

Land Evaluation and Site Assessment (LESA) Model



APPENDIX



EMC PLANNING GROUP INC.
A LAND USE PLANNING & DESIGN FIRM

601 Abrego Street, Monterey, CA 93940
Tel: 831-649-1799 / Fax: 831-649-8399
www.emcplanning.com

To: Erin Freitas, Senior Planner, City of Gilroy
From: Stuart Poulter, AICP, MCRP, Principal Planner, EMC Planning Group
Date: April 7, 2025

Re: *****DRAFT*** Land Evaluation and Site Assessment (LESA) Model
2480 & 2740 Hecker Pass Road Subdivision (AS 23-19 & TM 23-03)
Hecker Pass Specific Plan Area, Gilroy, CA**

Message:

A California Agricultural Land Evaluation and Site Assessment Model (LESA model) has been prepared for the approximately 22-acre 2480 & 2740 Hecker Pass Road Subdivision Architectural /Site Review (AS) 23-19 & Tentative Map (TM) 23-03 (proposed project) located in the City of Gilroy, Santa Clara County. The proposed project is being analyzed in an environmental impact report (EIR) for the purposes of the California Environmental Quality Act (CEQA) (Division 13, commencing with section 21000, of the Public Resources Code and regulations adopted pursuant to that Division) by the City of Gilroy (lead agency). The proposed project includes a total of 116 single-family residential lots with 24 of those units being low-income designated units across the entire 22-acre project site. [Figure 1, Location Map](#), presents the location of the project

The project site is designated as Farmland of Local Importance (5.32 acres), Prime Farmland (5.42 acres), Unique Farmland (1.63 acres), Urban & Built-Up Land (2.36 acres), and Other Land (7.37 acres) by the California Department of Conservation (2022). [Figure 2, Important Farmlands Map](#), shows the extent of the farmland designations on the project site. The LESA model was used to determine the level of significance of converting Farmland of Local Importance, Prime Farmland and Unique Farmland to a non-agricultural land use, effectively resulting in the loss of Prime Farmland as a result of development of the project site. This memorandum includes a description of the LESA model, a summary of the LESA model results, and description of information resources used in the modeling process. Figures and the LESA model worksheets are attached.

MEMORANDUM

LESA Model Overview

The LESA model provides lead agencies with a methodology to consistently quantify the significant effects on the environment resulting from agricultural land conversions for the purposes of CEQA. As stated in Appendix G of the State CEQA Guidelines, “lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model” in assessing impacts to agricultural and farmland. The LESA model evaluates measures of soil resource quality, project size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. For a given project, the factors are rated, weighted, and combined, resulting in a single numeric score. The score becomes the basis for making a determination of a project’s potential significance for impacting agricultural land.

A LESA model is created by defining and measuring two separate sets of factors: Land Evaluation and Site Assessment. The Land Evaluation measures two factors based upon measures of soil resource quality as they relate to agricultural suitability. The Site Assessment consists of four factors to 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. Land capability classifications and Storie index ratings are each weighted 25 percent, with project size, water resource availability and surrounding agricultural lands each weighted 15 percent. Lastly, surrounding protected resource lands are weighted five (5) percent. The factors are then weighted relative to one another and combined, resulting in a single numeric score for a given project, with a maximum attainable score of 100 points. It is this score that becomes the basis for making a determination of whether the loss of Prime Farmland is considered significant, based upon a range of established scoring thresholds.

According to the California Department of Conservation, conversion of agricultural land with a LESA score of 80 to 100 points may be considered a significant adverse impact. The conversion of agricultural land with a LESA score of between 60 and 79 may be considered significant if either the Land Evaluation or the Site Assessment subcategories have scores of 20 or better. The conversion of agricultural land with a LESA score of between 40 and 59 may be considered significant if both the Land Evaluation and the Site Assessment subcategories have scores of 20 or better.

