APPENDIX H

LAND EVALUATION & SITE ASSESSMENT ANALYSIS

Land Evaluation and Site Assessment Analysis for the Drew Solar Project, Imperial County, California

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Acronyms

CAISO	California Independent Service Operator
CUP	Conditional Use Permit
Drew Switchyard	San Diego Gas and Electric's Drew Switchyard
IID	Imperial Irrigation District
LCC	Land Capability Classification
LE	Land Evaluation
LESA	Land Evaluation and Site Assessment Analysis
NRCS	Natural Resources Conservation Service
SA	Site Assessment
USDA	U.S. Department of Agriculture
ZOI	Zone of Influence

1.0 Introduction

As stated in Appendix G of the 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 a relative weight and are combined to one numeric score that 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).

Appendix G of the California Environmental Quality Act Guidelines identifies the California Agricultural LESA Model as a model that can be used in assessing impacts on agriculture and farmland. A LESA Model was prepared for the proposed Drew Solar Project (project), and the results are provided below.

2.0 Project Description

2.1 Environmental Setting

The General Plan land use designation for the project site and all surrounding parcels is Agriculture. The project site is and all adjacent sites are in General Agriculture (A2), General Agriculture/Rural (A2R), or Heavy Agriculture (A-3) zoning districts. The project site has historically been, and is currently used, for agricultural production. Crops grown on the project site during the last three years include Bermuda grass, Alfalfa (*Medicago sativa*), kleingrass (*Panicum coloratum*), Wheat, and Sudangrass. Site reconnaissance determined that the site is currently used for production of Bermuda grass.

Agricultural uses are located on the project site and properties to the north, west, and southwest. Nearby buildings include a business located on the north side of State Route 98 approximately 1 mile west of the intersection of State Route 98 and Drew Road, a single-family residence immediately west of the intersection of Drew Road and State Route 98 (approximately 100 feet from project site), and a single-family residence northeast of the intersection of Kubler Road and Pulliam Road (approximately 400 feet from project site). Additionally, three single-family residences are located to the west of the intersection of Kubler Road and Drew Road (0.5 mile west of the project site).

Solar generation facilities are located on properties to the east and south of the project site; associated buildings include an operations and maintenance building at Drew Switchyard; approximately 360 feet from the Drew Solar Project site, and an operations and maintenance building at the existing Centinela Solar Project approximately 0.7 miles east of the Drew Solar Project site.

2.2 Project Characteristics

The project is a proposed solar photovoltaic generation facility which may also include grid scale energy storage located in Imperial County, California. The project site is located in the unincorporated Mount Signal community, approximately 6.5 miles southwest of the city of El Centro and approximately 1.85 miles north of the U.S.-Mexico border. Figure 1 shows the regional location of the project site.

The project site is approximately 844.2 gross-acres (855 gross acres after the project's Parcel Map is recorded) and 762.8 net farmable-acres and is comprised of six parcels: Assessor's Parcel Numbers 052-170-031, 052-170-032, 052-170-037, 052-170-039, 052-170-056, and 052-170-067. The project site is bounded by Kubler Road to the north, Westside Main Canal and Wormwood Canal to the west, State Route 98 to the south, and Pulliam Road to the east. Agricultural uses are located on the project site and properties to the north, west, and southwest. Solar generation facilities are located on properties to the east and south of the project site. Figure 2 shows the project site on a U.S. Geological Survey Map. Figure 3 shows an aerial photograph of the project site and vicinity.

The purpose of the project is to generate approximately 100 megawatts of renewable electricity, and the possible storage of power from both the generation portion of the project and power from the California Independent Service Operator (CAISO) for the State of California. Five solar power generation and potential energy storage conditional use permits (CUPs) are proposed, and a sixth CUP for energy storage as a component of solar is included. The project may include an operations and maintenance building or buildings, substation(s), photovoltaic modules mounted on horizontal single-axis trackers, energy storage facilities, inverters, internal roadways, and may also include auxiliary improvements for storm water retention, fire water storage, water filtration and treatment, equipment control buildings, septic systems, and parking. The project also proposes to transmit power to the CAISO grid by implementing two gen-ties that begin at the southern end of the project site and travel approximately 400 feet south across Drew Road and State Route 98 to connect to the Drew Switchyard, located on Assessor's Parcel Number 052-190-039.

