

Imperial Solar Energy Center West

Appendix E

Land Evaluation and Site Assessment (LESA)

Prepared by BRG Consulting, Inc.

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Imperial Solar Energy Center West Land Evaluation and Site Assessment

Prepared for:

County of Imperial
Planning and Development Services Department



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1.0 INTRODUCTION

The Land Evaluation and Site Assessment (LESA) is a term used to define an approach for rating the relative quality of land resources based upon specific measurable features. The LESA system is a point-based approach that is composed of six different factors. Two Land Evaluation factors are based upon measures of soil resource quality. Four Site Assessment factors provide measures of a given project's size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. For a given project, each of these factors is separately rated on a 100-point scale. The factors are then weighted relative to one another and combined, resulting in a single numeric score for a given project, with a maximum attainable score of 100 points. It is this project score that becomes the basis for making a determination of a project's potential significance, based upon a range of established scoring thresholds (Department of Conservation, 1997).

Appendix G of the California Environmental Quality Act (CEQA) Guidelines identifies the California Agricultural LESA Model as an optional model to use in assessing impacts on agriculture and farmland. A LESA Model was prepared for the proposed Imperial Solar Energy Center West project, and the results are provided below.

2.0 PROJECT DESCRIPTION

2.1 Environmental Setting

The proposed project site of the proposed photovoltaic facility is located on 1,056 acres (buildable/developable lands) of privately-owned land, previously utilized for agricultural production. The site is located in the unincorporated Ocotillo area of the County of Imperial, approximately eight miles west of the City of El Centro. Imperial County is located in Southern California, bordering Mexico, west of Arizona, and east of San Diego County.

The photovoltaic facility project site is located immediately outside of the western fringe of developed agricultural lands in the County. Federal lands under jurisdiction of the Bureau of Land Management (BLM) are located immediately west and south of the project site. More specifically, this adjacent BLM land is designated as Utility Corridor "N" within the Yuha Desert, in the BLM's California Desert Conservation Area Plan. Agricultural lands are located east of the project site.

2.2 Project Characteristics

The proposed project is the development of a photovoltaic (solar power) facility on 1,056 acres of undeveloped land. The site has been utilized for agriculture, but has remained fallow for over 10 years. The project would include a facility consisting of ground mounted photovoltaic solar power generating system, supporting structures, operations and maintenance building, substation, water treatment facility, plant control system, meteorological station, roads and fencing. The photovoltaic facility would interconnect to the utility grid at the 230 kV side of Imperial Valley Substation via an approximately five-mile long

transmission line. The Imperial Valley Substation is located on isolated federal lands managed by the BLM. The proposed right-of-way (ROW) for the electrical transmission line corridor would be 120-feet wide, and would be located within Utility Corridor "N" of the BLM's California Desert Conservation Plan Area.

3.0 LESA EVALUATION

The site was evaluated using the California LESA Model to rate the quality and availability of agricultural resources for the proposed project site and to identify whether the proposed project would meet the threshold criteria as 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. The factors are evaluated in the following sections.

