

---

---

# Appendix A

---

---



**No Recording Fees Needed per Government Code §6103**

**Development Services – Planning  
8401 Laguna Palms Way • Elk Grove, California 95758  
Tel: 916.683.7111 • Fax: 916.691.3175 • [www.elkgrovecity.org](http://www.elkgrovecity.org)**

**NOTICE OF PREPARATION  
Summer Villas Special Planning Area  
Draft Environmental Impact Report**

**Date:** *September 9, 2024*

**To:** Public Agencies and Interested Parties

**From:** City of Elk Grove

**Subject:** Notice of Preparation of a Draft Environmental Impact Report for the Summer Villas Special Planning Area

**The City of Elk Grove is recirculating the Notice of Preparation (NOP) to reflect revised descriptions to the surrounding uses and to extend the comment period to October 9, 2024. All comments previously submitted to the City during the initial NOP public comment period (August 9 to September 9, 2024) have been retained and any previously submitted comments do not need to be resubmitted.**

The City of Elk Grove (City) will prepare a Draft Environmental Impact Report (EIR), compliant with the California Environmental Quality Act (CEQA), for the Summer Villas Special Planning Area (“Project”). Because the City has determined that an EIR will be prepared for the Project, an Initial Study will not be prepared (CEQA Guidelines Section 15063[a]). In accordance with Section 15082 of the CEQA Guidelines, this Notice of Preparation (NOP) provides a project description, location, and the probable environmental effects of construction and implementation of the Project. The NOP is circulated for a public review and comment period that begins on *September 9, 2024, and ends on October 9, 2024.*

The City is soliciting comments regarding the scope and content of the EIR as they relate to other agencies’ statutory responsibilities in connection with the Project, as well as comments from interested members of the public. The City will rely on responsible and trustee agencies to provide information relevant to the analysis of resources falling within the jurisdiction of such agencies. Specifically, input is required on:

1. **Scope of Environmental Analysis** – guidance on the scope of analysis for this EIR, including identification of specific issues that will require closer study due to the location, scale, and character of the Project;
2. **Mitigation Measures** – ideas for feasible mitigation, including mitigation that would avoid, offset, eliminate, or reduce potentially significant or significant impacts; and
3. **Alternatives** – suggestions for alternatives to the Project that could reduce or avoid potentially significant or significant impacts.

The City welcomes input during the review and comment period. If the City has not received a response (or a well-justified request for additional time) from a responsible or trustee agency by the end of the review period, the City may presume that the responsible or trustee agency has no response (CEQA Guidelines Section 15082[b][2]).

Please provide any written comments that you would like the City to consider, along with the name of the appropriate contact person in your agency and their contact information, to the address shown below by **5:00 PM on October 9, 2024**.

City of Elk Grove Development Services Department  
Planning Division  
c/o Kyra Killingsworth  
8401 Laguna Palms Way  
Elk Grove, CA 95758  
Email: [kkillingsworth@elkgrovecity.org](mailto:kkillingsworth@elkgrovecity.org)

## **SCOPING MEETING**

CEQA provides for a lead agency to facilitate a scoping meeting(s), which provide additional opportunity for informing the scope and content of an EIR. The City will host a second scoping meeting on **Monday, September 23, 2024, at 6:00 P.M.** at City of Elk Grove Council Chambers, 8400 Laguna Palms Way, Elk Grove, CA 95758. Information related to the Project, including how to access project documents and how to participate in the public review process, will be provided at the scoping meeting.

## **PROJECT LOCATION AND SETTING**

The City of Elk Grove is located within Sacramento County and is generally bounded by Interstate 5 (I-5) to the west, Calvine Road and the City of Sacramento to the north, Grant Line Road to the east, and Kammerer Road to the south. State Route (SR) 99 runs north–south through the City center, and provides regional access to the City. The project site (“site”) is located at 9350 Sheldon Road, southeast of the intersection of Sheldon Road and Waterman Road, in the northeastern portion of the City (see Figure 1, Figure 2, and Figure 3). The approximately 116-acre site is identified by Assessor’s Parcel Number (APN) 127-0010-077.

The site is currently developed with a rural residence and barn in the northwest corner of the site. The remainder of the site consists of grassland vegetation, which is used for grazing. In addition, Laguna Creek tributaries generally run from the northern boundary of the site to the southern boundary of the site.

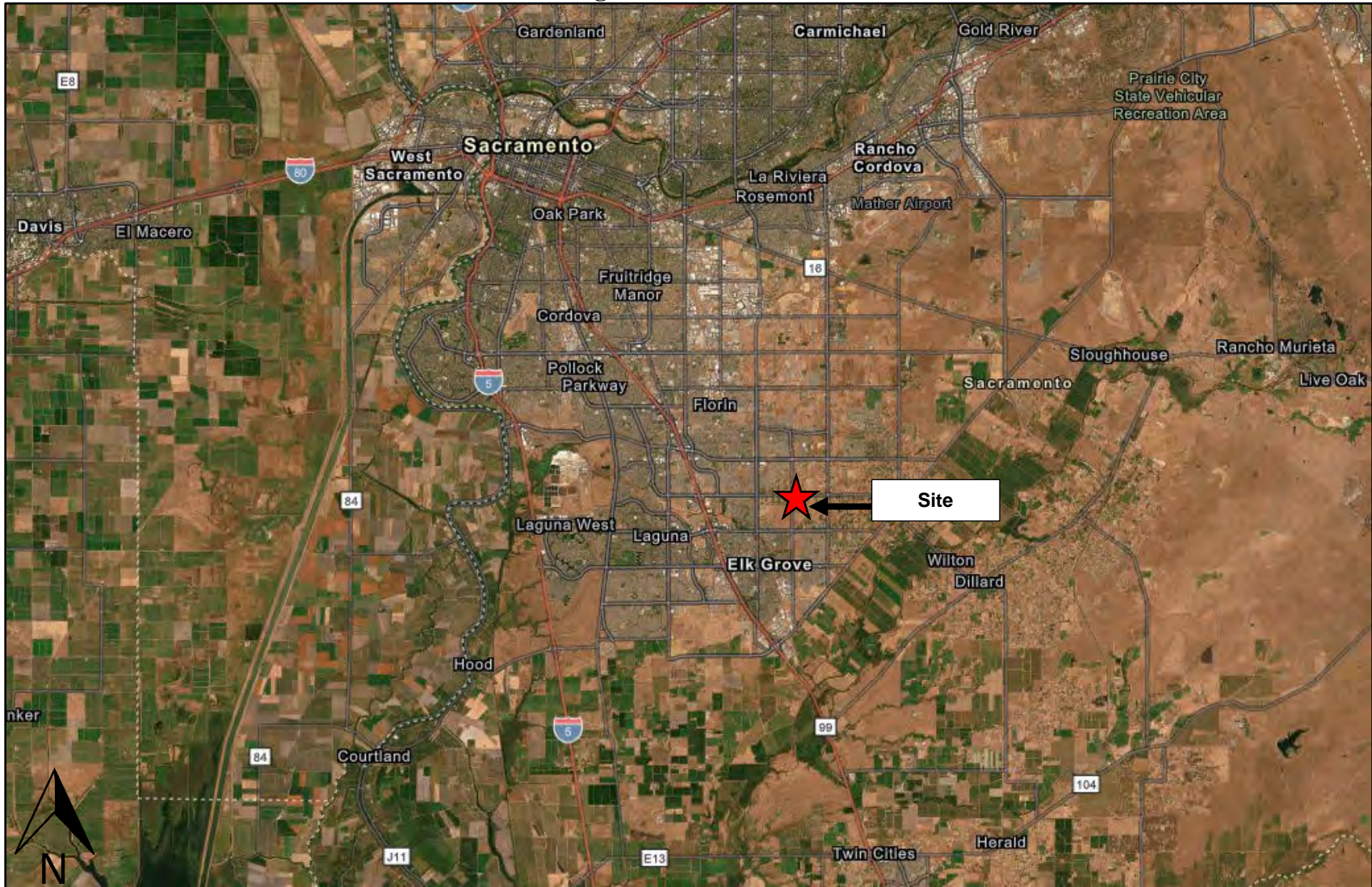
The site is located within the City’s Rural Area Community Plan. Both the Rural Area Community Plan and the City of Elk Grove General Plan designate the site as Rural Residential (RR). The site is zoned Agricultural Residential-Two Acre Minimum (AR-2).

## **SURROUNDING LAND USES**

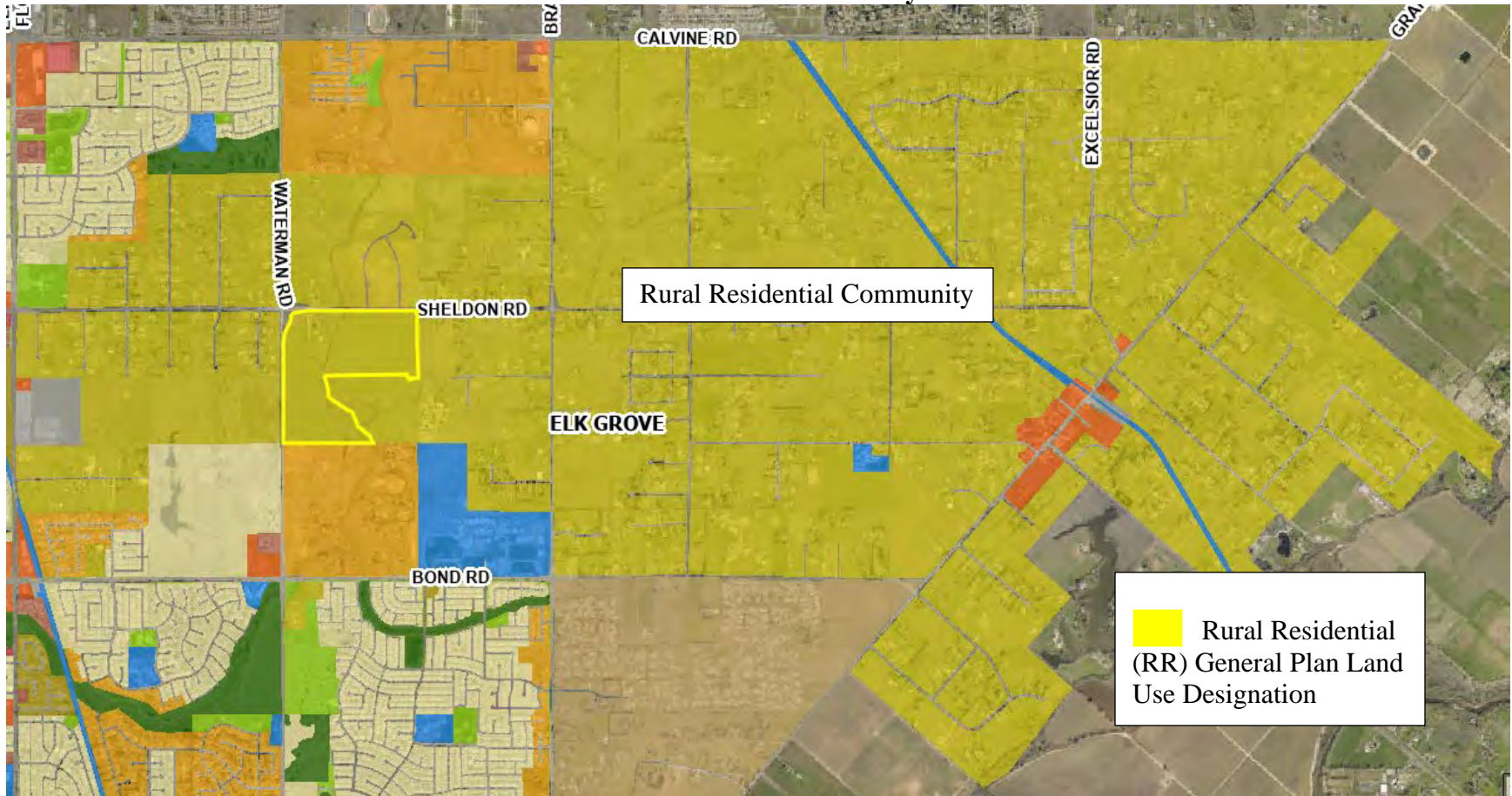
Surrounding existing uses include rural residences to the north, across Sheldon Road; undeveloped land and rural residences to the east and southeast; rural residences to the west, across Waterman Road; and a non-profit horse

rescue organization and estate residences to the south. In addition, the Elliot Springs Subdivision is currently under construction to the southwest and a school on the southeast.

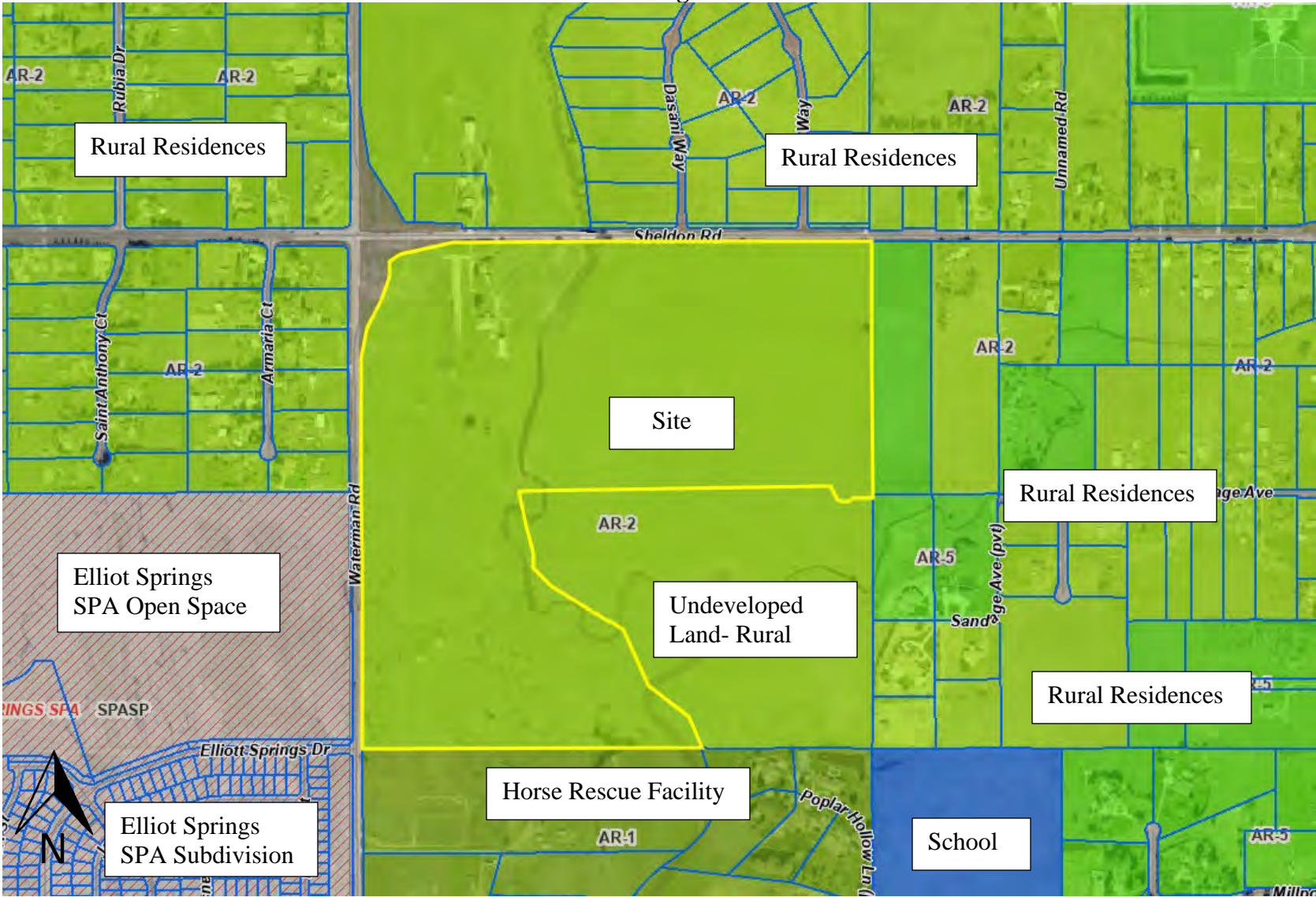
**Figure 1  
Regional Site Location**



**Figure 2**  
**Site Location/Rural Community Plan**



**Figure 3**  
**Site Boundaries/Zoning Rural Residential**



# PROJECT DESCRIPTION

## PROJECT COMPONENTS

The Project would require approval of a General Plan/Rural Area Community Plan Amendment and a Rezone to allow for the creation of the 116-acre Summer Villas Special Planning Area (SPA). The Summer Villas SPA contains three distinct sub-zones: 1) Active Adult Neighborhood (71.3 acres), 2) Laguna Creek Open Space (20.3 acres), and 3) Waterman Recreational Open Space (19.4 acres). It should be noted that the remaining five acres of the site would be dedicated to the Waterman Road and Sheldon Road right-of-way (ROW). However, the SPA would not entitle any specific development proposals, but would adopt site-specific zoning, development standards, and criteria for future development proposals within the site.

While development is not proposed at this time, CEQA requires that the project description for an environmental document include later phases or activities of a project that will foreseeably result from project approval (Section 15126). In *Laurel Heights Improvement Ass'n v Regents of Univ. of Cal.* (1988) 47 C3d 376, the court determined that environmental review under CEQA must include analysis of the environmental effects of future actions if 1) it is a reasonably foreseeable consequence of the initial project, and 2) the future action will be significant in that it will likely change the scope or nature of the initial project or its environmental effects.

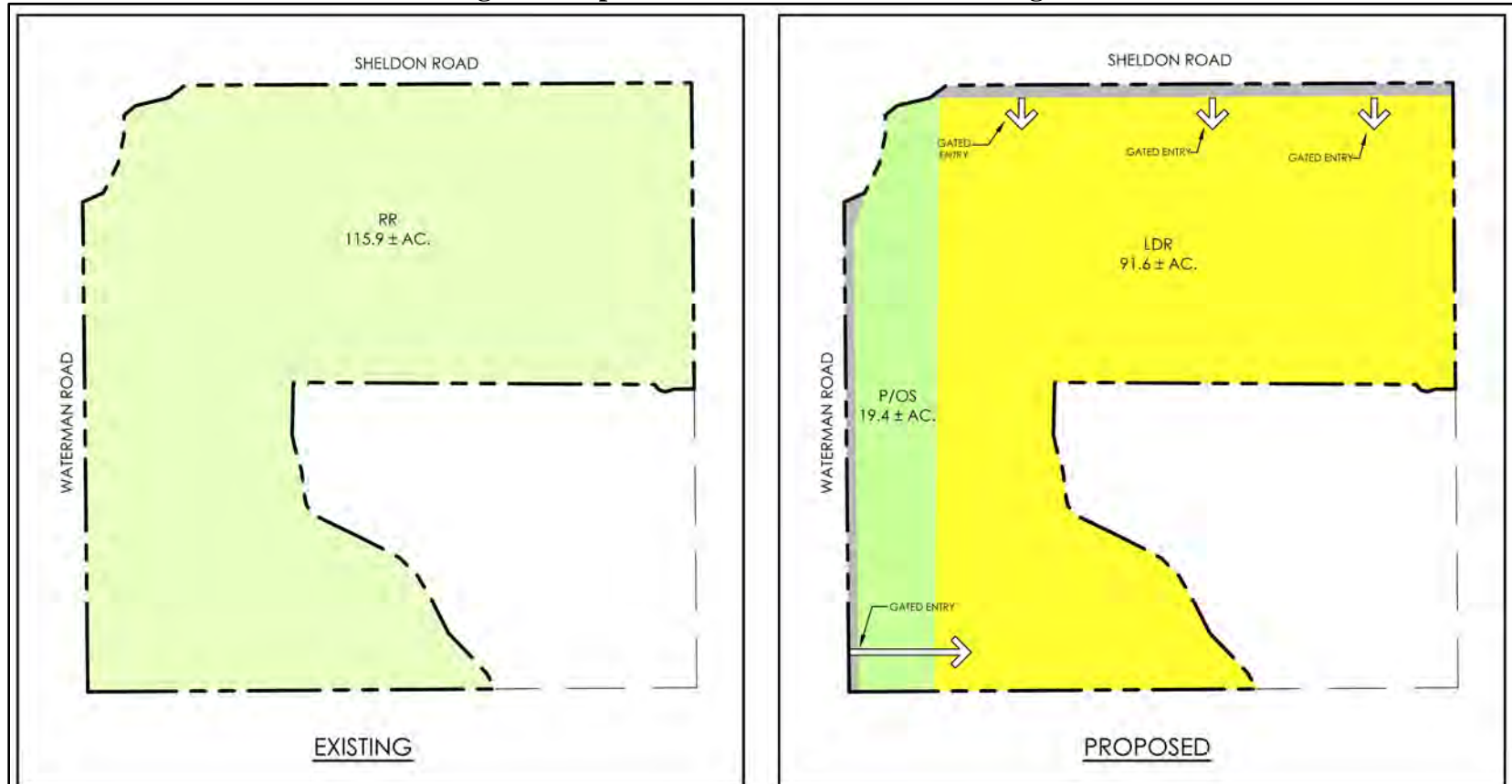
Given the sub-zones included in the SPA, a reasonable assumption can be made that on-site development of an active adult residential community would occur if the SPA is approved by the City. As such, this EIR will evaluate the impacts associated with approval of the General Plan Amendment, Rezone, and Summer Villas SPA, as well as subsequent potential development of the 116-acre site with a maximum of 499 age-restricted (55+) single-family homes, as well as various associated improvements, such as a private community recreation center/clubhouse, private park space, trails and open space areas, landscaping, and a number of on- and off-site roadway and utility improvements.

The Project components, including the required approvals, are described in further detail below.

### **General Plan/Rural Community Plan Amendment**

The Project would require a General Plan/Rural Community Plan Amendment to change the General Plan and Rural Community Plan land use designations of the site from RR to Low Density Residential (LDR) and Parks and Open Space (P/OS) (see Figure 4). The LDR land use designation provides for single-family detached residential units on lots typically ranging from 6,000 to 10,000 square feet (sf). The allowable residential density for the LDR land use designation ranges from a minimum of 4.1 to a maximum of 7.0 dwelling units per acre (du/ac). It should be noted that the Project would cluster residences beyond the seven du/ac density maximum consistent with General Plan Policy NR-1-9, which allows such clustering to protect wetlands, stream corridors, scenic areas, or other natural features as open space. Although clustered development would exceed the seven du/ac maximum within the East and West neighborhoods, the overall project density would not exceed the maximum allowable density of the LDR land use designation.