The project may also incorporate an energy storage component. The field of energy storage is rapidly advancing; thus a single technology or provider has not been selected for the energy storage component of the project. The storage component may be centralized and located adjacent to the substation, or alternatively, the energy storage component may be distributed throughout the plant adjacent to individual power conversion centers. The storage component would likely be housed in a warehouse type building or alternatively in smaller modular structures such as cargo shipping containers.

The six project parcels are owned by Imperial Irrigation District (IID) and would be leased by the Applicant for the duration of the Development Agreement. Project development would be phased, with renewable energy generation facilities developed at a flexible rate based on market conditions and changing utility procurement plans. Development phases would occur under up to six separate conditional use permits (CUPs). Under the development agreement, the CUPs will be valid for 40 years with up to 10 years to commence construction. After the conclusion of the final CUP term (estimated at year 2059), the project entitlements require the Applicant to decommission the site and restore it to farmland uses in accordance with a future reclamation Plan. Agricultural restoration of the 762.8 net farmable-acres would occur in 2060. Operation of the project would require routine maintenance and security; the project would generate up to 20 trips per day.

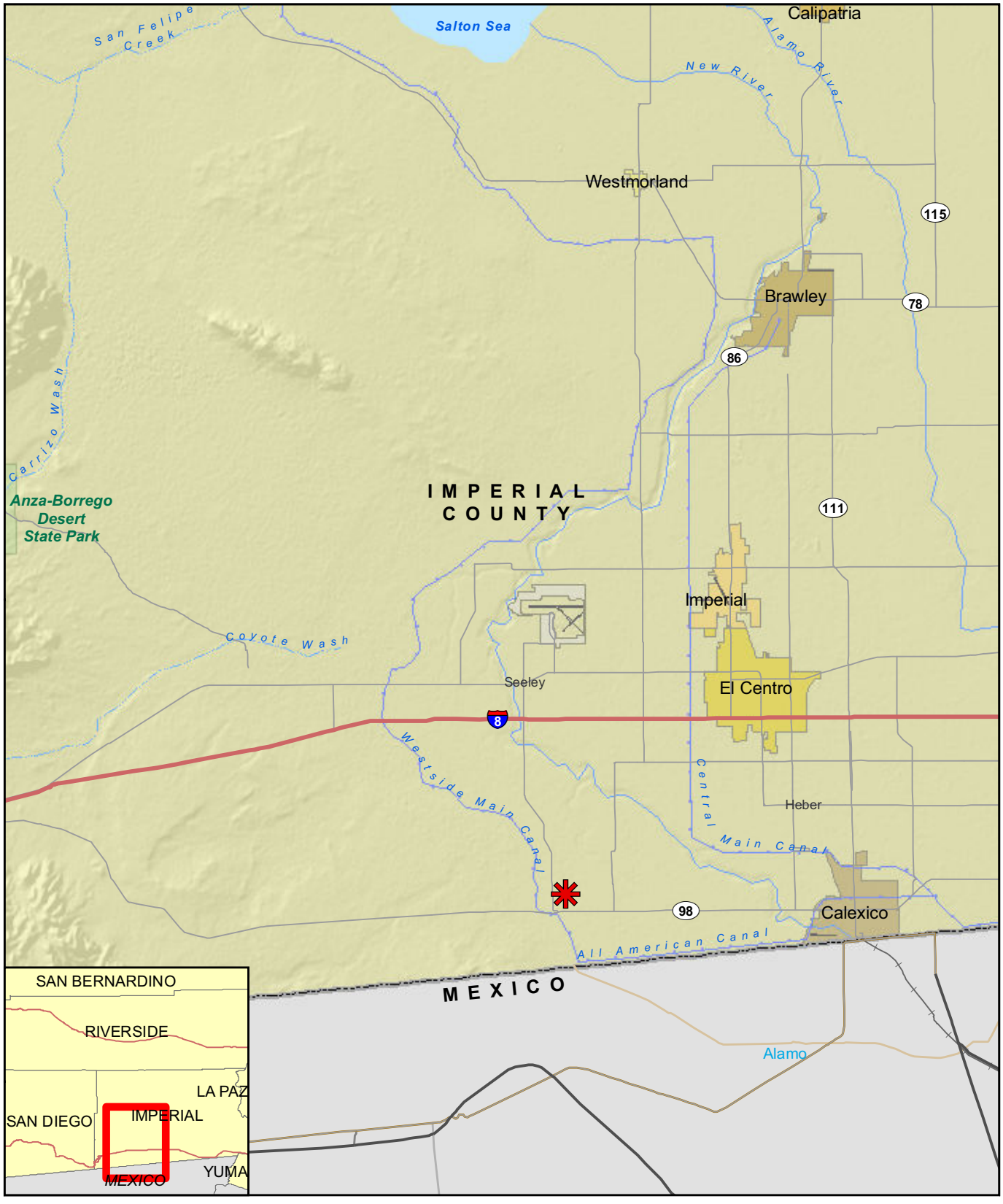
3.0 Land Evaluation and Site Assessment Evaluation

