LESA ASSESSMENT
MOUNT SIGNAL SOLAR FARM I PROJECT AREA

MOUNT SIGNAL SOLAR FARM I PROJECT

**(SW/4 Section 16, S/2 Section 15, NE/4 Section 14 (portion),
N/2 Section 13 (portion) and SE/4 Section 13, T17S, R13E, SBB&M;
SE/4 Section 18 and N/2 Section 19 (portion), T17S, R14E, SBB&M)**

IMPERIAL COUNTY, CALIFORNIA

April 2011

EMA Report No. 2154-02

Prepared for:

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ENVIRONMENTAL MANAGEMENT ASSOCIATES

LAND EVALUATION AND SITE ASSESSMENT MODEL

MOUNT SIGNAL SOLAR FARM I PROJECT

(SW/4 Section 16, S/2 Section 15, NE/4 Section 14 (portion), N/2 Section 13 (portion) and SE/4 Section 13, T17S, R13E, SBB&M; SE/4 Section 18 and N/2 Section 19 (portion), T17S, R14E, SBB&M)

IMPERIAL COUNTY, CALIFORNIA

The Land Evaluation and Site Assessment (LESA) model is an approach for rating the relative quality of land resources based upon specific measurable features. The LESA model was first developed by the federal Natural Resources Conservation Service (NRCS) in 1981. It was subsequently adapted in 1990 by the California Department of Conservation to evaluate land use decisions that affect the conversion of agriculture lands in California. The formulation of the California LESA Model is intended to provide lead agencies under the California Environmental Quality Act (CEQA) with an optional methodology to ensure that significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process.

For determining the potential CEQA significance resulting from the conversion of agricultural lands to some other purpose, the California Agricultural LESA Model has developed Scoring Thresholds which are used to compare the Final LESA Score and the Weighted Factor Scores for the Project with suggested Scoring Decisions. These LESA Scores do not take into consideration any proposed mitigation measures or other factors that might affect a lead agency's determination of the significance of the agricultural lands conversion impact under CEQA.

The information provided on the following pages present documentation of the LESA assessment prepared using the California Agricultural LESA Model for the proposed Mount Signal Solar Farm 1 Project (Project). The proposed Project would be constructed on four properties totaling approximately 1,432 acres of privately owned land located about 6.5 miles west of the city of Calexico, California (Figure 1). Project Area I (APN 052-210-034-000; 052-210-035-000; 052-210-036-000 and 052-210-013-000) is bounded on the north by Highway 98 and on the south by an unpaved Imperial County road (Anza Road). Project Area II (APN 059-130-001-000; 059-130-004-000; 059-130-002-000 and 059-130-005-000) is bounded on the west and east by unpaved Imperial County roads (Ferrell and Weed Roads, respectively)(Figure 2). Project Area III (APN 052-210-016-000) is bounded on the west, south and east by unpaved Imperial County roads (Brockman, Anza and Rockwood Roads, respectively). Project Area IV (APN 052-190-012-000) is bounded on the west and south by unpaved Imperial County roads (Pulliam and Anza Roads, respectively) (Figure 3).