**Figure 4  
Existing and Proposed General Plan Land Use Designations**



**SUMMARY TABLE**

DESIGNATION	LAND USE	EXISTING ACRES	PROPOSED ACRES	ACREAGE DIFF.	EXISTING UNIT RANGE	PROPOSED UNIT RANGE
RR	RURAL RESIDENTIAL (0.1-0.5 DU/A.C.)	115.9	0.0	-115.9	12-58 DU	0 DU
LDR	LOW DENSITY RESIDENTIAL (4.1-7.0 DU/A.C.)	0.0	91.6	91.6	0 DU	375-641 DU
OS	OPEN SPACE	0.0	19.4	19.4	-	-
RIGHT OF WAY	WATERMAN ROAD & SHELDON ROAD	0.0	4.9	4.9	-	-
<b>TOTAL</b>		<b>115.9</b>	<b>115.9</b>	<b>0.0</b>	<b>12-58 DU</b>	<b>375-641 DU</b>

The P/OS land use designation provides for public and private parks, public plazas, trails, paseos, and similar features that provide off-street connectivity, and similar compatible uses. The P/OS land use designation also allows for commercial recreation facilities principally oriented toward outdoor use.

## **Rezone**

The Project would require a Rezone to change the zoning designation of the site from AR-2 to Special Planning Area (SPA), as defined by Section 23.16.100 of the City's Municipal Code (see Figure 5). The approved SPA document would serve as site-specific zoning for the area with the boundaries of the SPA, which includes site-specific development standards and criteria for future development proposals. It should be noted that the requested Rezone would include a text amendment to Section 23.40.020 of the City's Municipal Code to add the new SPA.

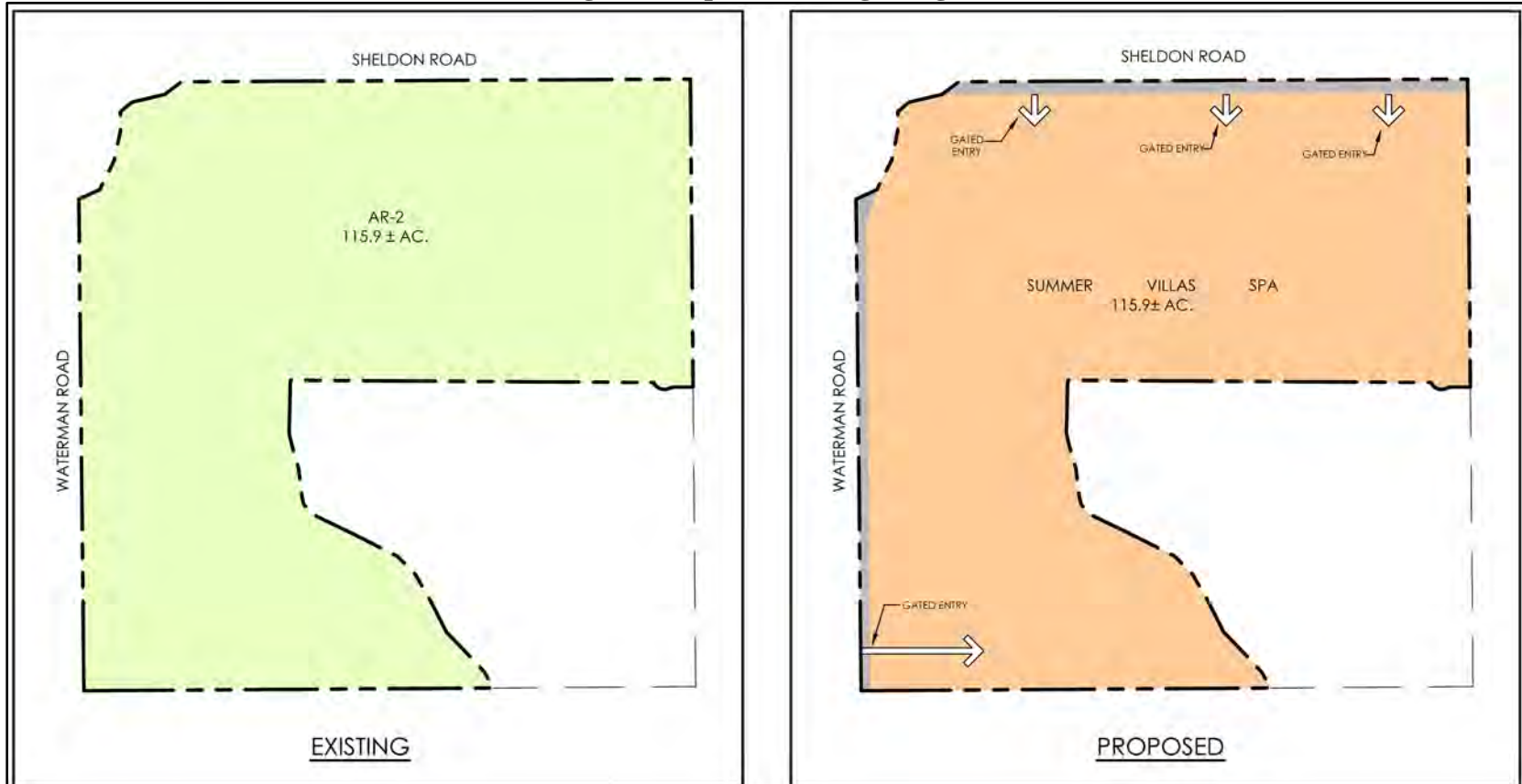
## **Summer Villas SPA**

In accordance with Section 23.16.100 of the EGMC, SPAs regulate properties in areas throughout the City that have unique environmental, historic, architectural, or other features which require special conditions not provided through the application of standard zone regulations. Pursuant to EGMC Section 23.16.100 (D), the SPA is required to be established by ordinance with mandatory contents which include the following: a list of permitted, conditionally permitted, and prohibited uses; performance and development requirements relating to yards, lot area, intensity of development on each lot, parking, landscaping, and signs; other design standards appropriate for the specific site and development; and reasons for establishment of the SPA land use zone on the particular property. The Summer Villas SPA document would require review and approval by the Elk Grove City Council.




Following approval of the Summer Villas SPA document, the SPA, the City of Elk Grove General Plan, EGMC, and Citywide Design Guidelines would regulate all future development applications, subdivision maps, and site plans proposed within the geographic boundaries of the site. All existing City land use policies, design and development standards, and roadway improvement standards would remain in effect, except as provided within the SPA. In instances where the SPA is different or otherwise contrary to the other development standards or codes of the City of Elk Grove, the SPA would prevail and be the controlling document for future development of the site. For example, the final SPA document would include site-specific street, landscaping, and fencing standards.

As discussed above, the Summer Villas SPA contains three distinct sub-zones: 1) Active Adult Neighborhood, 2) Laguna Creek Open Space, and 3) Waterman Recreational Open Space (see Figure 6). As previously discussed, the Summer Villas SPA would not approve any specific development. Rather, the SPA document would adopt site-specific zoning and development standards and criteria for future development proposals. The SPA would allow for potential future development of the 116-acre site with a maximum of 499 age-restricted (55+) single-family homes, as well as various associated improvements, such as a private community recreation center/clubhouse, private park space, private and public trails and open space areas, landscaping, and a number of on- and off-site roadway and utility improvements.

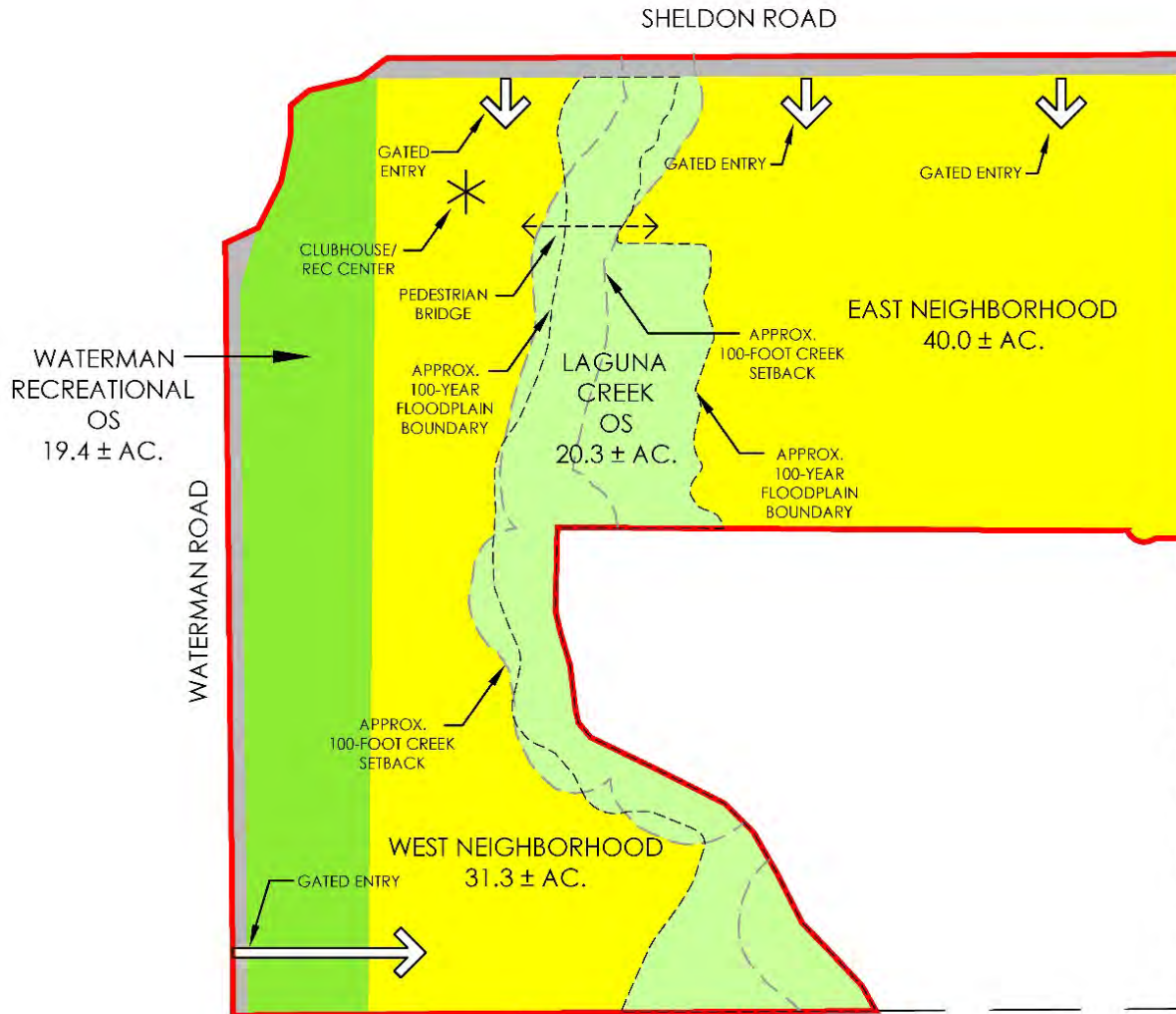
**Figure 5  
Existing and Proposed Zoning Designations**



**SUMMARY TABLE**

DESIGNATION	LAND USE	EXISTING AC.	PROPOSED AC.	DIFF.
 AR-2	AGRICULTURAL RESIDENTIAL	115.9	0.0	-115.9
 SPA	SUMMER VILLAS SPA	0.0	111.0	111.0
 RIGHT OF WAY	WATERMAN ROAD & SHELDON ROAD	0.0	4.9	4.9
<b>TOTAL</b>		<b>115.9</b>	<b>115.9</b>	<b>0.0</b>

**Figure 6  
SPA Boundary and Sub-Zones**



NOTE: WATERMAN ROAD AND SHELDON ROAD RIGHT-OF WAY IS 5.0± AC.

The final SPA document would establish specific regulations such as maximum density requirements, site-specific development standards, and parking standards.

### **Utilities**

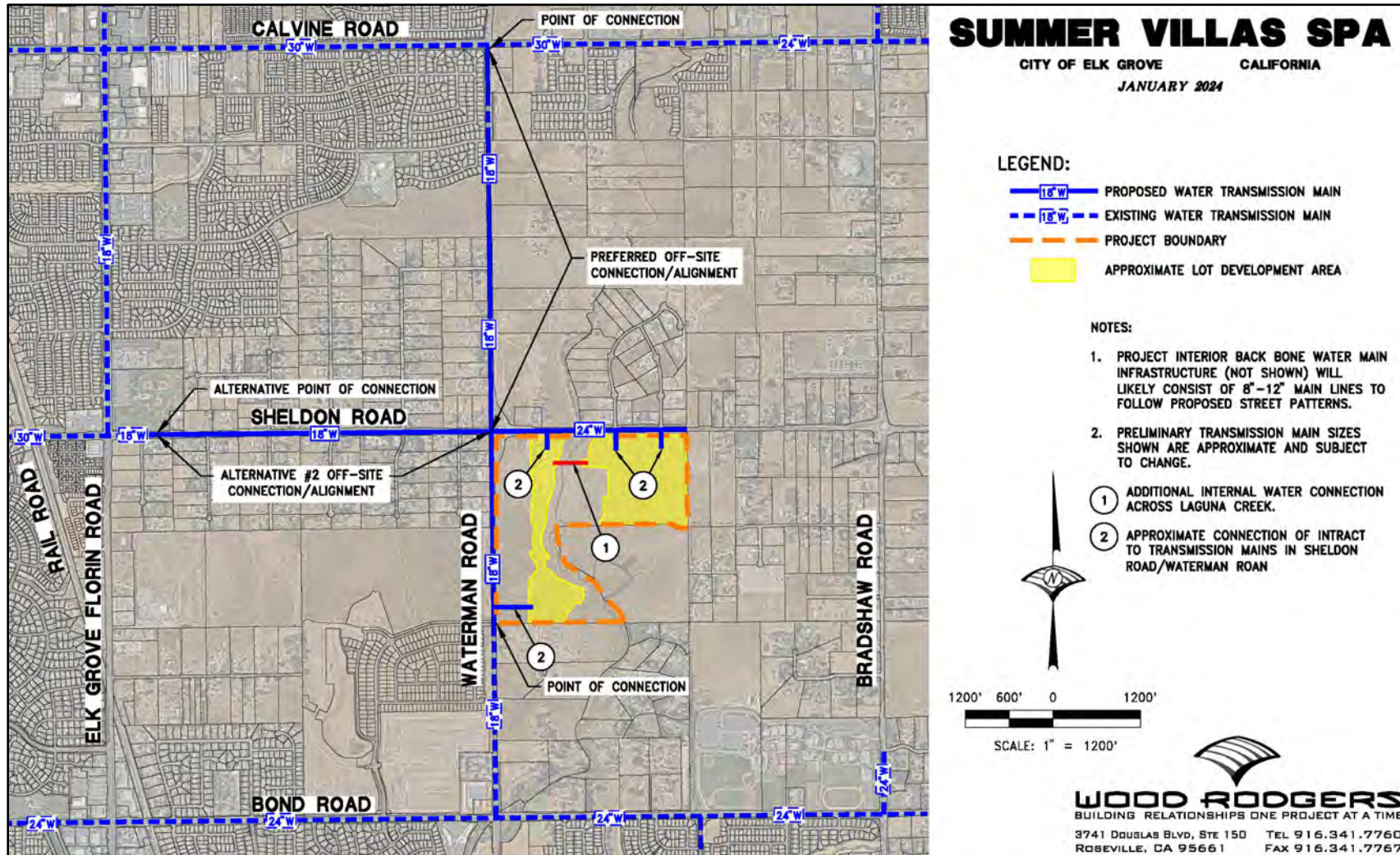
The site does not currently include utilities infrastructure; however, the Project would include water, sanitary sewer, and stormwater improvements, which would connect to existing infrastructure in the project vicinity.

Treated water service for the SPA boundary would be provided by Elk Grove Water District (EGWD)/Sacramento County Water Agency (SCWA). Specifically, the site is located in the north central portion of EGWD's Service Area 2; however, while EGWD owns and maintains the smaller distribution mains (i.e., 12-inch diameter and smaller) within their service area, SCWA owns and maintains the larger transmission main infrastructure in the area. In addition to EGWD's water well supplies, EGWD has maintained a long-standing agreement with SCWA to purchase additional water supplies. Due to the rural nature of the project area, water supplies have typically been provided by individual wells for each parcel. As such, the closest treated water pipelines consist of an 18-inch transmission main in Waterman Road at the Elliott Springs Drive intersection (located at the southwest corner of the site) and another 18-inch transmission main stub in Waterman Road near Calvine Road, approximately one mile north of the site. According to SCWA and EGWD, the approximately 8,000-foot gap between the two 18-inch stubs in Waterman Road would need to be connected to provide the necessary looped system to service the Project. In addition, a 24-inch transmission main would need to be constructed in Sheldon Road along the project frontage to the north. The 24-inch transmission main would cross Laguna Creek by either boring and jacking the line under Laguna Creek or alternatively, attaching the line to the existing Sheldon Road Bridge. As an alternative to extending the 18-inch transmission main to the north in Waterman Road to connect near Calvine Road, the proposed 24-inch transmission main in Sheldon Road could be extended to the west from the Sheldon Road/Waterman Road intersection, connecting to an existing 18-inch transmission main near Elk Grove-Florin Road. The internal on-site water line network would consist of smaller (eight- to 12-inch diameter) pipes located under the internal street system within a dedicated easement. To provide a looped system for the east side of the Project, an additional water line crossing Laguna Creek would need to be provided on-site. Similarly, the crossing would require a bore and jack installation under the creek or could be attached to a bridge over the creek. Figure 7 presents the proposed water system improvements.

Sanitary sewer service for the Project would be provided by the Sacramento Area Sewer District (SacSewer). Based on the SacSewer 2020 System Capacity Plan, the site is located within the BR Bond Sheldon Trunk Shed, which encompasses the rural residential Sheldon area in which the site is located. As described in System Capacity Plan, SacSewer was previously informed by the City of Elk Grove that the rural residential Sheldon area was not planned to be served by public sewers. Consequently, existing backbone gravity sewer infrastructure to serve the Project is not available in proximity to the site.

Because gravity sewer service to the site is not feasible, public sewer service would be provided to the site through the construction of an on-site sewer lift station and corresponding off-site sewer force main, which would discharge to an existing SacSewer gravity sewer network with sufficient residual capacity to support the Project. The proposed on-site lift station is anticipated to be located in the northwest corner of the site.

Figure 7  
Proposed Water System Improvements



According to SacSewer, the closest viable force main discharge point is at MH 282-179-1014, located in Elk Grove-Florin Road approximately 700 feet north of Sheldon Road. As such, the Project would be required to construct approximately 6,500 linear feet of off-site four- to six-inch diameter force main in Sheldon Road and Elk Grove-Florin Road to support the Project.

Figure 8 presents the proposed sewer system improvements. The on-site sewer pipeline network would consist of eight-inch sewer lines located under the proposed roadway network within a dedicated easement and would ultimately outfall to the proposed on-site lift station. Because the developable areas of the site are bisected by Laguna Creek, the gravity system on the east side of the site would require a bore and jack installation under Laguna Creek to achieve outfall to the lift station. The creek crossing would be located parallel to a proposed bicycle/pedestrian crossing of Laguna Creek.

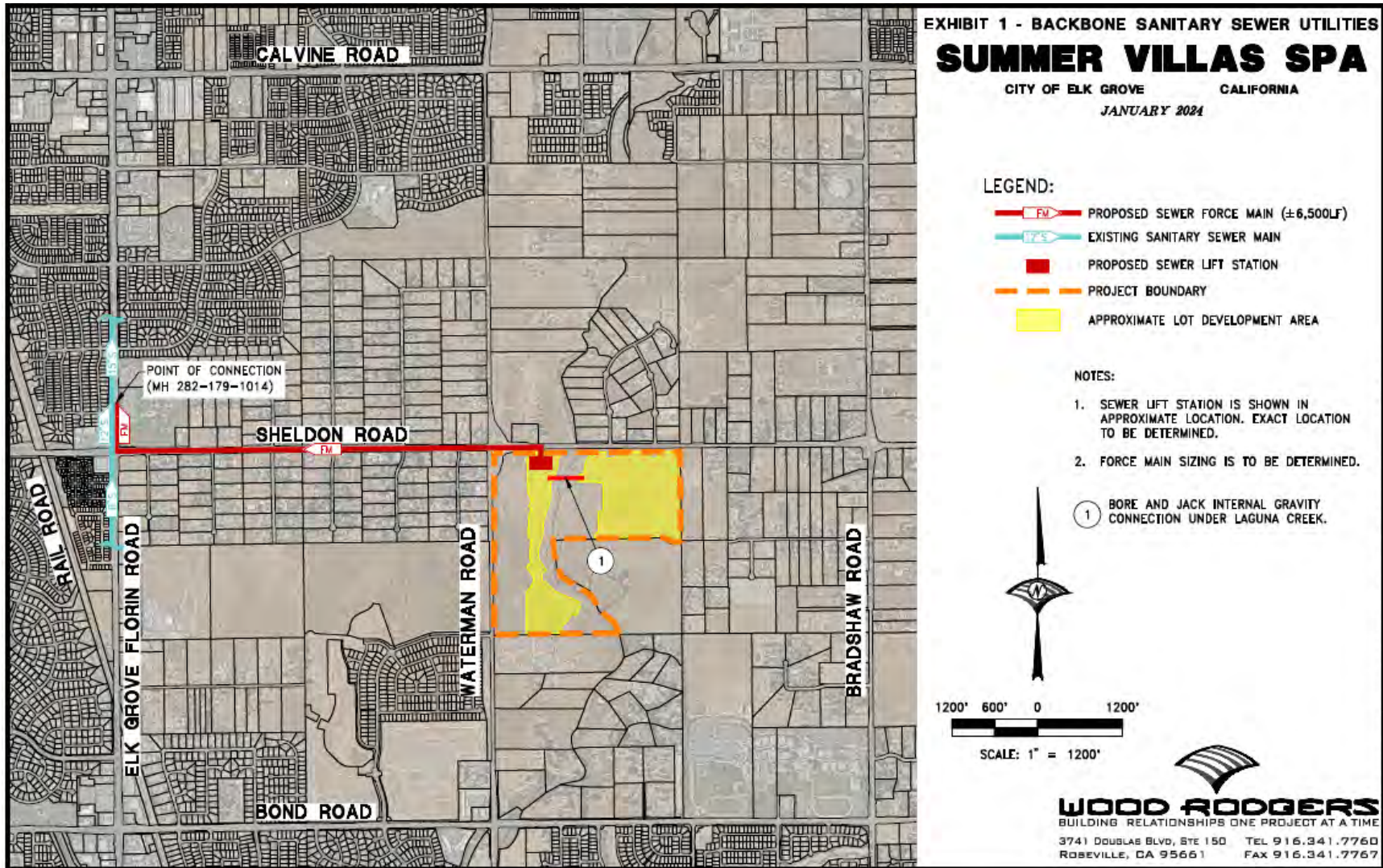
Development of the site would require installation of on-site drainage facilities and alteration of site topography to accommodate the proposed land uses. As discussed previously, Laguna Creek bisects the site. As such, the runoff from the proposed on-site development, as well as runoff from Waterman Road and Sheldon Road along the project frontage, would drain internally, and would ultimately outfall to Laguna Creek. Storm drain system improvements would consist of a combination of storm drain pipeline infrastructure located under the proposed roadway network within a dedicated easement, roadside ditches, drainage basins for storm attenuation and bioretention/low-impact development (LID) features, as well as outfall ditches to Laguna Creek.