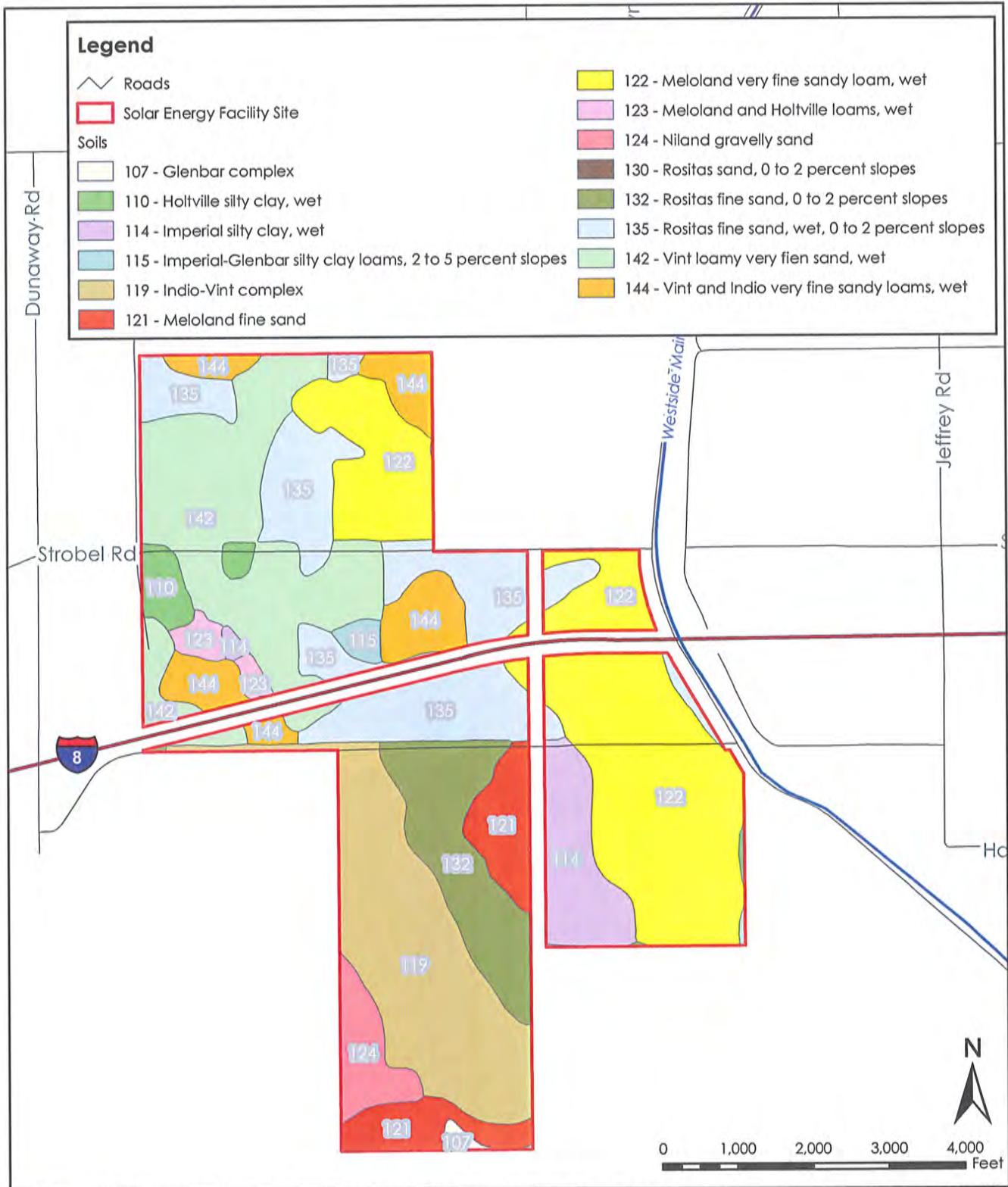
3.1 Land Evaluation

The Land Evaluation portion of the LESA Model focuses on two main components that are separately rated:

1. **The Land Capability Classification Rating:** The Land Capability Classification (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.
2. **The Storie Index Rating:** 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.

The United States Department of Agriculture survey found a variety of 14 soil types present on the project site. These include Glenbar complex; Holtville silty clay (wet); Imperial silty clay (wet); Imperial-Glenbar silty clay loams (2 to 5 percent slopes); Indio-Vint complex; Meloland fine sand; Meloland very fine sandy loam (wet); Meloland and Holtville loams (wet); Niland gravelly sand; Rositas sand (0 to 2 percent slopes); Rositas fine sand (0 to 2 percent slopes); Rositas fine sand (wet, 0 to 2 percent slopes); Vint loamy very fine sand (wet); and, Vint and Indio very fine sandy loams (wet). Figure 1 depicts the distribution of soil types on the project site. Table 1 details the varieties of soils found on the project site, along with their Capability Class and Storie Index rating.

The LESA Model assigns ratings to each land capability class and multiplies that number by the proportion of the project area that contains each soil class to find the Land Capability Classification score. A Storie Index score is calculated by multiplying the proportion of the project within each soil type by the soil type's Storie Index rating. Table 2 provides a summary of the Land Evaluation (LE) scores. The final LE and Site Assessment (SA) scores are entered into the Final LESA Score Sheet as shown in Table 6, later in this report.