USDA Land Capability Classification System

The basis for the classification of agricultural capabilities of lands in California (used by both the State of California and the federal government) is the USDA’s Land Capability Classification system (LCC). The LCC uses soil and climatic data to categorize soil areas into groups with similar

management options and problems by grouping fundamental soil components (map units) of the system into arable and non-arable categories. Mapped soils are grouped into classes (Class I through Class VIII) based on perceived and measured limitations and risks of agricultural utilization. For example, Class I soils have no limitations, Class II soils have some limitations, Class III soils have severe limitations, and Class IV very severe limitations. Classes V through VIII are not considered suitable for cultivation unless drastically modified. Subclass groupings are used to assign and assess the defining limitations of soil classes—erosion hazard, wetness, rooting zone limitations, and climatic limitations. The soil class designation is used by state and federal resource agencies to assess given land units as prime or non-prime land, a useful designation for inventorying and protecting the best agricultural lands of the state, and, for assessing farmlands which deserve protection and lands which may not be as important.

Storie Index

The LESA model data inputs include Storie Index soil ratings, which build upon the LCC and are rated based on soil characteristics that dictate the potential utilization and productive capacity of soils. 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. The Storie Index rating is based on a combination of physical characteristics, such as soil profile, texture, slope, drainage, alkali content, nutrient levels, and erosion potential.

Resources Used

The California Agricultural LESA Model Instruction Manual identifies the step-by-step process required to determine the land evaluation score, site assessment score, and the final weighted LESA score. Resources utilized as inputs to the model included the *Soil Survey of Eastern Santa Clara Area, California* (USDA Soil Conservation Service 1974); Santa Clara County Assessor's Parcel Maps for the project site and those parcels located within the Zone of Influence; the California Department of Conservation's "California Important Farmland Finder," and Geographic Information Systems data to verify the current land uses on the project site and within the zone of influence.

Model Data Inputs

On-site Soils

The soil types identified in the *Soil Survey of Eastern Santa Clara Area* (USDA Soil Conservation Service 1974) for the approximately 22-acre project site include the following:

- 10.9 acres of Yolo loam, 0 to 7 percent slopes, MLRA 14 (YaA);

- 5.1 acres of Zamora loam, 2 to 9 percent slopes (ZaC);
- 3.9 acres of Garretson loam, gravel substratum, 0 to 2 percent slopes (GaA);
- 2.0 acres of Cortina very gravelly loam, 0 to 5 percent slopes, MLRA 15 (CoB); and
- 0.1 acres of Los Osos clay loam, 15 to 30 percent slopes (LoE).

Figure 3, [Soils Map](#), visually represents the soil types on the project site.

Yolo Series (YaA). The Yolo series are Grade 1 soils with a Storie Index rating of 100, and have a Class I LCC rating. The Yolo series consists of well-drained loams that are underlain by alluvium from sedimentary rock. These soils are on alluvial plains and fans and have slopes of 0 to 9 percent. The vegetation, where these soils are not cultivated, is mainly annual grasses and forbs, and there are a few scattered oak trees. Elevation ranges from 400 to 2,400 feet. Average annual rainfall is 15 to 25 inches, and average annual temperature is 58° to 60° F. The growing season is about 250 to 275 days. Yolo soils are associated with the Campbell, Esparto, and Zamora soils. In a representative profile, the surface layer is grayish brown, neutral and mildly alkaline loam about 29 inches thick. The substratum is brown, mildly alkaline silt loam to a depth of 60 inches or more. In some places the surface layer is silty clay loam. Yolo soils are used mainly for irrigated row crops, orchards, vineyards, dryland hay, and pasture. Large areas are also used for housing and commercial development. These are the most productive soils in the Santa Clara Valley.