LESA ASSESSMENT

82LV 8ME, LLC
MOUNT SIGNAL SOLAR FARM I PROJECT
IMPERIAL COUNTY, NEVADA

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

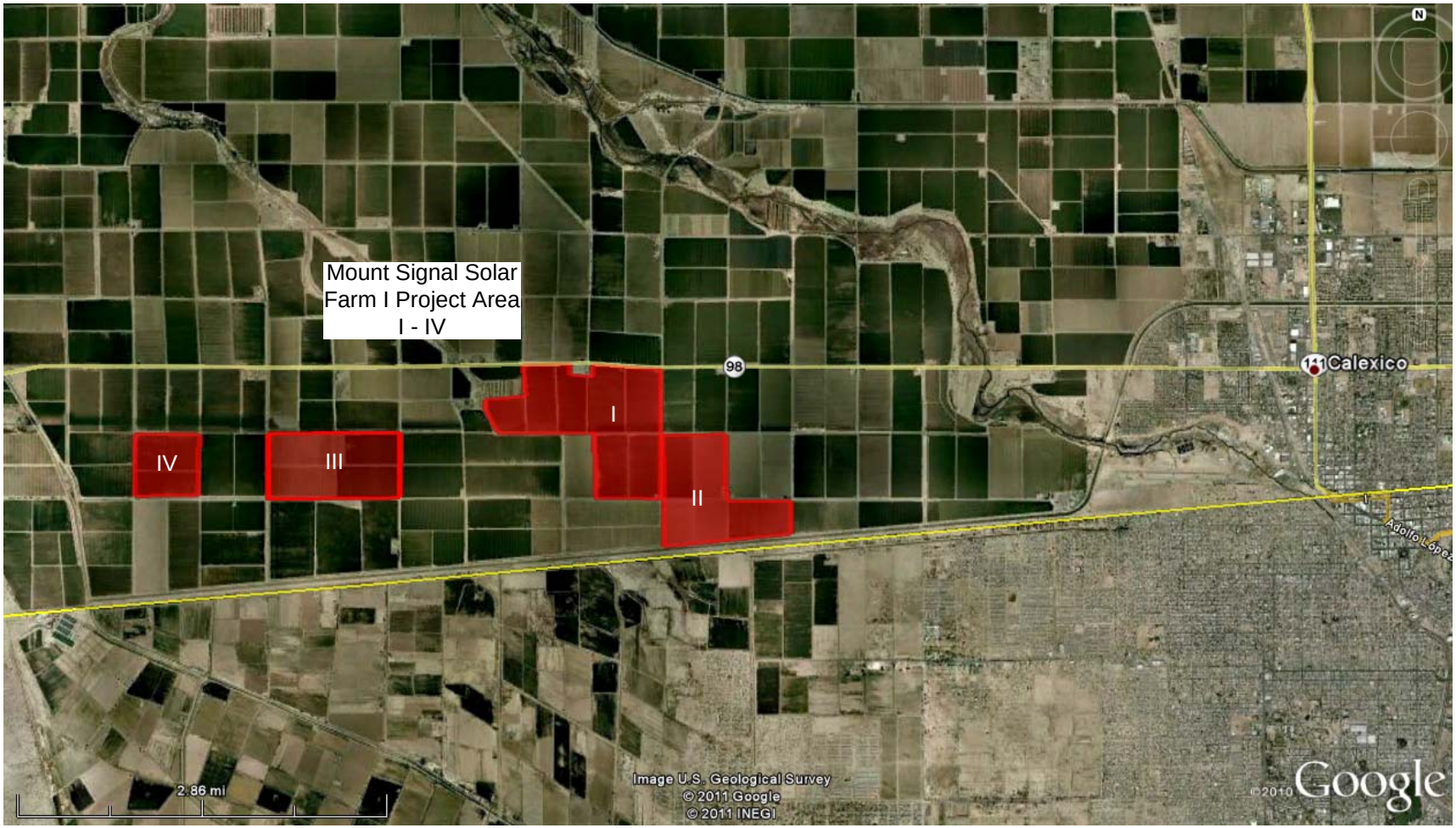


Figure 1 : Location Map

Figure 2 : Project Area on an Aerial Photographic Base - Area I & II

Figure 3 : Project Area on an Aerial Photographic Base - Area III & IV

Land Evaluation Worksheet							
A	B	C	D	E	F	G	H
Soil Map Unit*	**Project Acres**	**Proportion of Project Area**	**LCC** (irrigated)**	**LCC Rating (irrigated)*****	**LCC Score (C x E)**	**Storie Index****	**Storie Index Score (C x G)**
106	5.38	0.0038	IIw	80	0.30	72	0.27
110	19.61	0.0137	IIw	80	1.10	45	0.62
114	737.96	0.5154	IIIw	60	30.92	42	21.65
115	607.60	0.4243	IIIw	60	25.46	70	29.49
116	0.40	0.0003	IIIe	70	0.02	74	0.02
119	1.62	0.0011	IIs	80	0.09	90	0.10
122	58.38	0.0408	IIIw	60	2.45	44	1.79
123	0.91	0.0006	IIIw	60	0.04	60	0.04
Totals	1432	1.00		**LCC Total Score**	60	**Storie Index Total Score**	54

Total Project Area (acres)=	1432

* The Soil Map Unit information and acreage were determined from the current soil survey information available at the USDA Natural Resources Conservation Service website: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx (Figure 4, Figure 5, Figure 6 and Figure 7).

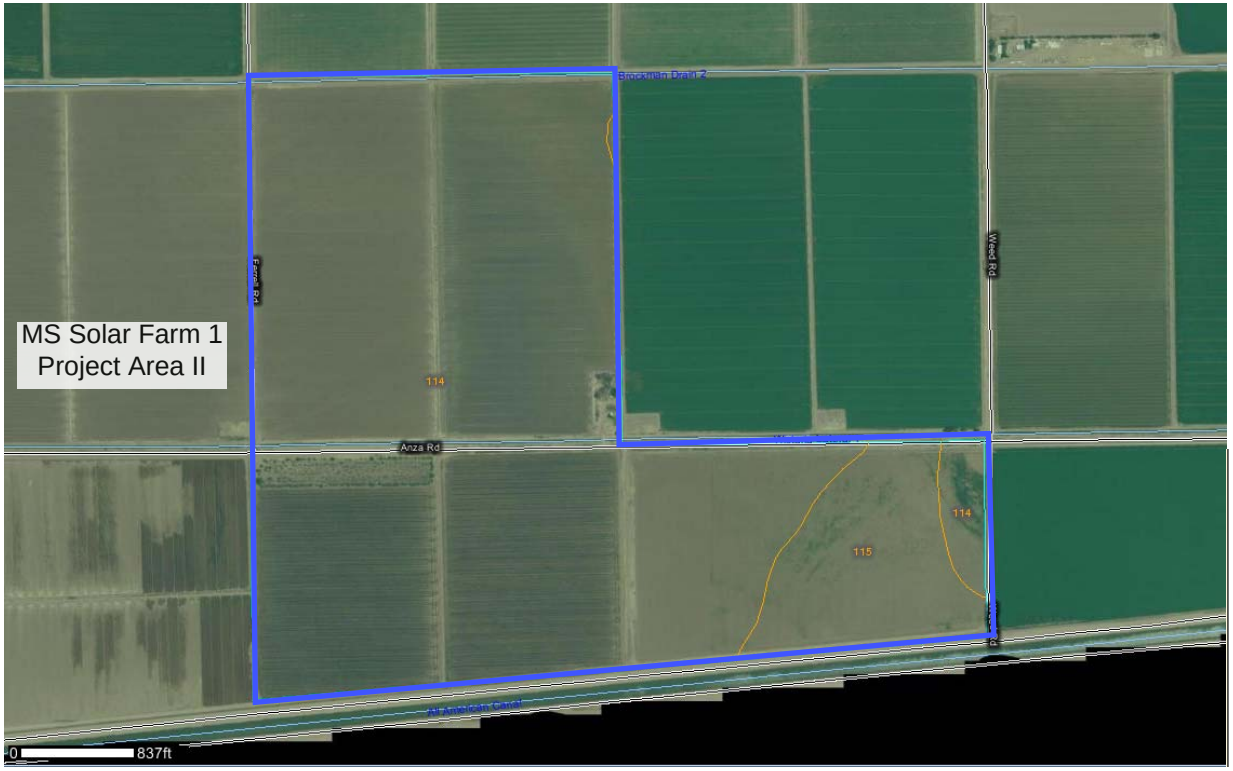
** The Land Capability Classification and Storie Index information was obtained from the current soil survey information available at the USDA Natural Resources Conservation Service website: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx (Appendix A).

*** The LCC Rating for irrigated land was determined from the LCC Point Rating Table 2 from the LESA Instruction Manual (California Department of Conservation 1997).

