

**APPENDIX C**  
**LAND EVALUATION AND SITE ASSESSMENT**

## APPENDIX B: CALIFORNIA LAND EVALUATION AND SITE ASSESSMENT

### A.1 INTRODUCTION

As in many of the urban areas of the nation, California agricultural land is under pressure from expanding urban development. Most of this development results in farms being converted to non-agricultural uses or being prematurely retired from production. The California version of the Land Evaluation and Site Assessment model was developed to provide lead agencies with a methodology to ensure that potentially significant environmental effects on agricultural land conversions are quantitatively and consistently considered in the environmental review process (Public Resources Code § 21095), including with any California Environmental Quality Act (CEQA) review.

The California Land Evaluation and Site Assessment model is designed to make determinations of the potential significance of the conversion of agricultural lands during the Initial Study phase of the CEQA review process.<sup>1</sup> The model evaluates and assesses agricultural land and its viability for farming and is made up of two main components: Land Evaluation and Site Assessment:

- **Land Evaluation** includes measurements of the inherent soil-based quality of land as related to agricultural suitability; and
- **Site Assessment** is made up of factors that measure social, economic, and geographic attributes that contribute to the value of agricultural land.

Both Land Evaluation and Site Assessment factors are usually represented by numeric ratings and when added together, the result is a maximum attainable score of 100 points. This score system, formulated as a result of legislation, is an approach for rating the relative quality of agricultural land resources.

The Land Evaluation and Site Assessment model is composed of six different factors, each of which is separately rated on a 100-point scale. The factors are then weighted relative to one another and combined, resulting in a single number score that becomes the basis for making a determination of a project's significance. Procedures and worksheets are summarized in this discussion; the pages referred to are those in Appendix A of the *Instruction Manual*.<sup>2</sup>

---

<sup>1</sup> California Department of Conservation, Office of Land Conservation, *California Agricultural Land Evaluation and Site Assessment Model Instruction Manual*, 1997.

<sup>2</sup> Ibid.

## A.2 LAND EVALUATION

There are two main parts to obtaining the Land Evaluation score. The first part is a determination of the capability of the land (Land Capability Classification score), and the second part is a determination of the soils (Storie Index score).

### A.2.1 Land Capability Classification Score

The Land Capability Classification indicates the suitability of soils for most kinds of crops. Groupings are made according to the limitations of the soils when used to grow crops, and the risk of damage to soils when they are used in agriculture. Soils are rated from Class I to Class VIII, with soils having the fewest limitations receiving the highest rating (Class I). Specific subclasses are also utilized to further characterize soils. Using the Land Capability Classification and several other parameters, the Land Capability Classification score is determined with the following nine steps:

1. Determine total acreage of the Project;
2. Determine the soil types within the Project area and enter them in Column A of Table A.2;
3. Calculate the total acres of each soil type and enter the number of acres in Column B (Table A-2);
4. Divide the acres of each soil type (Column B) by the total acreage to determine the proportion of each soil type present. Enter the percentage of each soil type in Column C (Table A-2);
5. Determine the Land Capability Classification for each soil type from the applicable soil survey<sup>1</sup> and enter it in Column D (Table A-2);
6. From Table A-1, determine the point rating corresponding to the Land Capability Classification for each soil type and enter it in Column E (Table A-2);

**Table A.1: Land Capability Classification Scoring**

Land Capability Classification	Points	Land Capability Classification	Points
I	100	IVs,w	40
IIe	90	V	30
II <sub>s,w</sub>	80	VI <sub>e,s,w</sub>	20
IIIe	70	VII <sub>e,s,w</sub>	10
III <sub>s,w</sub>	60	VIII	0
IVe	50		

Source: LCC Scoring Table, Appendix A, *California Agricultural Land Evaluation and Site Assessment Model Instruction Manual*, page A-1.

7. Multiply the proportion of each soil type (Column C) by the point score (Column E), and enter the resulting score in Column F (Table A-2);
8. Sum the Land Capability Classification scores in Column F (Table A-2); and

<sup>1</sup> The information needed is typically available from soil surveys that have been conducted by the Natural Resources Conservation Service of the U.S. Department of Agriculture (formerly known as the Soil Conservation Service).

- Enter the Land Capability Classification total score in the first line under “Factor Rating” in the Final Land Evaluation and Site Assessment Scoring (Table A-10).