The project site was evaluated using the 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 California Environmental Quality Act 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. Due to a history of soil compaction, the existing utility roads within the project site are not suitable for future agricultural production. Consequently, the land evaluation and site assessment evaluation exclude the existing utility roads and are focused on the 762.8 net farmable-acres within the project site.

3.1 Land Evaluation

The land evaluation portion of the LESA Model focuses on two components of soil quality: the Land Capability Classification (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. All of the project soils have the capability subclass w indicating water in or on the soil that interferes with plant growth or cultivation.



Project Location

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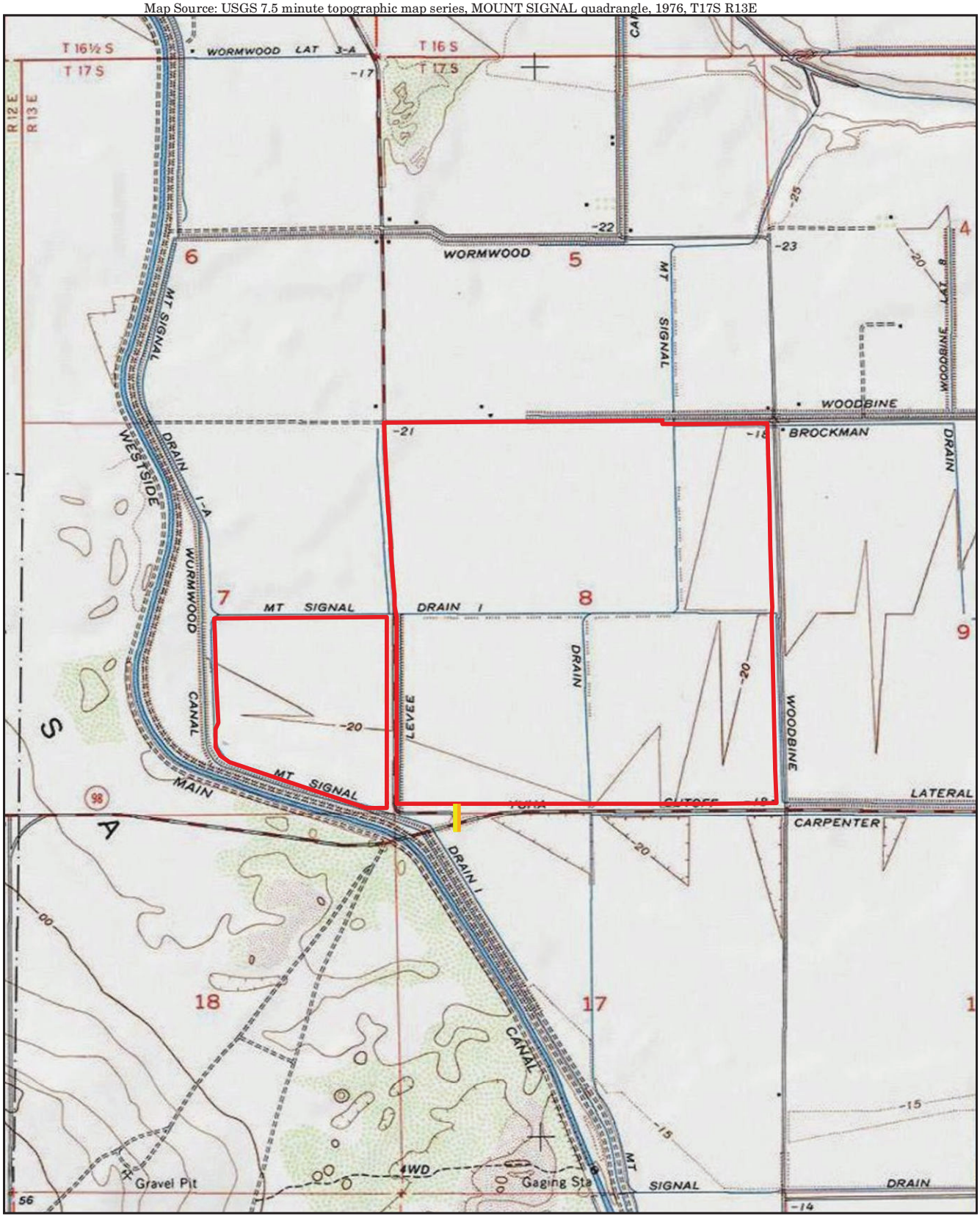
FIGURE 1