Zamora Series (ZaC). The Zamora series are Grade 1 soils with a Storie Index of 90, and have a Class II LCC rating. The Zamora series consists of well-drained clay loams that are underlain by alluvium of mixed origin. These soils have slopes of 0 to 9 percent and are on alluvial fans. The vegetation, where these soils are not cultivated, is chiefly annual grasses and forbs, and there are scattered oak trees. Elevation ranges from 200 to 1,000 feet. Average annual rainfall is 16 to 20 inches, and average annual temperature is 58° to 60° F. The growing season is about 250 to 275 days. Zamora soils are associated with the Pleasanton and Yolo soils. In a representative profile, the surface layer is dark grayish-brown, neutral clay loam about 15 inches thick. In some places the surface layer is loam. The subsoil is dark-brown and brown, neutral clay loam that is underlain at a depth of 35 inches by brown and pale-brown, neutral sandy clay loam and gravelly sandy clay loam that extend to a depth of 60 inches or more. Zamora soils are used mainly for irrigated row crops, orchards, vineyards, and dryland hay and pasture.

Garretson Series (GaA). The Garretson series are Grade 2 soils with a Storie Index of 77, and have a Class I LCC rating. The Garretson series consists of well-drained loams that are underlain by alluvium from material derived from sedimentary rock. These soils lie on stream benches and fans along drainageways and have slopes of 0 to 5 percent. The vegetation, where these soils are not

cultivated, is annual grasses and forbs, and there are a few scattered oak trees. Elevation ranges from 200 to 2,000 feet. Average annual rainfall is 16 to 25 inches, and average annual temperature is 58° to 60° F. The growing season is about 250 to 275 days. Garretson soils are associated with the Esparto, Yolo, and Zamora soils. In a representative profile, the surface layer is a grayish brown, neutral loam about 19 inches thick. The substratum is a brown, neutral very fine sandy loam that is underlain at a depth of 40 inches by stratified sand and gravel. In some places the surface layer and substratum are gravelly loam to a depth of 60 inches or more. Garretson soils are used for irrigated grapes, row crops, orchards, dryland grain hay, and pasture.

Cortina Series (CoB). The Cortina series are Grade 4 soils with a Storie Index of 24, and have a Class IV LCC rating. The Cortina series consists of somewhat excessively drained, very gravelly loams that are underlain by alluvium from mixed sources. These soils are on stream benches along major drainageways and have slopes of 0 to 5 percent. Vegetation, where these soils are not cultivated, is grasses, forbs, brush, and scattered sycamore and oak trees. Elevation ranges from 100 to 2,400 feet. Average annual rainfall is 16 to 25 inches, and average annual temperature is 58° to 60° F. The growing season is about 250 to 275 days. Cortina soils are associated with the Esparto and Yolo soils. In a representative profile, the surface layer is pale brown and brown, slightly acid very gravelly loam and very gravelly fine sandy loam about 28 inches thick. The substratum is pale-brown, slightly acid very gravelly sandy loam to a depth of 60 inches or more. Cortina soils are used mainly for dryland pasture.

Los Osos Series (LoE). The Los Osos series are Grade 4 soils with a Storie Index of 38, and have a Class IV LCC rating. The Los Osos series consists of well-drained clay loams that are underlain by sedimentary rock at a depth of 26 to 40 inches. These soils have slopes of 15 to 75 percent and are on uplands. The vegetation, where these soils are not cultivated, is annual grasses and forbs, oak trees, and brush. Elevation ranges from 300 to 1,200 feet. Average annual rainfall is 16 to 25 inches, and average annual temperature is about 58° to 60° F. The growing season is about 90 to 250 days. Los Osos soils are associated with the Azule and Los Gatos soils. In a representative profile, the surface layer is a dark grayish-brown, slightly acid clay loam about 10 inches thick. The subsoil is dark-brown, slightly acid clay that is underlain at a depth of 36 inches by moderately hard, fine grained sandstone and shale. Los Osos soils are used for dryland hay, pasture, and range.

Site Irrigation and Water Availability

Irrigation and the availability of water is a key factor in determining whether farmland is considered viable long-term. According to the applicant-submitted Phase I/II Environmental Site Assessment (ESA) no water wells are permitted for the property. The property is serviced by the City of Gilroy for water supply and irrigation purposes.

