Land Evaluation and Site Assessment Model

Big Rock 2 Cluster and Storage Project

Imperial County, CA
December 2024

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1 Land Evaluation and Site Assessment Model

1.1 Introduction

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 composed of six different factors. Two land evaluation (LE) factors are based upon measures of soil resource quality. Four site assessment (SA) 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. This score becomes the basis for making a determination of a project's potential significance, based upon a range of established scoring thresholds (California Department of Conservation 1997).

Appendix G of the California Environmental Quality Act Guidelines (CEQA) 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 Big Rock 2 Cluster and Storage Project (project), and the results are provided in this report.

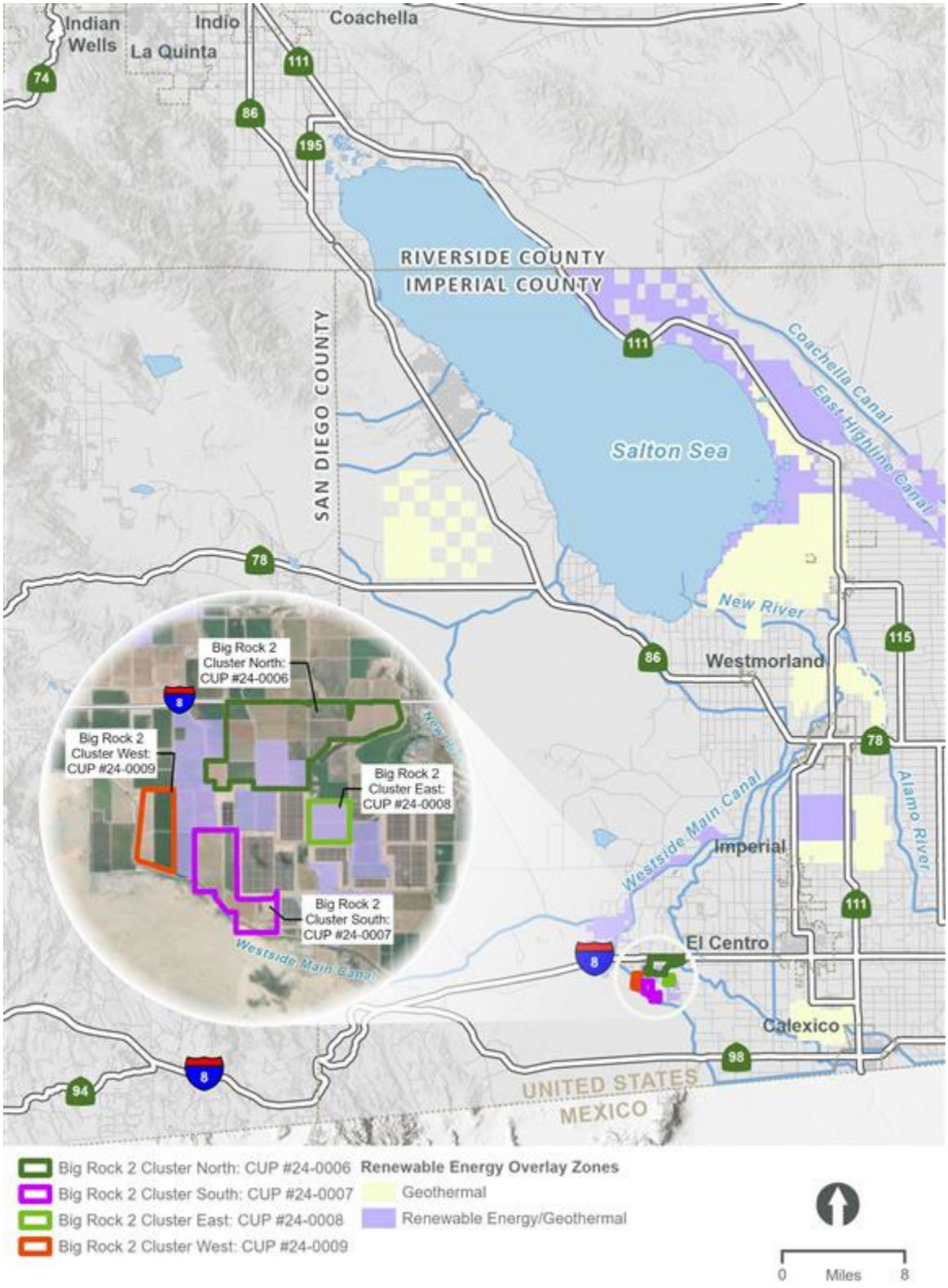
2 Project Location

The project is located in unincorporated Imperial County, south of Interstate 8, approximately one mile southwest of the town of Seeley, California, and approximately six miles north of the United States International Border with Mexico. The project site comprises approximately 1,849 acres of land. Figure 1 shows the regional location of the project.

The project area is relatively flat, consisting primarily of agriculture fields and unpaved roads. All of the project parcels have been extensively cleared, plowed, and maintained for agricultural production. Current land use of the project area includes cropland, dryland grain crops, and irrigated grain and hayfields, row crops, orchards, and pastureland.

The project is adjacent and proximal to both agricultural and rural lands that have been rezoned for renewable energy (RE), specifically for solar and battery energy storage projects that have been approved by Imperial County. Nearby land uses are predominantly agricultural and/or renewable energy generation, but also include commercial, transportation, military, and electric utility uses. To the south of the project, the San Diego Gas and Electric (SDG&E) Imperial Valley Substation as well as additional agricultural lands that have been designated for PV solar, and BESS renewable energy projects.

Figure 1. Regional Location



3 Project Description

The project applicant is seeking approval of four Conditional Use Permits (CUPs) associated with the construction and operation of a utility-scale photovoltaic (PV) solar energy generation and battery energy storage system (BESS) facility on approximately 1,849 acres of privately-owned land in the unincorporated area of Imperial County, California. The proposed project would involve utilization of approximately 1,569 acres of land that has not previously been entitled for solar development, as well as 280 acres of land that was previously entitled under active CUPs known as Laurel Cluster 2 North (120 acres), and Laurel Cluster 2 South (160 acres). The Laurel Cluster 2 North and Laurel Cluster 2 South will be re-entitled as part of the proposed project. The four CUP applications or individual site locations consists of the following:

- Big Rock 2 Cluster North: CUP 24-0006
- Big Rock 2 Cluster South: CUP 24-007
- Big Rock 2 Cluster East/Laurel Cluster South (herein referred to as Big Rock Cluster East): CUP 24-0008
- Big Rock 2 Cluster West: CUP 24-0009

The proposed project consists of three primary components: 1) solar energy generation equipment and associated facilities including a substation and access roads; 2) BESS; and, 3) gen-tie line that would connect the proposed on-site substation to the point of interconnection at the Imperial Irrigation District's (IID) existing Liebert Switchyard. The solar energy facility, BESS and gen-tie are collectively referred to as the "proposed project" or "project."

4 Land Evaluation and Site Assessment

The site was evaluated using the California LESA model to rate the quality and availability of agricultural resources for the project site and identify whether the proposed project would meet the threshold criteria as a significant impact to Agricultural Resources under the CEQA Guidelines. The LESA evaluates LE and SA factors to identify if the project would result in a significant agricultural resources impact. The factors are evaluated in the following sections.