Regional Location

Map Source: USGS 7.5 minute topographic map series, MOUNT SIGNAL quadrangle, 1976, T17S R13E



Project Boundary

Gen-Ties

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FIGURE 2

Project Location on USGS Map

Image Source: USDA FSA NAIP (flown May 2016)

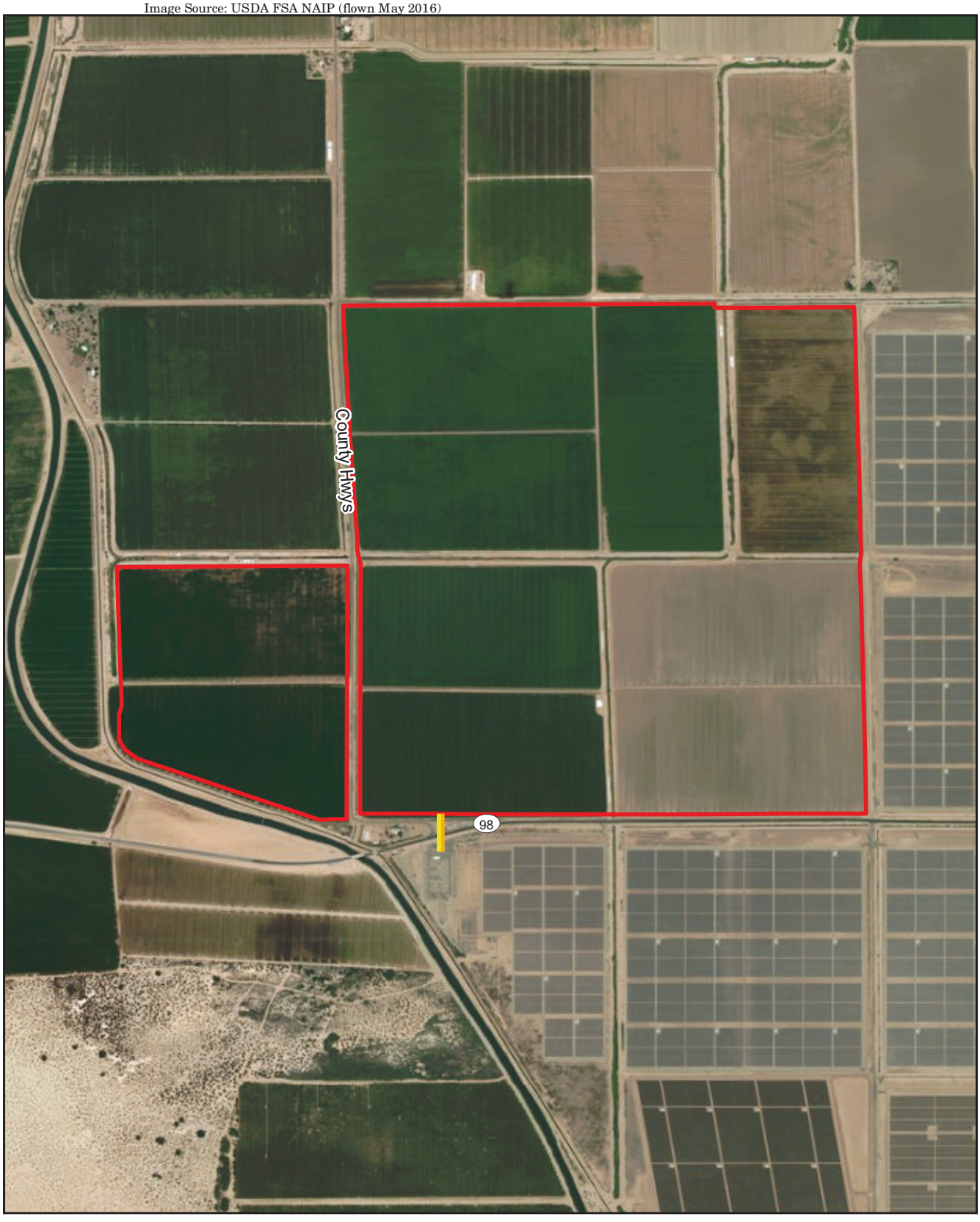

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FIGURE 3

Project Location on Aerial Photograph

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 [USDA NRCS] 2017).