Zone of Influence

Surrounding agricultural lands and protected resource lands that influence the potential significance of converted agricultural lands are identified through the creation of a “Zone of Influence” (ZOI). The ZOI encompasses lands within one quarter mile of a project site. The potential significance of the conversion of an agricultural parcel that has a large proportion of surrounding land in agricultural production is rated more highly than one that has a relatively small percentage of surrounding land in agricultural production. [Figure 4, Zone of Influence](#), identifies agricultural land within one quarter mile of the project site, and includes parcels located within the Gilroy city limits. A review of Santa Clara County land records reveals that there are no farmlands that are subject to Williamson Act conservation easements within the proposed project’s ZOI (SCCDPD 2025). Protected resource lands include lands such as Williamson Act conservation easements; publicly owned lands maintained as park, forest, or watershed resources; or lands with agricultural, wildlife habitat, open space, or other natural resource easements that restrict the conversion of such land to urban or industrial uses. Approximately 278.5 acres of lands within the proposed project’s ZOI (or approximately 43 percent of the total ZOI area) have been determined to be “protected resource lands.” These areas are noted (in blue) on Figure 4 referenced above. The ZOI is approximately 653.75 acres and approximately 72.87 acres (approximately 11 percent) of the ZOI are agricultural parcels.

Results

Figures and LESA Worksheets for the model are attached to this memorandum. The LESA score is 76.1. According to the model, the Land Evaluation subtotal is 45.6 and the Site Assessment subtotal is 30.5.

Conclusion

The conversion of agricultural land with a LESA score of between 60 and 79 is considered significant unless either the Land Evaluation or Site Assessment subscore is less than 20 points. As noted above, both the Land Evaluation and Site Assessment subscore are both greater than 20 points. According to the model results, the conversion of land to non-agricultural uses as a result of the proposed project is considered a significant impact.