Imperial County, California, Imperial Valley Area (CA683)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
114	IMPERIAL SILTY CLAY, WET	256.5	45.6%
115	IMPERIAL-GLENBAR SILTY CLAY LOAMS, WET, 0 TO 2 PERCENT SLOPES	305.9	54.3%
116	IMPERIAL-GLENBAR SILTY CLAY LOAMS, 2 TO 5 PERCENT SLOPE S	0.4	0.1%
Totals for Area of Interest		**562.8**	**100.0%**

Adjusted to 560.3 Acres
Rounded Percentages

Figure 4 : Project Area Soils Map - Area I



Imperial County, California, Imperial Valley Area (CA683)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
114	IMPERIAL SILTY CLAY, WET	328.8	88.9%
115	IMPERIAL-GLENBAR SILTY CLAY LOAMS, WET, 0 TO 2 PERCENT SLOPES	41.2	11.1%
Totals for Area of Interest		**370.0**	**100.0%**

Adjusted to 372.6
Rounded Percentages

Figure 5 : Project Area Soils Map - Area II

Imperial County, California, Imperial Valley Area (CA683)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
106	GLENBAR CLAY LOAM, WET	5.3	1.6%
110	HOLTVILLE SILTY CLAY, WET	19.3	5.9%
114	IMPERIAL SILTY CLAY, WET	36.1	11.1%
115	IMPERIAL-GLENBAR SILTY CLAY LOAMS, WET, 0 TO 2 PERCENT SLOPES	231.1	70.8%
122	MELOLAND VERY FINE SANDY LOAM, WET	33.8	10.4%
123	MELOLAND AND HOLTVILLE LOAMS, WET	0.9	0.3%
Totals for Area of Interest		**326.4**	**100.0%**

Adjusted to 331.7
Rounded Percentages

Figure 6 : Project Area Soils Map - Area III

Imperial County, California, Imperial Valley Area (CA683)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
114	IMPERIAL SILTY CLAY, WET	113.9	69.1%
115	IMPERIAL-GLENBAR SILTY CLAY LOAMS, WET, 0 TO 2 PERCENT SLOPES	25.7	15.6%
119	INDIO-VINT COMPLEX	1.6	1.0%
122	MELOLAND VERY FINE SANDY LOAM, WET	23.7	14.4%
Totals for Area of Interest		**164.9**	**100.0%**

Adjusted to 167.3
Rounded Percentages

Figure 7 : Project Area Soils Map - Area IV

	Site Assessment Worksheet 1		
	Project Size Score*		
	I	J	K
	LCC Class I-II	LCC Class III	LCC Class IV-VIII
Project Acres per LCC Class	5.38	737.96	
Project Acres per LCC Class	19.61	607.60	
Project Acres per LCC Class	1.62	0.40	
Project Acres per LCC Class		58.38	
Project Acres per LCC Class		0.91	
Total Project Acres per LCC Class	**26.62**	**1405.25**	**0**
**** Project Size Scores***	**50**	**100**	**0**

Highest Project Size Score	**100**

* Project Size Score was determined from the Project Size Scoring Table from the LESA Instruction Manual (California Department of Conservation 1997).

Site Assessment Worksheet 2				
Water Resources Availability				
A	**B**	**C**	**D**	**E**
Project Portion	**Water Source**	**Proportion of Project Area**	**Water Availability Score***	**Weighted Availability Score (C x D)**
1	Irrigation District Only	1.0	100	100
2				
3				
4				
5				
6				
		(Must Sum to 1.0)	***Total Water Resource Score***	100
* The Water Availability Score was determined using the Water Resources Availability Scoring Table from the LESA Instruction Manual (California Department of Conservation 1997).				

Site Assessment Worksheet 3

Surrounding Agricultural Land & Surrounding Protected Resource Land

A	B	C	D	E	F	G
Zone of Influence*					Surrounding Agricultural Land Score (From LESA Manual Table 6)	Surrounding Protected Resource Land Score (From LESA Manual Table 7)**
Total Acres	Acres in Agriculture	Acres of Protected Resource Land	Percent in Agriculture (B/A)	Percent Protected Resource Land (C/A)		
6768.6	6662	0	98	0	100	0

* In conformance with the instructions in the LESA Instruction Manual (California Department of Conservation 1997), the Zone of Influence was determined by drawing the smallest rectangle that could completely encompass the entire Project Area. A second rectangle was then drawn which extended one quarter mile on all sides beyond the first rectangle. The Zone of Influence is represented by the entire area of all parcels with any lands inside the outer rectangle, less the area of the proposed project (Figure 8 and Figure 9).

** The LESA Instruction Manual (California Department of Conservation 1997) describes *Protected Resource Land* as 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 lands; 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.

Surrounding Parcels***	Acres	Protected Resource Land?	Percent Protected Resource Land	Acres in Protected Land	Agricultural Land?	Percent Agricultural Land	Acres of Agriculture
59120001000	167.2	N	0	0	Y	100	167.2
59050003000	165.5	N	0	0	Y	100	165.5
59120004000	161.6	N	0	0	Y	100	161.6
59130003000	167.3	N	0	0	Y	100	167.3
59060007000	163.2	N	0	0	Y	100	163.2
59060006000	163.6	N	0	0	Y	100	163.6
59110001000	18.4	N	0	0	Y	100	18.4
59110006000	134.2	N	0	0	Y	100	134.2
59110008000	332.1	N	0	0	Y	100	332.1
59110003000	147.5	N	0	0	Y	100	147.5
59110004000	10.4	N	0	0	N	0	0
52170037000	169.8	N	0	0	Y	100	169.8
52190008000	163.6	N	0	0	Y	100	163.6
52190037000	168.2	N	0	0	Y	100	168.2
52190022000	153.2	N	0	0	Y	100	153.2
52190021000	62.2	N	0	0	Y	100	62.2