4.1 Land Evaluation

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

1. **Land Capability Classification Rating:** The land capability classification (LCC) indicates the suitability of soils for most kinds of crops. Soils are rated from Class 1 to Class 8, with soils having the fewest limitations receiving the highest rating.

2. **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.

Figure 2 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 LCC 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 LE scores. The final LE and SA scores are entered into the final LESA Score Sheet, as shown in Table 6.

Table 1. Soil Suitability

Map Symbol	Mapping Unit	LCC Capability Class	Storie Index Rating*
102	Badland	N/A	0
107	Glenbar loam	1	95
110	Holtville silty clay, wet	1	54
114	Imperial silty clay, wet	3w	36
115	Imperial-Glenbar silty clay loams complex, 0 to 2 percent slopes, wet	3w	66*
118	Indio loam, wet	1	59
119	Indio-Vint complex, 0 to 2 percent slopes	2s	90*
121	Meloland fine sand	3s	95
122	Meloland very fine sandy loam, wet	3s	85
123	Meloland-Holtville 0 to 2 percent slopes, wet	1	66*
126	Niland fine sand	1	62
130	Rositas sand, 0 to 2 percent slopes	1	51
132	Rositas fine sand, 0 to 2 percent slopes	3s	55
135	Rositas fine sand, wet	3s	45
142	Vint loamy very fine sand, wet	2w	60
144	Vint and Indio very fine sandy loams undifferentiated group, 0 to 2 percent slopes, Wet	2w	63*
145	Water	N/A	0

Source: Appendix A of this LESA

Notes: LCC = Land Capability Classification; NR = not rated; e = erosion; w = excess wetness; s = problems in the rooting zone; — = not applicable.

* The average of the two Storie Index values for the soil type are reported in the table.

Figure 2. Project Soil Types

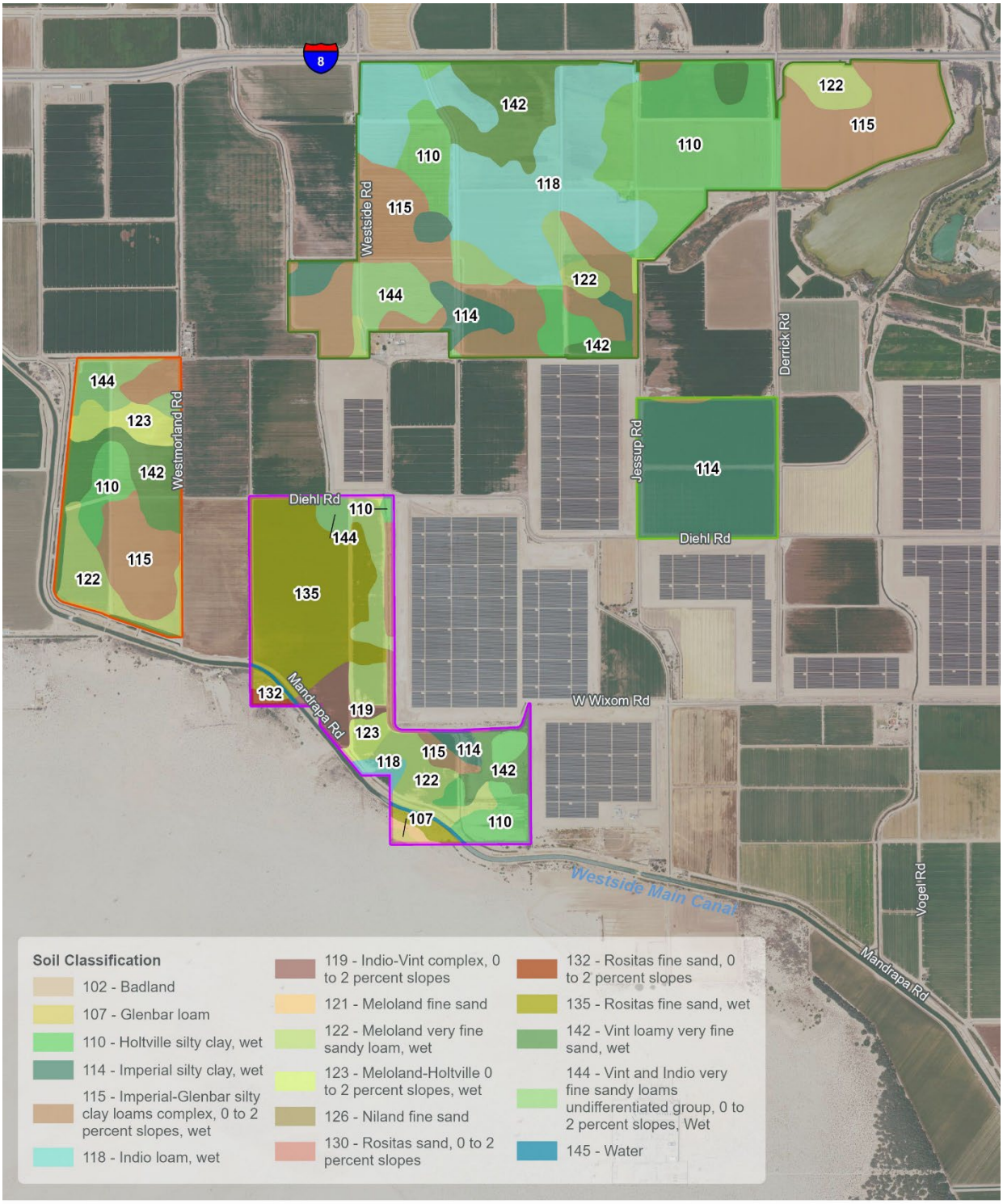


Table 2. Land Evaluation Worksheet

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)
102	0.19	0.0%	N/A	0	0.0	0	0.0
107	2.07	0.1%	1	100	0.11	95	0.10
110	308.86	16.7%	1	100	16.68	54	9.01
114	213.93	11.5%	3w	60	6.92	36	4.15
115	400.33	21.6%	3w	60	12.97	66*	14.26
118	255.27	13.8%	1	100	13.78	59	8.13
119	23.74	1.3%	2s	80	1.02	90*	1.15
121	3.31	0.2%	3s	60	0.11	95	0.17
122	152.63	8.3%	3s	60	4.95	85	7.01
123	41.58	2.3%	1	100	2.25	66*	1.49
126	0.20	0.0%	1	100	0.01	62	0.01
130	0.22	0.0%	1	100	0.01	51	0.01
132	3.79	0.2%	3s	60	0.12	55	0.11
135	174.12	9.4%	3s	60	5.64	45	4.23
142	166.25	9.0%	2w	80	7.17	60	5.38
144	102.08	5.5%	2w	80	4.42	63*	3.48
145	4.45	0.2%	N/A	0	0.00	0	0.00
Totals[1]	**1853.03**	**100%**	**--**	**--**	**76.16**	**--**	**58.68**

Notes: LCC = Land Capability Classification; NR = not rated; e = erosion; w = excess wetness; s = problems in the rooting zone; — = not applicable.
* The average of the two Storie Index values for the soil type are reported in the table.
1 - Totals may not sum precisely due to rounding.