Review of the U.S. Department of Agriculture Soil Survey data identified the following five soil types on the project site (USDA NRCS 2013).

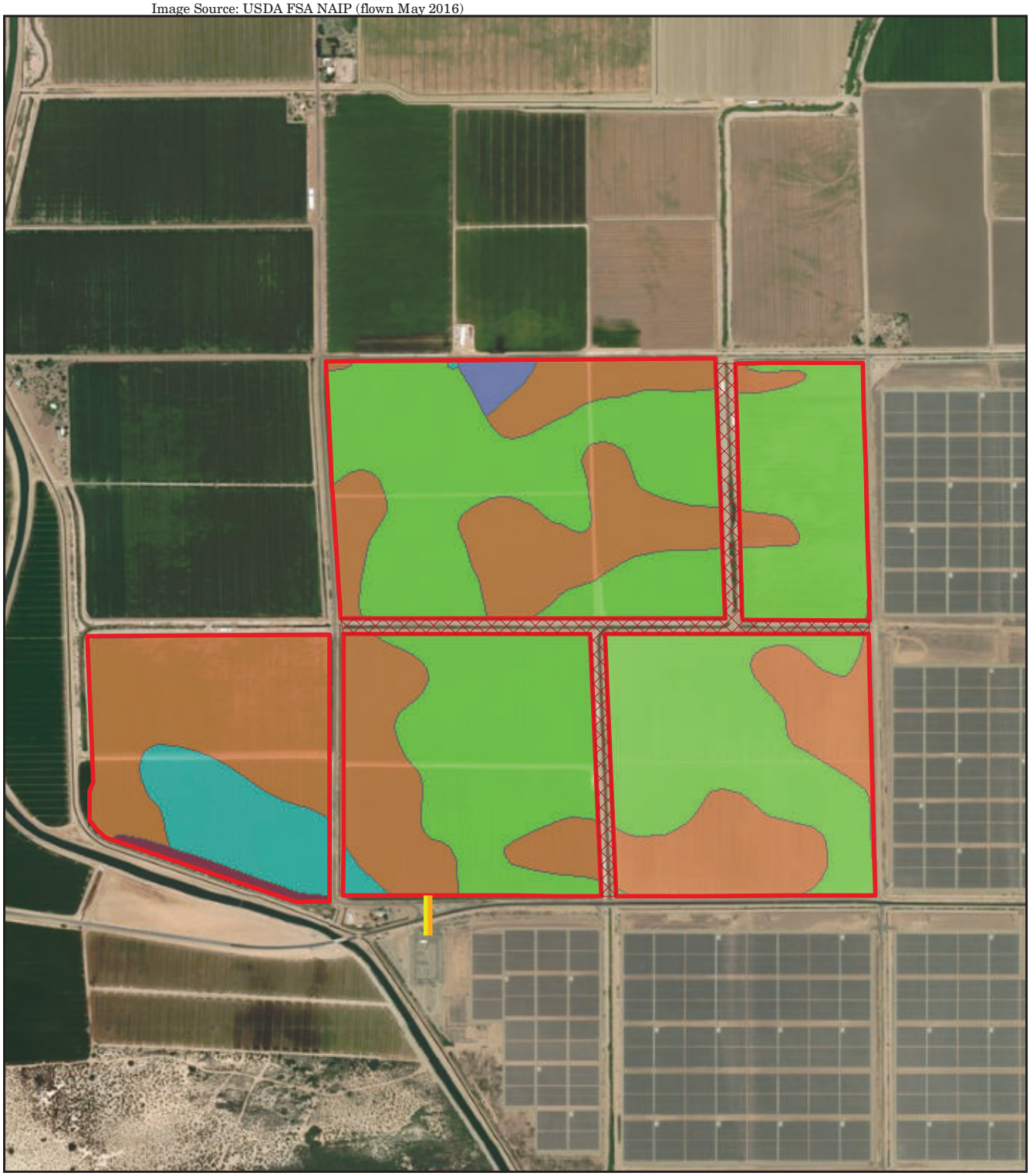
- Imperial Silty Clay, Wet
- Holtville Silty Clay, Wet
- Imperial-Glenbar Silty Clay Loams, Wet, 0 to 2 Percent Slopes
- Meloland Very Fine Sandy Loam, Wet
- Rositas Fine Sand, Wet, 0 to 2 Percent Slopes