### A.2.1 Storie Index Score

The Storie Index, based upon soil characteristics, provides a numeric rating (based upon a 100-point scale) of the degree to which a particular soil presents conditions supportive of plant growth and crop production with favorable climate and adequate moisture conditions. Four general factors are considered:

- The character of the soil profile;
- Soil texture;
- Slope of the land; and
- Other modifying factors such as drainage, salinity, alkalinity, soil acidity, erosion conditions, fertility level and microrelief.

Each of the previously listed four factors is evaluated for the most favorable or ideal conditions, with limiting maximum and minimum ratings ascribed to conditions that are less favorable for plant growth. There are four steps required to determine the Storie Index score:

- Determine the Storie Index rating for each soil type and enter it in Column G (Table A-2);
- Multiply the proportion of each soil type (Column C) by the Storie Index rating (Column G) and enter the scores in Column H (Table A-2);
- Sum the Storie Index scores in Column H to gain the Storie Index score (Table A-2); and
- Enter the Storie Index Score in the second line under “Factor Rating” in the Final Land Evaluation and Site Assessment Scoring (Table A-2).

**Table A.2: Land Evaluation Worksheet: Land Capability Classification and Storie Index Scores**

A	B	C	D	E	F	G	H
Soil Map Unit	Project Acres	Proportion of Project Area <sup>1</sup>	LCC <sup>2</sup>	LCC Rating	LCC Score	Storie Index	Storie Index Score
AbD	9.70	0.002	<i>IIIe-1</i>	70	0.14	65	0.13
GP	103.48	0.022	--	--	--	--	--
HaC	7.48	0.001	<i>IIe-1</i>	90	0.09	86	0.086
HbA	0.43	0.00009	<i>I</i>	100	0.009	95	0.0085
Ps	1122.36	0.248	<i>VIIIw-1</i>	0	0	10	2.48
RmC	3.19	0.0007	<i>IIe-1</i>	90	0.063	60	0.042
SoC	4.81	0.0010	<i>Vis-1</i>	20	0.02	29	0.029
SpC	3271.72	0.723	<i>Vis-1</i>	20	14.46	22	15.90
TuB	0.28	0.00006	<i>IIIe-4</i>	70	0.0042	70	0.0042

**Table A.2: Land Evaluation Worksheet: Land Capability Classification and Storie Index Scores**

A	B	C	D	E	F	G	H
W	1.03	0.00022	--	--	--	--	--
<b>Total</b>	<b>4524.49</b>	<b>1.0</b>	--	--	<b>14.79</b>	--	18.68

Source: Land Evaluation Worksheet, Land Capability Classification and Storie Index Scores, Appendix A, *California Agricultural Land Evaluation and Site Assessment Model Instruction Manual*, page A-2.

Notes: <sup>1</sup>The proportion of the Project area must sum to 1.0.

<sup>2</sup>LCC = Land Capability Classification.

### A.3 SITE ASSESSMENT

For the Site Assessment, there are four scores that are ascertained for the following parameters:

- Project size;
- Water resource availability;
- Surrounding agricultural land use; and
- Protected resource lands.

#### A.3.1 Project Size Score

The inclusion of a measure of the Project size is recognition of the role that farm size plays in the viability of commercial agricultural operation. In general, the larger the farming operations, the greater the flexibility there is in farm management and marketing decisions. Certain economies of scale for equipment and infrastructure can also be more favorable for larger operations. In addition, larger operations tend to have greater impacts on the local economy through direct employment, as well as greater impacts upon support industries, such as sales of fertilizers, farm equipment, and shipping services.

Agricultural lands with a higher quality of soils lend themselves to greater management and cropping flexibility and have the potential to provide a greater economic return per unit acre; therefore, the Project has been divided into three acreage groupings based on the Land Capability Classification, allowing for an accounting of the significance of high-quality agricultural land as well as land that has lesser quality.

The Project Size score is based on identifying acreage figures for groupings of soil classes with the Project site, and determining which grouping generates the highest score. The following are six steps that must be accomplished to determine the Project Size score:

1. Enter the acreage of each soil type from Column B (Table A-2) into the appropriate columns (corresponding to the Land Capability Classification for that soil) in Table A.4;
2. Sum Column I (Table A.4) to determine the total amount of Class I and II soils on the Project site;
3. Sum Column J (Table A.4) to determine the total amount of Class III soils on the Project site;

4. Sum Column K to determine the total amount of Class IV to Class VIII soils on the Project site;

**Table A.3: Project Size Scoring**

Class I or II		Class III		Class IV or Lower	
Acreage	Points	Acreage	Points	Acreage	Points
>80	100	>160	100	>320	100
60-79	90	120-159	90	240-319	80
40-59	80	80-119	80	160-239	60
20-39	50	60-79	70	100-159	40
10-19	30	40-59	60	40-99	20
10<	0	20-39	30	40<	0
		10-19	10		
		10<	0		

Source: Project Size Scoring Table, Appendix A, *California Agricultural Land Evaluation and Site Assessment Model Instruction Manual*, page A-3.