Attachments

Attachment A Figures 1 through 4
Attachment B LESA Worksheets

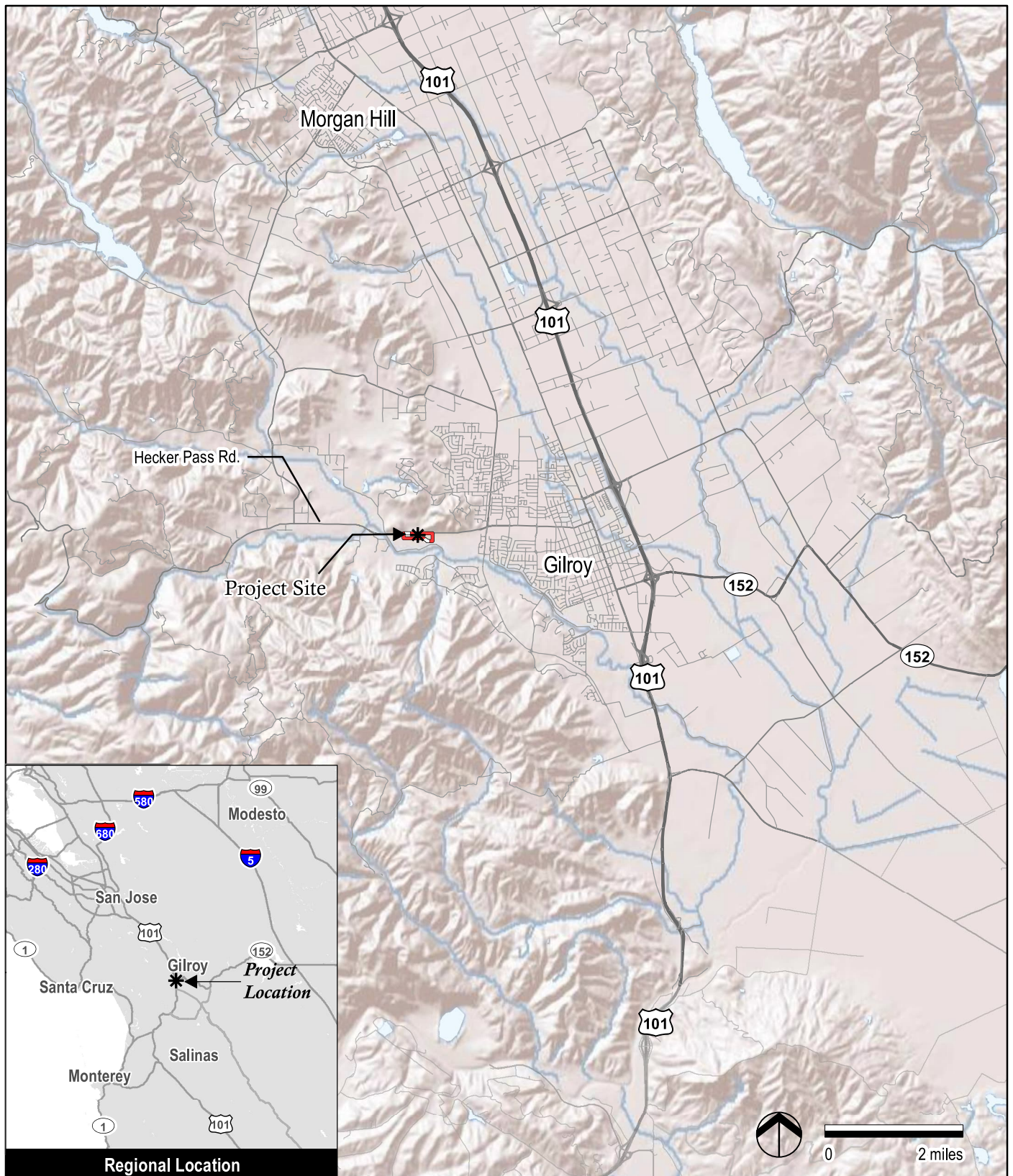
Sources

- California Department of Conservation. 1997. *California Agricultural Land Evaluation and Site Assessment Model – Instruction Manual*. Sacramento, CA.
- . 2025. “DLRP Important Farmland Finder – California.” Accessed March 3, 2025. <https://www.conservation.ca.gov/dlrp/fmmp>
- Freitas, Erin, Senior Planner, City of Gilroy. Email message to consultant, 4 March 2025.
- . Email message to consultant, 6 March 2025.
- Santa Clara County Department of Planning and Development (SCCDPD). 2025. “Williamson Act Properties Map.” Accessed March 3, 2025. <https://sccplanning.maps.arcgis.com/apps/webappviewer/index.html?id=1f39e32b4c0644b0915354c3e59778ce>
- U.S. Department of Agriculture (USDA), Soil Conservation Service. September 1974. *Soil Survey of Eastern Santa Clara Area, California*. Accessed March 3, 2025. <https://archive.org/details/usda-general-soil-map-soil-survey-of-eastern-santa-clara-area-california-1974>
- . Natural Resources Conservation Service. 2025. “Web Soil Survey.” Accessed March 3, 2025. <https://websoilsurvey.nrcs.usda.gov/app/>

LESA Analysis Figures (1-4)



ATTACHMENT



Source: ESRI 2024

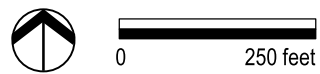
 Project Site

Figure 1

Regional Location Map



2480 & 2740 Hecker Pass Road Subdivision - LESA Model



- Project Location
- Hecker Pass Specific Plan Area
- Project Parcels

- Farmland of Local Importance (5.32 Acres)
- Prime Farmland (5.42 Acres)
- Unique Farmland (1.63 Acres)

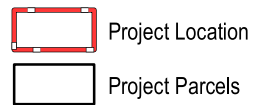
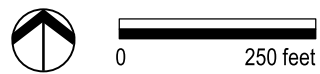
- Urban & Built-Up Land (2.36 Acres)
- Other Land (7.37 Acres)

Source: California Department of Conservation 2024,
Santa Clara County GIS 2025,
Google Earth 2025