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4.2 Site Assessment Factors

The California LESA model includes four SA 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

4.2.1 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 only 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 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. Site Assessment Worksheet 1 – Project Size Score

	LCC Class I-II	LCC Class III	LCC Class IV-VIII
Total Acres	900.28	948.11	0
Project Size Scores	100	100	0
Highest Project Size Score	100	100	0

4.2.2 Water Resources Availability Rating

The water resources 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 project site is completely served by irrigation water provided by the Imperial Irrigation District. The proposed project was given the highest water resource availability rating given the consistent water delivery provided by Imperial Irrigation District 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. 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 Water	1.0	100	100
Total Water Resource Score				**100**

4.2.3 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 of the subject parcel. The definition of a 'zone of influence' is the amount of surrounding lands up to a minimum of 0.25 mile from the project boundary. Parcels that are intersected by the 0.25-mile buffer are included in their entirety (Figure 3). Based upon the percentage of agricultural land in the zone of influence, 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).

Table 5 identifies the agricultural lands within the Zone of Influence. The surrounding agricultural land score for the proposed project is provided in Table 6.

4.2.4 Surrounding Protected Resource Land Rating

The surrounding protected resource land rating is essentially an extension of the surrounding agricultural land rating and scored in a similar manner. Protected resource lands are those lands with long-term use restrictions 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
- Lands with agricultural, wildlife habitat, open space, or other natural resource easements that restrict the conversion of such land to urban or industrial uses

On February 23, 2010, the Imperial County Board of Supervisors voted to reject any new Williamson Act contracts and not to renew existing contracts because of the elimination of the subvention funding from the state budget. Imperial County reaffirmed this decision in a vote on October 12, 2010, and notices of nonrenewal were sent to landowners with Williamson Act contracts following that vote. The applicable deadlines for challenging

Imperial County's actions have expired, and, therefore, all Williamson Act contracts in Imperial County will terminate on or before December 31, 2018. For the purposes of this LESA, the parcels located within the zone of influence identified as being located on Williamson Act contracted land (non-renewal) are not considered protected resources.

Protected resources within 0.25 mile of the project site include public lands managed by the Bureau of Land Management and Imperial County lands zoned for open space and preservation.

Table 5 identifies the protected resource lands within the Zone of Influence. The surrounding protected resource land score for the proposed project is provided in Table 6.

Figure 3. Zone of Influence

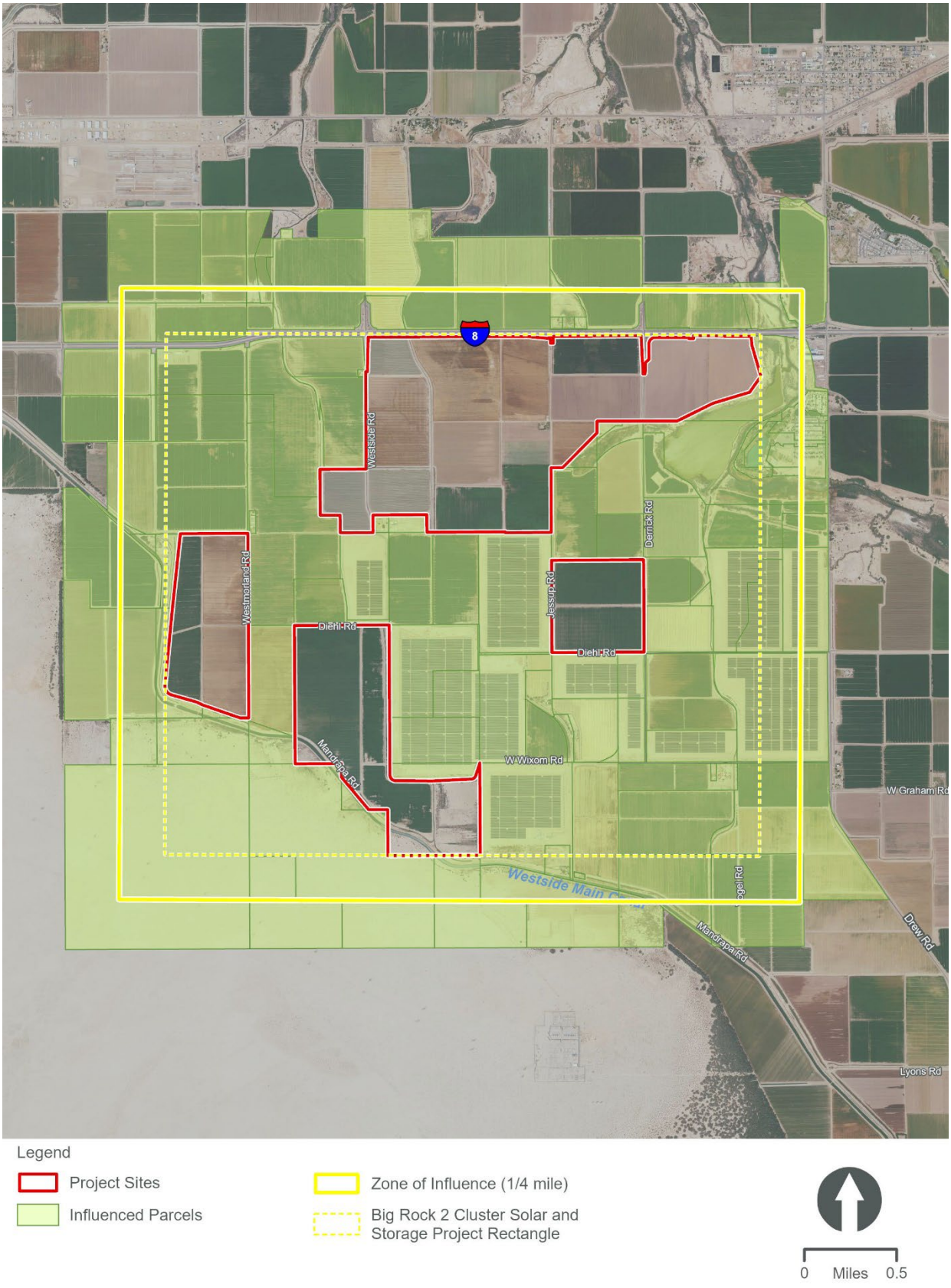

Table 5. Surrounding Agricultural and Protected Resource Lands

Surrounding Parcels	Acres	Protected Resource Land?	Acres in Protected Land	Percent Protected Resource Land	Agricultural Land?	Acres of Agriculture	Percent Agricultural Land
051-260-004	160.54	NO	0.00	0.0%	YES	157.41	98.0%
051-260-017	80.44	NO	0.00	0.0%	YES	80.42	100.0%
051-260-022	68.15	NO	0.00	0.0%	YES	68.15	100.0%
051-260-023	63.96	NO	0.00	0.0%	YES	63.96	100.0%
051-260-030	79.04	NO	0.00	0.0%	YES	78.71	99.6%
051-260-031	79.94	NO	0.00	0.0%	YES	67.91	84.9%
051-270-001	24.09	NO	0.00	0.0%	YES	24.09	100.0%
051-270-007	159.10	NO	0.00	0.0%	YES	159.10	100.0%
051-270-016	13.14	NO	0.00	0.0%	YES	13.14	100.0%
051-270-023	159.56	NO	0.00	0.0%	YES	157.67	98.8%
051-270-025	15.37	NO	0.00	0.0%	YES	15.37	100.0%
051-270-027	138.73	NO	0.00	0.0%	YES	138.73	100.0%
051-270-035	131.63	NO	0.00	0.0%	YES	131.63	100.0%
051-270-037	58.63	NO	0.00	0.0%	YES	58.63	100.0%
051-270-038	0.98	NO	0.00	0.0%	YES	0.98	100.0%
051-270-039	21.39	NO	0.00	0.0%	YES	21.39	100.0%
051-270-040	194.53	NO	0.00	0.0%	YES	183.10	94.1%
051-270-042	2.65	NO	0.00	0.0%	YES	2.65	100.0%
051-270-043	2.64	NO	0.00	0.0%	YES	2.64	100.0%
051-270-044	2.61	NO	0.00	0.0%	YES	2.61	100.0%
051-270-045	17.95	NO	0.00	0.0%	YES	17.95	100.0%