Surrounding Parcels***	Acres	Protected Resource Land?	Percent Protected Resource Land	Acres in Protected Land	Agricultural Land?	Percent Agricultural Land	Acres of Agriculture
52170036000	164.4	N	0	0	Y	100	164.4
52190009000	161.5	N	0	0	Y	100	161.5
52190023000	240.0	N	0	0	Y	100	240.0
52170078000	82.6	N	0	0	Y	100	82.6
52170035000	87.9	N	0	0	Y	100	87.9
52190010000	150.7	N	0	0	Y	100	150.7
52190011000	166.0	N	0	0	Y	100	166.0
52190024000	80.8	N	0	0	Y	100	80.8
52190025000	83.9	N	0	0	Y	100	83.9
52190026000	60.0	N	0	0	Y	100	60.0
52180033000	121.1	N	0	0	Y	100	121.1
52180032000	121.8	N	0	0	Y	100	121.8
52210001000	203.7	N	0	0	Y	100	203.7
52210002000	41.3	N	0	0	Y	100	41.3
52210037000	155.5	N	0	0	Y	100	155.5
52210038000	139.0	N	0	0	Y	100	139.0
52210039000	104.4	N	0	0	Y	100	104.4
52210040000	4.8	N	0	0	Y	100	4.8
52210022000	18.6	N	0	0	Y	100	18.6
52210023000	1.2	N	0	0	Y	100	1.2
52210025000	55.5	N	0	0	Y	100	55.5
52201003000	0.4	N	0	0	N	0	0
52201004000	0.7	N	0	0	N	0	0
52201006000	0.4	N	0	0	N	0	0
52201005000	0.7	N	0	0	N	0	0
52202003000	0.4	N	0	0	N	0	0
52202005000	0.1	N	0	0	N	0	0
52202007000	0.1	N	0	0	N	0	0
52202008000	0.1	N	0	0	N	0	0
52202002000	0.3	N	0	0	N	0	0
52203001000	0.8	N	0	0	N	0	0
52203003000	4.0	N	0	0	N	0	0
52210018000	47.8	N	0	0	Y	100	47.8

Surrounding Parcels***	Acres	Protected Resource Land?	Percent Protected Resource Land	Acres in Protected Land	Agricultural Land?	Percent Agricultural Land	Acres of Agriculture
52210019000	123.5	N	0	0	Y	100	123.5
52210015000	156.0	N	0	0	Y	100	156.0
52210029000	73.3	N	0	0	Y	100	73.3
52210026000	61.4	N	0	0	Y	100	61.4
52210027000	23.9	N	0	0	Y	100	23.9
52210031000	5.6	N	0	0	N	0	0
52210032000	28.3	N	0	0	Y	100	28.3
52210028000	71.7	N	0	0	N	0	0
52210006000	0.4	N	0	0	Y	100	0.4
52210030000	0.7	N	0	0	N	0	0
52180027000	6.9	N	0	0	Y	100	6.9
52180049000	11.8	N	0	0	Y	100	11.8
52180039000	152.4	N	0	0	Y	100	152.4
52180040000	67.9	N	0	0	Y	100	67.9
52180028000	71.2	N	0	0	Y	100	71.2
52210020000	436.0	N	0	0	Y	100	436.0
52210014000	318.5	N	0	0	Y	100	318.5
52210033000	10.3	N	0	0	N	0	0
52180064000	157.7	N	0	0	Y	100	157.7
52180022000	43.2	N	0	0	Y	100	43.2
52180050000	46.1	N	0	0	Y	100	46.1
52180051000	89.4	N	0	0	Y	100	89.4
52180065000	2.2	N	0	0	Y	100	2.2
59120002000	78.7	N	0	0	Y	100	78.7
59120003000	82.1	N	0	0	Y	100	82.1
Total	**6768.6**		**Total**	**0**		**Total**	**6662**

**The Imperial County Assessors website was accessed to identify the surrounding parcel numbers (http://imperialcounty.net/Assessor/index.html). The percentage of agriculture was determined from a map overlay used to estimate the proportion of land in agriculture and the California Department of Conservation Important Farmland Map Series.