Notes: > = greater than.  
< = less than.

5. Compare the total score for each Land Capability Classification group in the Project Size scoring in Table A.3, enter into Table A.4 in the last row, and determine which group receives the highest score; and
6. Enter the Project Size score (which is the highest score from the last row of Table A.4) in the third line under "Factor Rating" in the Final Land Evaluation and Site Assessment Scoring (Table A-10).

**Table A.4: Site Assessment — Project Size Score**

Soil Map Unit (from Column A, Table A-2)	I	J	K
	LCC Class I- II (Acres)	LCC Class III (Acres)	LCC Class IV- VIII (Acres)
AbD	0	9.70	0
GP	--	--	--
HaC	7.48	0	0
HbA	0.43	0	0
Ps	0	0	1122.36
RmC	3.19	0	0
SoC	0	0	4.81
SpC	0	0	3271.72
TuB	0	0.28	0
W	--	--	--
<b>Total</b>	<b>11.1</b>	<b>9.98</b>	<b>4398.89</b>
<b>Project Size Score</b>	<b>30</b>	<b>0</b>	<b>100</b>

Source: Site Assessment Worksheet 1, Appendix A, *California Agricultural Land Evaluation and Site Assessment Model Instruction Manual*, page A-2.

Note: \*LCC = Land Capability Classification.

### A.3.2 Water Resource Availability Score

The Water Resources Availability score is based on identifying the various water sources that may supply the Project site, and then determining whether different restrictions in supply would likely take place in drought and non-drought years. The score for the Project site would reflect the adequacies of water supply in the past and a prediction of how the water system would perform in the future. The Water Resource Availability score is determined by the following seven steps:

1. Determine the type(s) of irrigation present on the Project site (including a determination of whether there is dryland agricultural activity);
2. Divide the site into portions according to the type or types of irrigation or dryland cropping that is available in each portion, and enter this information in Column B of Table A.5;

**Table A.5: Water Resources Availability**

A	B	C	D	E
Project Portion	Water Source	Proportion of Project Area (%) <sup>*</sup>	Water Availability Score (from Table A.6)	Weighted Availability Score (C × D)
1 <sup>i</sup>	Not-Irrigated	0.022	0	0
2 <sup>ii</sup>	Not-Irrigated	0.248	65	16.12
3 <sup>iii</sup>	Irrigated	0.001	95	0.095
4 <sup>iv</sup>	Not-Irrigated	0.727	65	47.25
<b>Total</b>		<b>1.0</b>		<b>63.46</b>

<sup>i</sup> Quarries and Pits (103.48 acres)

<sup>ii</sup> Psammets, Fluvents, and Water (1123.39 acres)

<sup>iii</sup> Orchard (6.2 acres)

<sup>iv</sup> Remaining Portion of Project Site (3291.42 acres)

Source: Project Size Scoring Table, Appendix A, *California Agricultural Land Evaluation and Site Assessment Model Instruction Manual*, page A-5.

Note: \* Must sum to 1.0.

3. Determine the proportion of the total site represented for each portion identified, and enter this information in Column C (Table A.5);
4. Using Table A.6, identify the option that is most applicable for each portion of the Project site, based on the feasibility of irrigation in drought and non-drought years, and whether physical or economic restrictions are likely to exist. Enter the applicable Water Resource Availability Score into Column D of Table A.5;