Figure 2
Important Farmlands Map

2480 & 2740 Hecker Pass Road Subdivision - LESA Model



CoB - Cortina very gravelly loam,
0 to 5 percent slopes, MLRA 15

GaA - Garretson loam, gravel substratum,
0 to 2 percent slopes

LoE - Los Osos clay loam,
15 to 30 percent slopes

YaA - Yolo loam,
0 to 7 percent slopes, MLRA 14

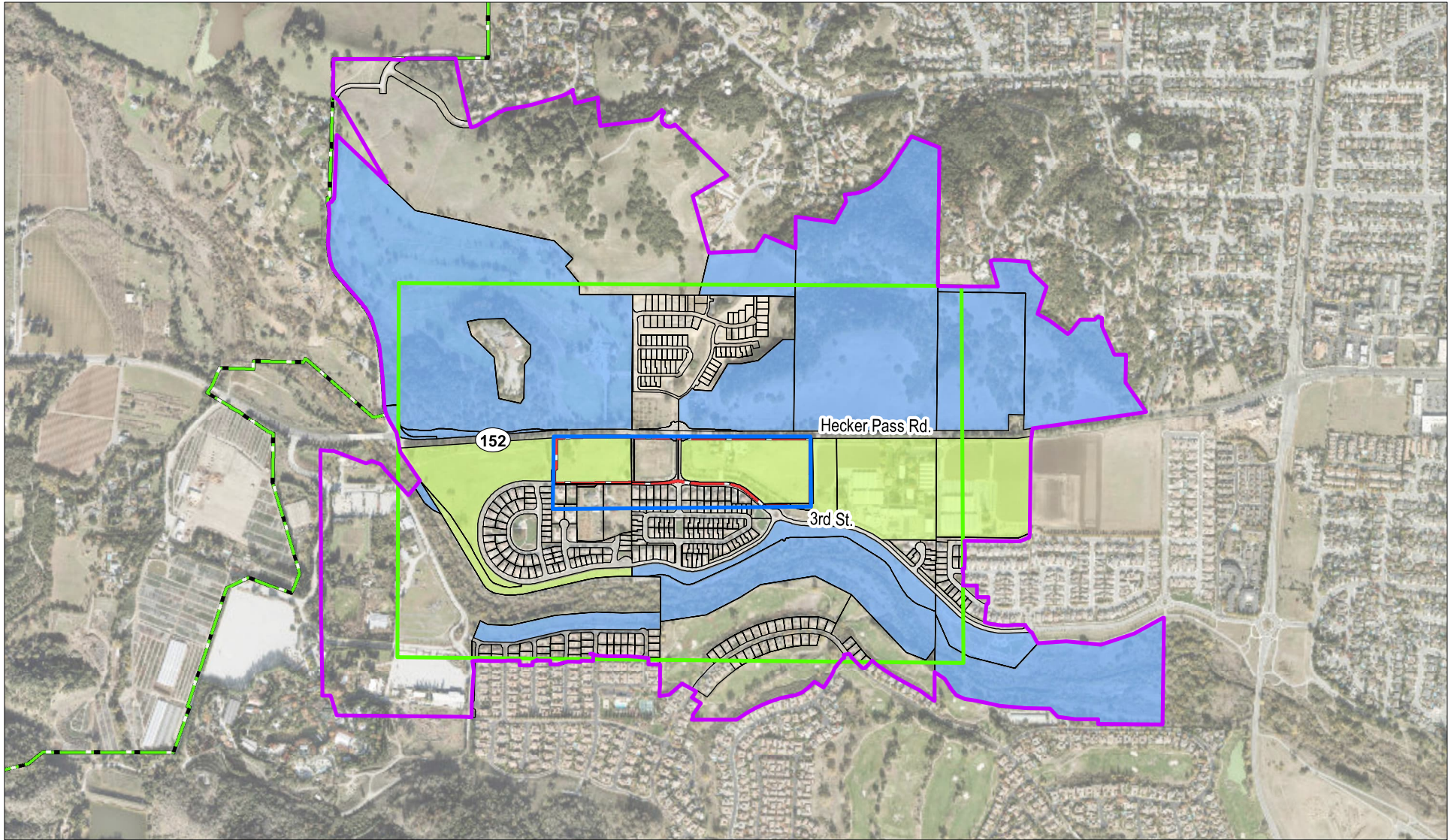
ZaC - Zamora loam,
2 to 9 percent slopes