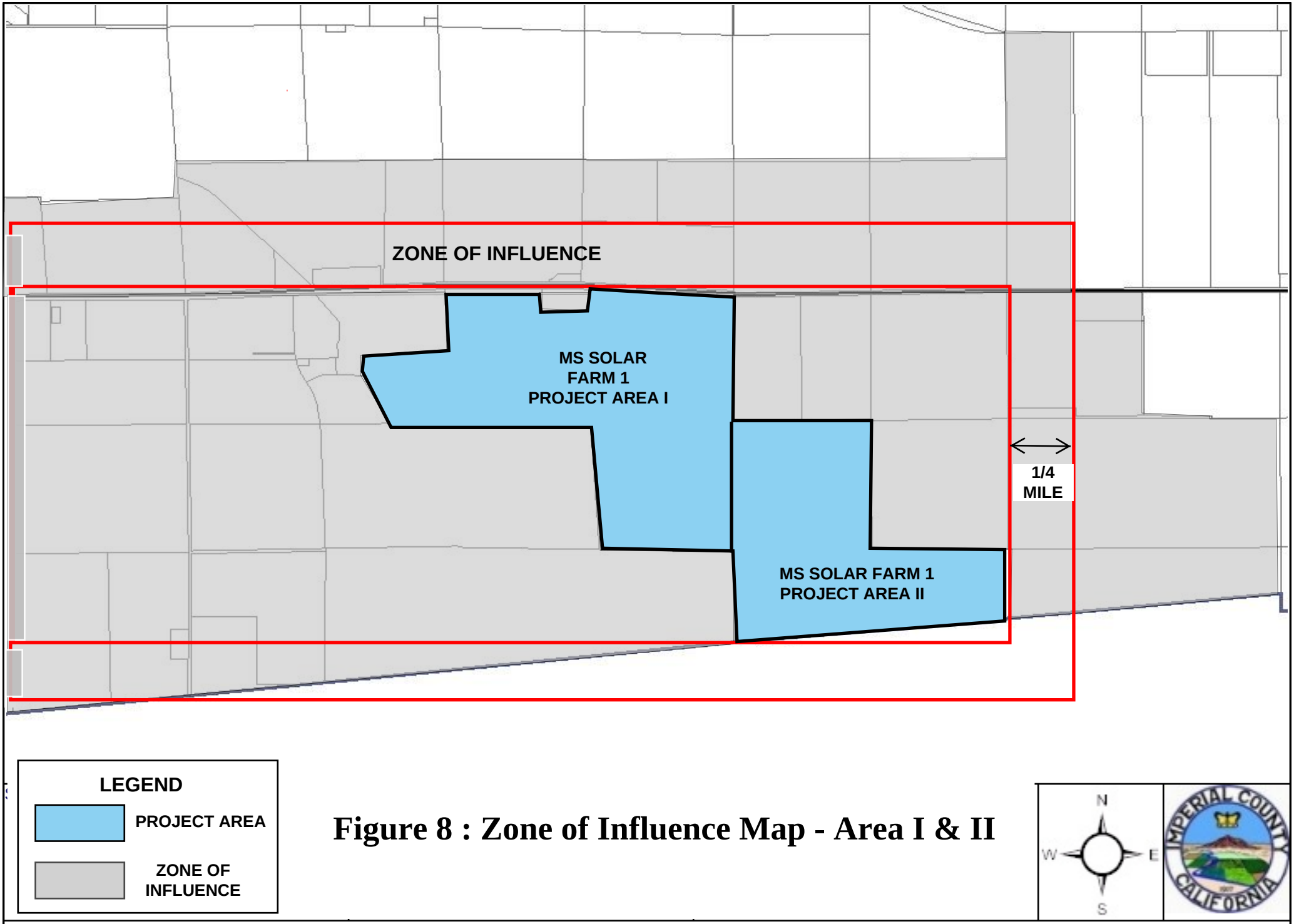


Figure 8 : Zone of Influence Map - Area I & II

This map represents a visual display of related geographic information. Data provided hereon is not a guarantee of actual field conditions. To be sure of complete accuracy, please contact IMPERIALCOUNTY_PUBLIC staff for the most up-to-date information.

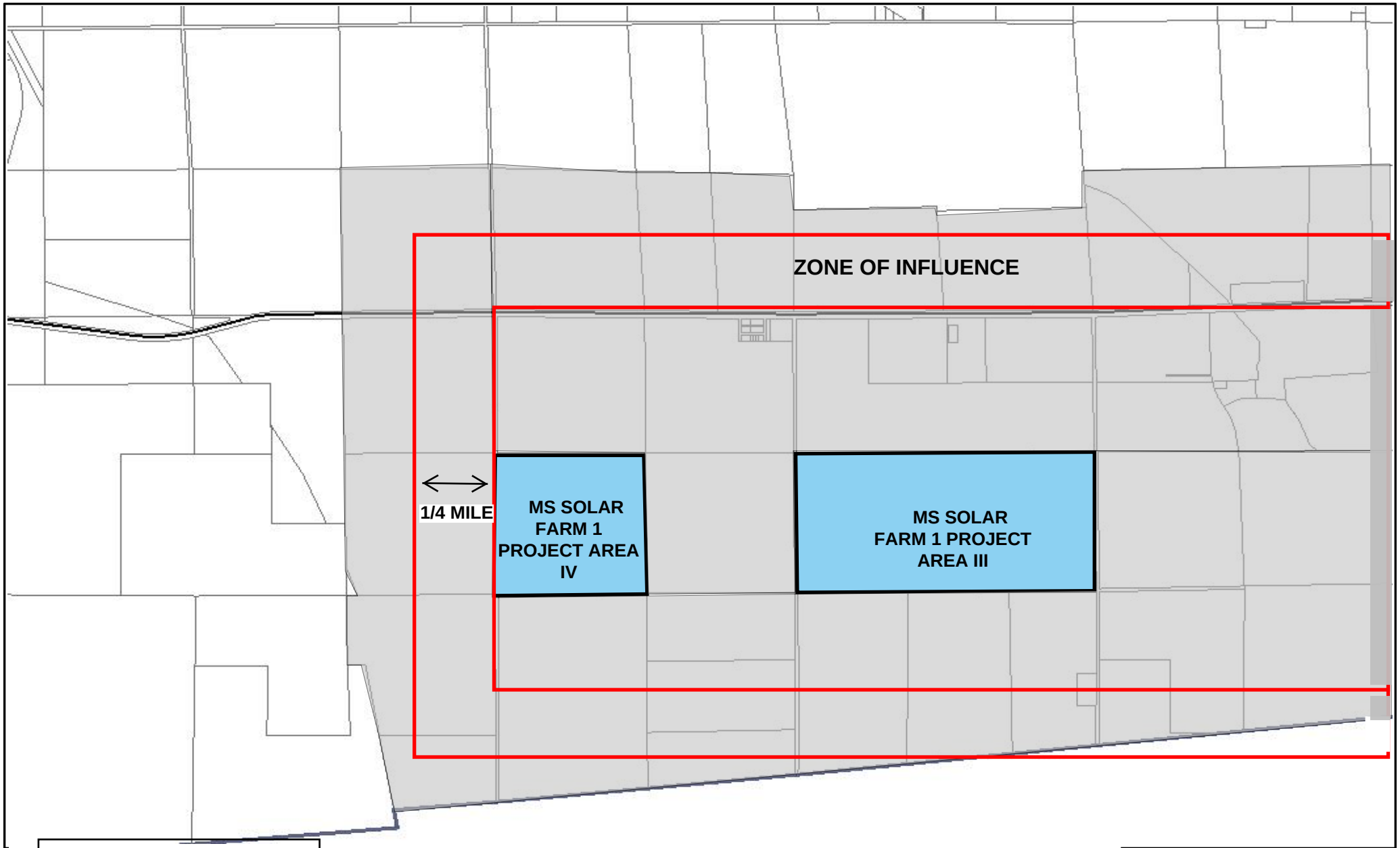


Figure 9 : Zone of Influence - Area III & IV

This map represents a visual display of related geographic information. Data provided hereon is not a guarantee of actual field conditions. To be sure of complete accuracy, please contact IMPERIALCOUNTY_PUBLIC staff for the most up-to-date information.