051-270-046	0.14	NO	0.00	0.0%	YES	0.14	100.0%
051-270-047	80.62	NO	0.00	0.0%	YES	80.62	100.0%
051-280-044	83.35	NO	0.00	0.0%	YES	82.77	99.3%
051-280-045	0.56	NO	0.00	0.0%	YES	0.56	100.0%
051-280-050	34.58	NO	0.00	0.0%	YES	5.47	15.8%
051-280-052	100.22	NO	0.00	0.0%	YES	84.46	84.3%
051-280-056	10.69	NO	0.00	0.0%	NO	0	0%
051-280-057	25.73	NO	0.00	0.0%	NO	0	0%
051-280-058	24.75	NO	0.00	0.0%	NO	0	0%
051-280-059	27.82	NO	0.00	0.0%	NO	0	0%
051-280-060	5.26	NO	0.00	0.0%	NO	0	0%
051-280-061	14.96	NO	0.00	0.0%	NO	0	0%
051-280-062	102.50	NO	0.00	0.0%	YES	7.55	7.4%
051-290-013	80.42	NO	0.00	0.0%	YES	80.42	100.0%
051-290-014	78.20	NO	0.00	0.0%	YES	78.20	100.0%
051-290-021	5.85	NO	0.00	0.0%	NO	0	0%
051-290-027	24.17	NO	0.00	0.0%	YES	1.21	5.0%
051-290-028	148.74	YES	147.07	98.9%	YES	139.07	93.5%
051-290-034	4.60	NO	0.00	0.0%	YES	0.21	4.7%
051-290-035	236.33	NO	0.00	0.0%	YES	232.23	98.3%
051-290-038	14.14	NO	0.00	0.0%	YES	14.14	100.0%
051-300-004	11.25	NO	0.00	0.0%	YES	2.99	26.6%
051-300-005	80.09	NO	0.00	0.0%	YES	76.96	96.1%
051-300-008	79.92	NO	0.00	0.0%	YES	79.89	100.0%
051-300-009	76.02	NO	0.00	0.0%	YES	74.33	97.8%
051-300-010	5.21	NO	0.00	0.0%	NO	0	0%

051-300-025	164.87	NO	0.00	0.0%	YES	1.58	1.0%
051-300-027	12.60	NO	0.00	0.0%	NO	0	0%
051-300-030	209.72	NO	0.00	0.0%	YES	209.72	100.0%
051-300-031	2.57	NO	0.00	0.0%	YES	2.57	100.0%
051-300-034	4.67	NO	0.00	0.0%	YES	0.38	8.2%
051-300-038	76.00	NO	0.00	0.0%	YES	40.94	53.9%
051-300-039	48.58	NO	0.00	0.0%	YES	47.09	96.9%
051-310-002	16.28	NO	0.00	0.0%	YES	0.27	1.7%
051-310-017	29.78	NO	0.00	0.0%	YES	26.40	88.7%
051-310-018	72.45	NO	0.00	0.0%	YES	56.29	77.7%
051-310-023	60.27	NO	0.00	0.0%	YES	56.07	93.0%
051-310-026	40.18	NO	0.00	0.0%	YES	40.18	100.0%
051-310-040	89.27	NO	0.00	0.0%	YES	0.31	0.4%
051-310-044	5.91	NO	0.00	0.0%	YES	3.45	58.3%
051-310-049	12.32	NO	0.00	0.0%	YES	6.76	54.9%
051-310-050	42.38	NO	0.00	0.0%	YES	42.08	99.3%
051-310-053	38.15	NO	0.00	0.0%	YES	29.01	76.0%
051-310-054	67.04	NO	0.00	0.0%	YES	61.15	91.2%
051-310-055	59.31	NO	0.00	0.0%	YES	57.93	97.7%
051-310-056	80.49	NO	0.00	0.0%	YES	0.27	0.3%
051-310-062	155.00	NO	0.00	0.0%	YES	14.02	9.0%
051-310-063	58.92	NO	0.00	0.0%	NO	0	0%
051-320-003	205.62	YES	202.70	98.6%	YES	197.49	96.0%
051-320-004	37.47	NO	0.00	0.0%	YES	5.47	14.6%
051-320-008	4.67	NO	0.00	0.0%	NO	0	0%
051-320-009	79.84	YES	59.74	74.8%	YES	0.05	0.1%

051-320-011	39.86	NO	0.00	0.0%	NO	0	0%
051-330-001	89.46	NO	0.00	0.0%	YES	88.36	98.8%
051-330-002	30.36	YES	30.13	99.3%	YES	0.91	3.0%
051-330-005	78.03	NO	0.00	0.0%	NO	0	0%
051-330-015	115.05	NO	0.00	0.0%	YES	0.14	0.1%
051-330-016	0.91	NO	0.00	0.0%	YES	0.01	0.8%
051-330-017	2.56	NO	0.00	0.0%	YES	0.92	35.8%
051-330-019	101.83	NO	0.00	0.0%	YES	9.98	9.8%
051-330-020	39.96	NO	0.00	0.0%	NO	0	0%
051-330-021	8.80	NO	0.00	0.0%	YES	4.15	47.2%
051-330-022	37.02	NO	0.00	0.0%	YES	36.28	98.0%
051-330-023	18.84	NO	0.00	0.0%	YES	11.21	59.5%
051-330-024	58.54	NO	0.00	0.0%	YES	49.33	84.3%
051-340-002	639.41	NO	0.00	0.0%	NO	0	0%
051-350-001	120.07	YES	120.07	100.0%	NO	0	0%
051-350-002	400.28	YES	11.38	2.8%	YES	2.50	0.6%
051-350-003	8.31	YES	4.06	48.9%	NO	0	0%
051-350-005	27.91	NO	0.00	0.0%	YES	2.36	8.4%
051-350-009	120.04	YES	11.14	9.3%	YES	5.63	4.7%
051-350-010	80.07	YES	75.17	93.9%	YES	79.39	99.2%
051-350-011	66.74	YES	61.60	92.3%	YES	56.20	84.2%
051-350-015	105.88	NO	0.00	0.0%	YES	98.50	93.0%
051-350-016	0.07	NO	0.00	0.0%	NO	0	0%
051-350-017	0.91	NO	0.00	0.0%	NO	0	0%
051-350-018	172.11	NO	0.00	0.0%	YES	28.38	16.5%
051-350-019	14.65	NO	0.00	0.0%	YES	10.47	71.5%

051-360-001	57.06	NO	0.00	0.0%	YES	0.50	0.9%
051-360-002	23.16	NO	0.00	0.0%	NO	0	0%
051-360-003	32.03	NO	0.00	0.0%	NO	0	0%
051-360-004	54.48	NO	0.00	0.0%	YES	0.76	1.4%
051-360-005	110.88	NO	0.00	0.0%	YES	102.43	92.4%
051-360-014	80.08	NO	0.00	0.0%	YES	80.08	100.0%
051-360-018	1.80	NO	0.00	0.0%	YES	1.63	90.5%
051-360-021	100.94	NO	0.00	0.0%	YES	81.47	80.7%
051-360-022	3.25	NO	0.00	0.0%	YES	0.24	7.4%
051-360-028	128.06	NO	0.00	0.0%	YES	127.35	99.4%
051-360-031	243.48	NO	0.00	0.0%	YES	242.92	99.8%
051-360-032	204.05	NO	0.00	0.0%	YES	0.07	0.0%
051-360-037	1.86	NO	0.00	0.0%	NO	0	0%
051-360-038	57.50	NO	0.00	0.0%	YES	45.85	79.7%
051-390-001	37.53	NO	0.00	0.0%	YES	1.92	5.1%
051-390-003	80.11	NO	0.00	0.0%	YES	76.00	94.9%
TOTALS[1]	**8099.48**	**--**	**723.07**	**8.9%**	**--**	**4632.88**	**57.2%**

1 - Totals may not sum precisely due to rounding.