SOURCE: U.S. Dept of Agriculture, 2008; ESRI, 2010; BRG Consulting, Inc., 2010

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Imperial Solar Energy Center West

Project Soil Types

FIGURE

1

TABLE 1
Soil Suitability

Map Symbol	Mapping Unit	Capability Class	Storie Index Rating
107	Glenbar complex	IIs-6	37
110	Holtville silty clay (wet)	IIw-5	30
114	Imperial silty clay (wet)	IIIw-6*	22
115	Imperial-Glenbar silty clay loams (2 to 5 percent slopes)	IIIw-6*	34
119	Indio-Vint complex	IIs-1*	90
121	Meloland fine sand	IIIs-3*	47
122	Meloland very fine sandy loam (wet)	IIIw-3*	43
123	Meloland and Holtville loams (wet)	IIIw-3*	43
124	Niland gravelly sand	IVs-3*	21
130	Rositas sand (0 to 2 percent slopes)	IVs-4*	57
132	Rositas fine sand (0 to 2 percent slopes)	IIIs-4*	62
135	Rositas fine sand (wet, 0 to 2 percent slopes)	IIIw-4*	36
142	Vint loamy very fine sand (wet)	IIw-4*	57
144	Vint and Indio very fine sandy loams (wet)	IIw-3*	60

Notes: IIs-6 capability rating indicates soils with moderate limitations that reduce the choice of plants, or that require moderate conservation practices, or both. This soil is limited mainly because it is shallow, droughty, or stony. The soil also has problems or limitations caused by salt or alkali.

IIw-5 capability rating indicates soils with moderate limitations that reduce the choice of plants, or that require moderate conservation practices, or both. This soil is limited mainly because it is shallow, droughty, or stony. The soil also has problems or limitations caused by a fine textured or very fine textured surface layer.

IIIw-6 capability rating indicates soils that have severe limitations that reduce the choice of plants, or that require special conservation practices, or both. This soil contains water in or on the soil that interferes with growth. The soil also has problems or limitations caused by salt or alkali.

IIs-1 capability rating indicates soils that have moderate limitations that reduce the choice of plants, or that require moderate conservation practices, or both. This soil is limited mainly because it is shallow, droughty, or stony. The soil also has a problem or limitation caused by slope or by an actual or potential erosion hazard.

IIIs-3 capability rating indicates soils with severe limitations that reduce the choice of plants, or that require special conservation practices, or both. This soil is limited mainly because it is shallow, droughty, or stony. The soil also has problems or limitations of slow or very slow permeability of the subsoil or substratum caused by a clayey subsoil or a substratum that is semi-consolidated.

IIIs-4 capability rating indicates soils with severe limitations that reduce the choice of plants, or that require special conservation practices, or both. This soil is limited mainly because it is shallow, droughty, or stony. The soil also has problems or limitations caused by sandy or gravelly soils with a low available water-holding capacity.

IIIw-3 capability rating indicates soils that have severe limitations that reduce the choice of plants, or that require special conservation practices, or both. This soil contains water in or on the soil that interferes with growth. The soil also has problems or limitations of slow or very slow permeability of the subsoil or substratum caused by a clayey subsoil or a substratum that is semi-consolidated.

IVs-3 capability rating indicates soils with severe limitations that reduce the choice of plants, or that require very careful management, or both. This soil is limited mainly because it is shallow, droughty, or stony. The soil also has problems or limitations caused by sandy or gravelly soils with a low available water-holding capacity. The soil also has problems or limitations of slow or very slow permeability of the subsoil or substratum caused by a clayey subsoil or a substratum that is semi-consolidated.

IVs-4 capability rating indicates soils have very severe limitations that reduce the choice of plants, or that require very careful management, or both. This soil is limited mainly because it is shallow, droughty, or stony. The soil also has problems or limitations caused by sandy or gravelly soils with a low available water-holding capacity.

IIIw-4 capability rating indicates soils that have severe limitations that reduce the choice of plants, or that require special conservation practices, or both. This soil contains water in or on the soil that interferes with growth. The soil also has problems or limitations caused by sandy or gravelly soils with a low available water-holding capacity.

IIw-4 capability rating indicates soils with moderate limitations that reduce the choice of plants, or that require moderate conservation practices, or both. This soil contains water in or on the soil that interferes with growth. The soil also has problems or limitations caused by sandy or gravelly soils with a low available water-holding capacity.