Depending upon the final storm drain system configuration, a Conditional Letter of Map Revision (CLOMR) or Letter of Map Revision (LOMR) may need to be filed with the Federal Emergency Management Agency (FEMA) to address modifications to the Laguna Creek floodplain. On-site drainage basins are currently anticipated to be located to the east and west of Laguna Creek outside of the 100-year floodplain. However, final sizing and locations have not been determined at this time. Figure 9 presents the proposed storm drain system improvements.

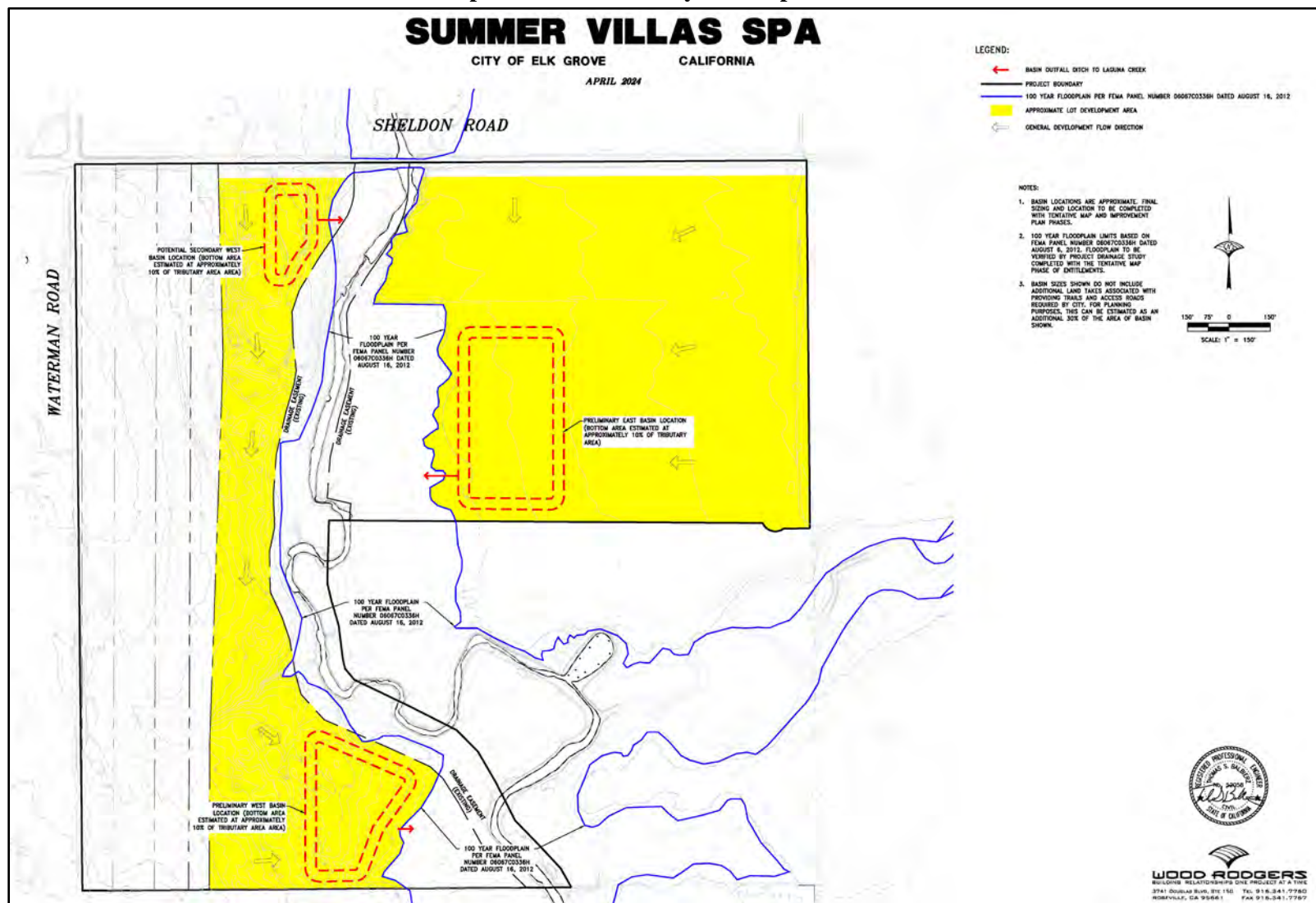
The Project is within the service area of the Sacramento Municipal Utility District (SMUD) for electricity. Existing electricity lines are currently located along Sheldon Road and Waterman Road in the project area. Telecom, Internet, and other tech service providers will be determined, and their services would be provided to the Project.

The Project would connect to existing dry utility lines within the project vicinity. A 12.5-foot public utility easement for dry utilities (e.g., phone, cable, electricity) would be provided behind the curb of the internal roadways.

**Figure 8  
Proposed Sewer System Improvements**



**Figure 9**  
**Proposed Storm Drain System Improvements**



## **PROJECT APPROVALS**

The City of Elk Grove has discretionary authority and is the lead agency for the project. The Project would require City approval of the following discretionary actions:

- Certification of the EIR, including adoption of Findings of Fact, a Statement of Overriding Considerations, and a Mitigation Monitoring and Reporting Program;
- Approval of a General Plan/Rural Area Community Plan Amendment from RR to LDR and P/OS;
- Approval of a SPA Ordinance for the Summer Villas SPA.
- Approval of a Text Amendment to the EGMC to add the new SPA.
- Approval of a Rezone from AR-2 to SPA; and

Future development within the Summer Villas SPA would also require additional approvals from the City and other jurisdictional agencies and service providers, as necessary. Such approvals include, but are not limited to, Tentative Map and/or Site Plan approval, Final Map approval and recordation, Improvement Plan review and approval, Grading Permit approval, Encroachment Permit approval, Design Review (as required by Section 23.16.080 of the EGMC), and Building Permit approval.

### **Review Or Approvals By Other Agencies**

The Project may also require permits and/or approvals from a number of other agencies. The agencies could include, but may not be limited to, the following:

- Cosumnes Community Service District (CSD);
- National Pollutant Discharge Elimination System (NPDES) Construction General Permit (Regional Water Quality Control Board [RWQCB] – Central Valley Region);
- NPDES Phase I MS4 General Permit (RWQCB – Central Valley Region);
- SacSewer;
- Sacramento Metropolitan Air Quality Management District (SMAQMD); and
- SCWA.

The EIR will provide environmental information to the aforementioned agencies and other public agencies, which may be required to grant approvals or coordinate with other agencies, as part of project implementation.

### **APPROACH TO ENVIRONMENTAL REVIEW**

As required by CEQA, the EIR will describe existing conditions and evaluate the potential environmental effects of the Project and a reasonable range of alternatives, including a No Project alternative. The EIR will address direct, indirect, cumulative, and growth inducing effects, and will identify feasible mitigation measures, if available, to reduce significant and potentially significant impacts.

Consistent with Appendix G of the CEQA Guidelines, the City anticipates that the EIR will contain the following chapters:

- Aesthetics
- Air Quality and Greenhouse Gas Emissions (including Energy)
- Biological Resources
- Cultural and Tribal Cultural Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning/Population and Housing
- Noise
- Public Services/Utilities and Service Systems
- Transportation
- Effects Not Found to be Significant
- Statutorily Required Sections
- Alternatives Analysis

## POTENTIAL ENVIRONMENTAL EFFECTS

Each chapter of the EIR will include identification of the thresholds of significance, identification of project-level and cumulative impacts, and the development of mitigation measures and monitoring strategies, as required. The proposed EIR will reference the City of Elk Grove General Plan, the City's General Plan EIR, and the EGMC, where applicable. In addition to the foregoing documents, project-specific technical studies are being prepared by technical experts. The following environmental topic areas are preliminarily anticipated to be evaluated in the EIR:

- **Aesthetics** — The EIR will describe existing regional and project area aesthetics and visual conditions. To the extent applicable, the chapter will describe project-specific impacts on scenic vistas, visual character, or quality of the project area, as well as effects of light and glare. Pursuant to Appendix G of the CEQA Guidelines, the analysis will focus on the Project's potential impacts and whether the Project will substantially degrade the existing visual character or quality of public views.
- **Air Quality and Greenhouse Gas Emissions** — The EIR will include an air quality impact analysis, consisting of a quantitative assessment of short-term (i.e., construction) and long-term (i.e., operational) increases of criteria air pollutant emissions of primary concern (i.e., reactive organic gases [ROG], nitrogen oxides [NO<sub>x</sub>], and particulate matter [PM], including PM<sub>2.5</sub> and PM<sub>10</sub>). The air quality and greenhouse gas (GHG) emissions analysis for the Project will be performed using the California Emissions Estimator Model (CalEEMod) software program and following SMAQMD guidelines. The analysis will also address any potential odor impacts that may occur, as well as toxic air contaminant (TAC) emissions and potential impacts to human health.

The GHG emissions analysis will include a quantitative estimate of carbon dioxide equivalent emissions from the Project, including indirect emissions (e.g., electricity, propane) and construction emissions. In addition, the chapter will include an analysis of the Project's consistency with the City's Climate Action Plan (CAP). This chapter will also evaluate whether the Project could result in any potentially significant effects related to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation. The discussion will incorporate any potential conflicts with State or local plans regarding renewable energy.

- **Biological Resources** — The Biological Resources chapter of the EIR will summarize potential effects on sensitive natural communities, special-status plant and wildlife species, and wetlands. The chapter will be based on an Arborist Report, Biological Resources Assessment (BRA), and Wetland Delineation. Mitigation measures for all identified impacts will be developed consistent with applicable laws and regulations.
- **Cultural and Tribal Cultural Resources** — The EIR will describe the potential effects to any on-site historical, archaeological, and tribal cultural resources from the Project. The chapter will be based on a Cultural Resources Report. Input from tribes who were alerted and consulted, as required by the passage of AB 52, SB 18, and the associated amendments to Public Resources Code 21080.3.1, will be incorporated into the Tribal Cultural Resources portion of the chapter.
- **Geology and Soils** — The Geology and Soils chapter of the EIR will summarize the geological setting and describe the potential effects from soil erosion, earthquakes, liquefaction, expansive/unstable soils, as well as identify any known paleontological resources or unique geological features within the site. The chapter will be based primarily on a site-specific Geotechnical Report.
- **Hazards and Hazardous Materials** — The EIR will describe any potential for existing or possible hazardous materials within the project area. The chapter will also assess the potential for the Project to create a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials. The chapter will primarily be based on site-specific Phase I Environmental Site Assessment (ESA).

Impacts of the environment on a project (as opposed to impacts of a project on the environment) are beyond the scope of required CEQA review. The California Supreme Court has held that, “CEQA does not generally require an agency to consider the effects of existing environmental conditions on a Project’s future users or residents. What CEQA does mandate... is an analysis of how a project might exacerbate existing environmental hazards.” As such, the mere presence of possible hazardous materials at the site or in the vicinity, should such exist, would be considered an existing environmental condition and, thus, would not be considered an impact under CEQA. Rather, the Project could have the potential to result in an impact associated with possible hazardous materials should the Project exacerbate the existing conditions (e.g., contaminated soils become airborne during ground-disturbing activities and expose construction workers or future residents of the Project).

- **Hydrology and Water Quality** — The EIR will identify potential Project impacts on stormwater drainage, flooding, groundwater, and water quality, including stormwater runoff water quality. The chapter will be primarily based on a Stormwater Quality Report.

- **Land Use and Planning/Population and Housing** — This chapter of the EIR will evaluate the consistency and compatibility of the Project with the plans and policies adopted by the City of Elk Grove for the purpose of avoiding or mitigating an environmental effect. In addition, the chapter will include an evaluation of the potential for any significant unplanned population growth in the area, either directly or indirectly.
- **Noise** — The Noise chapter of the EIR will be based on a project-specific Noise Study. The chapter will address potential noise impacts resulting from project construction and operation, including existing and future traffic noise levels on the local road. Because the majority of the noise experienced at the site is anticipated to originate from vehicle sources, traffic noise levels will be evaluated under the same conditions as the Traffic Impact Analysis (TIA) prepared for the EIR. Noise-sensitive land uses or activities in the project vicinity will be identified and examined. Furthermore, ambient noise and vibration level measurements on, and in the vicinity of, the site will be conducted to quantify existing background noise and vibration levels for comparison to the predicted Project-generated levels.
- **Public Services/Utilities and Service Systems** — The EIR will evaluate whether the Project could significantly increase demands upon local service providers (e.g., fire, police, schools). In accordance with Appendix G, the focus of the analysis will be on whether the Project's demand would require physical alteration of, or need for new governmental facilities, to maintain acceptable service ratios, response times, or other performance objectives, the construction of which could cause significant environmental impacts.

Additionally, the chapter will evaluate the Project's increase in water supply demand and wastewater generation to determine whether the existing water and sewer infrastructure systems can accommodate demands from the Project, or if system upgrades would be required. Evaluation of the proposed sewer, water, and drainage improvements will also be included in the chapter. The chapter will also evaluate the receiving landfill's capacity to accommodate the increase in solid waste, the electricity usage, and the natural gas service associated with the Project.

- **Transportation** — The Transportation chapter of the EIR will be based on a TIA prepared specifically for the Project, which will include an evaluation of potential impacts related to vehicle miles traveled (VMT). The EIR chapter will also include an analysis of the Project's potential to conflict with the City's programs, policies, ordinances, or policies addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities, as well as emergency access.
- **Effects Not Found to be Significant** — Section 15128 of the CEQA Guidelines states that an EIR shall contain a brief statement indicating the reasons that various possible significant effects of a project were determined not to be significant and were, therefore, not discussed in detail in the EIR. Accordingly, this Effects Not Found to be Significant chapter of the EIR is anticipated to potentially include abbreviated discussions on agricultural and forestry resources, mineral resources, and wildfire.

- **Statutorily Required Sections** — Pursuant to CEQA Guidelines Section 21100(B)(5), the Statutorily Required Sections chapter of the EIR will address the potential for significant growth-inducing impacts of the Project, and whether removal of any impediments to growth would occur with the Project. Any significant and unavoidable impacts identified within the EIR will be included in this chapter, as well as a discussion of significant irreversible impacts. The chapter will generally describe the cumulative setting for the Project.
- **Alternatives Analysis** — In accordance with Section 15126.6 of the CEQA Guidelines, the EIR will include an analysis of a range of alternatives, including a No Project Alternative. The project alternatives will be selected when more information related to project impacts is available, in order to be designed to reduce significant project impacts. The Alternatives Analysis chapter will describe the project alternatives and identify the environmentally superior alternative. The alternatives will be analyzed at a level of detail less than that of the Project; however, the analyses will include sufficient detail to allow a meaningful comparison of the impacts.

---

---

## **Appendix B**

---

---

City of Elk Grove Development Service Department  
Planning Division  
c/o Kyra Killingsworth  
8401 Laguna Palms Drive  
Elk Grove, CA 95758F

Regarding: Summer Villas Special Planning Area

To Whom it May Concern,

I am writing this letter in response to a notification I received regarding the Notice of Preparation for the Summer Villas Special Planning Area Draft Environmental Impact Report. The notice list environmental topics areas to be evaluated in the Environmental Impact Report to include things like aesthetics, air quality, biological resources, and the list goes on and on. There are many concerns with this project, like how will the infrastructure handle the number of people and vehicles to be added to this area, how will emergency service support the potentially 1000 new residents, how will 499 new homes receive gas, water and sewer service in an area where there currently is none? But the item on the list that I feel is the most important, Land Use and Planning. The site for this planned project is in Rural Elk Grove which is currently zoned AR-2. AR-2 is defined on the Elk Grove Zoning Districts website as :

AR-2. The AR-2 zoning district is applied to areas of the City to accommodate **low density** single-family residential uses in a rural setting with agricultural and accessory uses. Lots with this zoning designation are rural in nature and include small local roadways, animal keeping and raising, equestrian uses, agriculture and limited commercial opportunities. The AR-2 zoning district implements the rural residential General Plan designation. The AR-2 district allows for one (1) primary residential unit on lots with a minimum size of two (2) gross acres.

As the Zoning Districts description reads, AR-2 zoning district implements the rural residential General Plan designation. Rural is described on the City of Elk Grove website on the Rural Elk Grove page the definition of Rural Elk Grove is as follows:

Take a drive around eastern Elk Grove (the triangle between Elk Grove-Florin Road, Sheldon Road and Grant Line Road) and you're sure to see a contrast to the western parts. This is the area that once typified the entire community - this is Rural Elk Grove. Cattle and horses roam the open space, strawberries (and other fruits and vegetables) ripen to perfection, leaves from the great oaks and eucalyptus rustle in the breeze, wildlife find refuge, and the pace of life simply slows down. This is the place that represents Elk Grove's "Proud Heritage" and agricultural roots. The rural

Elk Grove community is a valuable asset to be preserved and appreciated (**and City policies ensure this**). Just minutes from the hustle and bustle, rural Elk Grove is a place that gives us a genuine taste of a rural lifestyle, providing a scenic backdrop of country living and reminding us that Elk Grove's past is still a big part of our present-day city.

The planned project area is currently zoned AR-2 with a maximum of 35 house under the current zoning. The proposed plan wants to put 499 new homes on 71.3 acres. This is in no way low-density housing and irresponsible of the City of Elk Grove to even consider this plan. My family and I moved to Elk Grove over 25 years ago to build our dream home and enjoy the rural countryside of Elk Grove. This plan is in stark contrast to what "Rural Elk Grove" is and the associated AR-2 low-density housing that comes with it. This project is too big of a change from the current types of developments taking place in this area. I ask the Elk Grove City Council to deny the proposed project, as it will negatively impact the residents of Rural Elk Grove.



Michael Thompson, Homeowner  
9530 Sheldon Road  
Elk Grove, CA 95624  
916-247-8276  
[mthompson463@gmail.com](mailto:mthompson463@gmail.com)

cc: Eileen Conwell, GSREHA President

## California Department of Transportation

DISTRICT 3  
703 B STREET | MARYSVILLE, CA 95901-5556  
(530) 821-8401  
[www.dot.ca.gov](http://www.dot.ca.gov)



September 5, 2024

GST# 03-SAC-2024-01910  
SCH# 2024080407

Ms. Kyra Killingsworth, Senior Planner  
Development Services, City of Elk Grove  
8401 Laguna Palms Way  
Elk Grove, CA 95758

### Summer Villas Special Planning Area Project

Dear Ms. Killingsworth:

Thank you for including the California Department of Transportation (Caltrans) in the review process for the project referenced above. We reviewed this local development for impacts to the State Highway System (SHS) in keeping with our mission, vision, and goals, some of which includes addressing equity, climate change, and safety, as outlined in our statewide plans such as the California Transportation Plan, Caltrans Strategic Plan, and Climate Action Plan for Transportation Infrastructure.

The City of Elk Grove is located within Sacramento County and is generally bounded by Interstate 5 (I-5) to the west, Calvine Road and the City of Sacramento to the north, Grant Line Road to the east, and Kammerer Road to the south. State Route (SR) 99 runs north-south through the city center and provides regional access to the city. The project site is located at 9350 Sheldon Road, southeast of the intersection of Sheldon Road and Waterman Road, in the northeastern portion of the City in Elk Grove, California. The proposed project would require City approval of a General Plan/Rural Area Community Plan Amendment and a Rezone to allow for the creation of the 116-acre Summer Villas Special Planning Area. The Summer Villas SPA project contains three distinct sub-zones: 1) Active Adult Neighborhood (71.3 acres), 2) Laguna Creek Open Space (20.3 acres), and 3) Waterman Recreational Open Space (19.4 acres). It should be noted that the remaining five acres of the site would be dedicated to the Waterman Road and Sheldon Road right of way (ROW). In addition, subsequent potential development of the 116-acre site would include a maximum of 499 age-restricted single-family homes, as well as various associated improvements, such as a private community recreation center/clubhouse, private park space, trails and open space areas, landscaping, and a number of on- and off-site roadway and utility improvements. Based on the Notice of Preparation of a Draft Environmental Impact Report (DEIR) package provided, Caltrans has the following requests and recommendations:

"Provide a safe and reliable transportation network that serves all people and respects the environment"

## Freeway Operations

The proposed project is located at 9350 Sheldon Road, southeast of the intersection of Sheldon Road and Waterman Road, and east of SR 99. The project proposes building 499 age-restricted single-family homes and many amenities such as a private community recreation center/clubhouse, private park, trails, open space areas, and roadway and utility improvements. Caltrans requests:

- Please provide VMT analysis with information such as Trip Generation and Trip Distribution.
- Please provide a Length of Queue Analysis for the following SR 99 off-ramps interchange using a calibrated traffic microsimulation model, constructed in software such as SimTraffic or VISSIM:
  - Sheldon Road
  - Laguna Blvd/Bond Road
- Please provide a Multimodal Transportation Plan. Please clarify has there been any considerations for bike/pedestrian/transit access to the site. If the city has implemented a multi-modal transportation plan, please provide us with a link.
- Provide fair share to upgrade the existing ramp meters to meet current standards at Sheldon Road and Laguna Road interchanges on SR 99.

If these analyses determine the addition of the project would adversely affect operations and safety of the freeway mainline and/or the interchanges, the project will need to pay a fair share toward facility improvements. Please contact Caltrans if more information is required regarding the scope of work for the study.

## Encroachment Permits

Any project or work, including access modification and drainage work, that takes place along or within the State's ROW requires an encroachment permit issued by Caltrans. To apply, a completed encroachment permit application, environmental documentation, and five sets of plans clearly indicating State ROW must be submitted to Encroachment Permits Offices as indicated below:

Hikmat Bsaibess  
California Department of Transportation  
District 3, Office of Permits  
703 B Street  
Marysville, CA 95901

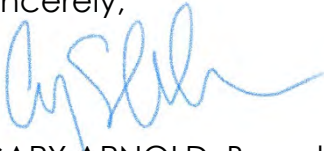
[d3encpermit@dot.ca.gov](mailto:d3encpermit@dot.ca.gov)

Ms. Kyra Killingsworth, Senior Planner  
September 5, 2024  
Page 3

Please provide our office with copies of any further actions regarding this project. We would appreciate the opportunity to review and comment on any changes related to this development.

If you have any questions regarding these comments or require additional information, please contact Satwinder Dhatt, Local Development Review Coordinator, by phone (530) 821-8261 or via email at [satwinder.dhatt@dot.ca.gov](mailto:satwinder.dhatt@dot.ca.gov).

Sincerely,



GARY ARNOLD, Branch Chief  
Local Development Review and Complete Streets  
Division of Planning, Local Assistance, and Sustainability  
California Department of Transportation, District 3



## Greater Sheldon Road Estates Homeowners Association

August 13, 2024

City of Elk Grove Development Services Department, Planning Division  
c/o Kyra Killingsworth, Senior Planner  
Email: kkillingsworth@elkgrovecity.org

**RE: Notice of Preparation of a Draft Environmental Impact Report for the Summer Villas SPA; Surrounding Land Uses Description and Map; Very Misleading Errors**

Dear Ms. Killingsworth,

Regarding Surrounding Land Uses description (NOP p2) and the related Surrounding Land Uses map (NOP p4):

1. The map indicates that the properties to the west are Single-Family Residences when they are in fact rural residences (AR-2) and obviously within the rural area boundary. We find this mischaracterization to be egregious.
2. Labeling a Designated Open Space Preserve (a "buffer" area) simply as Silverado Village SPA without further caveat, footnote or clarification embeds the impression that such Special Planning Area is destined for future housing development (which it is not).
3. Open Space and Undeveloped Land should be more informative and accurately described.