Final LESA Score Sheet			
	Factor Scores	Factor Weight	Weighted Factor Scores
LE Factors			
Land Capability Classification	60.37	0.25	15.09
Storie Index	53.98	0.25	13.49
LE subtotal		0.50	28.59
SA Factors			
Project Size	100	0.15	15.00
Water Resource Availability	100	0.15	15.00
Surrounding Agricultural Land	100	0.15	15.00
Protected Resource Land	0	0.05	0.00
SA Subtotal		0.50	45.00
		Total LESA Score	**73.59**

California LESA Model Scoring Thresholds	
Total LESA Score	**Scoring Decision**
0 to 39 Points	Not Considered Significant
40 to 59 Points	Considered Significant only if LE and SA subscores are each greater than or equal to 20 points
60 to 79 Points	Considered Significant unless either LE or SA subscore is less than 20 points
80 to 100 Points	Considered Significant

APPENDIX A: MOUNT SIGNAL SOLAR FARM I SOILS DETAILS

Imperial County, California, Imperial Valley Area

106—GLENBAR CLAY LOAM, WET

Map Unit Setting

Elevation: -230 to 200 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 350 days

Map Unit Composition

Glenbar, wet, and similar soils: 85 percent
Minor components: 15 percent

Description of Glenbar, Wet

Setting

Landform: Basin floors
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed sources

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to slightly saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: High (about 10.8 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability (nonirrigated): 7w

Typical profile

0 to 13 inches: Clay loam
13 to 60 inches: Clay loam

Minor Components

Holtville

Percent of map unit: 5 percent

Meloland

Percent of map unit: 5 percent

Indio
Percent of map unit: 5 percent

Data Source Information

Soil Survey Area: Imperial County, California, Imperial Valley Area
Survey Area Data: Version 5, Jul 25, 2008

Imperial County, California, Imperial Valley Area

110—HOLTVILLE SILTY CLAY, WET

Map Unit Setting

Elevation: -230 to 200 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 350 days

Map Unit Composition

Holtville, wet, and similar soils: 85 percent
Minor components: 15 percent

Description of Holtville, Wet

Setting

Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed sources

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to slightly saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water capacity: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability (nonirrigated): 7w

Typical profile

0 to 17 inches: Silty clay
17 to 24 inches: Clay
24 to 35 inches: Silt loam
35 to 60 inches: Loamy very fine sand

Minor Components

Glenbar

Percent of map unit: 5 percent

Imperial

Percent of map unit: 5 percent

Indio

Percent of map unit: 3 percent

Vint

Percent of map unit: 2 percent

Data Source Information

Soil Survey Area: Imperial County, California, Imperial Valley Area
Survey Area Data: Version 5, Jul 25, 2008

Imperial County, California, Imperial Valley Area

114—IMPERIAL SILTY CLAY, WET

Map Unit Setting

Elevation: -230 to 200 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 350 days

Map Unit Composition

Imperial, wet, and similar soils: 85 percent
Minor components: 15 percent

Description of Imperial, Wet

Setting

Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey alluvium derived from mixed sources and/or clayey lacustrine deposits derived from mixed sources

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Very slightly saline to slightly saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 20.0
Available water capacity: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability (nonirrigated): 7w

Typical profile

0 to 12 inches: Silty clay
12 to 60 inches: Silty clay loam

Minor Components

Glenbar

Percent of map unit: 4 percent

Meloland

Percent of map unit: 4 percent

Holtville
Percent of map unit: 4 percent

Niland
Percent of map unit: 3 percent

Data Source Information

Soil Survey Area: Imperial County, California, Imperial Valley Area
Survey Area Data: Version 5, Jul 25, 2008

Imperial County, California, Imperial Valley Area

115—IMPERIAL-GLENBAR SILTY CLAY LOAMS, WET, 0 TO 2 PERCENT SLOPES

Map Unit Setting

Elevation: -230 to 200 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 350 days

Map Unit Composition

Glenbar, wet, and similar soils: 40 percent
Imperial, wet, and similar soils: 40 percent
Minor components: 20 percent

Description of Imperial, Wet

Setting

Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey alluvium derived from mixed sources and/or clayey lacustrine deposits derived from mixed sources

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Very slightly saline to slightly saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 20.0
Available water capacity: Moderate (about 8.6 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability (nonirrigated): 7w

Typical profile

0 to 12 inches: Silty clay loam
12 to 60 inches: Silty clay loam

Description of Glenbar, Wet

Setting

Landform: Basin floors
Landform position (three-dimensional): Talf

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to slightly saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 15.0
Available water capacity: High (about 10.8 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability (nonirrigated): 7w

Typical profile

0 to 13 inches: Silty clay loam
13 to 60 inches: Clay loam

Minor Components

Holtville

Percent of map unit: 10 percent

Meloland

Percent of map unit: 10 percent

Data Source Information

Soil Survey Area: Imperial County, California, Imperial Valley Area
Survey Area Data: Version 5, Jul 25, 2008

Imperial County, California, Imperial Valley Area

116—IMPERIAL-GLENBAR SILTY CLAY LOAMS, 2 TO 5 PERCENT SLOPE S

Map Unit Setting

Elevation: -230 to 200 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 350 days

Map Unit Composition

Glenbar and similar soils: 40 percent
Imperial and similar soils: 40 percent
Minor components: 20 percent

Description of Imperial

Setting

Landform: Basin floors
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey alluvium derived from mixed sources and/or clayey lacustrine deposits derived from mixed sources

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Very slightly saline to slightly saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 20.0
Available water capacity: Moderate (about 8.6 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability (nonirrigated): 7e

Typical profile

0 to 13 inches: Silty clay loam
13 to 60 inches: Silty clay loam

Description of Glenbar

Setting

Landform: Basin floors
Landform position (three-dimensional): Rise

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water capacity: High (about 10.8 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability (nonirrigated): 7e

Typical profile

0 to 13 inches: Silty clay loam
13 to 60 inches: Clay loam

Minor Components

Holtville

Percent of map unit: 10 percent

Meloland

Percent of map unit: 10 percent

Data Source Information

Soil Survey Area: Imperial County, California, Imperial Valley Area
Survey Area Data: Version 5, Jul 25, 2008