Table 6. Zone of Influence Surrounding Agricultural Land and Protected Resource Land Scores

Total Acreage within Zone of Influence	Acres in Agricultural Production	Acres of Protected Resource Land	Percent in Agriculture	Percent Protected Resource Land	Surrounding Agricultural Land Score (from LESA Manual Table 6)	Surrounding Protected Resource Land Score (from LESA Manual Table 7)
8099.48	**4632.88**	**723.07**	**57.2%**	**8.9%**	**40**	**0**

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5 Summary

The LESA Model is weighted so half of the total score of a given project is derived from the LE and half from the SA. As shown in Table 7, the LE subscore is 33.71, while the SA subscore is 36.00. The final LESA score is 69.71. As shown in Table 8, a final LESA score between 60 and 79 points is considered significant unless either LE or SA subscore is less than 20 points. Therefore, with both subscores above 20, the project is considered to have a significant impact on agricultural resources.

Table 7. Final Land Evaluation Site Assessment Score Sheet Summary

	Factor Rating (0-100 Rating)	Factor Weighting (Total =1.00)	Weighted Factor Rating
Land Evaluation			
1. LCC Rating	76.16	0.25	19.04
1. Storie Index Rating	58.68	0.25	14.67
LE Subscore	--	--	33.71
Site Assessment			
1. Project Size Rating	100	0.15	15
2. Water Resource Availability Rating	100	0.15	15
3. Surrounding Agricultural Land Rating	40	0.15	6
4. Surrounding Protected Resource Lands Rating	0	0.05	0
Site Assessment Subscore	--	--	36
TOTAL	**--**	**--**	**69.71**

Table 8. 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 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

6 References

California Department of Conservation. 1997. California Agricultural Land Evaluation and Site Assessment Model Instruction Manual.

Appendix A. Custom Soil Report

United States Department of Agriculture

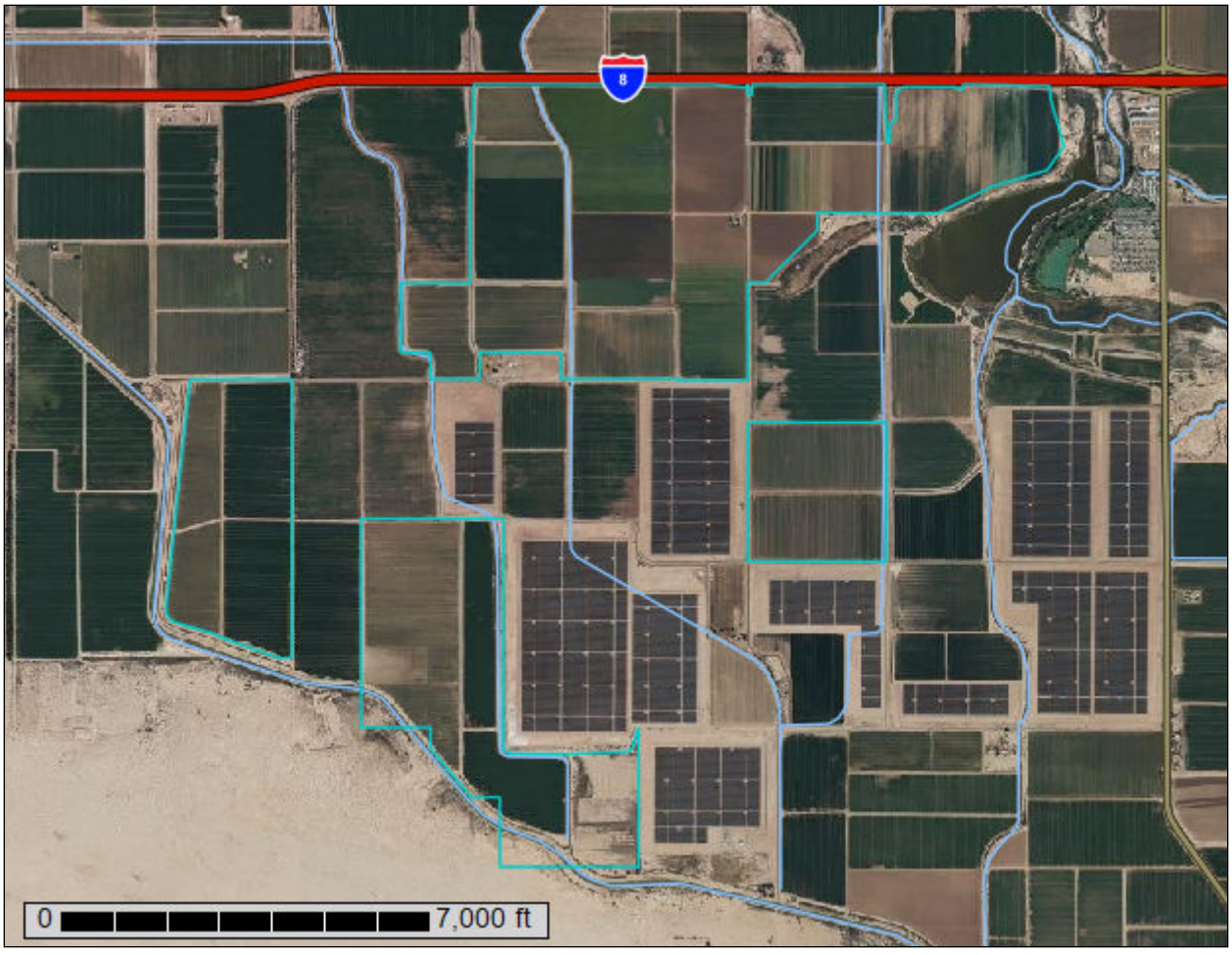
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Imperial County, California, Imperial Valley Area