The description on NOP pg2 should read: "Surrounding existing uses include rural residences to the north, across Sheldon Road, rural residences to the east with a parcel of undeveloped land designated AR-2, rural residences to the south, and rural residences with a dedicated preserve to the west. The dedicated preserve exists to permanently separate the high-density Elliott Springs development from the rural residents to their north."

We urge you to revise and redistribute the Surrounding Land Uses description (NOP p2) and the related Surrounding Land Uses map (NOP p4) to give the public an accurate, informative, and unambiguous characterization of the surrounding properties. Our proposed map is attached.

Thank you for soliciting our comments and for giving them understanding, regard and consideration.

Sincerely,

Eileen Conwell, President

9601 Sandage Ave

Elk Grove, CA 95624

Email: frankneileen@comcast.net



Figure 2  
Site Boundaries



## Kyra Killingsworth

---

**From:** George Murphey <geobon47@gmail.com>  
**Sent:** Wednesday, August 21, 2024 7:50 PM  
**To:** Kyra Killingsworth  
**Cc:** Christopher Jordan; Bobbie Singh-Allen; rodbrewer5@gmail.com; Bill Myers; Eileen  
**Subject:** Summer Villas NOP

[EXTERNAL EMAIL]

Good morning Kyra,

I noticed language in the NOP is not factually accurate when referring to the surrounding land uses of the proposed Summer Villas project. In particular the descriptions of land uses to the west and south are both vague and misleading.

The land uses to the west and south are designated Rural Residential. The area west of this project, across Waterman Rd, is identified as single family, which implies a higher density zoning designation. Also, looking at Pg 4, Fig. 2, Site Boundaries, a horse rescue facility is identified. The horse rescue facility, directly south of the Summer Villas project, is also designated Rural Residential (AR-1), which allows for similar land uses to other Rural Residential land designations.

Including land use designations, in addition to land use descriptions, to all areas surrounding the Summer Villas project would provide a more accurate and appropriate description. The current land use language in the NOP also implies the Summer Villas project is on the border of the rural area, which it is not. The Summer Villas project is entirely within and surrounded by Rural Residential land uses and open space, with the exception being the very Southwest corner of the project site.

For the record, these inaccuracies require correction and updating to provide interested readers a better understanding of the proposed project and whether the project would be compatible with the surrounding land uses.

Regards,  
George Murphey  
Sheldon Community Association



## NATIVE AMERICAN HERITAGE COMMISSION

August 16, 2024

Kyra Killingsworth  
City of Elk Grove, Development Services Department  
8401 Laguna Palms Way  
Elk Grove CA 95758

CHAIRPERSON  
**Reginald Pagaling**  
Chumash

VICE-CHAIRPERSON  
**Buffy McQuillen**  
Yokayo Pomo, Yuki,  
Nomlaki

SECRETARY  
**Sara Dutschke**  
Miwok

PARLIAMENTARIAN  
**Wayne Nelson**  
Luiseño

COMMISSIONER  
**Isaac Bojorquez**  
Ohlone-Costanoan

COMMISSIONER  
**Stanley Rodriguez**  
Kumeyaay

COMMISSIONER  
**Laurena Bolden**  
Serrano

COMMISSIONER  
**Reid Milanovich**  
Cahuilla

COMMISSIONER  
**Bennae Calac**  
Pauma-Yuima Band of  
Luiseño Indians

EXECUTIVE SECRETARY  
**Raymond C.  
Hitchcock**  
Miwok, Nisenan

NAHC HEADQUARTERS  
1550 Harbor Boulevard  
Suite 100  
West Sacramento,  
California 95691  
(916) 373-3710  
[nahc@nahc.ca.gov](mailto:nahc@nahc.ca.gov)

**Re: 2024080407 Summer Villas Special Planning Area Project, Sacramento County**

Dear Ms. Killingsworth:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit. 14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

**Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.**

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

- 1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project:** Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

  - a. A brief description of the project.
  - b. The lead agency contact information.
  - c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
  - d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).
  
- 2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report:** A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

  - a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).
  
- 3. Mandatory Topics of Consultation If Requested by a Tribe:** The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

  - a. Alternatives to the project.
  - b. Recommended mitigation measures.
  - c. Significant effects. (Pub. Resources Code §21080.3.2 (a)).
  
- 4. Discretionary Topics of Consultation:** The following topics are discretionary topics of consultation:

  - a. Type of environmental review necessary.
  - b. Significance of the tribal cultural resources.
  - c. Significance of the project's impacts on tribal cultural resources.
  - d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).
  
- 5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process:** With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).
  
- 6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document:** If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

  - a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
  - b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

- 7. Conclusion of Consultation:** Consultation with a tribe shall be considered concluded when either of the following occurs:
- a.** The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
  - b.** A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).
- 8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document:** Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).
- 9. Required Consideration of Feasible Mitigation:** If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).
- 10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:**
- a.** Avoidance and preservation of the resources in place, including, but not limited to:
    - i.** Planning and construction to avoid the resources and protect the cultural and natural context.
    - ii.** Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
  - b.** Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
    - i.** Protecting the cultural character and integrity of the resource.
    - ii.** Protecting the traditional use of the resource.
    - iii.** Protecting the confidentiality of the resource.
  - c.** Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
  - d.** Protecting the resource. (Pub. Resource Code §21084.3 (b)).
  - e.** Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).
  - f.** Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).
- 11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource:** An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
- a.** The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.
  - b.** The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
  - c.** The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: [http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation\\_CalEPAPDF.pdf](http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf)

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: [https://www.opr.ca.gov/docs/09\\_14\\_05\\_Updated\\_Guidelines\\_922.pdf](https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf).

Some of SB 18's provisions include:

1. **Tribal Consultation:** If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. **No Statutory Time Limit on SB 18 Tribal Consultation.** There is no statutory time limit on SB 18 tribal consultation.
3. **Confidentiality:** Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. **Conclusion of SB 18 Tribal Consultation:** Consultation should be concluded at the point in which:
  - a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
  - b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: <http://nahc.ca.gov/resources/forms/>.

#### NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center ([https://ohp.parks.ca.gov/?page\\_id=30331](https://ohp.parks.ca.gov/?page_id=30331)) for an archaeological records search. The records search will determine:
  - a. If part or all of the APE has been previously surveyed for cultural resources.
  - b. If any known cultural resources have already been recorded on or adjacent to the APE.
  - c. If the probability is low, moderate, or high that cultural resources are located in the APE.
  - d. If a survey is required to determine whether previously unrecorded cultural resources are present.
2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
  - b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
  - a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
  - b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.
  
4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
  - a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, § 15064.5(f) (CEQA Guidelines § 15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
  - b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
  - c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code § 7050.5, Public Resources Code § 5097.98, and Cal. Code Regs., tit. 14, § 15064.5, subdivisions (d) and (e) (CEQA Guidelines § 15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: [Pricilla.Torres-Fuentes@NAHC.ca.gov](mailto:Pricilla.Torres-Fuentes@NAHC.ca.gov).

Sincerely,

*Pricilla Torres-Fuentes*

Pricilla Torres-Fuentes  
Cultural Resources Analyst

cc: State Clearinghouse

**City of Elk Grove Development Services Department  
Planning Division  
c/o Kyra Killingsworth  
8401 Laguna Palms Way  
Elk Grove, CA 95758**

**August 18, 2024**

**Regarding: Summer Villas Special Planning Area Project**

**To Whom it May Concern:**

This letter summarizes our concerns about the Summer Villas Project as described in your Notice of Preparation of a Draft Environmental Impact Report for the Summer Villas Special Planning Area dated August 9, 2024. Your notice on page 3 itemizes eleven environmental topic areas to be evaluated including:

- Aesthetics
- Air Quality and Greenhouse Gas Emissions
- Biological Resources
- Cultural and Tribal Cultural Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning, Population, and Housing
- Noise
- Public Services / Utilities and Service Systems
- Transportation

**Summary of Concerns:**

**The planned environmental topic areas are vague** – It is not clear if some of the topics will include specific areas of concern such as, but not limited to:

- Air Quality and Greenhouse Gas Emissions – Will this include a statistical projection of the increased number of motor vehicles (owned by homeowners and service providers) and use due to the addition of as many as 499 new households and its impact on air quality in the immediate and surrounding area?
- Hydrology and Water Quality – Include the impact on availability and quality of water in existing wells adjacent and near the planned development?
- Land Use and Planning, Population, and Housing – Include impact on existing infrastructure (e.g., roads, stop lights, communication systems, drainage, etc.), and compatibility analysis with adjacent rural land use, open space and population?

- Noise - Include a statistical projection of increased noise levels due to the addition of as many as 499 new households and their service needs (e.g., delivery of goods and services) and its impact on quality of life in the surrounding area?
- Transportation – Include impact on Sheldon and Waterman Roads traffic including increased wait time in the surrounding area (e.g., Bradshaw and Bond Roads)?

**The August 26<sup>th</sup> meeting should** elaborate on each of the eleven topic areas and address the questions raised in the above bullets.

**The scope of the environmental impact is too narrow** – The report needs to address additional topic areas including:

- Flood Control – Is dredging of the creeks planned? Recent storms have caused widespread flooding in the area. What flood control measures are being taken to control future floods?
- Fire Safety – Recent California fires, especially fires in rural communities, beg for prudent evacuation planning. What is the evacuation plan for the Project (only four gated entries and exits) and the surrounding area (i.e., rural residential homeowners) after implementation of the Project (increased congestion, limited roads). It is difficult and sometimes dangerous now to exit driveways to Sheldon and Waterman roads.
- Habitat – We moved here for “country living”, which includes living and respecting wildlife (e.g., coyotes, turkeys, fish, rabbits, owls, hawks, etc.). What will be the impact of the Project on the existing wildlife?
- Health Services – Adding about 1,000 senior citizens to the Sheldon-Waterman corridor will bring increased pressure for hospitals, clinics, urgent care and emergency services. Where are these people supposed to go? How will this impact traffic to and from the area?
- Retail Services – Adding 1,000 people will bring increased pressure for retail and commercial services. What additional retail is planned for the area?

**The August 26<sup>th</sup> meeting should** explain why these topic areas are not being considered and address the questions raised in the above bullets.

**Draft Environmental Impact Report and Project are premature** –

- Proof of Concept and viability assessment – Where is the analysis that shows adding 499 households with about 1,000 people is even viable given the existing infrastructure in the Sheldon-Waterman corridor? How is the Summer Villas Project ready for environmental impact analysis and community input when it hasn’t been shown the area, surrounded by Agriculture/2 Acres zoning and homes supported by a two-lane country road, can even support the increased numbers? Not sure what the process is, but engaging the community should be after projects have been evaluated and determined doable.
- Disruption of Rural Residential Living – The area surrounding the Project site is currently zoned for Agricultural/2 Acres development, and part of a carefully planned rural residential development. Some of the homeowners have waited a lifetime to make their dreams of rural living a reality, buying acreage, designing and building their homes, and working with the city in the process over years’ time to obtain the necessary approvals. Some of these dreams are still in the building phase (e.g., Dessani-Penta development). Some haven’t even completed the design phase (e.g., a neighbor is preparing land and working with an

architect to build a home on ten acres). These homeowners followed or are following a long and costly city planning process including payment of substantial fees (e.g., Swenson Hawk Protection Fee) to realize their dreams. The Project disrupts the rural residential plans for the area even before development plans have been fully implemented, and for some owners, even before plans have started. Please do not construe our opposition as being anti-growth or “not in my backyard” when it comes to senior designed housing. Elk Grove needs more housing of all types. It just needs to be responsibly planned and reasonably similar and compatible with the surrounding area.

***The August 26<sup>th</sup> meeting*** should explain what the land development process is and how the Summer Villas Project planning is in compliance with this process and is consistent with the recently approved rural residential plans for the area.

**Project is too big of a change -**

The Summer Villas Project site is currently zoned Agriculture/2 Acres. The Project plans to build about 500 housing units on about 70 acres. Those 70 acres would add 35 new households under the current zoning, which would be a significant increase for the area. The Project plans to add “a maximum of 499 housing units on 71.3 acres”. The increase from 35 to 499 is an increase of **1,325%**. How is this reasonable and responsible incremental change for the area?

***The August 26<sup>th</sup> meeting*** should explain how the Summer Villas Project is a good plan for the current rural residential neighborhood and development plans for the area.

**Project will encourage other projects of same or higher density –**

Once the Summer Villas Project is approved other developers will likely propose similar projects with same or higher density creating tension between existing homeowners and new arrivals, developers, the Planning Division, and City Government as a whole. Rural East Elk Grove will no longer be a great place to live in. This may hurt home values and relationships with the community, making it more difficult for the city to obtain cooperation from the community in future endeavors.

***The August 26<sup>th</sup> meeting*** should explain the strategy for discouraging further development in the near future.

Carlos and Connie Zamarripa, Homeowners  
9544 Sheldon Road  
Elk Grove, CA 95624  
(916) 990-7159  
[czama54@gmail.com](mailto:czama54@gmail.com)

Rick and Tami Stiehl, Homeowners  
9534 Sheldon Road  
Elk Grove, CA 95624  
(916) 513-4427

cc: Eileen Conwell, GSREHA President

## Kyra Killingsworth

---

**From:** Antonio Ablog  
**Sent:** Monday, August 26, 2024 9:26 AM  
**To:** Kyra Killingsworth  
**Subject:** FW: 8/26/24 meeting - \*\*Summer Villas\*\*

See comments below on Summer Villas.

Antonio Ablog, AICP  
Planning Manager  
Development Services Department

City of Elk Grove  
8401 Laguna Palms Way, Elk Grove, CA 95758 t 916.627.3335 TTY/TDD 888.435.6092 elkgrovecity.org

Sign Up for Email Updates

-----Original Message-----

From: Brenda Haggard <bhaggard@elkgrovecity.org>  
Sent: Monday, August 26, 2024 9:20 AM  
To: Sandy Kyles <skyles@elkgrovecity.org>; Antonio Ablog <aablog@elkgrovecity.org>  
Subject: FW: 8/26/24 meeting

This was received via email to the City Clerk; looks like it has to do with tonight's Zoning Administrator hearing.

Please let me know if you have any questions or need additional information at this time.

Thanks.  
Brenda

-----Original Message-----

From: Comcast <yourcandlelady-tammy@comcast.net>  
Sent: Sunday, August 25, 2024 11:38 AM  
To: EG City Clerk <cityclerk@elkgrovecity.org>  
Subject: Re: 8/26/24 meeting

[You don't often get email from yourcandlelady-tammy@comcast.net. Learn why this is important at <https://aka.ms/LearnAboutSenderIdentification> ]

[EXTERNAL EMAIL]

Hello, I'm a resident of Elk Grove and I live on Sheldon Rd. My husband and I have lived in our hose for 30 years and to say the least we've seen the changes. I grew up in Elk Grove since my birth! I loved the rural setting and chose to move here from our house in the town of EG for a piece of it. Sheldon Rd has always been busier than we thought it would be when we moved here but now just getting out of my driveway proves to be frustrating every morning. I take my 6 year

old granddaughter to school everyday and it takes anywhere from 3-5 minutes to just get out of my driveway at 7:45am. If I don't leave until 7:50 it's even longer and the back up at the Waterman roundabout is 10+ cars deep as well. If the subdivision Sheldon Villas is approved this will destroy the rural community we fought for (remember the signs that are placed to specify Rural Elk Grove) this subdivision will add to the traffic congestion and traffic noise we are already dealing with daily. Please think about all these details when considering this project. My husband and I plan to be at the meeting Monday and we want our voice to be heard. We plan to live here for the rest of our lives but if the project goes through we will be forced out of our forever home and we will be looking at other states to move to and take our tax dollar where we will be appreciated.

Tammy and Matt Meuser

916-798-2151

**From:** [Ida Connolly](#)  
**To:** [Kyra Killingsworth](#)  
**Subject:** Project at Waterman and Sheldon  
**Date:** Tuesday, October 8, 2024 4:26:56 PM

---

You don't often get email from idavold1@outlook.com. [Learn why this is important](#)

[EXTERNAL EMAIL]

Hello,

I am emailing you because I am **vehemently opposed** to the development "summer villas" that is proposed at the above intersection. I have many concerns which I will list below:

1. **That area is zoned as RURAL.** Changing the zoning changes the character of rural Elk Grove. The more developed it becomes, the more charm it loses. The beauty of rural Elk Grove is it's away from all the hustle and bustle of residential and commercial land closer to the 99 freeway.
2. **Traffic.** The traffic on Sheldon Rd (a ONE LANE street) is already congested. Building more homes practically guarantees the traffic will grow exponentially on these one lane country roads. Sheldon will be gridlocked all the time.
3. **Noise.** It is quieter and peaceful in rural Elk Grove. I like it this way.
4. **Habitat loss** for the many species of mammals and birds that use the open fields to forage and hunt. There are foxes, raccoons, coyotes, hawks, rabbits, etc that are all being squeezed out of Elk Grove with all these developments that destroy their habitat.
5. **Climate change.** More cement and buildings with A/C just exacerbate the unbearable heat the sacramento area is subjected to. We need more trees and green spaces, not more carbon producing houses and businesses.
6. **Consumption of natural resources e.g. WATER.** We have a well and use water responsibly. California's ongoing drought has left the water table depleted and unable to replenish itself. Development will put even more strain on an already limited precious resource.

In summary, I staunchly disapprove of this development. The environmental impacts will be devastating to rural Elk Grove as more open space is paved over and lost to us. Once gone we can never get it back. Please think of future generations and oppose this frivolous development in favor of something more in line with the natural beauty of rural Elk Grove.

**SUMMER VILLAS SPECIAL PLANNING AREA  
NOTICE OF PREPARATION (NOP) SCOPING MEETING**

**COMMENT FORM**

To document the author of comments received, please provide the following information. Thank you.

Name: Shannon Machores

Address: 8664 Rubia Dr

Organization (if applicable): GRESHAM

Please provide us with your written comments on the scope of the EIR by **5:00 PM, October 9, 2024.**

My concern is all this development in our rural area changing the heritage of Elk Grove. We've lost our country living to massive homes everywhere! Our wildlife is being killed in record numbers this project would block native wildlife access to the creek where they get water. The noise from cars at night racing up Sheldon Rd + Waterman Rd has increased! We have more people dumping trash and junk in our ditches polluting our waterways + creeks. We need to stop building our city out to every square inch. Are the developers going to kill + poison the animals to get rid of them like all the quail + pheasant are gone! We risk our lives riding horses on Sheldon Rd. Please keep the heritage of Elk Grove country! The residents in the area need matters to every house effected! I would have fought for the plot where Elliot Homes are too! Enough building!

Send comments to:

**Kyra Killingsworth, Senior Planner  
City of Elk Grove Development Services Department  
Planning Division  
8401 Laguna Palms Way  
Elk Grove, CA 95758  
kkillingsworth@elkgrovecity.org**

maybe theres endangered species we can fight for and stop this person from building.

Dear City of Elk Grove:

I am writing you this letter on behalf of the residents at my house, 8785 Rubia drive, and hopefully after talking to many neighbors, the residents of the rural Elk Grove community.

We moved to rural Elk Grove in February 2015. This was because when we had small children, we didn't feel it was safe for them to play in the front yard of our new build construction, and the backyard was very small. We wanted space for them to run and play. Plus, we wanted our in laws to be able to come live with us as well. This is why we looked at rural Elk Grove. Every property is about 2 acres, and it just gives a calming feeling when you are there. My children loved to walk the road, and see the horses, chickens, etc. It's wonderful.

Over the past few years, I have noticed the traffic on Sheldon has gotten significantly busier. If we were to add 499 houses right down the street from my house, that roundabout will be backed up almost to Sheldon. It is backed up a few roads down now, when I am coming home from taking my kids to school at 830. I don't think Sheldon can accomodate this, and that is why we have Calvine and Bond that are 2-3 lanes wide.

Also, noise pollution will increase. If this is a retirement community, the amount of noise from sirens and ambulances will definitely increase. Some of our houses are right by Sheldon, so this would be quite disturbing at all times of the day/night. Noise from the cars and loud music, mufflers, etc will also increase. Gas emissions will increase, which will cause the air quality to decrease.

There is a lot of wildlife that comes onto the properties, such as rabbits, deer occasionally, peacocks, and turkeys. I think that this will diminish as well. Our neighbor is unable to ride her horse down the street anymore, because of the amount of cars.

Water. We currently are on wells, and I don't know a lot about the water systems, but I think you would have to bring in a water system to that area. We have previously had droughts in our area/sacramento, where we have to restrict the amount of water we use, but we are over producing houses and will not be able to continue to sustain the water supply. It makes me nervous for the future of the our wells. And water in general.

I know the city wants more houses to make money, but sometimes rural areas need to remain just that. We already have one housing area that is in our rural community off of Waterman. And i'm sure that will expand. There is a reason it is called rural Elk Grove. A house doesn't have to be placed every 100 feet. Most of the residents in this area have lived there for their whole lives. Please let it stay at least as close to the way it was as it could be. If they wanted to put 2 acre homes in the area, that sounds feasible. I know a few people who have new builds on the other side of waterman and Sheldon, and they said they moved into the rural area not to have a large subdivision right across the street.

Please keep our area rural.

Thanks,

Rural Elk Grove Residents







**SUMMER VILLAS SPECIAL PLANNING AREA  
NOTICE OF PREPARATION (NOP) SCOPING MEETING**

**COMMENT FORM**

To document the author of comments received, please provide the following information. Thank you.

Name: June Wynthoff

Address: 9608 Sandage Ave, Elk Grove 95624

Organization (if applicable): \_\_\_\_\_

Please provide us with your written comments on the scope of the EIR by **5:00 PM, October 9, 2024.**

- Does not fit in rural corridor
  - Construction noise
  - Detrimental to wildlife
  - Want historical analysis done to make sure the property is not on sacred tribal land.
  - Major traffic issues which will result in more emissions
  - Thought waterways were not privately owned so how can there be no access to that portion of Laguna Creek?
  - Basically you will be allowing developer to "Pave Paradise and put up a housing track"
  - Will we soon have to pay and go to a museum to see live stock?
  - How many times in my lifetime do we the rural home owners have to fight to keep it rural we're old we shouldn't have to keep fighting this fight because of greed!
- Send comments to:

**Kyra Killingsworth, Senior Planner  
City of Elk Grove Development Services Department  
Planning Division  
8401 Laguna Palms Way  
Elk Grove, CA 95758  
kkillingsworth@elkgrovecity.org**

**From:** [Mark White](#)  
**To:** [Kyra Killingsworth](#)  
**Subject:** Summer Villas Special Planning Area Comments  
**Date:** Saturday, October 5, 2024 1:09:56 PM

---

You don't often get email from mwhite49@msn.com. [Learn why this is important](#)

**[EXTERNAL EMAIL]**

City of Elk Grove Development Services Department  
Planning Division  
C/O Kyra Killingsworth  
8401 Laguna Palms Way  
Elk Grove, CA 95758

We are writing this letter to put our comments on record regarding the EIR for the Summer Villas Project. As the Draft EIR is prepared we feel there are many important environmental issues that will impact the surrounding area that need to be addressed.