**Table A.6: Water Resource Availability Scoring**

Option	Non-Drought Years Restrictions			Drought Years Restrictions			Water Resource Score
	Irrigated Production Feasible?	Physical Restrictions?	Economic Restrictions?	Irrigated Production Feasible?	Physical Restrictions?	Economic Restrictions?	
1	Yes	No	No	Yes	No	No	100
2	Yes	No	No	Yes	No	Yes	95
3	Yes	No	Yes	Yes	No	Yes	90
4	Yes	No	No	Yes	Yes	No	85
5	Yes	No	No	Yes	Yes	Yes	80
6	Yes	Yes	No	Yes	Yes	No	75
7	Yes	Yes	Yes	Yes	Yes	Yes	65
8	Yes	No	No	No	—	—	50
9	Yes	No	Yes	No	—	—	45
10	Yes	Yes	No	No	—	—	35
11	Yes	Yes	Yes	No	—	—	30
12	Irrigated production not feasible, but rainfall adequate for dryland production in both drought and non-drought years						25
13	Irrigated production not feasible, but rainfall adequate for dryland production in non-drought years (but not in drought years)						20
14	Neither irrigated nor dryland production feasible						0

Source: Water Resource Availability Scoring Table Appendix A, *California Agricultural Land Evaluation and Site Assessment Model Instruction Manual*, page A-6.

- For each portion of the Project, multiply the Water Resource Availability score by the proportion of the Project area it represents to determine the weighted score for each portion. Enter this figure in Column E of Table A.5;
- Sum the scores for all portions to determine the Project’s total Water Resources Availability Score (last line of Table A.5); and
- Enter the Water Resource Availability Score in the fourth line under “Factor Rating” in the Final Land Evaluation and Site Assessment Scoring (Table A-10).

**A.3.3 Surrounding Agricultural Land Use Score**

The Surrounding Agricultural Land Use score is designed to provide a measurement of the level of agricultural land use for lands in close proximity to the Project site and is based on the identification of the Zone of Influence of the Project. The Zone of Influence is land near the Project (directly adjoining and within a defined distance) that is likely to influence and be influenced by the agricultural land use of the Project site.

The Surrounding Agricultural Land Use score is calculated using the following six steps:

- Calculate the Zone of Influence of the Project as follows:



- a. Draw a rectangle around the Project such that the rectangle is the smallest that can completely encompass the Project area;
  - b. Draw a second rectangle that extends one quarter mile on all sides beyond the first rectangle; and
  - c. The Zone of Influence includes all parcels that are contained within or are intersected by the second rectangle, less the area of the Project itself.
2. Sum the area of all parcels to determine the total acreage of the Zone of Influence, and enter this number into the total acres of Column A (Table A.9);
  3. Determine which parcels are in agricultural use, sum the areas of these parcels, and enter this acreage into Column A (first line) of Table A.9;
  4. Divide Column A (first row) by the total acres to determine the percentage of the Zone of Influence that is in agricultural use;
  5. Determine the Surrounding Agricultural Land score utilizing Table A.7, and place this figure in Column C (first row); and

**Table A.7: Surrounding Agricultural Land Use Scoring**

Percent of ZOI in Agriculture	Surrounding Agricultural Land Score	Percent of ZOI in Agriculture	Surrounding Agricultural Land Score
90-100	100	45-49	50
80-89	95	40-44	40
70-79	90	35-39	30
65-69	85	30-34	20
60-64	80	20-29	10
55-59	70	<19	0
50-54	60		

Source: Surrounding Agricultural Land Scoring Table, Appendix A, *California Agricultural Land Evaluation and Site Assessment Model Instruction Manual*, page A-7.

Note: ZOI – Zone of Influence.

6. Enter the Surrounding Agricultural Land Score (Column C, first row in Table A.9) in the fifth line under “Factor Rating” in the Final Land Evaluation and Site Assessment Scoring (Table A.10).

### **A.3.4 Surrounding Protected Resource Lands Score**

The Surrounding Protected Resource Lands score is essentially an extension of the Surrounding Agricultural Land Use score, relying upon the same Zone of Influence information. Protected Resource Lands are those lands with long-term use restrictions that are compatible with or supportive of agricultural uses of land. Included among them are:

- Williamson Act<sup>1</sup> 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.

There are five steps that make up the calculations of the Protected Resource Lands score:

1. Use the total area of the Zone of Influence calculated in Table A.9 (Column A, third row);
2. Sum the area of those parcels within the Zone of Influence that are Surrounding Protected Resource Lands, as defined in the *California Agricultural Land Evaluation and Site Assessment Model Instruction Manual*. Place this number in Column A, row two of Table A.9;
3. Divide Column A (second row) by the total acres to determine the percentage of the surrounding area that is under resource protection;
4. Determine the Surrounding Protected Resource Land score utilizing Table A.8; and
5. Enter the Surrounded Protected Resource Land score (Column C, second row in Table A.9) in the sixth line under "Factor Rating" in the Final Land Evaluation and Site Assessment Scoring (Table A-10).