IIw-3 capability rating indicates soils with moderate limitations that reduce the choice of plants, or that require moderate conservation practices, or both. This soil contains water in or on the soil that interferes with growth. The soil also has problems or limitations of slow or very slow permeability of the subsoil or substratum caused by a clayey subsoil or a substratum that is semi-consolidated.

Source: United States Department of Agriculture, 1981; BRG Consulting, Inc., 2010.

TABLE 2
Land Capability Classification (LCC) and Storie Index Score

A	B	C	D	E	F	G	H
Soils	Acres	Proportion of Project Area	LCC*	LCC Rating	LCC Score	Storie Index	Storie Score
107 (Glenbar complex)	3.2	0.3%	lls-6	80	0.24	37	0.11
110 (Holtville silty clay, wet)	18.6	1.8%	llw-5	80	1.44	30	0.54
114 (Imperial silty clay, wet)	50.2	4.8%	llw-6	60	2.88	22	1.06
115 (Imperial-Glenbar silty clay loams (2-5% slopes)	6.4	0.6%	llw-6	60	0.36	34	0.2
119 (Indio-Vint complex)	155.2	14.7%	lls-1	80	11.76	90	13.23
121 (Meloland fine sand)	55.8	5.3%	lls-3	60	3.18	47	2.49
122 (Meloland very fine sandy loam, wet)	249.0	23.6%	llw-3	60	14.16	43	10.15
123 (Meloland and Holtvilled loams, wet)	11.4	1.1%	llw-3	60	0.66	43	0.47
124 (Niland gravelly sand)	27.4	2.6%	IVs-3	40	1.04	21	0.55
130 (Rositas sand, 0-2% slopes)	0.05	0.005%	IVs-4	40	0.002	57	0.003
132 (Rositas fine sand, 0-2% slopes)	76.2	7.2%	lls-4	60	4.32	62	4.46
135 (Rositas fine sand, wet, 0-2% slopes)	167.2	15.8%	llw-4	60	9.48	36	5.69
142 (Vint loamy very fine sand, wet)	170.9	16.2%	llw-4	60	9.72	57	9.23
144 (Vint and Indio very fine sandy loams, wet)	65.2	6.2%	llw-3	60	3.72	60	3.72
TOTALS	1056.8	100%	--	--	62.96	--	51.90

Notes: * See Table 1 for a description of the soil's LCC rating.

Source: California Department of Conservation, 1997; BRG Consulting, Inc., 2010.

3.2 Site Assessment Factors

The California LESA Model includes four Site Assessment factors that are separately rated and include:

1. Project Size Rating
2. Water Resources Availability Rating
3. Surrounding Agricultural Land Rating
4. Surrounding Protected Resource Land Rating

A. Project Size Rating

The project size rating recognizes 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. 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).

In terms of agricultural productivity, the size of the farming operation can be considered not just from its total acreage, but the acreage of different quality lands that comprise the operation. Lands with higher quality soils lend themselves to greater management and cropping flexibility and have the potential to provide greater economic return per acre unit. For a given project, instead of relying upon a single acreage figure in the Project Size rating, the project is divided 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. Table 3 summarizes the Project Size score for the proposed project.

TABLE 3
Project Size Score

Soils	Acres	LCC	LCC Class I or II	LCC Class III	LCC Class IV-VII
107 (Glenbar complex)	3.2	IIs	3.2		
110 (Holtville silty clay, wet)	18.6	IIw	18.6		
114 (Imperial silty clay, wet)	50.2	IIIw		50.2	
115 (Imperial-Glenbar silty clay loams (2-5% slopes))	6.4	IIIw		6.4	
119 (Indio-Vint complex)	155.2	IIs	155.2		
121 (Meloland fine sand)	55.8	IIIs		55.8	
122 (Meloland very fine sandy loam, wet)	249	IIIw		249	
123 (Meloland and Holtvilled loams, wet)	11.4	IIIw		11.4	
124 (Niland gravelty sand)	27.4	IVs			27.4
130 (Rositas sand, 0-2% slopes)	0.005	IVs			0.05
132 (Rositas fine sand, 0-2% slopes)	76.2	IIIs		76.2	
135 (Rositas fine sand, wet, 0-2% slopes)	167.2	IIIs		167.2	
142 (Vint loamy very fine sand, wet)	170.9	IIIw		170.9	
144 (Vint and Indio very fine sandy loams, wet)	65.2	IIIw		65.2	
TOTAL ACRES	1056.8		177	852.3	27.45
PROJECT SIZE SCORES			100	100	0
HIGHEST PROJECT SIZE SCORE			100		

Source: California Department of Conservation, 1997; BRG Consulting, Inc., 2010.