Imperial County, California, Imperial Valley Area

119—INDIO-VINT COMPLEX

Map Unit Setting

Elevation: -230 to 300 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 350 days

Map Unit Composition

Indio and similar soils: 35 percent
Vint and similar soils: 30 percent
Minor components: 35 percent

Description of Indio

Setting

Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed sources and/or eolian deposits derived from mixed sources

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability (nonirrigated): 7e

Typical profile

0 to 12 inches: Loam
12 to 72 inches: Stratified loamy very fine sand to silt loam

Description of Vint

Setting

Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear

Across-slope shape: Linear
Parent material: Alluvium and/or eolian deposits derived from mixed

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability (nonirrigated): 7e

Typical profile

0 to 10 inches: Loamy fine sand
10 to 60 inches: Loamy sand

Minor Components

Meloland

Percent of map unit: 12 percent

Holtville

Percent of map unit: 12 percent

Rositas

Percent of map unit: 11 percent

Data Source Information

Soil Survey Area: Imperial County, California, Imperial Valley Area
Survey Area Data: Version 5, Jul 25, 2008

Imperial County, California, Imperial Valley Area

122—MELOLAND VERY FINE SANDY LOAM, WET

Map Unit Setting

Elevation: -230 to 200 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 350 days

Map Unit Composition

Meloland, wet, and similar soils: 85 percent
Minor components: 15 percent

Description of Meloland, Wet

Setting

Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed sources and/or eolian deposits derived from mixed sources

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Slightly saline to moderately saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 13.0
Available water capacity: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability (nonirrigated): 7w

Typical profile

0 to 12 inches: Very fine sandy loam
12 to 26 inches: Stratified loamy fine sand to silt loam
26 to 71 inches: Clay

Minor Components

Imperial

Percent of map unit: 3 percent

Indio
Percent of map unit: 3 percent

Holtville
Percent of map unit: 3 percent

Glenbar
Percent of map unit: 3 percent

Vint
Percent of map unit: 3 percent

Data Source Information

Soil Survey Area: Imperial County, California, Imperial Valley Area
Survey Area Data: Version 5, Jul 25, 2008

Imperial County, California, Imperial Valley Area

123—MELOLAND AND HOLTVILLE LOAMS, WET

Map Unit Setting

Elevation: -230 to 300 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 350 days

Map Unit Composition

Holtville, wet, and similar soils: 40 percent
Meloland, wet, and similar soils: 40 percent
Minor components: 20 percent

Description of Meloland, Wet

Setting

Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed sources and/or eolian deposits derived from mixed sources

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Slightly saline to moderately saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 13.0
Available water capacity: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability (nonirrigated): 7w

Typical profile

0 to 12 inches: Loam
12 to 26 inches: Stratified loamy fine sand to silt loam
26 to 38 inches: Clay
38 to 60 inches: Stratified silt loam to loamy fine sand

Description of Holtville, Wet

Setting

Landform: Basin floors

Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and/or lacustrine deposits derived from mixed

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to slightly saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water capacity: Moderate (about 7.7 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability (nonirrigated): 7w

Typical profile

0 to 12 inches: Loam
12 to 24 inches: Clay
24 to 36 inches: Silt loam
36 to 60 inches: Loamy very fine sand

Minor Components

Glenbar

Percent of map unit: 4 percent

Imperial

Percent of map unit: 4 percent

Indio

Percent of map unit: 4 percent

Rositas

Percent of map unit: 4 percent

Vint

Percent of map unit: 4 percent

Data Source Information

Soil Survey Area: Imperial County, California, Imperial Valley Area
Survey Area Data: Version 5, Jul 25, 2008

California Revised Storie Index Rating (CA)

The Storie Index is a soil rating based on soil properties that govern a soil's potential for cultivated agriculture in California.

The Storie Index asseses the productivity of a soil from the following four characteristics: Factor A, degree of soil profile development; factor B, texture of the surface layer; factor C, slope; and factor X, manageable features, including drainage, microrelief, fertility, acidity, erosion, and salt content. A score ranging from 0 to 100 percent is determined for each factor, and the scores are mukltiplied together to derive an index rating.

For simplification, Storie Index ratings have been combined into six grades classes as follows: Grade 1 (excellent), 100 to 80; grade 2 (good), 79 to 60; grade 3 (fair), 59 to 40; grade 4 (poor), 39 to 20; grade 5 (very poor), 19 to 10; and grade 6 (nonagricultural), less than 10.

Report—California Revised Storie Index Rating (CA)

The Storie Index is a soil rating based on soil properties that govern a soil map unit component's potential for cultivated agriculture. [Absence of an entry indicates that a Storie Index rating is not applicable or was not estimated]. For simplification, Storie Index ratings have been combined into six grades as follows: Grade 1 (Excellent): Soils that rate between 80 and 100 and which are suitable for a wide range of crops. Grade 2 (Good) Soils that rate between 60 and 79 and which are suitable for a wide range of crops. Grade 3 (Fair): Soils that range between 40 and 59. Soils in this grade may give good results with certain specialized crops. Grade 4 (Poor): Soils that rate between 20 and 39 and which have a narrow range in their agricultural potential. Grade 5 (Very Poor): Soil that rate between 10 and 19 and are of very limited agricultural use except for pasture because of adverse soil conditions. Grade 6 (Nonagricultural): Soils that rate less than 10. [The numbers in the "Limiting feature value" column range from 0.01 to 1.00. Soils with a smaller the value have a lower potential for cultivated agriculture. The table shows each of the sub-factors used to generate the Storie Index rating for each soil component].