Site Areas



December 18, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

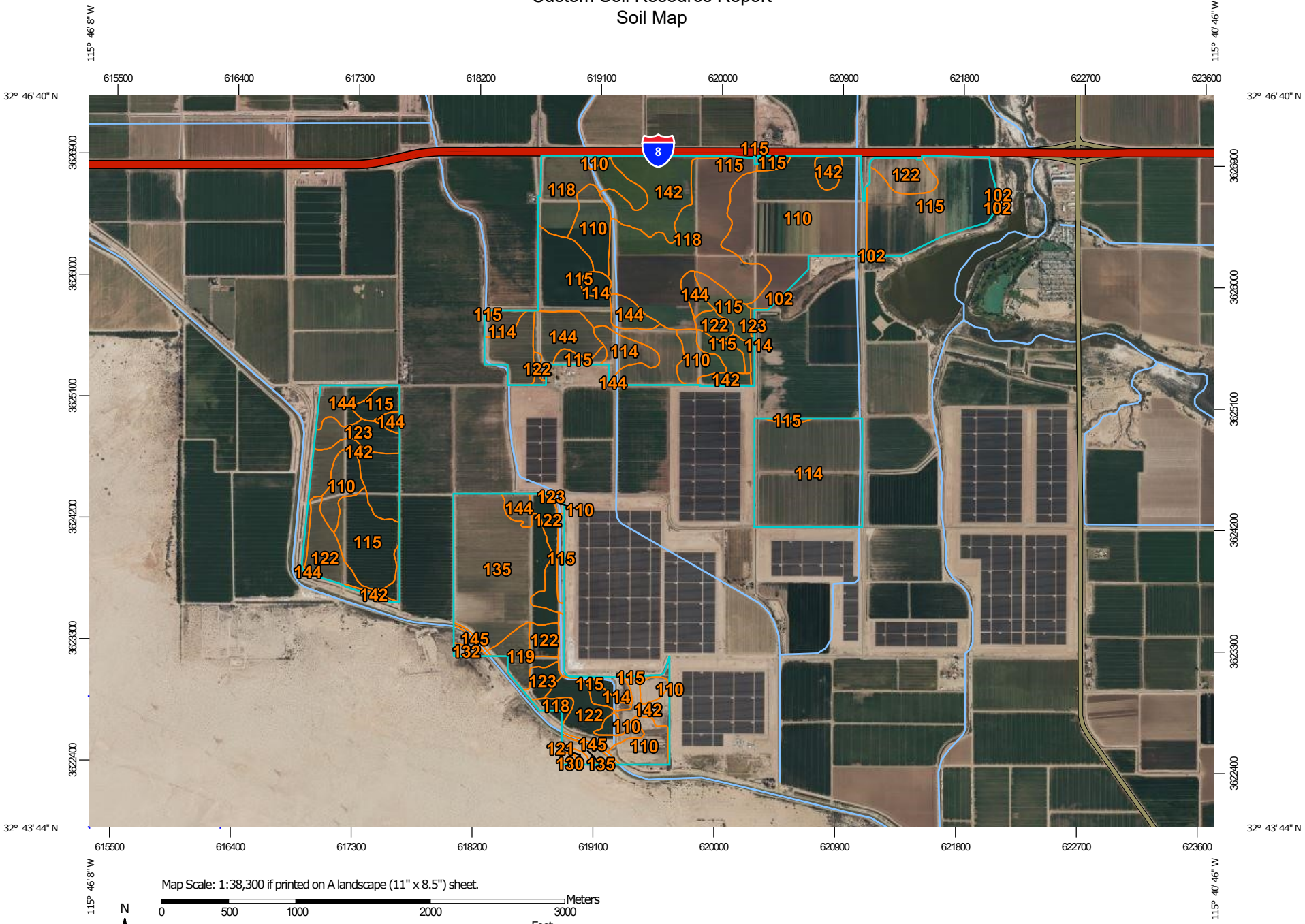
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Imperial County, California, Imperial Valley Area
Survey Area Data: Version 17, Sep 10, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 17, 2021—May 22, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
102	Badland	0.2	0.0%
107	Glenbar loam	2.1	0.1%
110	Holtville silty clay, wet	309.1	16.7%
114	Imperial silty clay, wet	213.9	11.5%
115	Imperial-Glenbar silty clay loams complex, 0 to 2 percent slopes, wet	400.7	21.6%
118	Indio loam, wet	255.1	13.8%
119	Indio-Vint complex, 0 to 2 percent slopes	23.7	1.3%
121	Meloland fine sand	3.3	0.2%
122	Meloland very fine sandy loam, wet	152.8	8.2%
123	Meloland-Holtville 0 to 2 percent slopes, wet	41.6	2.2%
126	Niland fine sand	0.2	0.0%
130	Rositas sand, 0 to 2 percent slopes	0.2	0.0%
132	Rositas fine sand, 0 to 2 percent slopes	3.8	0.2%
135	Rositas fine sand, wet	173.8	9.4%
142	Vint loamy very fine sand, wet	166.2	9.0%
144	Vint and Indio very fine sandy loams undifferentiated group, 0 to 2 percent slopes, Wet	102.0	5.5%
145	Water	4.4	0.2%
Totals for Area of Interest		**1,853.0**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class.

Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The

pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Imperial County, California, Imperial Valley Area

102—Badland

Map Unit Setting

National map unit symbol: h8z8
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
Farmland classification: Not prime farmland

Map Unit Composition

Badland: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Badland

Setting

Landform: Fan piedmonts
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium derived from igneous rock

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Minor Components

Imperial

Percent of map unit: 4 percent
Landform: Fan piedmonts
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Indio

Percent of map unit: 4 percent
Landform: Beach terraces
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Meloland

Percent of map unit: 4 percent
Landform: Basin floors
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Holtville

Percent of map unit: 3 percent
Landform: Basin floors
Down-slope shape: Concave
Across-slope shape: Convex
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

107—Glenbar loam

Map Unit Setting

National map unit symbol: 2mxlc
Elevation: -230 to 310 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Glenbar and similar soils: 60 percent
Minor components: 40 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Glenbar

Setting

Landform: Alluvial fans
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

C1 - 0 to 13 inches: loam
C2 - 13 to 23 inches: clay loam
C3 - 23 to 36 inches: clay loam
C4 - 36 to 53 inches: silty clay loam
C5 - 53 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 22.0
Available water supply, 0 to 60 inches: High (about 10.9 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Minor Components

Indio

Percent of map unit: 10 percent
Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Imperial

Percent of map unit: 10 percent
Landform: Fan piedmonts
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Holtville

Percent of map unit: 5 percent
Landform: Basin floors
Down-slope shape: Concave
Across-slope shape: Convex
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Meloland

Percent of map unit: 5 percent
Landform: Basin floors
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Rositas

Percent of map unit: 4 percent
Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD025CA - Sandsheet [2-4" p.z.]
Hydric soil rating: Unranked

Niland

Percent of map unit: 4 percent
Landform: Basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Vint

Percent of map unit: 2 percent
Landform: Basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

110—Holtville silty clay, wet

Map Unit Setting

National map unit symbol: 31hlb
Elevation: -230 to 310 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Holtville, wet, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Holtville, Wet

Setting

Landform: Flood plains, basin floors
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Alluvium over ancient fluviomarine deposits

Typical profile

Ap - 0 to 17 inches: silty clay
C1 - 17 to 26 inches: silty clay
2C2 - 26 to 35 inches: silt loam
3C3 - 35 to 60 inches: loamy very fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 in/hr)
Depth to water table: About 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.5
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Minor Components

Glenbar, wet

Percent of map unit: 5 percent
Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Imperial, wet

Percent of map unit: 5 percent
Landform: Fan piedmonts
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Indio, wet

Percent of map unit: 3 percent
Landform: Beach terraces
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Vint, wet

Percent of map unit: 2 percent
Landform: Basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD200CA - Rarely Flooded Fans
Hydric soil rating: Unranked

114—Imperial silty clay, wet

Map Unit Setting

National map unit symbol: h8zn
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
Farmland classification: Farmland of statewide importance