Source: USDA Web Soil Survey 2025,
Santa Clara County GIS 2025,
Google Earth 2025

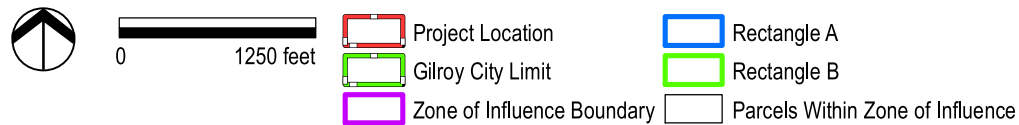


Figure 3
Soils Map

2480 & 2740 Hecker Pass Road Subdivision - LESA Model



Source: California State Geoportal 2025,
 Santa Clara County GIS 2025,
 Google Earth 2025



Surrounding Protected Resource Land (278.5 Acres)

Agricultural Parcels in Zone of Influence (72.87 Acres)



Figure 4
 Zone of Influence

2480 & 2740 Hecker Pass Road Subdivision - LESA Model

LESA Worksheets

B

ATTACHMENT

Land Evaluation Worksheet-Site - 1

Land Capability Classification (LCC) and Storie Index Scores

A	B	C	D	E	F	G	H
Soil Map Unit	Project Acres	Proportion of Project Area	LCC	LCC Rating	LCC Score	Storie Index	Storie Index Score
CoB	2	0.09	IVw-4	40	3.6	24	2.2
GaA	3.9	0.18	I-1	100	18.0	77	13.9
LoE	0.1	0.06	IVe-3	50	3.0	38	2.3
YaA	10.9	0.49	I-1	100	49.0	100	49.0
ZaC	5.1	0.23	Ile-1	90	20.7	90	20.7
Totals	22	(Must Sum to 1.0)		LCC Total Score	94.3	Storie Index Total Score	88.0

Site Assessment Worksheet 1.

Project Size Score

	I	J	K
	LCC Class I - II	LCC Class III	LCC Class IV - VIII
			2
	3.9		
			0.1
	10.9		
	5.1		
Total Acres	19.9	0	2.1
Project Size Scores	100	0	0
Highest Project Size Score	100		

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 - irrigated	City	1	100	100
2				
3				
4				
5				
6				
		(Must Sum to 1.0)	Total Water Resource Score	100

Site Assessment Worksheet 3.

Surrounding Agricultural Land and Surrounding Protected Resource Land

A	B	C	D	E	F	G
Zone of Influence						
Total Acres	Acres in Agriculture	Acres of Protected Resource Land	Percent in Agriculture (A/B)	Percent Protected Resource Land (A/C)	Surrounding Agricultural Land Score (From Table)	Surrounding Protected Resource Land Score (From Table)
653.75	72.87	278.5	11%	43%	0	10

- Zone of influence: land within one quarter mile (1320 ft) of the project site.
- Percentage of land in agricultural use estimated using aerial photographs and site investigations.

Final LESA Score Sheet

LESA Worksheet (cont.) **Calculation of the Final LESA Score:**

(1) Multiply each factor score by the factor weight to determine the weighted score and enter in Weighted Factor Scores column.

NOTES

(2) Sum the weighted factor scores for the LE factors to determine the total LE score for the project.

(3) Sum the weighted factor scores for the SA factors to determine the total SA score for the project.

(4) Sum the total LE and SA scores to determine the Final LESA Score for the project.

	Factor Scores	Factor Weight	Weighted Factor Scores
LE Factors			
Land Capability Classification	<1> 94.3	0.25	23.6
Storie Index	<2> 88.0	0.25	22.0
LE Subtotal		0.0	45.6
SA Factors			
Project Size	<3> 100.0	0.15	15.0
Water Resource Availability	<4> 100.0	0.15	15.0
Surrounding Agricultural Land	<5> 0.0	0.15	0.0
Protected Resource Land	<6> 10.0	0.05	0.5
SA Subtotal		0.0	30.5
Final LESA Score			76.1