**Table A.8: Surrounding Protected Resource Land Scoring**

Percent of ZOI Protected	Protected Resource Land Score	Percent of ZOI Protected	Protected Resource Land Score
90-100	100	45-49	50
80-89	95	40-44	40
70-79	90	35-39	30
65-69	85	30-34	20
60-64	80	20-29	10
55-59	70	<20	0
50-54	60		

Source: Surrounding Agricultural Land Scoring Table, Appendix A, *California Agricultural Land Evaluation and Site Assessment Model Instruction Manual*, page 9.

<sup>1</sup> The California Land Conservation Act (California Government Code §§51200-51297.4), also known as the Williamson Act, was adopted in 1965. The Williamson Act allows for the preservation of agricultural and open space lands through property tax incentives and voluntary restrictive use contracts. This program allows property owners to have their property assessed on the basis of its agricultural production rather than at the current market value. The property owner is thus relieved of having to pay higher property taxes as long as the land remains in agricultural production. The Williamson Act encourages property owners to continue to farm their land, and to prevent the premature conversion of farmland to urban uses.

**Table A.9: Site Assessment: Surrounding Agricultural Land and Protected Resource Land**

Factor	A	B	C
	Zone of Influence		Score
	Acres	Percentage of Total Acres (%)	
Surrounding Agricultural Land	1862.19	31.5	20
Surrounding Protected Resource Land	1931.64	32.7	20
<b>Total Project and ZOI Acres</b>	<b>5905.43</b>	--	--

Source: Site Assessment Worksheet 3, Surrounding Agricultural Land and Surrounding Protected Resource Land, Appendix A, California Agricultural Land Evaluation and Site Assessment Model Instruction Manual, page 8.

#### A.4 CONCLUSION

The Project site, according to Table A.10, has a Land Evaluation subtotal of 8.36 and a Site Assessment score of 28.95, summing to 37.31 for the total Land Evaluation and Site Assessment score.

**Table A-10: Final Land Evaluation and Site Assessment Scoring**

Factor	Factor Rating (0-100 Points)	Factor Weight (Total is 1.00)	Weighted Factor Rating (Multiply Factor Rating by Factor Weight) <sup>1</sup>
<b>LAND EVALUATION</b>			
1. Land Capability Classification	14.79 (Column F total, Table A-2)	0.25	3.69
2. Storie Index Rating	18.68 (Column H total, Table A-2)	0.25	4.67
<b>Land Evaluation Subtotal</b>			<b>8.36</b>
<b>SITE ASSESSMENT</b>			
3. Project Size	100 (largest number in last row, Table A-4)	0.15	15.0
4. Water Resource Availability	63.46 (Column E total, Table A.5)	0.15	9.52
5. Surrounding Agricultural Land Uses	20.0 (Column C, first row, Table A.9)	0.15	3.0
6. Surrounding Protected Resource Lands	20.0 (Column C second row, Table A.9)	0.05	1.0
<b>Site Assessment Subtotal</b>			<b>28.52</b>

<b>TOTAL LAND EVALUATION AND SITE ASSESSMENT SCORE<sup>2</sup></b>	<b>36.88</b>
--	--------------

Source: Surrounding Agricultural Land Scoring Table, Appendix A, *California Agricultural Land Evaluation and Site Assessment Model Instruction Manual*, page 10.

Notes: <sup>1</sup> The Land Evaluation and Site Assessment Model is weighted so that 50 percent of the total score is derived each of the two main factors: (1) Land Evaluation and (2) Site Assessment.

<sup>2</sup> Total Land Evaluation and Site Assessment Score and scoring decision:

0 - 39 Points Not Considered Significant.

40 - 59 Points Considered Significant only if Land Evaluation and Site Assessment subtotals are each greater than or equal to 20 points.

60 - 79 Points Considered Significant unless either Land Evaluation or Site Assessment subtotals is less than 20 points.

80 -100 Points Considered Significant.

The source for these scoring decisions is Table 9, California LESA Model Scoring Thresholds, *California Agricultural Land Evaluation and Site Assessment Model Instruction Manual*, page 31.

The total land evaluation and site assessment score for the proposed project is 36.88. The score of 36.88 is not considered to be significant with respect to the conversion of farmland to non-agricultural uses.