Figure 4 presents the distribution of these five 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

Soil Map Unit	Net-Farmable Acres	Proportion of Project Area	LCC	LCC Rating	LCC Score	Storie Index	Storie Index Score
Holtville Silty Clay, Wet	5.8	0.8%	IIw	80	0.6	30	0.2
Imperial Silty Clay, Wet	409.9	53.7%	IIIw	60	32.2	22	11.8
Imperial-Glenbar Silty Clay Loams, Wet, 0 to 2 Percent Slopes	298.6	39.1%	IIIw	60	23.5	34	13.3
Meloland Very Fine Sandy Loam, Wet	42.4	5.6%	IIIw	60	3.3	36	2.0
Rositas Fine Sand, Wet, 0 to 2 Percent Slopes	6.0	0.8%	IIIw	60	0.4	43	0.3
Total	762.8	100.0%	--	**LCC Total**	60.1	**Storie Index Total**	27.7
NOTE: Totals may vary due to independent rounding. LCC = Land Capability Classification							

Image Source: USDA FSA NAIP (flown May 2016)



Net Farmable Area = 762.8 ac
Utility Road
Gen-Ties

0 Feet 1,500

Soil Classification

Holtville silty clay, wet - 5.8 ac (0.8%)
Imperial silty clay, wet - 409.9 ac (53.7%)
Imperial-Glenbar silty clay loams, wet, 0-2 % slopes - 298.6 ac (39.1%)
Meloland very fine sandy loam, wet - 42.4 ac (5.6%)
Rositas fine sand, wet, 0-2 % slopes - 6.0 ac (0.8%)

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FIGURE 4
Project Soil Types

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)

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 160 acres of soils with an LCC rating of IIIw.

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			
Soil Type	LCC Class I–II	LCC Class III	LCC Class IV-VIII
Holtville Silty Clay, Wet	5.8	--	--
Imperial Silty Clay, Wet	--	409.9	--
Imperial-Glenbar Silty Clay Loams, Wet, 0 to 2 Percent Slopes	--	298.6	--
Meloland Very Fine Sandy Loam, Wet	--	42.4	--
Rositas Fine Sand, Wet, 0 to 2 Percent Slopes	--	6.0	--
Total Acres	5.8	757.0	--
Project Size Scores	0	100	0
Highest Project Size Score	--	**100**	--
NOTE: Totals may vary due to independent rounding. 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).

Agricultural production on the project site is 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, the proposed site was given the highest Water Resource Availability Rating of 100. Current agricultural production on 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				
Project Portion	Water Source	Proportion of Project Area	Water Availability Score	Weighted Availability Score
1	Imperial Irrigation District Irrigation Water	100 percent	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 Percent	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

Figure 5 shows that land within the northern, western, and southwestern portions of the ZOI are currently in agricultural production, which constitutes approximately 55 percent of the ZOI. Because land currently in agricultural production constitutes approximately 55 percent of the ZOI, the project site is assigned a Surrounding Protected Resource Land Rating score of 40.

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. Figure 6 presents the location and acreage of protected land within the ZOI. Approximately 389.6 acres of Williamson Act lands are located within the ZOI, which constitutes approximately

15 percent of the ZOI. Because the percentage of protected land is less than 40 percent of the ZOI, the project site is assigned a Surrounding Protected Resource Land Rating score of zero. Additionally, it should be noted that the County's Williamson Act program will terminate on January 1, 2020, and project construction may not begin until after that date.

Table 6
Surrounding Protected Resource Land Rating Scores

Percent of Project's Zone of Influence Defined as Protected	Surrounding Protected Resource Land Score
90-100 Percent	100
80-89	90
75-79	80
70-74	70
65-69	60
60-64	50
55-59	40
50-54	30
45-49	20
40-44	10
40 <	0