The property is currently zoned AR-2 which allows for the wildlife surrounding the property to use the Laguna Creek as a pathway throughout the rural area. Any change in zoning needs close scrutiny as it will impact not just the wildlife but the overall health of the waterways and biological resources within and surrounding the area.

At this time the area has no water or sewer service. The properties surrounding the project do not require those services yet this project will allow water and sewer lines to cross through the neighboring communities. The impacts of construction and any future problems with those services on surrounding properties not just close to the project but potentially miles away will be significant. This really needs to be a focus of the both the Land Use and Public Services Section of the EIR.

As this EIR is prepared our hope is that as part of the process a Rural Preservation Alternative will be seriously evaluated as it fits the General Plan the City of Elk Grove laid out some 25 years ago and has consistently maintained since the Elk Grove became a city in 2000.

Thank you for your consideration in this matter.

Sincerely,

Mark and Jane White  
8890 Saint Anthony Court  
Elk Grove, CA 95624  
(916) 205-9042

Amelia Vankeuren, PhD  
Professor of Geology, Sacramento State University  
9187 Sheldon Rd  
Elk Grove, CA 95624  
Cell: 707-280-1403  
Email: Vankeuren@csus.edu

October 8, 2024

Dear Elk Grove Planning Commission,

I am writing in response to the Notice of Preparation for the Draft Environmental Impact Report for the proposed Summer Villas Special Planning Area (“Project”). My family lives within the Elk Grove Rural Area and I am a Professor of Geology at Sacramento State University with a specialty in groundwater resources. This Project is incompatible with surrounding land use and with the Rural Area standards as laid out in the Elk Grove General Plan, and the EIR must consider the impacts of the Project to the underlying groundwater aquifer that provides drinking water for residents of the Rural Area as well as the City of Elk Grove.

As a groundwater expert, I am keenly aware that the aquifer beneath our feet is an invaluable source of clean, reliable water and is vital for our way of life in the Rural Area, providing water for drinking and irrigation of our gardens. To ensure this vital resource is available for continued use, the aquifer must receive recharge: new water that infiltrates down into the aquifer and replaces the water that is pumped out. Aquifer recharge depends on land surfaces that are permeable to infiltration – unpaved areas like wilderness, parks, and agricultural land. The proposed Project will pave over a large area of open space, creating increased surface runoff into nearby Laguna Creek and preventing infiltration into the aquifer.

High density development in the Rural Area that will increase groundwater demand and decrease infiltration that replenishes the groundwater – like the proposed Project – should not be allowed. Computer modeling for the South American Subbasin Groundwater Sustainability Plan, which encompasses the area of Elk Grove, already projects that groundwater levels in Elk Grove will decline by 15 feet over the next 20 years due to planned developments and climate change. This will require many residents to deepen their pumps or even to deepen their wells.

Elk Grove Rural Area residents, including myself, are very concerned about the preservation of our water supply. We are actively engaging with groundwater planning and protection and have been contributing to the South American Subbasin’s Groundwater Sustainability Plan in many ways:

- Over 100 concerned rural residents attended a public meeting that the Groundwater Sustainability Agency held in Elk Grove in October 2022
- Several residents regularly attended meetings about the development of the Groundwater Sustainability Plan and read and commented on the draft document, which was hundreds of pages long
- Over 20 rural residents are monitoring groundwater levels in their wells twice a year to track fluctuations in their water supply. We report these data to the Groundwater Sustainability Agency to incorporate into Groundwater Sustainability Plan annual reports and 5-year updates
- Several residents are members of the South American Subbasin’s Domestic Well Advisory Committee, providing guidance and a rural resident perspective on groundwater use and management to the Groundwater Sustainability Agency

In addition to groundwater supply, the EIR must consider other impacts that the Project would have on the surrounding Rural Area and its community. The Project would be completely incompatible with surrounding land use. All nearby houses are on 2-acre or larger parcels with their own domestic wells and septic systems, in accordance with the Rural Area standards set forth in the Elk Grove General Plan. The Project site does not have the infrastructure to support high density housing – there are no city drinking water or sewer lines in the area and it would be costly and disruptive to bring them in. Additionally, Sheldon Road in this location is a narrow two-lane road not designed to support a high-density housing development. The level of traffic produced by such a development would strain the existing roadways and add significant traffic to this Rural Area, making it less safe for my children and I to walk and bike.

The Project also threatens a unique and vibrant Elk Grove resource: the Rural Area itself. The Rural Area is critical for preserving a rural farming and ranching lifestyle and protecting the land from dense development. The importance of maintaining the Rural Area was codified in the Elk Grove General Plan and the need to protect the agricultural and rural heritage of Elk Grove has only grown as development continually expands and paves over open land.

The ability to provide my children with a rural upbringing is the reason my husband and I purchased a house within the Elk Grove Rural Area five years ago. My children are learning responsibility by tending our garden, collecting eggs, feeding and watering our livestock, and growing to be healthy and happy by riding horses and enjoying the outdoors. My family deeply values being able to live in close contact with nature and see both wild and farm animals in the Rural Area when we go for walks and bike rides around our house. I grew up on a 10-acre farm in the Napa Valley where I raised horses, pigs, and chickens, and grew and sold pumpkins. This rural lifestyle taught me responsibility, a work ethic, and hands-on skills like equipment repair. I was also a California State 4-H All-Star, where I learned leadership, public speaking, and community service. This rural childhood is in large part why I am now a professor working to educate the next generation and to protect our local groundwater supply and water quality.

In summary, there are many reasons why the proposed Summer Villas Special Planning Area would have an unacceptable Environmental Impact:

- need to preserve unpaved open space for infiltration to recharge groundwater, which supplies residents of the Rural Area and the City of Elk Grove's drinking water
- lack of necessary infrastructure such as city water and sewer
- roads incapable of sustaining high density occupancy
- high density development is incompatible with surrounding land use and with the Rural Area standards as laid out in the Elk Grove General Plan
- importance of protecting the Rural Area farming and ranching lifestyle and honoring Elk Grove's rural and agricultural heritage

It is vital that we prevent this encroachment of the urban area into the rightfully protected Elk Grove Rural Area. A better land use would be a public park or development of housing with 2-acre or larger parcels that meet Rural Area standards. Thank you for your consideration.

Sincerely,



Amelia Vankeuren, PhD and family



State of California – Natural Resources Agency  
DEPARTMENT OF FISH AND WILDLIFE  
North Central Region  
1701 Nimbus Road, Suite A  
Rancho Cordova, CA 95670-4599  
(916) 358-2900  
[www.wildlife.ca.gov](http://www.wildlife.ca.gov)

*GAVIN NEWSOM, Governor*  
*CHARLTON H. BONHAM, Director*



October 7, 2024

Kyra Killingsworth  
City of Elk Grove Development Services Department  
Planning Division  
8401 Laguna Palms Way  
Elk Grove, CA 95758  
[kkillingsworth@elkgrovecity.org](mailto:kkillingsworth@elkgrovecity.org)

Subject: Summer Villas Special Planning Area  
DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR)  
SCH No. 2024080407

Dear Kyra Killingsworth:

The California Department of Fish and Wildlife (CDFW) received and reviewed the Notice of Preparation of an Environmental Impact Report (EIR) from the City of Elk Grove for the Summer Villas Special Planning Area (Project) in Sacramento County pursuant to the California Environmental Quality Act (CEQA) statute and guidelines.<sup>1</sup>

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish, wildlife, plants and their habitats. Likewise, CDFW appreciates the opportunity to provide comments regarding those aspects of the Project that it, by law, may need to exercise its own regulatory authority under the Fish and Game Code (Fish & G. Code).

## **CDFW ROLE**

CDFW is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the State (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a)). CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (Fish & G. Code, § 1802.). Similarly, for purposes of CEQA, CDFW provides, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

---

<sup>1</sup> CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

## Summer Villas Special Planning Area

October 7, 2024

Page 2 of 13

CDFW may also act as a Responsible Agency under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority. (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), the project proponent may seek related take authorization as provided by the Fish and Game Code.

### **PROJECT DESCRIPTION SUMMARY**

The Project site is located at 9350 Sheldon Road, Elk Grove, CA 95624 in Sacramento County.

The Project consists of the creation of the 116-acre Summer Villas Special Planning Area (SPA). The Summer Villas SPA project contains three distinct sub-zones: 1) Active Adult Neighborhood (71.3 acres), 2) Laguna Creek Open Space (20.3 acres), and 3) Waterman Recreational Open Space (19.4 acres). The remaining five acres of the site would be dedicated to the Waterman Road and Sheldon Road right-of-way. In addition, subsequent potential development of the 116-acre site would include a maximum of 499 age-restricted single-family homes, as well as various associated improvements, such as a private community recreation center/clubhouse, private park space, trails and open space areas, landscaping, and a number of on- and off-site roadway and utility improvements.

### **COMMENTS AND RECOMMENDATIONS**

CDFW offers the comments and recommendations presented below to assist the City of Elk Grove in adequately identifying and/or mitigating the Project's significant, or potentially significant, impacts on biological resources. The comments and recommendations are also offered to enable CDFW to adequately review and comment on the proposed Project with respect to impacts on biological resources. CDFW recommends that the forthcoming EIR address the following:

#### **Project Description**

The Project description should include the whole action as defined in the CEQA Guidelines § 15378 and should include appropriate detailed exhibits disclosing the Project area including temporary impacted areas such as equipment stage area, spoils areas, adjacent infrastructure development, staging areas and access and haul roads if applicable.

As required by § 15126.6 of the CEQA Guidelines, the EIR should include an appropriate range of reasonable and feasible alternatives that would attain most of the basic Project objectives and avoid or minimize significant impacts to resources under CDFW's jurisdiction.

Summer Villas Special Planning Area

October 7, 2024

Page 3 of 13

## Assessment of Biological Resources

Section 15125(c) of the CEQA Guidelines states that knowledge of the regional setting of a project is critical to the assessment of environmental impacts and that special emphasis should be placed on environmental resources that are rare or unique to the region. To enable CDFW staff to adequately review and comment on the Project, the EIR should include a complete assessment of the flora and fauna within and adjacent to the Project footprint, with emphasis on identifying rare, threatened, endangered, and other sensitive species and their associated habitats. CDFW recommends the EIR specifically include:

1. An assessment of all habitat types located within the Project footprint, and a map that identifies the location of each habitat type. CDFW recommends that floristic, alliance- and/or association-based mapping and assessment be completed following, *The Manual of California Vegetation*, second edition (Sawyer 2009). Adjoining habitat areas should also be included in this assessment where site activities could lead to direct or indirect impacts offsite. Habitat mapping at the alliance level will help establish baseline vegetation conditions.
2. A general biological inventory of the fish, amphibian, reptile, bird, and mammal species that are present or have the potential to be present within each habitat type onsite and within adjacent areas that could be affected by the Project. CDFW recommends that the California Natural Diversity Database (CNDDDB), as well as previous studies performed in the area, be consulted to assess the potential presence of sensitive species and habitats. A nine United States Geologic Survey 7.5-minute quadrangle search is recommended to determine what may occur in the region, larger if the Project area extends past one quad (see *Data Use Guidelines* on the Department webpage [www.wildlife.ca.gov/Data/CNDDDB/Maps-and-Data](http://www.wildlife.ca.gov/Data/CNDDDB/Maps-and-Data)). Please review the webpage for information on how to access the database to obtain current information on any previously reported sensitive species and habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code, in the vicinity of the Project. CDFW recommends that CNDDDB Field Survey Forms be completed and submitted to CNDDDB to document survey results. Online forms can be obtained and submitted at: <https://www.wildlife.ca.gov/Data/CNDDDB/Submitting-Data>.

Please note that CDFW's CNDDDB is not exhaustive in terms of the data it houses, nor is it an absence database. CDFW recommends that it be used as a starting point in gathering information about the *potential presence* of species within the general area of the Project site. Other sources for identification of species and habitats near or adjacent to the Project area should include, but may not be limited to, State and federal resource agency lists, California Wildlife Habitat Relationship System, California Native Plant Society Inventory, agency contacts, environmental documents for other projects in the vicinity, academics, and professional or scientific organizations.

## Summer Villas Special Planning Area

October 7, 2024

Page 4 of 13

3. A complete and recent inventory of rare, threatened, endangered, and other sensitive species located within the Project footprint and within offsite areas with the potential to be affected, including California Species of Special Concern and California Fully Protected Species (Fish & G. Code § § 3511, 4700, 5050, and 5515). Species to be addressed should include all those which meet the CEQA definition (CEQA Guidelines § 15380). The inventory should address seasonal variations in use of the Project area and should not be limited to resident species. The EIR should include the results of focused species-specific surveys, completed by a qualified biologist and conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable. Species-specific surveys should be conducted in order to ascertain the presence of species with the potential to be directly, indirectly, on or within a reasonable distance of the Project activities. CDFW recommends the City of Elk Grove rely on survey and monitoring protocols and guidelines available at: [www.wildlife.ca.gov/Conservation/Survey-Protocols](http://www.wildlife.ca.gov/Conservation/Survey-Protocols). Alternative survey protocols may be warranted; justification should be provided to substantiate why an alternative protocol is necessary. Acceptable species-specific survey procedures should be developed in consultation with CDFW and the U.S. Fish and Wildlife Service, where necessary. Some aspects of the Project may warrant periodic updated surveys for certain sensitive taxa, particularly if the Project is proposed to occur over a protracted time frame, or in phases, or if surveys are completed during periods of drought or deluge.
4. A thorough, recent (within the last two years), floristic-based assessment of special-status plants and natural communities, following CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (see [www.wildlife.ca.gov/Conservation/Plants](http://www.wildlife.ca.gov/Conservation/Plants)).
5. Information on the regional setting that is critical to an assessment of environmental impacts, with special emphasis on resources that are rare or unique to the region (CEQA Guidelines § 15125[c]).

### **Analysis of Direct, Indirect, and Cumulative Impacts to Biological Resources**

The EIR should provide a thorough discussion of the Project's potential direct, indirect, and cumulative impacts on biological resources. To ensure that Project impacts on biological resources are fully analyzed, the following information should be included in the EIR:

1. The EIR should define the threshold of significance for each impact and describe the criteria used to determine whether the impacts are significant (CEQA Guidelines, § 15064, subd. (f)). The EIR must demonstrate that the significant environmental impacts of the Project were adequately investigated and discussed, and it must permit the significant effects of the Project to be considered in the full environmental context.

## Summer Villas Special Planning Area

October 7, 2024

Page 5 of 13

2. A discussion of potential impacts from lighting, noise, human activity, and wildlife-human interactions created by Project activities especially those adjacent to natural areas, exotic and/or invasive species occurrences, and drainages. The EIR should address Project-related changes to drainage patterns and water quality within, upstream, and downstream of the Project site, including: volume, velocity, and frequency of existing and post-Project surface flows; polluted runoff; soil erosion and/or sedimentation in streams and water bodies; and post-Project fate of runoff from the Project site.
3. A discussion of potential indirect Project impacts on biological resources, including resources in areas adjacent to the Project footprint, such as nearby public lands (e.g., National Forests, State Parks, etc.), open space, adjacent natural habitats, riparian ecosystems, wildlife corridors, and any designated and/or proposed reserve or mitigation lands (e.g., preserved lands associated with a Conservation or Recovery Plan, or other conserved lands).
4. A cumulative effects analysis developed as described under CEQA Guidelines section 15130. The EIR should discuss the Project's cumulative impacts to natural resources and determine if that contribution would result in a significant impact. The EIR should include a list of present, past, and probable future projects producing related impacts to biological resources or shall include a summary of the projections contained in an adopted local, regional, or statewide plan, that consider conditions contributing to a cumulative effect. The cumulative analysis shall include impact analysis of vegetation and habitat reductions within the area and their potential cumulative effects. Please include all potential direct and indirect Project-related impacts to riparian areas, wetlands, wildlife corridors or wildlife movement areas, aquatic habitats, sensitive species and/or special-status species, open space, and adjacent natural habitats in the cumulative effects analysis.

### **Mitigation Measures for Project Impacts to Biological Resources**

The EIR should include appropriate and adequate avoidance, minimization, and/or mitigation measures for all direct, indirect, and cumulative impacts that are expected to occur as a result of the construction and long-term operation and maintenance of the Project. CDFW also recommends the environmental documentation provide scientifically supported discussion regarding adequate avoidance, minimization, and/or mitigation measures to address the Project's significant impacts upon fish and wildlife and their habitat. For individual projects, mitigation must be roughly proportional to the level of impacts, including cumulative impacts, in accordance with the provisions of CEQA (Guidelines § § 15126.4(a)(4)(B), 15064, 15065, and 16355). In order for mitigation measures to be effective, they must be specific, enforceable, and feasible actions that will improve environmental conditions. When proposing measures to avoid, minimize, or mitigate impacts, CDFW recommends consideration of the following:

1. *Fully Protected Species*: Several Fully Protected Species (Fish & G. Code § 3511) have the potential to occur within or adjacent to the Project area, including,

## Summer Villas Special Planning Area

October 7, 2024

Page 6 of 13

but not limited to: white-tailed kite (*Elanus leucurus*). Project activities described in the EIR should be designed to completely avoid any fully protected species that have the potential to be present within or adjacent to the Project area. If fully protected species cannot be completely avoided, the Project should obtain incidental take coverage for all species that have the potential to be present within or adjacent to the Project Area<sup>2</sup>. CDFW also recommends the EIR fully analyze potential adverse impacts to fully protected species due to habitat modification, loss of foraging habitat, and/or interruption of migratory and breeding behaviors. CDFW recommends that the City of Elk Grove include in the analysis how appropriate avoidance, minimization and mitigation measures will reduce indirect impacts to fully protected species.

2. *Species of Special Concern*: Several Species of Special Concern (SSC) have the potential to occur within or adjacent to the Project area, including, but not limited to: western pond turtle (*Actinemys marmorata*) and western burrowing owl (*Athene cunicularia*). Project activities described in the EIR should be designed to avoid any SSC that have the potential to be present within or adjacent to the Project area. CDFW also recommends that the EIR fully analyze potential adverse impacts to SSC due to habitat modification, loss of foraging habitat, and/or interruption of migratory and breeding behaviors. CDFW recommends the City of Elk Grove include in the analysis how appropriate avoidance, minimization and mitigation measures will reduce impacts to SSC.
3. *Sensitive Plant Communities*: CDFW considers sensitive plant communities to be imperiled habitats having both local and regional significance. Plant communities, alliances, and associations with a statewide ranking of S-1, S-2, S-3, and S-4 should be considered sensitive and declining at the local and regional level. These ranks can be obtained by querying the CNDDDB and are included in *The Manual of California Vegetation* (Sawyer 2009). The EIR should include measures to fully avoid and otherwise protect sensitive plant communities from Project-related direct and indirect impacts.
4. *Mitigation*: CDFW considers adverse Project-related impacts to sensitive species and habitats to be significant to both local and regional ecosystems, and the EIR should include mitigation measures for adverse Project-related impacts to these resources. Mitigation measures should emphasize avoidance and reduction of Project impacts. For unavoidable impacts, onsite habitat restoration, enhancement, or permanent protection should be evaluated and discussed in detail. If onsite mitigation is not feasible or would not be biologically viable and therefore not adequately mitigate the loss of biological functions and values, offsite mitigation through habitat creation and/or acquisition and preservation in perpetuity should be addressed.

---

<sup>2</sup> CDFW may only issue incidental take permits for specified projects if certain conditions are satisfied per SB 147.

## Summer Villas Special Planning Area

October 7, 2024

Page 7 of 13

The EIR should include measures to perpetually protect the targeted habitat values within mitigation areas from direct and indirect adverse impacts in order to meet mitigation objectives to offset Project-induced qualitative and quantitative losses of biological values. Specific issues that should be addressed include restrictions on access, proposed land dedications, long-term monitoring and management programs, control of illegal dumping, water pollution, increased human intrusion, etc.

5. *Habitat Revegetation/Restoration Plans*: Plans for restoration and revegetation should be prepared by persons with expertise in the regional ecosystems and native plant restoration techniques. Plans should identify the assumptions used to develop the proposed restoration strategy. Each plan should include, at a minimum: (a) the location of restoration sites and assessment of appropriate reference sites; (b) the plant species to be used, sources of local propagules, container sizes, and seeding rates; (c) a schematic depicting the mitigation area; (d) a local seed and cuttings and planting schedule; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) specific success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the party responsible for meeting the success criteria and providing for conservation of the mitigation site in perpetuity. Monitoring of restoration areas should extend across a sufficient time frame to ensure that the new habitat is established, self-sustaining, and capable of surviving drought.

CDFW recommends that local onsite propagules from the Project area and nearby vicinity be collected and used for restoration purposes. Onsite seed collection should be appropriately timed to ensure the viability of the seeds when planted. Onsite vegetation mapping at the alliance and/or association level should be used to develop appropriate restoration goals and local plant palettes. Reference areas should be identified to help guide restoration efforts. Specific restoration plans should be developed for various Project components as appropriate. Restoration objectives should include protecting special habitat elements or re-creating them in areas affected by the Project. Examples may include retention of woody material, logs, snags, rocks, and brush piles. Fish and Game Code sections 1002, 1002.5 and 1003 authorize CDFW to issue permits for the take or possession of plants and wildlife for scientific, educational, and propagation purposes. Please see our website for more information on Scientific Collecting Permits at [www.wildlife.ca.gov/Licensing/Scientific-Collecting#53949678-regulations-](http://www.wildlife.ca.gov/Licensing/Scientific-Collecting#53949678-regulations-).

6. *Nesting Birds*: Please note that it is the Project proponent's responsibility to comply with all applicable laws related to nesting birds and birds of prey. Migratory non-game native bird species are protected by international treaty under the federal Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. 703 *et seq.*). CDFW implemented the MBTA by adopting the Fish and Game Code section 3513. Fish and Game Code sections 3503, 3503.5 and 3800 provide additional protection to nongame birds, birds of prey, their nests and eggs. Sections 3503, 3503.5, and

## Summer Villas Special Planning Area

October 7, 2024

Page 8 of 13

3513 of the Fish and Game Code afford protective measures as follows: section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the Fish and Game Code or any regulation made pursuant thereto; section 3503.5 states that it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by the Fish and Game Code or any regulation adopted pursuant thereto; and section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

Potential habitat for nesting birds and birds of prey is present within the Project area. The Project should disclose all potential activities that may incur a direct or indirect take to nongame nesting birds within the Project footprint and its vicinity. Appropriate avoidance, minimization, and/or mitigation measures to avoid take must be included in the EIR.

CDFW recommends the EIR include specific avoidance and minimization measures to ensure that impacts to nesting birds or their nests do not occur. Project-specific avoidance and minimization measures may include, but not be limited to: Project phasing and timing, monitoring of Project-related noise (where applicable), sound walls, and buffers, where appropriate. The EIR should also include specific avoidance and minimization measures that will be implemented should a nest be located within the Project site. In addition to larger, protocol level survey efforts (e.g., Swainson's hawk surveys) and scientific assessments, CDFW recommends a final preconstruction survey be required no more than three (3) days prior to vegetation clearing or ground disturbance activities, as instances of nesting could be missed if surveys are conducted earlier.