Map Unit Composition

Imperial, wet, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

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 and/or clayey lacustrine deposits derived from mixed

Typical profile

H1 - 0 to 12 inches: silty clay
H2 - 12 to 60 inches: silty clay loam

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: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 20.0
Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: C
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: No

Minor Components

Glenbar
Percent of map unit: 4 percent
Hydric soil rating: No

Holtville
Percent of map unit: 4 percent
Hydric soil rating: No

Meloland
Percent of map unit: 4 percent
Hydric soil rating: No

Niland
Percent of map unit: 3 percent
Hydric soil rating: No

115—Imperial-Glenbar silty clay loams complex, 0 to 2 percent slopes, wet

Map Unit Setting
National map unit symbol: 2n7xh
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
Farmland classification: Not prime farmland

Map Unit Composition
Imperial, wet, and similar soils: 41 percent
Glenbar, wet, and similar soils: 40 percent
Minor components: 19 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Imperial, Wet

Setting
Landform: Flood plains, lakebeds
Down-slope shape: Concave, linear
Across-slope shape: Convex, linear
Parent material: Alluvium over ancient fluviomarine deposits

Typical profile
C1 - 0 to 12 inches: silty clay loam
C2 - 12 to 24 inches: silty clay
C3 - 24 to 60 inches: silty clay

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: High (about 9.4 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Description of Glenbar, Wet

Setting

Landform: Flood plains, lakebeds
Down-slope shape: Concave, linear
Across-slope shape: Convex, linear
Parent material: Alluvium over ancient fluviomarine deposits

Typical profile

C1 - 0 to 13 inches: silty clay loam
C2 - 13 to 23 inches: clay loam
C3 - 23 to 25 inches: sandy clay loam
C4 - 25 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: High (about 9.9 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Minor Components

Meloland

Percent of map unit: 10 percent
Landform: Basin floors
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Holtville, wet

Percent of map unit: 9 percent
Landform: Basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

118—Indio loam, wet

Map Unit Setting

National map unit symbol: 2myt1
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
Farmland classification: Not prime farmland

Map Unit Composition

Indio, wet, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Indio, Wet

Setting

Landform: Flood plains, basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty alluvium

Typical profile

Ap - 0 to 12 inches: loam
C1 - 12 to 30 inches: silt loam
C2 - 30 to 44 inches: loamy very fine sand
C3 - 44 to 58 inches: silt loam
C4 - 58 to 72 inches: loamy very fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)
Depth to water table: About 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: High (about 9.4 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 7c
Hydrologic Soil Group: C
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: No

Minor Components

Vint

Percent of map unit: 6 percent
Landform: Flood plains, basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD200CA - Rarely Flooded Fans
Hydric soil rating: Unranked

Holtville

Percent of map unit: 3 percent
Landform: Flood plains, basin floors
Down-slope shape: Linear, concave
Across-slope shape: Linear, convex
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Meloland

Percent of map unit: 3 percent
Landform: Flood plains, basin floors
Down-slope shape: Linear, concave
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Glenbar

Percent of map unit: 3 percent
Landform: Flood plains, basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear

Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

119—Indio-Vint complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2mxlg
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
Farmland classification: Not prime farmland

Map Unit Composition

Indio and similar soils: 35 percent
Vint and similar soils: 30 percent
Minor components: 35 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Indio

Setting

Landform: Flood plains, basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty alluvium

Typical profile

Ap - 0 to 12 inches: loam
C1 - 12 to 30 inches: silt loam
C2 - 30 to 44 inches: loamy very fine sand
C3 - 44 to 58 inches: silt loam
C4 - 58 to 72 inches: loamy very fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: High (about 9.4 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 7c
Hydrologic Soil Group: C
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: No

Description of Vint

Setting

Landform: Flood plains, basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium over ancient fluviomarine deposits

Typical profile

Ap - 0 to 10 inches: loamy fine sand
C1 - 10 to 12 inches: sandy loam
C2 - 12 to 16 inches: loamy fine sand
C3 - 16 to 30 inches: loamy fine sand
C4 - 30 to 60 inches: loamy fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High (2.83 to 9.92 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Moderate (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: R040XD200CA - Rarely Flooded Fans
Hydric soil rating: Unranked

Minor Components

Holtville

Percent of map unit: 12 percent
Landform: Flood plains, basin floors
Down-slope shape: Linear, concave
Across-slope shape: Linear, convex
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Meloland

Percent of map unit: 12 percent
Landform: Flood plains, basin floors
Down-slope shape: Linear, concave
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Rositas

Percent of map unit: 11 percent
Landform: Sand sheets
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD025CA - Sandsheet [2-4" p.z.]
Hydric soil rating: Unranked

121—Meloland fine sand

Map Unit Setting

National map unit symbol: 2myt3
Elevation: -260 to 160 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 355 days
Farmland classification: Not prime farmland

Map Unit Composition

Meloland and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Meloland

Setting

Landform: Flood plains, basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium over ancient fluviomarine deposits

Typical profile

Ap - 0 to 12 inches: fine sand
C1 - 12 to 19 inches: loamy very fine sand
C2 - 19 to 24 inches: silt loam
C3 - 24 to 38 inches: silty clay
C4 - 38 to 71 inches: silty clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches

Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 22.0
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Minor Components

Glenbar

Percent of map unit: 4 percent
Landform: Flood plains, basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Niland

Percent of map unit: 4 percent
Landform: Flood plains, basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Meloland, loamy fine sand surface

Percent of map unit: 4 percent
Landform: Flood plains, basin floors
Down-slope shape: Linear, concave
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Rositas

Percent of map unit: 3 percent
Landform: Beach terraces
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD025CA - Sandsheet [2-4" p.z.]
Hydric soil rating: Unranked

122—Meloland very fine sandy loam, wet

Map Unit Setting

National map unit symbol: 2myt4
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
Farmland classification: Not prime farmland

Map Unit Composition

Meloland, wet, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Meloland, Wet

Setting

Landform: Flood plains, basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium over ancient fluviomarine deposits

Typical profile

Ap - 0 to 12 inches: very fine sandy loam
C1 - 12 to 26 inches: loamy fine sand
3C3 - 26 to 38 inches: silty clay
3C4 - 38 to 71 inches: silty clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: About 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 22.0
Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain

Hydric soil rating: Unranked

Minor Components

Holtville

Percent of map unit: 3 percent
Landform: Flood plains, basin floors
Down-slope shape: Linear, concave
Across-slope shape: Linear, convex
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Indio, wet

Percent of map unit: 3 percent
Landform: Flood plains, basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Glenbar

Percent of map unit: 3 percent
Landform: Flood plains, basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Vint

Percent of map unit: 3 percent
Landform: Flood plains, basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD200CA - Rarely Flooded Fans
Hydric soil rating: Unranked

Imperial

Percent of map unit: 3 percent
Landform: Flood plains, basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

123—Meloland-Holtville 0 to 2 percent slopes, wet

Map Unit Setting

National map unit symbol: 31hlp

Elevation: -230 to 300 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Meloland, wet, and similar soils: 41 percent
Holtville, wet, and similar soils: 40 percent
Minor components: 19 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Meloland, Wet

Setting

Landform: Flood plains, basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium over ancient fluviomarine deposits