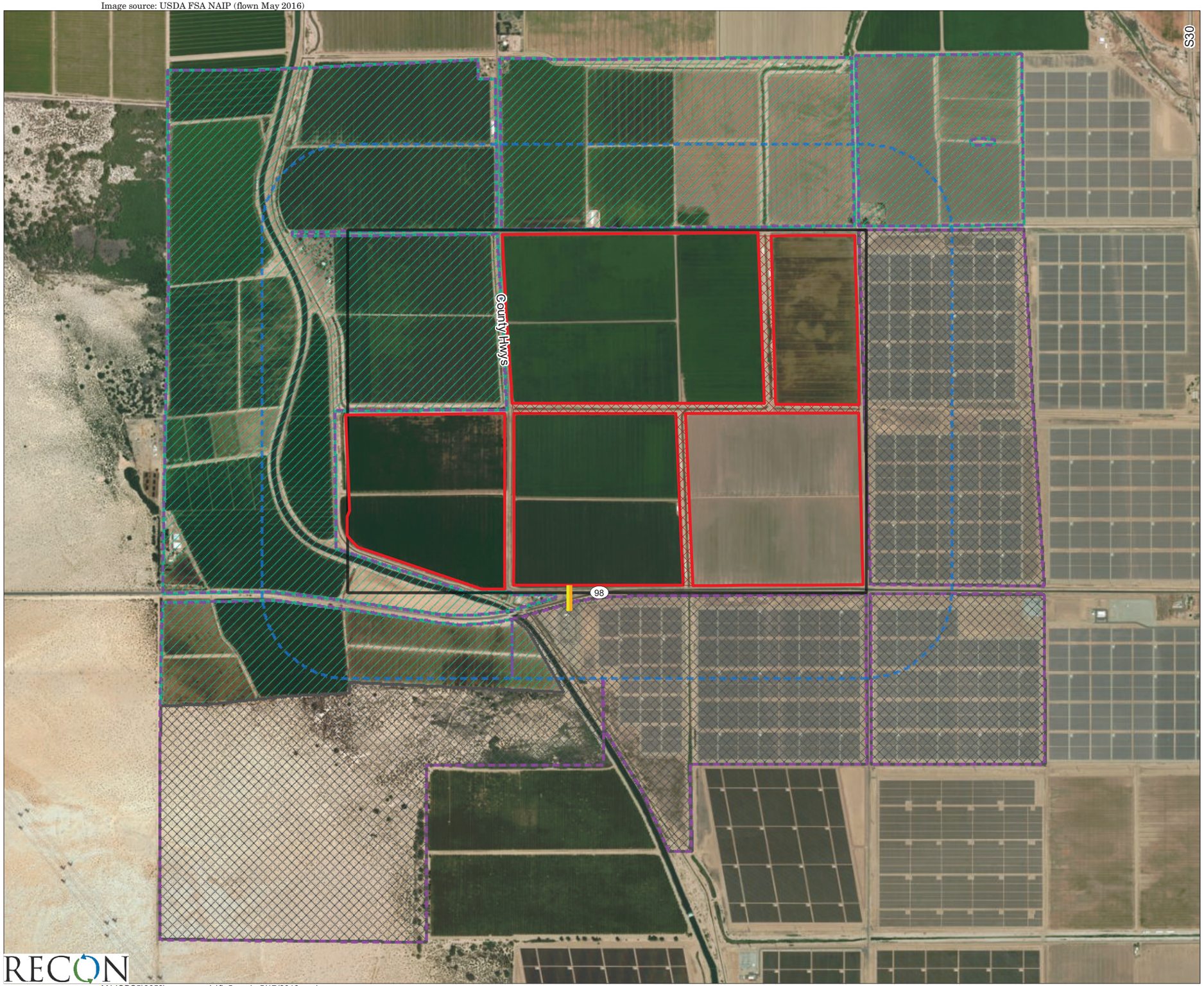
4.0 Summary

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 21.9, while the SA subscore is 36.0, resulting in a final LESA score of 57.90. 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

Factor Name	Factor Score (0–100 Points)	Factor Weighting (Total = 1.00)	Weighted Factor Score
Land Evaluation			
Land Capability Classification	60.1	0.25	15.0
Storie Index Rating	27.7	0.25	6.9
Land Evaluation Subscore			21.9
Site Assessment			
Project Size	100	0.15	15.0
Water Resource Availability	100	0.15	15.0
Surrounding Agricultural Lands	40	0.15	6.0
Protected Resource Lands	0	0.05	0.0
Site Assessment Subscore			36.0
Total Land Evaluation and Site Assessment Score			57.9

Image source: USDA FSA NAIP (flown May 2016)



Net Farmable Area = 762.8 ac
Utility Road
Gen-Ties
Envelope
1/4 mi Buffer of Envelope
Zone of Influence - 2,685.2 ac
Active Farmland - 1,473.7 ac (55% of total)
Non-farmland - 1,211.5 ac (45% of total)