B. 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.

The proposed project is completely served by irrigation water provided by the Imperial Irrigation District (IID). The proposed project was given the highest Water Resource Availability Rating given the consistent water delivery provided by IID to the project site. The project has no physical or economic restrictions that may alter water resource supply during either drought or non-drought years. Table 4 summarizes the Water Resources Availability score.

Table 4
Water Resource Availability

Project Portion	Water Source	Proportion of Project Area	Water Availability Score	Weighted Availability Score
1	Irrigation water	100%	100	100
Total Water Resource Score				100

Source: California Department of Conservation, 1997; BRG Consulting, Inc., 2010.

C. Surrounding Agricultural Land Rating

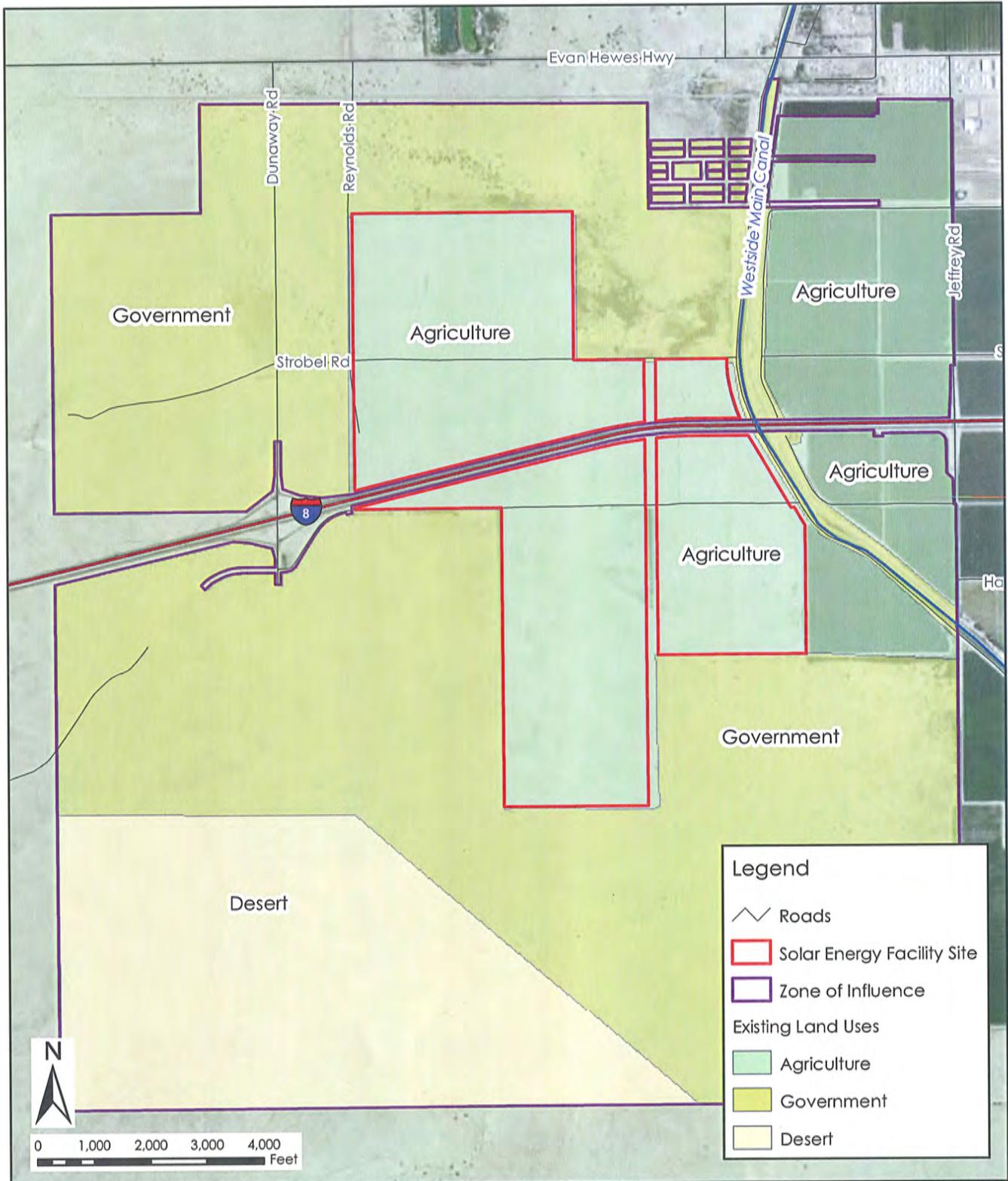
The Surrounding Agricultural Land Rating is designed to provide a measurement of the level of agricultural land use for lands within the Zone of Influence (ZOI) of the subject parcel. The "Zone of Influence" is the amount of surrounding lands up to a minimum of one-quarter mile from the project boundary. Parcels that are intersected by the 0.25-mile buffer are included in their entirety. Based upon the percentage of agricultural land in the ZOI, the project site is assigned a "Surrounding Agricultural Land" score. 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 (California Department of Conservation, 1997).

