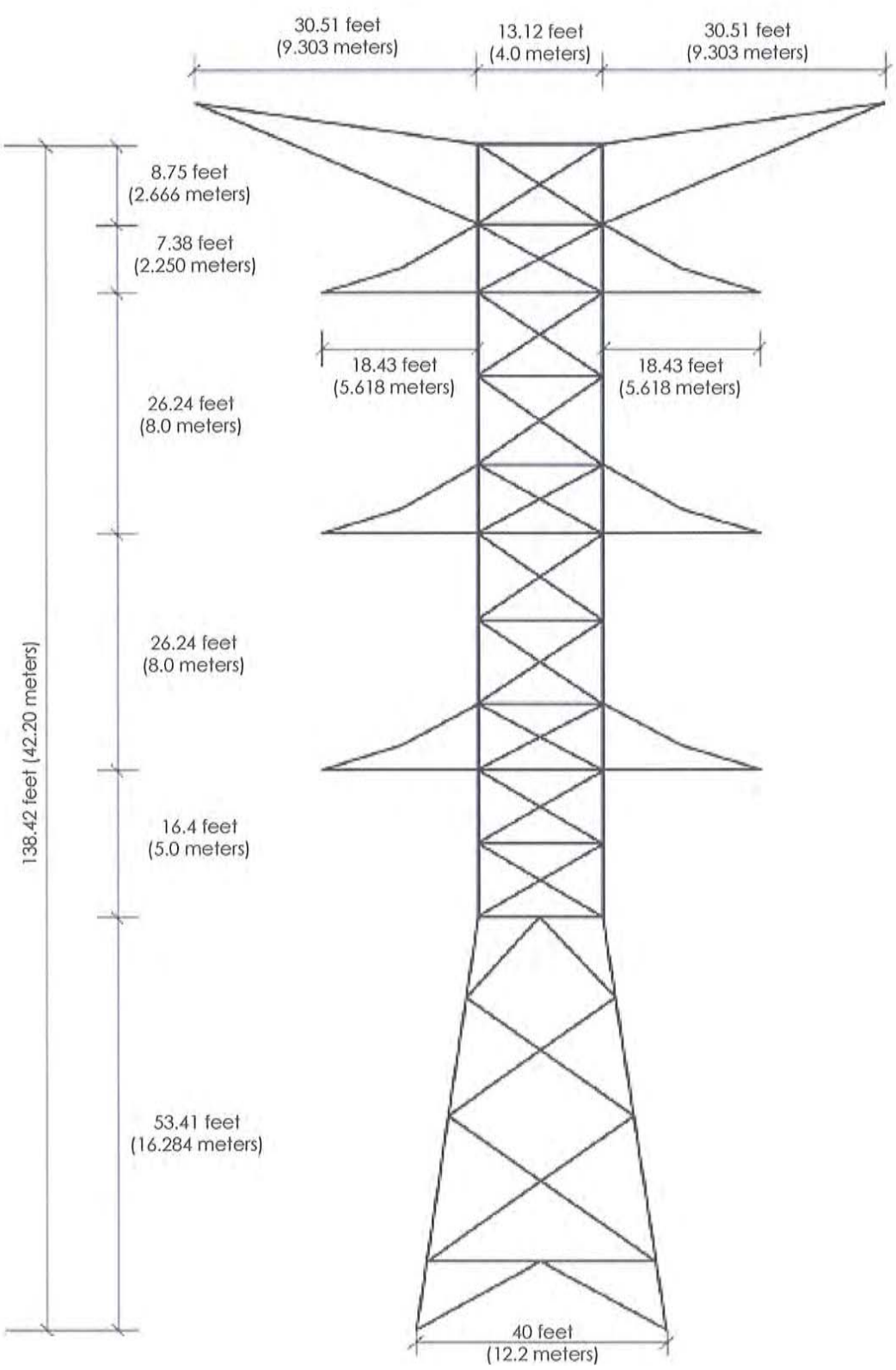
**FIGURE 3.0-15**




Source: BRG, 2010

# Typical Deflection Suspension Tower

**FIGURE 3.0-16**




*Source: BRG, 2010*

# Typical Dead End Tower

**FIGURE 3.0-17**

## 3.4 CONSTRUCTION PROCESS FOR SOLAR FARM (PHOTOVOLTAIC FACILITY)

Construction activities are proposed to start in mid-2012 and last for up to 3 years. Final construction scheduling would be completed during engineering and contractor bidding, which may result in variations to the planned construction schedule. Typical construction activities involved in the construction of the project include:

- Materials transport;
- Site preparation (vegetation removal, and structure demolition, if necessary);
- Earthwork (grading, excavation, backfill);
- Concrete foundations (forming, rebar placement, and concrete delivery and placement) and paving;
- Structural steel work (assembly and welding);
- Electrical/instrumentation work;
- Architectural and landscaping; and
- Start up and testing.

To characterize and analyze potential construction impacts, maximum crew size, truck trips, and worker trips have been estimated, based on the expected construction activities. To support these activities, the main pieces of equipment that may be used at any one time during construction may include.

- Track-mounted excavators
- Backhoes
- Graders
- Crane(s)
- Scrapers
- Compactors
- Boring machine/drill rig
- Dump trucks
- Front-end loaders
- Water trucks
- Paver and roller
- Flat-bed delivery trucks
- Forklifts
- Concrete trucks
- Helicopters (transmission line stringing)
- Compressors/jack hammers

The typical crew size for each construction phase would be 10 to 20 people, plus inspectors. In assuming that multiple construction activities could occur simultaneously at multiple project facility sites, an average of 300 construction personnel could be present during the most intense construction periods for each phase. In addition, daily haul truck trips could average up to 15 daily trips at the height of construction. Work hours would be governed by permits issued by regulatory agencies. Roadways that would be used by construction traffic would be contingent on the location of actual construction at any given time. To the extent feasible, construction activities would occur in the dry months to minimize damage to unpaved roadways used by heavy equipment.

### 3.4.1 Construction and Staging Activities

Approximately 10 acres per project site within the project study areas would be required to allow for proper PV panel offloading and steel frame assembly. Although these areas have not been designated specifically for the lay down yard, it is assumed that they would be located in proximity to an O&M building. The preliminary locations of lay down areas are depicted in the site layouts.

### 3.4.2 Existing Utilities

The project applicant's contractors would implement an underground services alert (USA) to identify existing underground utilities and service connections prior to commencing any excavation work. Existing utility locations would be determined by hand-excavated test pits dug at locations determined and approved by the construction manager (also referred to as "potholing"). Temporary disruption of service may be required to allow for construction. Service on such lines would not be disrupted until prior approval is received from the construction manager and the service provider.

## 3.5 RESTORATION OF THE PROJECT STUDY AREAS

The generating facility's total useful operating life, with appropriate maintenance, repair and component replacement procedures, is expected to be up to 40 years. After the useful life of the projects, the solar facilities would be disassembled from the steel mounting frames and the site would be restored to pre-project conditions.

When the projects are decommissioned at the end of its life span, the applicant or its successor in interest would be responsible for the removal, recycling, and/or disposal of all solar arrays, inverters, transformers and other structures on the site. The applicant anticipates using the best available recycling measures at the time of decommissioning. Further, the applicant would be required to prepare and implement an agricultural restoration plan for each site. The proposed restoration plans are provided as EIR Technical Appendix L.

Project decommissioning would include the following activities:

- The facility would be disconnected from the utility power grid.
- Individual PV panels would be disconnected from the on-site electrical system.
- Project components would be dismantled and removed using conventional construction equipment and recycled or disposed of safely.
- Individual PV panels would be unbolted and removed from the support frames and carefully packaged for collection and return to a designated recycling facility for recycling and material reuse.
- PV Panel support steel and support posts would be removed and recycled off-site by an approved metals recycler.
- All compacted surfaces within the project study areas and temporary on-site haul roads would be de-compacted.
- Electrical and electronic devices, including inverters, transformers, panels, support structures, lighting fixtures, and their protective shelters would be recycled off-site by an approved recycler.
- All concrete used for the substation and underground distribution system would be recycled off-site by a concrete recycler or crushed on-site and used as fill material.
- Fencing would be removed and recycled off-site by an approved metals recycler.
- Gravel roads would be removed; filter fabric would be bundled and disposed of in accordance with all applicable regulations. Road areas would be backfilled and restored to their natural contour.
- Soil erosion and sedimentation control measures would be re-implemented during the decommissioning period and until the site is stabilized.