0 Feet 1,500

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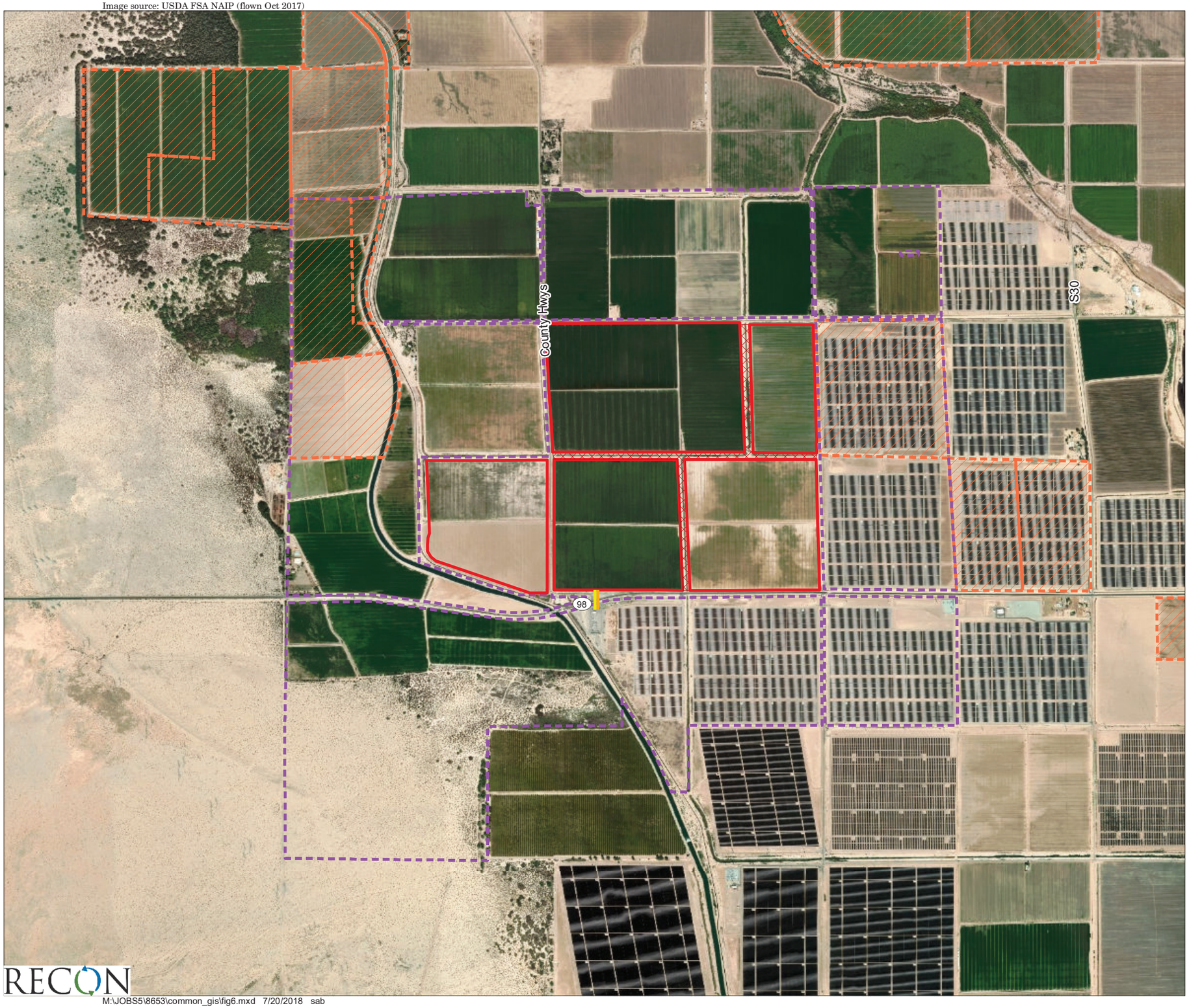
FIGURE 5
Surrounding Agricultural Land

Image source: USDA FSA NAIP (flown Oct 2017)



Net Farmable Area = 762.8 ac

Utility Road

Gen-Ties

Zone of Influence - 2,685.2 ac

Williamson Act Parcels - 389.6 ac (15% of total)

0 Feet 2,000

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FIGURE 6

Surrounding Protected Resource Land

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.

U.S Department of Agriculture Natural Resources Conservation Service (USDA NRCS)

2017 Web Soil Survey. Soil Survey Area: Imperial County, California, Imperial Valley Area

2013 SSURGO Imperial County, California, Imperial Valley Area (CA683) Version 2, Dec 19.