Lands used for agricultural production are located adjacent to the project site mostly to the north and east. Figure 2 depicts the distribution and amount of land used for agricultural uses within 0.25 mile of the project site. The Surrounding Agricultural Land score for the proposed project is provided in Table 5.

Table 5
Surrounding Agricultural Lands

Total Acreage within "Zone of Influence"	Acres in Agricultural Production	Acres of Protected Resource Land	Percent in Agriculture	Percent Protected Resources Land	Surrounding Agricultural Land Score	Surrounding Protected Resource Land Score
5080.3	681.47	198.98	13.4%	3.9%	0	0

Source: Department of Conservation, 1997; BRG Consulting, Inc., 2010.



SOURCE: U.S. Dept of Agriculture, 2008; ESRI, 2010; BRG Consulting, Inc., 2010

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Imperial Solar Energy Center West
Surrounding Land Uses

FIGURE
2

D. 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. Included among them are 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.

Approximately 198.98 acres or (3.9%) of Williamson Act lands and BLM lands are located within the ZOI. Because the percentage of protected land is less than 40 %of the ZOI, the Surrounding Protected Resource Land Rating score is zero.

4.0 SUMMARY

The LESA Model is weighted so that half of the total LESA score of a given project is derived from the LE and half from the SA. As shown in Table 6, the LE subscore is 28.75, while the SA subscore is 30. The final LESA score is 58.75. As shown in Table 7, a final LESA score between 40 to 59 points is considered significant only if LE and SA subscores are greater than or equal to 20 points. Therefore, with both subscores (LE and SA) greater than 20, the project is considered to have a significant impact on agricultural resources.

TABLE 6
Final LESA Score Sheet Summary

	Factor Rating (0-100 Points)	Factor Weighting (Total = 1.00)	Weighted Factor Rating
Land Evaluation (LE)			
1. Land Capability Classification (LCC Rating)	63	0.25	15.75
2. Storie Index Rating	52	0.25	13
<i>Land Evaluation Subscore</i>			<i>28.75</i>
Site Assessment (SA)			
1. Project Size Rating	100	0.15	15
2. Water Resource Availability Rating	100	0.15	15
3. Surrounding Agricultural Land Rating	0	0.15	0
4. Surrounding Protected Resource Lands Rating	0	0.05	0
<i>Site Assessment Subscore</i>			<i>30</i>
TOTAL			58.75

Source: California Department of Conservation, 1997; BRG Consulting, Inc. 2010.

TABLE 7
California LESA Model Scoring Thresholds

Total LESA Score	Scoring Decision
0 to 39 Points	Not considered significant
40 to 59 Points	Considered significant <u>only</u> if LE and SA subscores are greater than or equal to 20 points
60 to 79	Considered significant <u>unless</u> either LE or SA subscore is <u>less</u> than 20 points
80 to 100	Considered significant

Source: California Department of Conservation, 1997.

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