Typical profile

Ap - 0 to 12 inches: loam
C1 - 12 to 19 inches: loamy fine sand
2C2 - 19 to 24 inches: silt loam
3C3 - 24 to 38 inches: silty clay
3C4 - 38 to 71 inches: silty clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 22.0
Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C/D
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Description of Holtville, Wet

Setting

Landform: Flood plains, basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium over ancient fluviomarine deposits

Typical profile

A - 0 to 12 inches: loam
C1 - 12 to 24 inches: silty clay
C2 - 24 to 35 inches: silt loam
C3 - 35 to 60 inches: loamy fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Minor Components

Indio, wet

Percent of map unit: 4 percent
Landform: Beach terraces
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Imperial

Percent of map unit: 4 percent
Landform: Basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Rositas

Percent of map unit: 4 percent
Landform: Basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD025CA - Sandsheet [2-4" p.z.]
Hydric soil rating: Unranked

Vint

Percent of map unit: 4 percent

Landform: Basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD200CA - Rarely Flooded Fans
Hydric soil rating: Unranked

Glenbar

Percent of map unit: 3 percent
Landform: Fan piedmonts
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

126—Niland fine sand

Map Unit Setting

National map unit symbol: 2mxlk
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
Farmland classification: Not prime farmland

Map Unit Composition

Niland and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Niland

Setting

Landform: Flood plains, basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium over ancient fluviomarine deposits

Typical profile

C1 - 0 to 23 inches: fine sand
2C2 - 23 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Moderate (about 7.1 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Minor Components

Meloland

Percent of map unit: 5 percent
Landform: Flood plains, basin floors
Down-slope shape: Linear, concave
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Rositas

Percent of map unit: 5 percent
Landform: Basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD025CA - Sandsheet [2-4" p.z.]
Hydric soil rating: No

Glenbar

Percent of map unit: 5 percent
Landform: Flood plains, basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

130—Rositas sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2mxlq
Elevation: -230 to 310 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Rositas and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rositas

Setting

Landform: Dunes, flood plains, terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

C1 - 0 to 27 inches: sand
C2 - 27 to 60 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (7.09 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: R040XD025CA - Sandsheet [2-4" p.z.]
Hydric soil rating: Unranked

Minor Components

Carsitas

Percent of map unit: 6 percent
Landform: Flood plains, terraces, basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD019CA - Coarse Gravelly Wash
Hydric soil rating: Unranked

Vint

Percent of map unit: 6 percent
Landform: Flood plains, terraces, basin floors
Down-slope shape: Linear

Across-slope shape: Linear
Ecological site: R040XD200CA - Rarely Flooded Fans
Hydric soil rating: Unranked

Niland

Percent of map unit: 3 percent
Landform: Basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

132—Rositas fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2mxln
Elevation: -230 to 350 feet
Mean annual precipitation: 0 to 3 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Rositas and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rositas

Setting

Landform: Flood plains, terraces, basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous and sedimentary rock and/or eolian deposits derived from igneous and sedimentary rock

Typical profile

C1 - 0 to 9 inches: fine sand
C2 - 9 to 60 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (7.09 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: R040XD025CA - Sandsheet [2-4" p.z.]
Hydric soil rating: No

Minor Components

Rositas, fine sandy loam surface

Percent of map unit: 4 percent
Landform: Basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD025CA - Sandsheet [2-4" p.z.]
Hydric soil rating: No

Niland

Percent of map unit: 4 percent
Landform: Basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: No

Vint

Percent of map unit: 4 percent
Landform: Basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD200CA - Rarely Flooded Fans
Hydric soil rating: No

Holtville

Percent of map unit: 1 percent
Landform: Basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: No

Antho

Percent of map unit: 1 percent
Landform: Basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: No

Superstition

Percent of map unit: 1 percent
Landform: Basin floors

Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD025CA - Sandsheet [2-4" p.z.]
Hydric soil rating: No

135—Rositas fine sand, wet

Map Unit Setting

National map unit symbol: 2mxlr
Elevation: -330 to 350 feet
Mean annual precipitation: 0 to 4 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Rositas, wet, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rositas, Wet

Setting

Landform: Dunes, flood plains, basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous and sedimentary rock and/or eolian deposits derived from igneous and sedimentary rock

Typical profile

C1 - 0 to 9 inches: fine sand
C2 - 9 to 60 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (7.09 to 14.17 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: R040XD025CA - Sandsheet [2-4" p.z.]
Hydric soil rating: No

Minor Components

Carsitas

Percent of map unit: 4 percent
Landform: Washes
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD019CA - Coarse Gravelly Wash
Hydric soil rating: Unranked

Vint, wet

Percent of map unit: 4 percent
Landform: Basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD200CA - Rarely Flooded Fans
Hydric soil rating: No

Superstition

Percent of map unit: 4 percent
Landform: Basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD025CA - Sandsheet [2-4" p.z.]
Hydric soil rating: Unranked

Antho, wet

Percent of map unit: 3 percent
Landform: Fan piedmonts
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

142—Vint loamy very fine sand, wet

Map Unit Setting

National map unit symbol: 2mxlv
Elevation: -330 to 160 feet
Mean annual precipitation: 0 to 4 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 300 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Vint, wet, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vint, Wet

Setting

Landform: Flood plains, basin floors
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits over alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

Ap - 0 to 10 inches: loamy very fine sand
C1 - 10 to 16 inches: loamy fine sand
C2 - 16 to 30 inches: loamy fine sand
C3 - 30 to 60 inches: loamy fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (7.09 to 14.17 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Ecological site: R040XD200CA - Rarely Flooded Fans
Hydric soil rating: Unranked

Minor Components

Meloland, wet

Percent of map unit: 5 percent
Landform: Flood plains, basin floors
Down-slope shape: Linear, concave
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Indio, wet

Percent of map unit: 5 percent
Landform: Washes

Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

144—Vint and Indio very fine sandy loams undifferentiated group, 0 to 2 percent slopes, Wet

Map Unit Setting

National map unit symbol: 31hls
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
Farmland classification: Not prime farmland

Map Unit Composition

Vint, wet, and similar soils: 50 percent
Indio, wet, and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vint, Wet

Setting

Landform: Lakebeds
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits over alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

Ap - 0 to 10 inches: very fine sandy loam
C1 - 10 to 16 inches: loamy fine sand
C2 - 16 to 30 inches: loamy fine sand
C3 - 30 to 60 inches: loamy fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (7.09 to 14.17 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Ecological site: R040XD200CA - Rarely Flooded Fans
Hydric soil rating: Unranked

Description of Indio, Wet

Setting

Landform: Lakebeds
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty alluvium

Typical profile

Ap - 0 to 12 inches: very fine sandy loam
C1 - 12 to 30 inches: silt loam
C2 - 30 to 44 inches: loamy very fine sand
C3 - 44 to 58 inches: silt loam
C4 - 58 to 72 inches: loamy very fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: High (about 9.4 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 7c
Hydrologic Soil Group: C/D
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: No

Minor Components

Meloland, wet

Percent of map unit: 5 percent
Landform: Lakebeds
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD007CA - Lacustrine Basin and Large RIver Floodplain
Hydric soil rating: Unranked

Rositas

Percent of map unit: 5 percent
Landform: Dunes
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R040XD025CA - Sandsheet [2-4" p.z.]
Hydric soil rating: Unranked

145—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: Unranked

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