California Revised Storie Index Rating (CA)– Imperial County, California, Imperial Valley Area				
Map symbol and soil name	Pct. of map unit	California Revised Storie Index (CA)		
		Storie index rating	Storie index grade and limiting features	Limiting feature value
106—GLENBAR CLAY LOAM, WET				
Glenbar, wet	85	72	Grade Two - Good	
			Rated Soil Order	1.00
			Profile Group	1.00
			Nearly level to gently sloping	0.98
			USDA Texture	0.95
			Wetness, flooding, ponding, drainage, erosion	0.90

California Revised Storie Index Rating (CA)– Imperial County, California, Imperial Valley Area				
Map symbol and soil name	Pct. of map unit	California Revised Storie Index (CA)		
		Storie index rating	Storie index grade and limiting features	Limiting feature value
110—HOLTVILLE SILTY CLAY, WET				
Holtville, wet	85	45	Grade Three - Fair	
			Rated Soil Order	1.00
			Profile Group	1.00
			Nearly level to gently sloping	0.98
			Wetness, flooding, ponding, drainage, erosion	0.90
			Toxicity	0.85
114—IMPERIAL SILTY CLAY, WET				
Imperial, wet	85	42	Grade Three - Fair	
			Rated Soil Order	1.00
			Profile Group	1.00
			Nearly level to gently sloping	0.98
			Wetness, flooding, ponding, drainage, erosion	0.90
			Toxicity	0.80
115—IMPERIAL-GLENBAR SILTY CLAY LOAMS, WET, 0 TO 2 PERCENT SLOPES				
Glenbar, wet	40	72	Grade Two - Good	
			Rated Soil Order	1.00
			Profile Group	1.00
			Nearly level to gently sloping	0.98
			USDA Texture	0.95
			Wetness, flooding, ponding, drainage, erosion	0.90
Imperial, wet	40	67	Grade Two - Good	
			Rated Soil Order	1.00
			Profile Group	1.00
			Nearly level to gently sloping	0.98
			USDA Texture	0.95
			Wetness, flooding, ponding, drainage, erosion	0.90

California Revised Storie Index Rating (CA)– Imperial County, California, Imperial Valley Area				
Map symbol and soil name	Pct. of map unit	California Revised Storie Index (CA)		
		Storie index rating	Storie index grade and limiting features	Limiting feature value
119—INDIO-VINT COMPLEX				
Indio	35	96	Grade One - Excellent	
			USDA Texture	1.00
			Rated Soil Order	1.00
			Profile Group	1.00
			Wetness, flooding, ponding, drainage, erosion	1.00
			Nearly level to gently sloping	0.98
Vint	30	83	Grade One - Excellent	
			Rated Soil Order	1.00
			Profile Group	1.00
			Wetness, flooding, ponding, drainage, erosion	1.00
			Nearly level to gently sloping	0.98
			Toxicity	0.94
122—MELOLAND VERY FINE SANDY LOAM, WET				
Meloland, wet	85	44	Grade Three - Fair	
			USDA Texture	1.00
			Rated Soil Order	1.00
			Profile Group	1.00
			Nearly level to gently sloping	0.98
			Wetness, flooding, ponding, drainage, erosion	0.90

California Revised Storie Index Rating (CA)– Imperial County, California, Imperial Valley Area				
Map symbol and soil name	Pct. of map unit	California Revised Storie Index (CA)		
		Storie index rating	Storie index grade and limiting features	Limiting feature value
123—MELOLAND AND HOLTVILLE LOAMS, WET				
Holtville, wet	40	75	Grade Two - Good	
			USDA Texture	1.00
			Rated Soil Order	1.00
			Profile Group	1.00
			Nearly level to gently sloping	0.98
			Wetness, flooding, ponding, drainage, erosion	0.90
Meloland, wet	40	44	Grade Three - Fair	
			USDA Texture	1.00
			Rated Soil Order	1.00
			Profile Group	1.00
			Nearly level to gently sloping	0.98
			Wetness, flooding, ponding, drainage, erosion	0.90

Data Source Information

Soil Survey Area: Imperial County, California, Imperial Valley Area
Survey Area Data: Version 5, Jul 25, 2008

California Revised Storie Index Rating (CA)

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For simplification, Storie Index ratings have been combined into six grades classes as follows: Grade 1 (excellent), 100 to 80; grade 2 (good), 79 to 60; grade 3 (fair), 59 to 40; grade 4 (poor), 39 to 20; grade 5 (very poor), 19 to 10; and grade 6 (nonagricultural), less than 10.

Report—California Revised Storie Index Rating (CA)

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California Revised Storie Index Rating (CA)– Imperial County, California, Imperial Valley Area				
Map symbol and soil name	Pct. of map unit	California Revised Storie Index (CA)		
		Storie index rating	Storie index grade and limiting features	Limiting feature value
114—IMPERIAL SILTY CLAY, WET				
Imperial, wet	85	42	Grade Three - Fair	
			Rated Soil Order	1.00
			Profile Group	1.00
			Nearly level to gently sloping	0.98
			Wetness, flooding, ponding, drainage, erosion	0.90
			Toxicity	0.80

California Revised Storie Index Rating (CA)– Imperial County, California, Imperial Valley Area				
Map symbol and soil name	Pct. of map unit	California Revised Storie Index (CA)		
		Storie index rating	Storie index grade and limiting features	Limiting feature value
115—IMPERIAL-GLENBAR SILTY CLAY LOAMS, WET, 0 TO 2 PERCENT SLOPES				
Glenbar, wet	40	72	Grade Two - Good	
			Rated Soil Order	1.00
			Profile Group	1.00
			Nearly level to gently sloping	0.98
			USDA Texture	0.95
			Wetness, flooding, ponding, drainage, erosion	0.90
Imperial, wet	40	67	Grade Two - Good	
			Rated Soil Order	1.00
			Profile Group	1.00
			Nearly level to gently sloping	0.98
			USDA Texture	0.95
			Wetness, flooding, ponding, drainage, erosion	0.90
116—IMPERIAL-GLENBAR SILTY CLAY LOAMS, 2 TO 5 PERCENT SLOPE S				
Glenbar	40	84	Grade One - Excellent	
			Rated Soil Order	1.00
			Profile Group	1.00
			Wetness, flooding, ponding, drainage, erosion	1.00
			USDA Texture	0.95
			Toxicity	0.94
Imperial	40	64	Grade Two - Good	
			Rated Soil Order	1.00
			Profile Group	1.00
			USDA Texture	0.95
			Undulating to moderately sloping	0.94
			Wetness, flooding, ponding, drainage, erosion	0.90

Data Source Information

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