The project applicant is proposing to restore the sites with the same type of agriculture as is currently found in the site as part of the restoration of the project study areas. The success of establishment of the post-project vegetation would be evaluated in terms of percent coverage at two years after seeding with a

performance standard of 80 percent or better. All permits related to decommissioning would be obtained, where required.

## 3.6 REQUIRED PROJECT APPROVALS

### 3.6.1 Imperial County

The County would be required to approve the following documents pursuant to CEQA:

1. **Approval of Conditional Use Permits.** The projects would require the approval of five separate CUPs by the County to allow for the construction and operation of each of the projects (MSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B). The project study areas consist of five CUP applications comprising 29 privately-owned legal parcels zoned A-2 (General Agriculture), A-2-R (General Agriculture Rural), and A-3 (Heavy Agriculture). Pursuant to Title 9, Division 5, Chapter 9, "Solar Energy Plants" is a use that is permitted in the A-2, A-2-R, and A-3 Zones, subject to securing a CUP. ("Transmission lines, including supporting towers, poles, microwave towers, utility substations" are permitted uses within the A-3 Zone.)

2. **Site Plans.** Site Plans and Architectural Review is required.

3. **Variance.** Variances are required for each of the solar energy facility sites in order to exceed the height limit for transmission towers within the A-2, A-2-R, and A-3 Zones. The existing A-2, A-2-R, and A-3 Zones allow a maximum height limit of 120 feet; whereas, transmission towers of up to 140 feet in height are proposed.

4. **Certification of the Environmental Impact Report (EIR).** After the required public review for the Draft EIR, the County will respond to written comments, edit the document, and produce a Final EIR to be certified by the Planning Commission and/or Board of Supervisors prior to making a decision on the projects.

5. **Restoration Plans.** The Applicant will be required to prepare and implement a restoration plan for each project which would be implemented after the useful life of the projects and will extend up to 40 years. When the projects are decommissioned at the end of their life spans, the applicant or its successor in interest would be responsible for the removal, recycling, and/or disposal of all solar arrays, inverters, transformers and other structures on each of the sites. The applicant would be required to prepare and implement an agricultural restoration plan per project site. The County is responsible for approving the project restoration plans and confirming that financial assurances for the projects are in conformance with Imperial County ordinances.

6. **Williamson Act Contract Cancellation**. There are four active Williamson Act Contracts within the study areas. . Agricultural Preserve 115 includes the northern portions of CSF1(A) (Assessors Parcel Numbers (APN) 052-210-001 and 002). Agricultural Preserve 117 includes the southern portions of CSF1(B) (APNs 052-210-038 and 039). Agricultural Preserve 160 includes the southern portions of CSF2(B)(APNs 052-180-022, 050, and 051). Agricultural Preserve 159 includes the northeastern portion of CSF2(A) (APN 059-110-007). Petitions for cancellation of these contracts were filed within the County in September and October of 2011.

Subsequent ministerial approvals may include, but are not limited to:

- Grading and clearing permits;
- Building permits;
- Septic system permits;
- Occupancy permits; and
- Encroachment permits.

### 3.6.2 Discretionary Actions and Approvals by Other Agencies

Responsible Agencies are those agencies that have discretionary approval over one or more actions involved with development of the project. Trustee Agencies are state agencies that have discretionary approval or jurisdiction by law over natural resources affected by a project. These agencies may include, but are not limited to the following:

- Bureau of Land Management – Issuance of ROW grant for the off-site transmission line that would be constructed within BLM lands.
- Imperial County Fire Department – Approval of Final Design of the Proposed Fire System.
- California Department of Transportation – Encroachment Permit.
- California Regional Water Quality Control Board – Notice of Intent for General Construction Permit.
- California Department of Fish and Game (Trustee Agency) – Endangered Species Act Compliance, Burrowing Owl Mitigation.
- U.S. Fish and Wildlife Service – Endangered Species Act Compliance.
- Imperial Irrigation District – Encroachment Permit.
- Imperial County Air Pollution Control District – Rule 801 Compliance.