7. *Moving out of Harm's Way*: The Project is anticipated to result in the clearing of natural habitats that support native species. To avoid direct mortality, the City of Elk Grove should state in the EIR a requirement for a qualified biologist with the proper handling permits, will be retained to be onsite prior to and during all ground- and habitat-disturbing activities. Furthermore, the EIR should describe that the qualified biologist with the proper permits may move out of harm's way special-status species or other wildlife of low or limited mobility that would otherwise be injured or killed from Project-related activities, as needed. The EIR should also describe qualified biologist qualifications and authorities to stop work to prevent direct mortality of special-status species. CDFW recommends fish and wildlife species be allowed to move out of harm's way on their own volition, if possible, and to assist their relocation as a last resort. It should be noted that the temporary relocation of onsite wildlife does not constitute effective mitigation for habitat loss.
8. *Translocation of Species*: CDFW generally does not support the use of relocation, salvage, and/or transplantation as the sole mitigation for impacts to rare, threatened, or endangered species as these efforts are generally experimental in nature and

## Summer Villas Special Planning Area

October 7, 2024

Page 9 of 13

largely unsuccessful. Therefore, the EIR should describe additional mitigation measures utilizing habitat restoration, conservation, and/or preservation, in addition to avoidance and minimization measures, if it is determined that there may be impacts to rare, threatened, or endangered species.

The EIR should incorporate mitigation performance standards that would ensure that impacts are reduced to a less-than-significant level. Mitigation measures proposed in the EIR should be made a condition of approval of the Project. Please note that obtaining a permit from CDFW by itself with no other mitigation proposal may constitute mitigation deferral. CEQA Guidelines section 15126.4, subdivision (a)(1)(B) states that formulation of mitigation measures should not be deferred until some future time. To avoid deferring mitigation in this way, the EIR should describe avoidance, minimization and mitigation measures that would be implemented should the impact occur.

### **California Endangered Species Act**

CDFW is responsible for ensuring appropriate conservation of fish and wildlife resources including threatened, endangered, and/or candidate plant and animal species, pursuant to CESA. CDFW recommends that a CESA Incidental Take Permit (ITP) be obtained if the Project has the potential to result in “take” (Fish & G. Code § 86 defines “take” as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill”) of State-listed CESA species, either through construction or over the life of the Project.

State-listed species with the potential to occur in the area include, but are not limited to: Swainson’s hawk (*Buteo swainsoni*) and tricolored blackbird (*Agelaius tricolor*).

The EIR should disclose the potential of the Project to take State-listed species and how the impacts will be avoided, minimized, and mitigated. Please note that mitigation measures that are adequate to reduce impacts to a less-than significant level to meet CEQA requirements may not be enough for the issuance of an ITP. To facilitate the issuance of an ITP, if applicable, CDFW recommends the EIR include measures to minimize and fully mitigate the impacts to any State-listed species the Project has potential to take. CDFW encourages early consultation with staff to determine appropriate measures to facilitate future permitting processes and to engage with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service to coordinate specific measures if both State and federally listed species may be present within the Project vicinity.

### **Native Plant Protection Act**

The Native Plant Protection Act (Fish & G. Code §1900 *et seq.*) prohibits the take or possession of State-listed rare and endangered plants, including any part or product thereof, unless authorized by CDFW or in certain limited circumstances. Take of State-listed rare and/or endangered plants due to Project activities may only be permitted through an ITP or other authorization issued by CDFW pursuant to California Code of Regulations, Title 14, section 786.9 subdivision (b).

Summer Villas Special Planning Area

October 7, 2024

Page 10 of 13

## Lake and Streambed Alteration Program

The EIR should identify all perennial, intermittent, and ephemeral rivers, streams, lakes, other hydrologically connected aquatic features, and any associated biological resources/habitats present within the entire Project footprint (including utilities, access and staging areas). The environmental document should analyze all potential temporary, permanent, direct, indirect and/or cumulative impacts to the above-mentioned features and associated biological resources/habitats that may occur because of the Project. If it is determined the Project will result in significant impacts to these resources the EIR shall propose appropriate avoidance, minimization and/or mitigation measures to reduce impacts to a less-than-significant level.

Section 1602 of the Fish and Game Code requires an entity to notify CDFW prior to commencing any activity that may do one or more of the following:

1. Substantially divert or obstruct the natural flow of any river, stream or lake;
2. Substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or
3. Deposit debris, waste or other materials where it may pass into any river, stream or lake.

Please note that "any river, stream or lake" includes those that are episodic (i.e., those that are dry for periods of time) as well as those that are perennial (i.e., those that flow year-round). This includes ephemeral streams and watercourses with a subsurface flow. It may also apply to work undertaken within the flood plain of a body of water.

If upon review of an entity's notification, CDFW determines that the Project activities may substantially adversely affect an existing fish or wildlife resource, a Lake and Streambed Alteration (LSA) Agreement will be issued which will include reasonable measures necessary to protect the resource. CDFW's issuance of an LSA Agreement is a "project" subject to CEQA (see Pub. Resources Code 21065). To facilitate issuance of an LSA Agreement, if one is necessary, the EIR should fully identify the potential impacts to the lake, stream, or riparian resources, and provide adequate avoidance, mitigation, and monitoring and reporting commitments. Early consultation with CDFW is recommended, since modification of the Project may avoid or reduce impacts to fish and wildlife resources. All LSA Notification types must be submitted online through CDFW's Environmental Permit Information Management System (EPIMS). For more information about EPIMS, please visit <https://wildlife.ca.gov/Conservation/Environmental-Review/EPIMS>. More information about LSA Notifications, paper forms and fees may be found at <https://www.wildlife.ca.gov/Conservation/Environmental-Review/LSA>.

Please note that other agencies may use specific methods and definitions to determine impacts to areas subject to their authorities. These methods and definitions often do not include all needed information for CDFW to determine the extent of fish and wildlife

## Summer Villas Special Planning Area

October 7, 2024

Page 11 of 13

resources affected by activities subject to Notification under Fish and Game Code section 1602. Therefore, CDFW does not recommend relying solely on methods developed specifically for delineating areas subject to other agencies' jurisdiction (such as United States Army Corps of Engineers) when mapping lakes, streams, wetlands, floodplains, riparian areas, etc. in preparation for submitting a Notification of an LSA.

CDFW relies on the lead agency environmental document analysis when acting as a responsible agency issuing an LSA Agreement. CDFW recommends lead agencies coordinate with us as early as possible, since potential modification of the proposed Project may avoid or reduce impacts to fish and wildlife resources and expedite the Project approval process.

The following information will be required for the processing of an LSA Notification and CDFW recommends incorporating this information into any forthcoming CEQA document(s) to avoid subsequent documentation and Project delays:

1. Mapping and quantification of lakes, streams, and associated fish and wildlife habitat (e.g., riparian habitat, freshwater wetlands, etc.) that will be temporarily and/or permanently impacted by the Project, including impacts from access and staging areas. Please include an estimate of impact to each habitat type.
2. Discussion of specific avoidance, minimization, and mitigation measures to reduce Project impacts to fish and wildlife resources to a less-than-significant level. Please refer to section 15370 of the CEQA Guidelines.

Based on review of Project materials, aerial photography and observation of the site from public roadways, the Project site supports Laguna Creek and its associated riparian habitat. CDFW recommends the EIR fully identify the Project's potential impacts to the stream and/or its associated vegetation and wetlands.

### **ENVIRONMENTAL DATA**

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database, which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special-status species and natural communities detected during Project surveys to CNDDDB. The CNDDDB field survey form can be found at the following link: <https://www.wildlife.ca.gov/Data/CNDDDB/Submitting-Data>. The completed form can be submitted online or mailed electronically to CNDDDB at the following email address: [CNDDDB@wildlife.ca.gov](mailto:CNDDDB@wildlife.ca.gov).

### **FILING FEES**

The Project, as proposed, would have an effect on fish and wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the City of Elk Grove and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be

Summer Villas Special Planning Area

October 7, 2024

Page 12 of 13

operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code § 711.4; Pub. Resources Code, § 21089.)

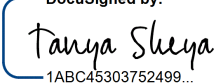
## CONCLUSION

Pursuant to Public Resources Code sections 21092 and 21092.2, CDFW requests written notification of proposed actions and pending decisions regarding the Project. Written notifications shall be directed to: California Department of Fish and Wildlife North Central Region, 1701 Nimbus Road, Rancho Cordova, CA 95670 or emailed to [R2CEQA@wildlife.ca.gov](mailto:R2CEQA@wildlife.ca.gov).

CDFW appreciates the opportunity to comment on the Notice of Preparation of the EIR for the Summer Villas Special Planning Area and recommends that the City of Elk Grove address CDFW's comments and concerns in the forthcoming EIR. CDFW personnel are available for consultation regarding biological resources and strategies to minimize impacts.

If you have any questions regarding the comments provided in this letter, or wish to schedule a meeting and/or site visit, please contact Harvey Tran, Senior Environmental Scientist (Specialist) at (916) 358-4035 or [harvey.tran@wildlife.ca.gov](mailto:harvey.tran@wildlife.ca.gov).

Sincerely,

DocuSigned by:  
  
1ABC45303752499...

Tanya Sheya  
Environmental Program Manager

ec: Dylan Wood, Senior Environmental Scientist (Supervisory)  
Harvey Tran, Senior Environmental Scientist (Specialist)  
*California Department of Fish and Wildlife*

Office of Planning and Research, State Clearinghouse, Sacramento

Summer Villas Special Planning Area

October 7, 2024

Page 13 of 13

## REFERENCES

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. A Manual of California Vegetation, 2<sup>nd</sup> ed. California Native Plant Society Press, Sacramento, California.

<http://vegetation.cnps.org/>



---

## Central Valley Regional Water Quality Control Board

9 September 2024

Kyra Killingsworth  
City of Elk Grove,  
Development Services Department  
8401 Laguna Palms Way  
Elk Grove, CA 95758  
[kkillingsworth@elkgrovecity.org](mailto:kkillingsworth@elkgrovecity.org)

### **COMMENTS TO REQUEST FOR REVIEW FOR THE NOTICE OF PREPARATION FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT, SUMMER VILLAS SPECIAL PLANNING AREA PROJECT, SCH#2024080407, SACRAMENTO COUNTY**

Pursuant to the State Clearinghouse's 9 August 2024 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Notice of Preparation for the Draft Environmental Impact Report* for the Summer Villas Special Planning Area Project, located in Sacramento County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

#### **I. Regulatory Setting**

##### **Basin Plan**

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as

required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases, the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues. For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:

[http://www.waterboards.ca.gov/centralvalley/water\\_issues/basin\\_plans/](http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/)

### **Antidegradation Considerations**

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at:

[https://www.waterboards.ca.gov/centralvalley/water\\_issues/basin\\_plans/sacsjr\\_2018\\_05.pdf](https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_2018_05.pdf)

In part it states:

*Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.*

*This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.*

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

## **II. Permitting Requirements**

### **Construction Storm Water General Permit**

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Construction General Permit Order No. 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention

Plan (SWPPP). For more information on the Construction General Permit, visit the State Water Resources Control Board website at:  
[http://www.waterboards.ca.gov/water\\_issues/programs/stormwater/constpermits.shtml](http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml)

### **Phase I and II Municipal Separate Storm Sewer System (MS4) Permits<sup>1</sup>**

The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:  
[http://www.waterboards.ca.gov/centralvalley/water\\_issues/storm\\_water/municipal\\_permits/](http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/)

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:  
[http://www.waterboards.ca.gov/water\\_issues/programs/stormwater/phase\\_ii\\_municipal.shtml](http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml)

### **Clean Water Act Section 404 Permit**

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACE). If a Section 404 permit is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements. If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

### **Clean Water Act Section 401 Permit – Water Quality Certification**

If an USACE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this

---

<sup>1</sup> Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications. For more information on the Water Quality Certification, visit the Central Valley Water Board website at:  
[https://www.waterboards.ca.gov/centralvalley/water\\_issues/water\\_quality\\_certification/](https://www.waterboards.ca.gov/centralvalley/water_issues/water_quality_certification/)

### **Waste Discharge Requirements – Discharges to Waters of the State**

If USACE determines that only non-jurisdictional waters of the State (i.e., “non-federal” waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation. For more information on the Waste Discharges to Surface Water NPDES Program and WDR processes, visit the Central Valley Water Board website at:  
[https://www.waterboards.ca.gov/centralvalley/water\\_issues/waste\\_to\\_surface\\_water/](https://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_surface_water/)

Projects involving excavation or fill activities impacting less than 0.2 acre or 400 linear feet of non-jurisdictional waters of the state and projects involving dredging activities impacting less than 50 cubic yards of non-jurisdictional waters of the state may be eligible for coverage under the State Water Resources Control Board Water Quality Order No. 2004-0004-DWQ (General Order 2004-0004). For more information on the General Order 2004-0004, visit the State Water Resources Control Board website at:

[https://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/water\\_quality/2004/wqo/wqo2004-0004.pdf](https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0004.pdf)

### **Dewatering Permit**

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Threat General Order) 2003-0003 or the Central Valley Water Board’s Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:

[http://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/water\\_quality/2003/wqo/wqo2003-0003.pdf](http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf)

For more information regarding the Low Threat Waiver and the application process, visit the Central Valley Water Board website at:

[https://www.waterboards.ca.gov/centralvalley/board\\_decisions/adopted\\_orders/waivers/r5-2018-0085.pdf](https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2018-0085.pdf)

**Limited Threat General NPDES Permit**

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Limited Threat Discharges to Surface Water* (Limited Threat General Order). A complete Notice of Intent must be submitted to the Central Valley Water Board to obtain coverage under the Limited Threat General Order. For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:

[https://www.waterboards.ca.gov/centralvalley/board\\_decisions/adopted\\_orders/general\\_orders/r5-2016-0076-01.pdf](https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2016-0076-01.pdf)

**NPDES Permit**

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit. For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at: <https://www.waterboards.ca.gov/centralvalley/help/permit/>

If you have questions regarding these comments, please contact me at (916) 464-4684 or Peter.Minkel2@waterboards.ca.gov.



Peter G. Minkel  
Engineering Geologist

cc: State Clearinghouse unit, Governor's Office of Planning and Research,  
Sacramento

James and Kendra Schmidt  
8861 Armaria Court  
Elk Grove, California 95624

October 4, 2024

City of Elk Grove Development Services Department  
Planning Division  
% Kyra Killingsworth  
8401 Laguna Palms Way  
Elk Grove, CA 95758

RE: Proposed rezone of Rural Residential Elk Grove for Summer Villas SPA

To Whom It May Concern:

We live at 8861 Armaria Court, Elk Grove, California and have a vested interest in maintaining rural Elk Grove. Our property abuts Waterman Road four houses in from the Sheldon / Waterman round-a-bout. From our backyard, we have enjoyed years of watching cows graze in the open space and have, thus far, enjoyed a rural lifestyle free from excessive noise, traffic and crowding where we can raise our young family.

When we purchased our home in September 2013, we were assured that zoning laws prohibited the open space behind us from being used for anything less than 2 acre lots. According to the City of Elk Grove website, Rural Elk Grove:

*“is the place that represents Elk Grove’s ‘Proud Heritage’ and agricultural roots. The rural Elk Grove community is a valuable asset to be preserved and appreciated (and City policies ensure this)” – elkgrovecity.org*

The developer’s proposal to drastically alter current zoning from 2-10 acre parcels to build 499 houses would be the beginning of the end for Rural Residential Elk Grove. Building parcels of this small, crowded nature resembling subdivisions throughout the city, *in the middle of an already deemed rural area*, would further displace wildlife, worsen traffic and safety, increase noise and put larger demands on our already stretched infrastructure such as water, roads, groceries, schools and access to medical services. If such a change is approved, the City of Elk

Grove would have largely failed to uphold what has long been preserved and would set a precedent for developers to seize the chance to rezone to their interest and desire.

We have yet to fully grasp how the 660 houses in the unfinished Elliott Springs development will further stretch and burden our infrastructure. In the eleven years we've lived here, with the repaving of Waterman and the construction of the round-a-bout at Waterman and Sheldon, we have seen a drastic increase in traffic congestion not only on these major roads, but also on our small cul-de-sac of twelve houses, where impatient drivers frequently speed to the end of our cul-de-sac only to realize the street does not go through and speed back to Sheldon Road. This has limited our children from riding bikes or scooters in the street as our older children were once able to do.

Building an additional 499 houses in this area would inevitably require widening of Waterman and Sheldon Roads, which would largely impact noise and highly diminish the rural feel of the area. There would also be significant construction along / under these roads to provide water, sewer and utilities to this one development in Rural Residential Elk Grove, where we live on wells and septic systems.

While we strongly oppose the rezoning of this land, we are not opposed to appropriate development consistent with current zoning of 2-10 acre parcels that does not disregard conservation of Rural Elk Grove. We hope the decision makers in this process have an appreciation for rural preservation and will truly consider how placing a gated, city-like subdivision in the middle of a rural area will negatively impact wildlife, traffic and safety, noise and further stretch infrastructure demands in the immediate and local areas.

We stand firmly with our neighbors in that this development proposal is highly inappropriate for this area and would lead to further destruction of Rural Elk Grove. The current zoning should be upheld and developers should not feel entitled to change a rural area zoning when they purchase land in a conserved rural area.

Thank you for your time and thoughtful consideration.

James and Kendra Schmidt

October 1, 2024

City of Elk Grove Developmental Services department, Planning Division  
c/o Kyra Killingsworth, Senior Planner  
Email: kkillgsworth@elkgrovecity.org

RE: Notice of Preparation of a Draft Environmental Impact Report for the Summer Villas SPA

Thank you for the opportunity to provide comments for the Summer Villas project.

The following should be included and addressed in the DEIR.

**Aesthetics:** This project will have significant impacts on the surrounding rural residential with the loss of low population density and loss of natural habitat for the birds and critters in the area. This needs to be addressed.

**Air Quality:** Sacramento Basin has the worst air quality. This needs to be addressed within the DEIR.

**Geological and Soils:** This land was used for farming and agricultural uses. Soiling sampling needs to be completed to determine if there are any harmful elements or chemicals that would affect people's health.

**Hydrology and Water:** The use of septic and wells within this project needs to be addressed as there is no sewer and water infrastructure to the site. The DEIR needs to identify the 200-year flood plain as well as the 100 year as noted on the map.

**Land use/Population/Housing:** This project is calling for a general plan amendment and rezone and is in direct conflict with the currently adopted General Plan and Zoning. Any mitigation measures noted in the General Plan would not adequately address this projects impact to the surrounding area.

**Public Services:** The response times of emergency services need to be addressed along with location of the public facilities.

**Transportation:** This site is located within the rural residential community with rural road standards. This project with its 3 gates on Sheldon Road will significantly impact the flow of traffic, road conditions, and safety. A statement of "overriding conditions on traffic impacts" is unacceptable and not valid in this situation.

Please keep me informed and updated on all aspects of this project.

Sincerely,

Lynn Wheat

**Dear City Council, Planning and EIR Staff,**

RE: Summer Villas NOP-EIR

My name is Mel Scott, and my wife and I have lived at 8655 Rubia Dr, off Sheldon and Waterman Road, for 14 years. We moved here specifically for the rural lifestyle that this area offers. On our property, we raise goats and chickens and maintain gardens—embracing the rural way of life that we, and many of our neighbors, value deeply.

But this lifestyle is under threat.

The relentless development that was approved years ago in what was once open space has already pushed wildlife into our community, the Sheldon Road Estates. We understand that some wildlife displacement is inevitable, but the consequences for us and our neighbors have been devastating. Predators like foxes and coyotes, driven out of their natural habitats, are now attacking our livestock. In the past six months alone, we've lost 3 of our 25 chickens, and one neighbor lost all 8 of their chickens. Another lost all 4 of his goats. These were not isolated incidents—they were the direct result of a fox and a coyote, forced into our area by reckless overdevelopment.

This isn't just about our animals. This is about protecting a way of life that your predecessors promised to preserve when they designated this area as rural residential.

Another critical issue is the safety of our equestrian community. The Sheldon Road Estates was designed in the 1970s for horseback riding, and residents still regularly ride across Sheldon Road to access trails. However, rising traffic and aggressive drivers have made this increasingly dangerous. Yet people still ride here because this is what the area was built for, and this is what we value.

Now, the council will be asked to consider a project that directly threatens all of this. The property under review for the NOP-EIR lies in the rural area that was clearly and intentionally zoned by the Elk Grove City Council to preserve its agricultural and residential character. Although the council members who made that decision may no longer be seated, the integrity of that decision must be respected. The boundaries set to protect this rural community should not be erased. Allowing up to 499 houses in this area would not only overwhelm local infrastructure but would also displace the remaining wildlife, inevitably forcing predators further into residential areas—directly endangering our livestock and the well-being of this community.

Beyond the displacement of wildlife, I urge the EIR staff to address another critical issue: the safety of horses and riders crossing Sheldon Road. The area is already hazardous, and increased development will only escalate this danger. Moreover, I am deeply concerned about the large amounts of asphalt grindings visible from the road. These materials sit perilously close to Laguna Creek, where runoff could easily contaminate this vital waterway. This kind of environmental negligence cannot be ignored.

I have attached photos that highlight the very essence of what's at stake here: the "Welcome to City of Elk Grove Rural Community" sign, the horse crossing signs on Sheldon Road, the horse riding easements, and the asphalt grindings. These images are more than just documentation—they are a reminder of the rural identity that Elk Grove once vowed to protect.

I ask you to honor the original intent of this zoning as rural residential Ag-Res 2. This isn't just about land use—it's about preserving a community, a lifestyle, and a promise that was made to those of us who chose to build our lives here. Approving this project would be a betrayal of that promise, and the consequences for both people and wildlife would be irreversible.

Please take these issues seriously as you review this project. The future of this community depends on it.

Sincerely,  
Mel Scott & Sandy Scott

Please see the attached photos that provide visual evidence of these concerns, including:

- The "Welcome to City of Elk Grove Rural Community" sign.
- Horse crossing signs and easements along Sheldon Road.
- Riders on horseback in the neighborhood.
- Asphalt grindings near Laguna Creek, both from the street and overhead.

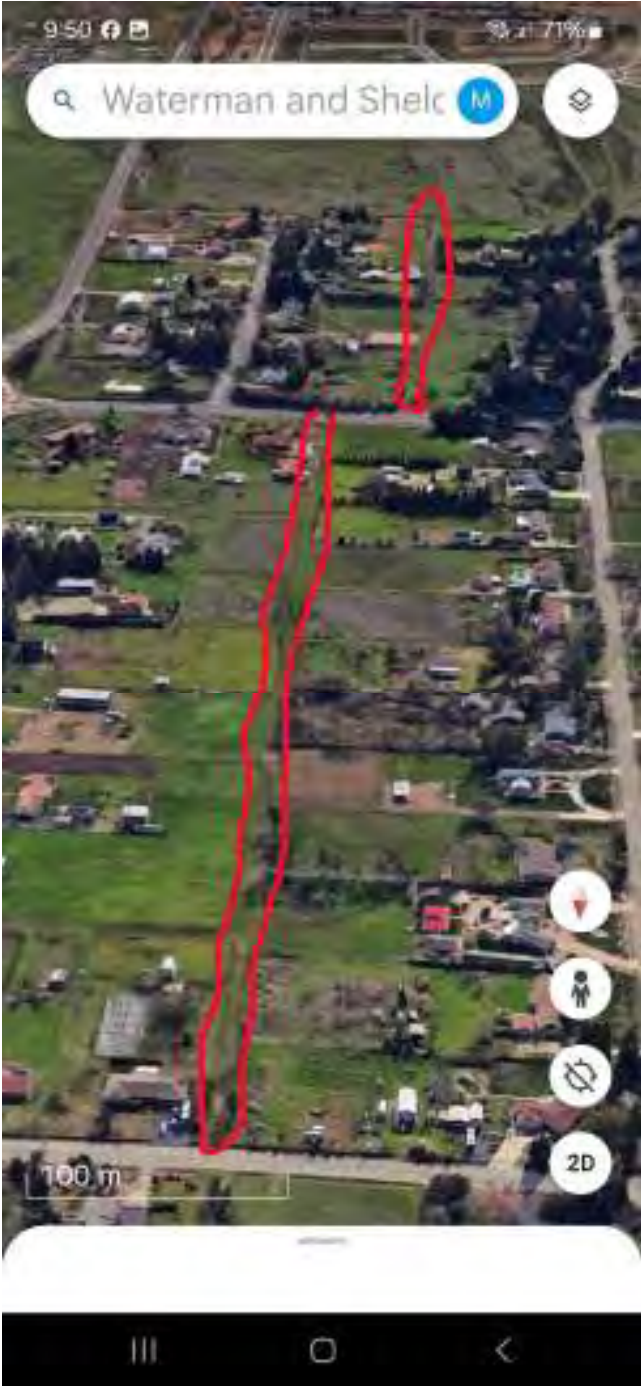








Horse riding easements along Sheldon Road.



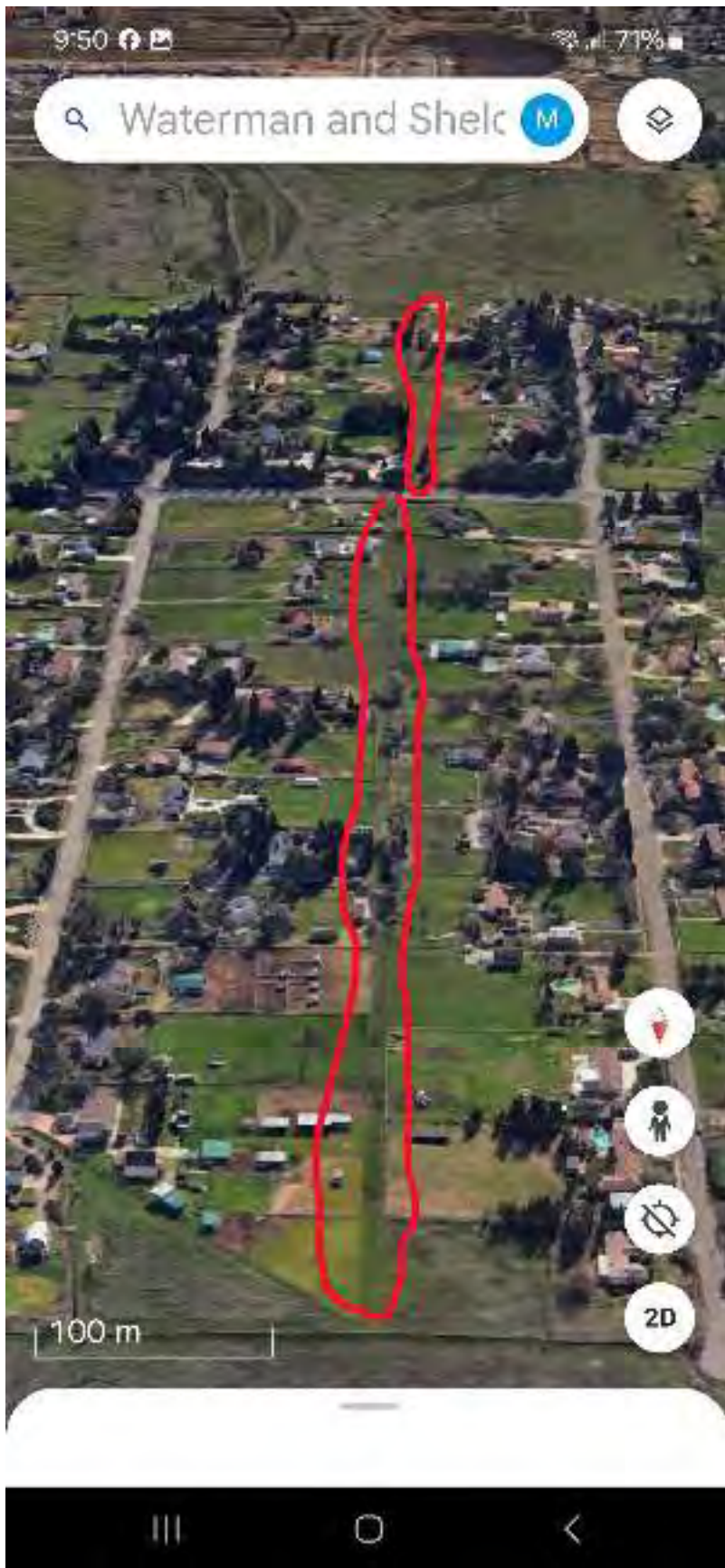




9:50

71%

Waterman and Shelc



100 m

- 📍
- 👤
- ⚙️
- 2D



9:51

71%



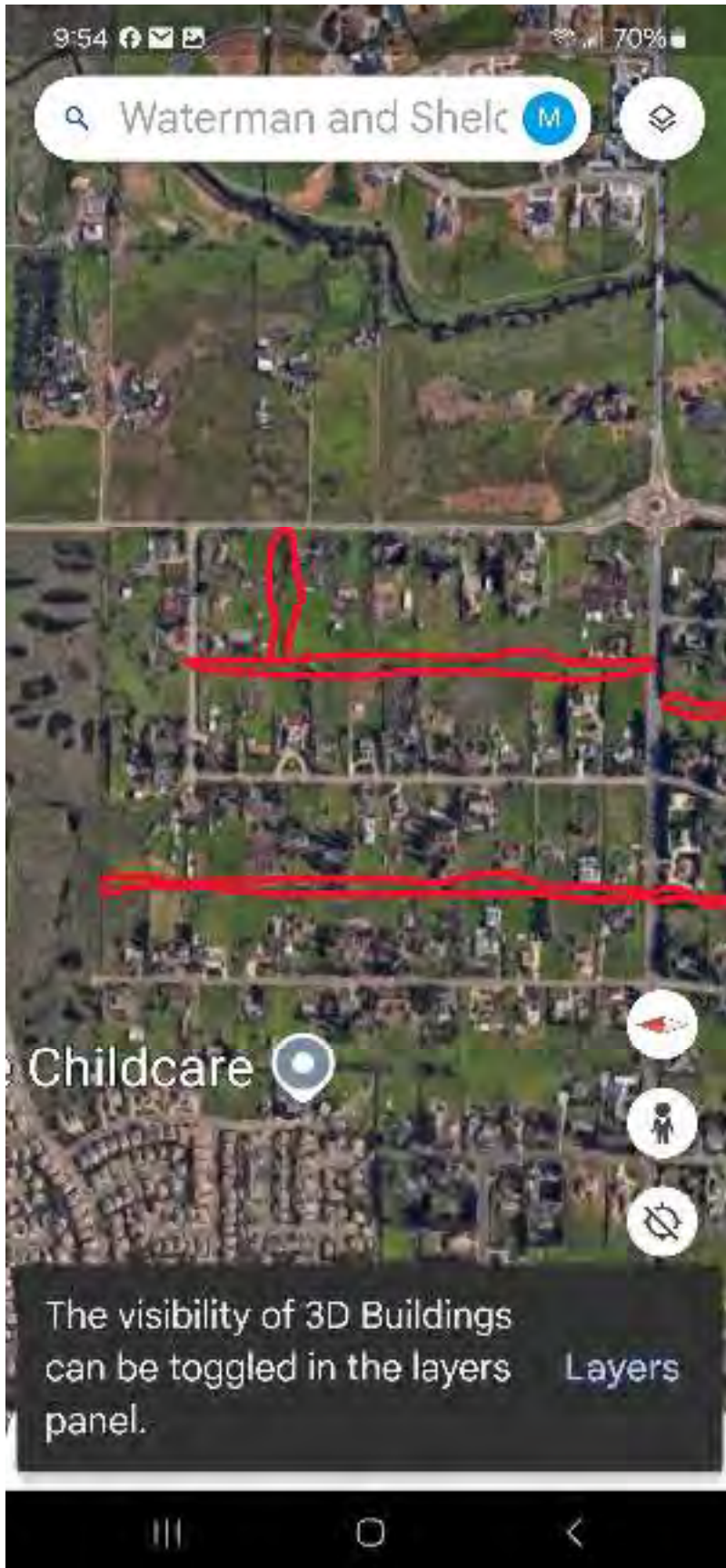
Waterman and Shelc

M



100 m







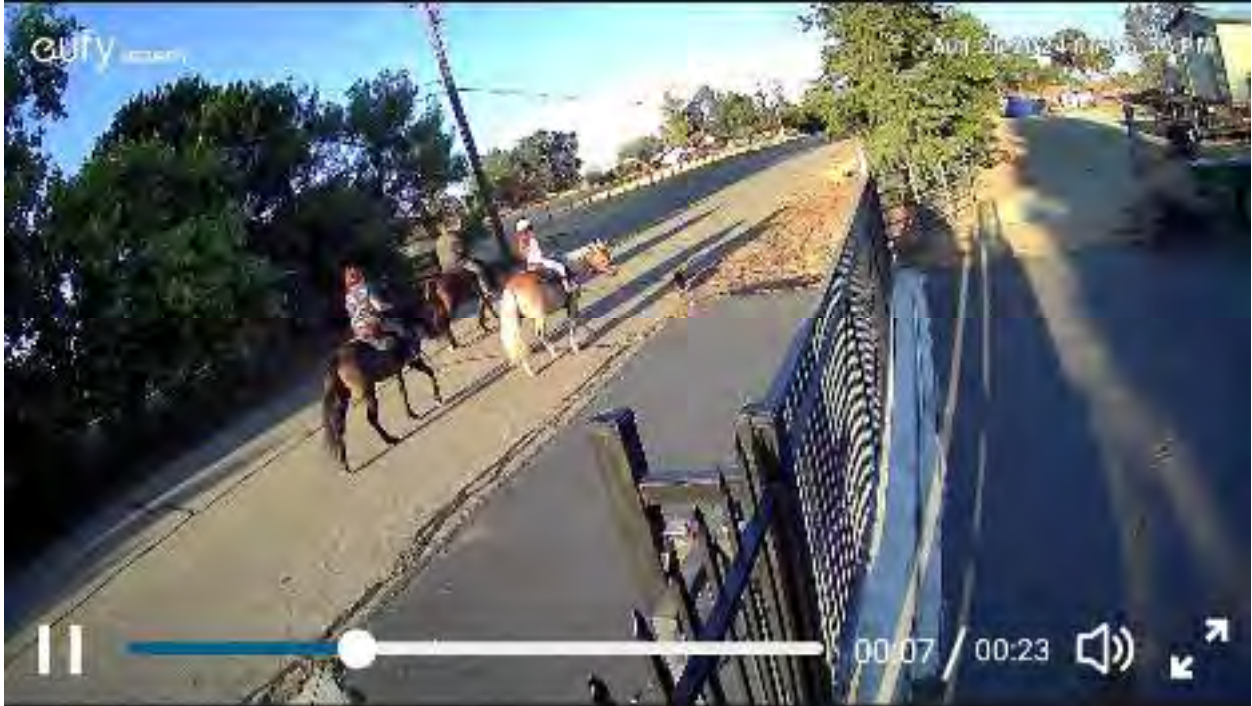
12:34

52%



Street East

2024/08/26 06:56:49 PM



Detected by **Local AI**

**Asphalt grindings**, which are the remnants from road resurfacing or construction, can pose environmental concerns, particularly in areas near watersheds like Laguna Creek. If not properly managed, these grindings may contain contaminants such as:

1. **Polycyclic Aromatic Hydrocarbons (PAHs):** A group of chemicals that can be harmful in large amounts, potentially leaching into the soil and groundwater.
2. **Heavy Metals:** Asphalt grindings can contain metals like lead, cadmium, and zinc, which could leach into groundwater and the creek.
3. **Petroleum Residues:** Since asphalt is petroleum-based, residues may degrade slowly, releasing hydrocarbons into nearby water systems.
4. **Fine Particles (Dust):** Erosion of the grindings may lead to sediment runoff into the creek, impacting water quality and aquatic ecosystems.

Given Laguna Creek's location above the groundwater table, if these grindings are left exposed or improperly stored, they could contribute to contamination of both surface water and groundwater. The creek and nearby wells could be impacted, leading to water quality degradation, harm to wildlife, and potential human health risks if the groundwater serves as a drinking source.













These photos show the location of asphalt grindings compared to the water retention and Laguna Creek runoff.

9:49

71%

Waterman and Shelc

M



80 m

2D



9:55

70%



Waterman and Shelc

M



Country Acres Childcare  
And Preschool

600 m



9:49

71%

Waterman and Shelc M



50 m

2D





## Greater Sheldon Road Estates Homeowners Association

---

October 8, 2024

City of Elk Grove Development Services Department, Planning Division  
c/o Kyra Killingsworth, Senior Planner  
Email: kkillingsworth@elkgrovecity.org

**RE: Notice of Preparation of a Draft Environmental Impact Report for the Summer Villas SPA**

Dear Ms. Killingsworth,

Shirley Peters founded the Greater Sheldon Road Estates Homeowners Association (GSREHA) in 1989 and was the organization's President until her death in April 2023. Although Shirley is not here to speak for herself, she wrote the attached letter that was published in the Elk Grove Citizen in December 2003. This letter seems appropriate to submit as concerning of the EIR being performed on behalf of the Summer Villas SPA proposal.

In the letter, the Sheldon Lakes proposal is now the Summer Villas SPA proposal. The Newland property is now the Sheldon Park Estates 2-acre development. The Sandage Road property is now developed into 4 2-acre and 1 12-acre parcels.

We submit this letter as a reminder of the long-term passion and dedication that GSREHA, under Shirley's leadership and continuing today, has committed to the preservation of the rural area since before Elk Grove cityhood. Imbedded in Shirley's letter are EIR-related concerns.

Sincerely,

Eileen Conwell, President

9601 Sandage Ave  
Elk Grove, CA 95624  
Email: frankneileen@comcast.net

Attachments



mal habitats, in addition to developing Ag/Res parcels as designated by the Elk Grove General Plan.

Clearly, the land surrounding the GSREHA properties has numerous existing natural wetlands, year-round water and open space. Bringing about bird/small animal habitats would be totally compatible to the area because of the lay of the land. This entire area is conducive to preserving unadulterated, natural habitats thus benefiting all Elk Grove residents. Creating a combination of Ag/Res 2-5 parcels, open spaces, natural wetlands, equestrian trails and bird habitats would be a win-win situation for all: the city of Elk Grove showing its faith and dedication to pre-

**See WILDLIFE on Page 12**

---

## Wildlife

---

**Continued from Page 9**

ing the character of Elk Grove; the developers who have shown in the past that they can build beautiful, creative Ag/Res parcels and still make substantial profits; the city of Elk Grove will benefit financially; and the infrastructure, roads, schools etc. will benefit because of the unsafe conditions and pressures caused by overbuilding will not exist. And, very importantly, the residents throughout the community – the constituents – will

benefit; these residents include the already established people as well as those who will move in to enjoy and help make our new city a thriving, beautiful, safe and well-planned community.

GSREHA members appreciate Councilman Cooper's support on this important matter. They are very civic minded and passionate about their new city and are concerned, not only about profit and economics, but about intangible elements that, if not present, can create a community of mediocrity, rather than one of excellence.

## COMMENTARY

# Coexistence of bird and wildlife habitats within the boundaries of Elk Grove

**By Shirley Peters**

President, Greater Sheldon Road Estates Homeowners Association

Referring to the *Elk Grove Citizen* article Nov. 26, 2003, regarding Councilman James Cooper's recommendation to look inside the city limits to replace endangered bird habitats lost to development, the members of the Greater Sheldon Road Estates Homeowners Association (GSREHA) concur with his innovative idea. They, too, feel that open spaces, wetlands, habitats for birds and

other small animals should be preserved throughout the city of Elk Grove, rather than situate them on large acreage on the outer boundaries of our community.

GSREHA members recommend several locations where these bird and wildlife habitats could be placed, as these properties contain natural wetlands, which should never be moved to other areas as suggested by developers. Establishing wetlands, open spaces, natural habitats would not degrade the existing visual character or qual-

ity of the following sites and surroundings.

These properties are:

Located on the corner of Sheldon Road, south and east of Waterman Road, known as the Sheldon Lakes proposal. GSREHA members have submitted a well-reasoned plan to the Planning Commission (copies were sent to the council members at that time and are on record with staff). This plan combines equestrian/nature trails with Ag/Res parcels. With a year-round stream in this locale, bird and wildlife habitats

could easily be included.

Located on the corner of Sheldon Road, north and east of Waterman Road, known as the Newland property. Again, this area can include bird habitats and equestrian/nature trails intertwined with Ag/Res parcels. These trails would be connected to the equestrian trails on Calvine Road. Also, there do exist wetlands and a year-round stream that can readily include bird and small animal habitats.

Centex proposal, located south of GSREHA Ag/

Res-2 properties, west of Waterman Road, north of Bond Road. This property has natural wetlands throughout and would be an excellent place for bird/wildlife habitats. In our suggested proposal for this area, GSREHA submitted to the city officials a plan to develop an urban forest abutting the already established GSREHA Ag/Res-2 parcels, also including additional, compatible Ag/Res parcels, interspersed with nature trails and paths throughout, where benches could be provided the community to use as quiet places on which to sit and meditate.

The property recently purchased on Sandage Road, known as the chicken farm, is another location that would be suitable for bird/small ani-

mal habitats developing Ag designated General Plan

Clearly, t ing the GSI has numero ral wetlands ter and open about bird/s tats would b ible to the a lay of the l area is cond ing unadul habitats th Elk Grove re a combinati parcels, open wetlands, e and bird ha win-win situ city of Elk C faith and d

**See WILDL**

**SUMMER VILLAS SPECIAL PLANNING AREA  
NOTICE OF PREPARATION (NOP) SCOPING MEETING**

**COMMENT FORM**

To document the author of comments received, please provide the following information. Thank you.

Name: Grant Lynes

Address: 8976 Mackey Rd., Elk Grove, CA 95624

Organization (if applicable): Rural/Residential Area

Please provide us with your written comments on the scope of the EIR by 5:00 PM, **October 9, 2024.**

NOTICE OF PREPARATION - Summer Villas - Draft EIR 8/9/24  
MAJOR CONCERNS: Proposed Sewer System Improvement Fig 7, p. 13  
a. West side <sup>near</sup> Sheldon \*Potential, secondary west basin location "  
(bottom area estimated at approximately 10% of tributary area area.  
b. South Side \*Preliminary west basin location (bottom area estimated  
at approximately 10% of tributary area area."  
c. East side: "Preliminary east basin location (bottom area estimated  
at approximately 10% of tributary area."

Note: If those preliminary basins are not juxtaposed on  
the lot development area and placed over the tributary area,  
where they will ACTUALLY finally be located, 50-60% of the  
drainage watercourse will be affected. If the 'flood basin'  
is developed with 50-60% in rectangular and irregular  
basins, much dirt will have to be moved and the potential  
exists for much of the watercourse to be channeled by a  
concrete-lined ditch and/or concrete edges on the basins, or  
a concrete basin. It is quite deceptive to not place the  
basins where they will potentially be located.

Where does the Army Corps of Engineers fit in —→  
over

Send comments to:

**Kyra Killingsworth, Senior Planner**  
**City of Elk Grove Development Services Department**  
**Planning Division**  
**8401 Laguna Palms Way**  
**Elk Grove, CA 95758**  
**killingsworth@elkgrovecity.org**

Additional Comments:

If any part of the proposed project is changed after the tentative approval, can the applicant make further changes, including "wiping the tentative proposed project clean" and submitting an entirely new project on the same site?

Since they are modifying the flood plain and modifying the watercourse?

Besides, What does this page have to do with sewers, since it is in the rural area???

AR/2

Pg. 10 "Sac Sewer was previously informed by the City of Elk Grove that the rural residential Sheldon area was not planned to be served by public sewers."

Why then is a developer trying to do an "end-around" and change what THE CITY OF ELK GROVE has already stated - "NO SEWERS IN THE RURAL SHELDON AREA!!!"???

**SUMMER VILLAS SPECIAL PLANNING AREA  
NOTICE OF PREPARATION (NOP) SCOPING MEETING**

**COMMENT FORM**

To document the author of comments received, please provide the following information. Thank you.

Name: Grant Lynes

Address: 8976 Mackey Rd., Elk Grove, CA 95624

Organization (if applicable): Rural/Residential Area

Please provide us with your written comments on the scope of the EIR by **5:00 PM, October 9, 2024.**

1. This proposal is surrounded by rural/residential on all sides: North, South, East and West.
2. The original plan submitted for the property was AR-2 to AR-5. Why the change to high-density housing??
3. This proposed high-density development CONFLICTS with the surrounding properties. !!!
4. With 499 homes in 69 acres, if you take away the sq. footage of the street/sidewalk area, it is more like 9-10 houses/acre and this is definitely HIGH DENSITY! Also in Calif. you can add an ADU up to the property line and these houses/dwelling units can also go vertical, (2-3) stories.
5. This proposal is in an AR-2 to AR-5 area established previously by the CITY OF ELK GROVE who stated: "NO SEWERS IN THE RURAL SHELDON AREA !!!", so why are the developers even talking about gravity sewer infrastructure...???

Send comments to:

**Kyra Killingsworth, Senior Planner**  
**City of Elk Grove Development Services Department**  
**Planning Division**  
**8401 Laguna Palms Way**  
**Elk Grove, CA 95758**  
**kkillingsworth@elkgrovecity.org**

**From:** [alvar362 University of Minnesota](#)  
**To:** [Kyra Killingsworth](#)  
**Subject:** Project at sheldon and waterman comments  
**Date:** Tuesday, October 8, 2024 4:07:05 PM

---

You don't often get email from [alvar362@umn.edu](mailto:alvar362@umn.edu). [Learn why this is important](#)

[EXTERNAL EMAIL]

Hello,

I am emailing you because I am **vehemently opposed** to the development "summer villas" that is proposed at the above intersection. I have many concerns which I will list below:

1. **That area is zoned as RURAL.** Changing the zoning changes the character of rural Elk Grove. The more developed it becomes, the more charm it loses. The beauty of rural Elk Grove is it's away from all the hustle and bustle of residential and commercial land closer to the 99 freeway.
2. **Light pollution.** At the moment, our property east of Waterman on Sheldon Rd has dark skies. You can see the stars at night. It is beautiful. This large development threatens our area with light pollution.
3. **Traffic.** The traffic on Sheldon Rd (a ONE LANE street) is already congested. Building more homes practically guarantees the traffic will grow exponentially on these one lane country roads. Sheldon will be gridlocked all the time.
4. **Noise.** It is quieter and peaceful in rural Elk Grove. We like it this way.
5. **Habitat loss** for the many species of mammals and birds that use the open fields to forage and hunt. There are foxes, raccoons, coyotes, hawks, rabbits, etc that are all being squeezed out of Elk Grove with all these developments that destroy their habitat.
6. **Climate change.** More cement and buildings with A/C just exacerbate the unbearable heat the sacramento area is subjected to. We need more trees and green spaces, not more carbon producing houses and businesses.
7. **Consumption of natural resources e.g. WATER.** We have a well and use water responsibly. California's ongoing drought has left the water table depleted and unable to replenish itself. Development will put even more strain on an already limited precious resource.

In summary, I staunchly disapprove of this development. The environmental impacts will be devastating to rural Elk Grove as more open space is paved over and lost to us. Once gone we can never get it back. Please think of future generations and oppose this frivolous development in favor of something more in line with the natural beauty of rural Elk Grove.

---

---

# Appendix C

---

---

# Summer Villas Unmitigated Custom Report

## Table of Contents

1. Basic Project Information
  - 1.1. Basic Project Information
  - 1.2. Land Use Types
  - 1.3. User-Selected Emission Reduction Measures by Emissions Sector
2. Emissions Summary
  - 2.1. Construction Emissions Compared Against Thresholds
  - 2.2. Construction Emissions by Year, Unmitigated
  - 2.4. Operations Emissions Compared Against Thresholds
  - 2.5. Operations Emissions by Sector, Unmitigated
3. Construction Emissions Details
  - 3.1. Demolition (2027) - Unmitigated
  - 3.3. Site Preparation (2027) - Unmitigated
  - 3.5. Grading (2027) - Unmitigated
  - 3.7. Grading (2028) - Unmitigated
  - 3.9. Building Construction (2028) - Unmitigated

3.11. Building Construction (2029) - Unmitigated

3.13. Paving (2028) - Unmitigated

3.15. Architectural Coating (2028) - Unmitigated

3.17. Architectural Coating (2029) - Unmitigated

3.19. Linear, Grubbing & Land Clearing (2027) - Unmitigated

3.21. Linear, Grading & Excavation (2027) - Unmitigated

3.23. Linear, Drainage, Utilities, & Sub-Grade (2027) - Unmitigated

3.25. Linear, Paving (2027) - Unmitigated

#### 4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.1. Unmitigated

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

#### 4.5. Waste Emissions by Land Use

##### 4.5.1. Unmitigated

#### 4.6. Refrigerant Emissions by Land Use

##### 4.6.1. Unmitigated

#### 4.7. Offroad Emissions By Equipment Type

##### 4.7.1. Unmitigated

#### 4.8. Stationary Emissions By Equipment Type

##### 4.8.1. Unmitigated

#### 4.9. User Defined Emissions By Equipment Type

##### 4.9.1. Unmitigated

#### 4.10. Soil Carbon Accumulation By Vegetation Type

##### 4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

##### 4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

##### 4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

#### 5. Activity Data

##### 5.1. Construction Schedule

##### 5.2. Off-Road Equipment

##### 5.2.1. Unmitigated

### 5.3. Construction Vehicles

#### 5.3.1. Unmitigated

### 5.4. Vehicles

#### 5.4.1. Construction Vehicle Control Strategies

### 5.5. Architectural Coatings

### 5.6. Dust Mitigation

#### 5.6.1. Construction Earthmoving Activities

#### 5.6.2. Construction Earthmoving Control Strategies

### 5.7. Construction Paving

### 5.8. Construction Electricity Consumption and Emissions Factors

### 5.9. Operational Mobile Sources

#### 5.9.1. Unmitigated

### 5.10. Operational Area Sources

#### 5.10.1. Hearths

##### 5.10.1.1. Unmitigated

#### 5.10.2. Architectural Coatings

#### 5.10.3. Landscape Equipment

### 5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

8. User Changes to Default Data

# 1. Basic Project Information

## 1.1. Basic Project Information

Data Field	Value
Project Name	Summer Villas Unmitigated
Construction Start Date	5/3/2027
Operational Year	2029
Lead Agency	City of Elk Grove
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	37.8
Location	38.43543172974972, -121.35071683505309
County	Sacramento
City	Elk Grove
Air District	Sacramento Metropolitan AQMD
Air Basin	Sacramento Valley
TAZ	739
EDFZ	13
Electric Utility	Sacramento Municipal Utility District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.30

## 1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Single Family Housing	499	Dwelling Unit	71.3	973,050	5,844,716	—	1,397	—

Other Asphalt Surfaces	5.00	Acre	5.00	0.00	0.00	—	—	—
User Defined Linear	4.54	Mile	0.85	0.00	0.00	—	—	—
Health Club	10.0	1000sqft	0.23	10,000	0.00	—	—	—
Parking Lot	80.0	Space	1.00	0.00	0.00	—	—	—

### 1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

## 2. Emissions Summary

### 2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	60.3	59.9	28.3	31.8	0.06	1.17	19.8	21.0	1.08	10.1	11.2	—	6,812	6,812	0.27	0.26	10.2	6,836
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	60.2	59.8	28.1	29.0	0.06	1.17	19.8	21.0	1.08	10.1	11.2	—	6,792	6,792	0.27	0.33	0.26	6,817
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	21.6	21.3	12.2	17.3	0.03	0.45	3.72	4.15	0.41	1.80	2.22	—	4,341	4,341	0.17	0.14	1.69	4,388
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.94	3.88	2.23	3.15	0.01	0.08	0.68	0.76	0.08	0.33	0.40	—	719	719	0.03	0.02	0.28	727

### 2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	3.95	3.33	28.3	31.8	0.05	1.17	19.8	21.0	1.08	10.1	11.2	—	5,538	5,538	0.22	0.06	1.50	5,564
2028	60.3	59.9	24.4	28.2	0.06	0.99	9.41	10.4	0.91	3.70	4.61	—	6,812	6,812	0.27	0.26	10.2	6,836
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	3.70	3.11	28.1	29.0	0.06	1.17	19.8	21.0	1.08	10.1	11.2	—	6,792	6,792	0.27	0.06	0.02	6,817
2028	60.2	59.8	24.4	27.9	0.06	0.99	9.41	10.4	0.91	3.70	4.61	—	6,788	6,788	0.27	0.33	0.26	6,814
2029	60.1	59.7	12.3	22.6	0.04	0.31	2.65	2.96	0.29	0.63	0.92	—	6,029	6,029	0.24	0.32	0.23	6,131
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.49	1.25	11.1	11.2	0.02	0.45	3.63	4.08	0.41	1.80	2.22	—	2,153	2,153	0.09	0.02	0.14	2,162
2028	21.6	21.3	12.2	17.3	0.03	0.43	3.72	4.15	0.39	1.32	1.71	—	4,341	4,341	0.17	0.14	1.69	4,388
2029	5.95	5.92	0.91	1.71	< 0.005	0.02	0.20	0.22	0.02	0.05	0.07	—	454	454	0.02	0.02	0.30	461
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.27	0.23	2.03	2.04	< 0.005	0.08	0.66	0.74	0.08	0.33	0.40	—	356	356	0.01	< 0.005	0.02	358
2028	3.94	3.88	2.23	3.15	0.01	0.08	0.68	0.76	0.07	0.24	0.31	—	719	719	0.03	0.02	0.28	727
2029	1.09	1.08	0.17	0.31	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	75.1	75.1	< 0.005	< 0.005	0.05	76.4

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	34.0	33.3	8.35	58.8	0.08	0.46	4.06	4.51	0.45	1.03	1.48	247	14,514	14,761	22.0	0.41	19.0	15,452

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	30.6	30.0	8.56	31.0	0.08	0.44	4.06	4.50	0.44	1.03	1.47	247	14,044	14,291	22.1	0.44	7.33	14,981
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	32.4	31.7	8.50	48.2	0.08	0.45	3.96	4.41	0.45	1.01	1.46	247	14,176	14,422	22.1	0.42	12.2	15,111
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.92	5.79	1.55	8.79	0.01	0.08	0.72	0.81	0.08	0.18	0.27	40.8	2,347	2,388	3.65	0.07	2.02	2,502

## 2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.18	6.90	3.02	27.8	0.05	0.04	4.06	4.09	0.03	1.03	1.06	—	4,901	4,901	0.38	0.29	12.0	5,008
Area	26.3	26.1	0.27	28.8	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	77.5	77.5	< 0.005	< 0.005	—	77.8
Energy	0.59	0.30	5.06	2.20	0.03	0.41	—	0.41	0.41	—	0.41	—	9,399	9,399	0.73	0.03	—	9,427
Water	—	—	—	—	—	—	—	—	—	—	—	38.9	137	176	0.14	0.09	—	205
Waste	—	—	—	—	—	—	—	—	—	—	—	208	0.00	208	20.8	0.00	—	727
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.02	7.02
Total	34.0	33.3	8.35	58.8	0.08	0.46	4.06	4.51	0.45	1.03	1.48	247	14,514	14,761	22.0	0.41	19.0	15,452
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	6.40	6.07	3.50	28.8	0.04	0.04	4.06	4.09	0.03	1.03	1.06	—	4,509	4,509	0.47	0.32	0.31	4,615
Area	23.6	23.6	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Energy	0.59	0.30	5.06	2.20	0.03	0.41	—	0.41	0.41	—	0.41	—	9,399	9,399	0.73	0.03	—	9,427

Water	—	—	—	—	—	—	—	—	—	—	—	38.9	137	176	0.14	0.09	—	205
Waste	—	—	—	—	—	—	—	—	—	—	—	208	0.00	208	20.8	0.00	—	727
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.02	7.02
Total	30.6	30.0	8.56	31.0	0.08	0.44	4.06	4.50	0.44	1.03	1.47	247	14,044	14,291	22.1	0.44	7.33	14,981
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	6.42	6.11	3.26	26.2	0.04	0.04	3.96	3.99	0.03	1.01	1.04	—	4,587	4,587	0.42	0.30	5.18	4,692
Area	25.4	25.3	0.18	19.7	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	53.1	53.1	< 0.005	< 0.005	—	53.3
Energy	0.59	0.30	5.06	2.20	0.03	0.41	—	0.41	0.41	—	0.41	—	9,399	9,399	0.73	0.03	—	9,427
Water	—	—	—	—	—	—	—	—	—	—	—	38.9	137	176	0.14	0.09	—	205
Waste	—	—	—	—	—	—	—	—	—	—	—	208	0.00	208	20.8	0.00	—	727
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.02	7.02
Total	32.4	31.7	8.50	48.2	0.08	0.45	3.96	4.41	0.45	1.01	1.46	247	14,176	14,422	22.1	0.42	12.2	15,111
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.17	1.12	0.59	4.78	0.01	0.01	0.72	0.73	0.01	0.18	0.19	—	759	759	0.07	0.05	0.86	777
Area	4.64	4.62	0.03	3.60	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	8.79	8.79	< 0.005	< 0.005	—	8.82
Energy	0.11	0.05	0.92	0.40	0.01	0.07	—	0.07	0.07	—	0.07	—	1,556	1,556	0.12	0.01	—	1,561
Water	—	—	—	—	—	—	—	—	—	—	—	6.43	22.7	29.1	0.02	0.01	—	33.9
Waste	—	—	—	—	—	—	—	—	—	—	—	34.4	0.00	34.4	3.44	0.00	—	120
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.16	1.16
Total	5.92	5.79	1.55	8.79	0.01	0.08	0.72	0.81	0.08	0.18	0.27	40.8	2,347	2,388	3.65	0.07	2.02	2,502

### 3. Construction Emissions Details

#### 3.1. Demolition (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.64	2.21	19.9	18.6	0.03	0.80	—	0.80	0.73	—	0.73	—	3,427	3,427	0.14	0.03	—	3,439
Demolition	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	0.61	5.45	5.10	0.01	0.22	—	0.22	0.20	—	0.20	—	939	939	0.04	0.01	—	942
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	1.00	0.93	< 0.005	0.04	—	0.04	0.04	—	0.04	—	155	155	0.01	< 0.005	—	156
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.06	0.06	0.04	0.80	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	164	164	< 0.005	0.01	0.54	166
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	31.1	31.1	< 0.005	< 0.005	0.06	32.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.16	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	40.9	40.9	< 0.005	< 0.005	0.06	41.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.53	8.53	< 0.005	< 0.005	0.01	8.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.78	6.78	< 0.005	< 0.005	0.01	6.87
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.41	1.41	< 0.005	< 0.005	< 0.005	1.48

### 3.3. Site Preparation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.63	3.05	28.0	28.3	0.05	1.17	—	1.17	1.08	—	1.08	—	5,298	5,298	0.21	0.04	—	5,316
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.63	3.05	28.0	28.3	0.05	1.17	—	1.17	1.08	—	1.08	—	5,298	5,298	0.21	0.04	—	5,316	
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.60	0.50	4.60	4.65	0.01	0.19	—	0.19	0.18	—	0.18	—	871	871	0.04	0.01	—	874	
Dust From Material Movement	—	—	—	—	—	—	3.23	3.23	—	1.66	1.66	—	—	—	—	—	—	—	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.84	0.85	< 0.005	0.04	—	0.04	0.03	—	0.03	—	144	144	0.01	< 0.005	—	145	
Dust From Material Movement	—	—	—	—	—	—	0.59	0.59	—	0.30	0.30	—	—	—	—	—	—	—	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.04	0.93	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	191	191	< 0.005	0.01	0.63	194
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	15.3	15.3	< 0.005	< 0.005	0.03	16.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.68	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	170	170	< 0.005	0.01	0.02	172
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	15.3	15.3	< 0.005	< 0.005	< 0.005	16.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.7	28.7	< 0.005	< 0.005	0.04	29.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.52	2.52	< 0.005	< 0.005	< 0.005	2.65
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.74	4.74	< 0.005	< 0.005	0.01	4.81
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.42	0.42	< 0.005	< 0.005	< 0.005	0.44

### 3.5. Grading (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.51	2.95	25.6	27.3	0.06	1.04	—	1.04	0.96	—	0.96	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.85	0.91	< 0.005	0.03	—	0.03	0.03	—	0.03	—	220	220	0.01	< 0.005	—	220
Dust From Material Movement	—	—	—	—	—	—	0.31	0.31	—	0.12	0.12	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.16	0.17	< 0.005	0.01	—	0.01	0.01	—	0.01	—	36.3	36.3	< 0.005	< 0.005	—	36.5
Dust From Material Movement	—	—	—	—	—	—	0.06	0.06	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.78	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	194	194	< 0.005	0.01	0.02	197
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.63	6.63	< 0.005	< 0.005	0.01	6.72
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.10	1.10	< 0.005	< 0.005	< 0.005	1.11
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.7. Grading (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.43	2.88	24.3	27.2	0.06	0.99	—	0.99	0.91	—	0.91	—	6,598	6,598	0.27	0.05	—	6,621

Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.43	2.88	24.3	27.2	0.06	0.99	—	0.99	0.91	—	0.91	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.01	0.85	7.19	8.03	0.02	0.29	—	0.29	0.27	—	0.27	—	1,950	1,950	0.08	0.02	—	1,956
Dust From Material Movement	—	—	—	—	—	—	2.72	2.72	—	1.08	1.08	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.16	1.31	1.47	< 0.005	0.05	—	0.05	0.05	—	0.05	—	323	323	0.01	< 0.005	—	324

Dust From Material Movement	—	—	—	—	—	—	0.50	0.50	—	0.20	0.20	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.04	1.00	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	214	214	< 0.005	< 0.005	0.65	215
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.73	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	190	190	< 0.005	0.01	0.02	193
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.22	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	57.7	57.7	< 0.005	< 0.005	0.08	58.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.55	9.55	< 0.005	< 0.005	0.01	9.68
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.9. Building Construction (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.36	3.27	4.73	0.01	0.11	—	0.11	0.10	—	0.10	—	877	877	0.04	0.01	—	880
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.60	0.86	< 0.005	0.02	—	0.02	0.02	—	0.02	—	145	145	0.01	< 0.005	—	146
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.70	0.63	0.40	9.16	0.00	0.00	1.86	1.86	0.00	0.44	0.44	—	1,968	1,968	0.02	0.01	6.00	1,978
Vendor	0.15	0.06	2.37	0.95	0.01	0.02	0.42	0.44	0.02	0.11	0.13	—	1,482	1,482	0.09	0.22	2.99	1,554
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.64	0.56	0.54	6.74	0.00	0.00	1.86	1.86	0.00	0.44	0.44	—	1,748	1,748	0.04	0.07	0.16	1,771
Vendor	0.15	0.05	2.53	0.98	0.01	0.02	0.42	0.44	0.02	0.11	0.13	—	1,482	1,482	0.09	0.22	0.08	1,551
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.21	0.17	2.52	0.00	0.00	0.66	0.66	0.00	0.16	0.16	—	657	657	0.01	0.03	0.95	665
Vendor	0.05	0.02	0.91	0.35	< 0.005	0.01	0.15	0.16	0.01	0.04	0.05	—	542	542	0.03	0.08	0.47	568
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.46	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	109	109	< 0.005	< 0.005	0.16	110
Vendor	0.01	< 0.005	0.17	0.06	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	89.8	89.8	0.01	0.01	0.08	94.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.11. Building Construction (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	0.97	8.58	12.9	0.02	0.28	—	0.28	0.25	—	0.25	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.62	0.93	< 0.005	0.02	—	0.02	0.02	—	0.02	—	174	174	0.01	< 0.005	—	174
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.11	0.17	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	28.7	28.7	< 0.005	< 0.005	—	28.8
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.61	0.54	0.48	6.34	0.00	0.00	1.86	1.86	0.00	0.44	0.44	—	1,717	1,717	0.04	0.07	0.14	1,740
Vendor	0.14	0.04	2.36	0.94	0.01	0.02	0.42	0.44	0.02	0.11	0.13	—	1,438	1,438	0.09	0.21	0.07	1,504
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.04	0.04	0.03	0.47	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	128	128	< 0.005	0.01	0.17	129
Vendor	0.01	< 0.005	0.17	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	104	104	0.01	0.02	0.08	109
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	21.1	21.1	< 0.005	< 0.005	0.03	21.4
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	17.2	17.2	< 0.005	< 0.005	0.01	18.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.13. Paving (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.90	0.90	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.36	0.54	< 0.005	0.01	—	0.01	0.01	—	0.01	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	0.05	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.03	0.75	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	161	161	< 0.005	< 0.005	0.49	161
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.02	8.02	< 0.005	< 0.005	0.01	8.13
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.33	1.33	< 0.005	< 0.005	< 0.005	1.35
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.15. Architectural Coating (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.81	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	58.0	58.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.81	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	58.0	58.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.27	0.38	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	45.2	45.2	< 0.005	< 0.005	—	45.4
Architectural Coatings	19.6	19.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	—	7.48	7.48	< 0.005	< 0.005	—	7.51
Architectural Coatings	3.58	3.58	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.13	0.08	1.83	0.00	0.00	0.37	0.37	0.00	0.09	0.09	—	394	394	< 0.005	< 0.005	1.20	396	
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.11	1.35	0.00	0.00	0.37	0.37	0.00	0.09	0.09	—	350	350	0.01	0.01	0.03	354	
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.47	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	121	121	< 0.005	< 0.005	0.18	123	
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	20.1	20.1	< 0.005	< 0.005	0.03	20.4	

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

### 3.17. Architectural Coating (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.79	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	58.0	58.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.3	13.3	< 0.005	< 0.005	—	13.4
Architectural Coatings	5.79	5.79	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.21	2.21	< 0.005	< 0.005	—	2.21
Architectural Coatings	1.06	1.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.10	1.27	0.00	0.00	0.37	0.37	0.00	0.09	0.09	—	343	343	0.01	0.01	0.03	348
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	35.2	35.2	< 0.005	< 0.005	0.05	35.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.82	5.82	< 0.005	< 0.005	0.01	5.90
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.19. Linear, Grubbing & Land Clearing (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.21. Linear, Grading & Excavation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.23. Linear, Drainage, Utilities, & Sub-Grade (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	0.96	8.24	11.0	0.02	0.26	—	0.26	0.24	—	0.24	—	1,643	1,643	0.07	0.01	—	1,649
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.16	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	31.5	31.5	< 0.005	< 0.005	—	31.6
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.22	5.22	< 0.005	< 0.005	—	5.24
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.06	1.33	0.00	0.00	0.25	0.25	0.00	0.06	0.06	—	273	273	< 0.005	0.01	0.90	277
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.78	4.78	< 0.005	< 0.005	0.01	4.84
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.79	0.79	< 0.005	< 0.005	< 0.005	0.80
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.25. Linear, Paving (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

## 4. Operations Emissions Details

### 4.1. Mobile Emissions by Land Use

#### 4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e	
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.18	6.90	3.02	27.8	0.05	0.04	4.06	4.09	0.03	1.03	1.06	—	4,901	4,901	0.38	0.29	12.0	5,008	
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Health Club	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	7.18	6.90	3.02	27.8	0.05	0.04	4.06	4.09	0.03	1.03	1.06	—	4,901	4,901	0.38	0.29	12.0	5,008	
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	6.40	6.07	3.50	28.8	0.04	0.04	4.06	4.09	0.03	1.03	1.06	—	4,509	4,509	0.47	0.32	0.31	4,615	

Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Health Club	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	6.40	6.07	3.50	28.8	0.04	0.04	4.06	4.09	0.03	1.03	1.06	—	4,509	4,509	0.47	0.32	0.31	4,615	
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Single Family Housing	1.17	1.12	0.59	4.78	0.01	0.01	0.72	0.73	0.01	0.18	0.19	—	759	759	0.07	0.05	0.86	777	
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	
Health Club	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	
Total	1.17	1.12	0.59	4.78	0.01	0.01	0.72	0.73	0.01	0.18	0.19	—	759	759	0.07	0.05	0.86	777	

## 4.2. Energy

### 4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	2,899	2,899	0.16	0.02	—	2,909

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	58.6	58.6	< 0.005	< 0.005	—	58.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	24.9	24.9	< 0.005	< 0.005	—	25.0
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,982	2,982	0.16	0.02	—	2,992
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	2,899	2,899	0.16	0.02	—	2,909
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	58.6	58.6	< 0.005	< 0.005	—	58.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	24.9	24.9	< 0.005	< 0.005	—	25.0
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,982	2,982	0.16	0.02	—	2,992
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	480	480	0.03	< 0.005	—	482
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	9.71	9.71	< 0.005	< 0.005	—	9.74
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	4.12	4.12	< 0.005	< 0.005	—	4.13
Total	—	—	—	—	—	—	—	—	—	—	—	—	494	494	0.03	< 0.005	—	495

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.58	0.29	4.96	2.11	0.03	0.40	—	0.40	0.40	—	0.40	—	6,290	6,290	0.56	0.01	—	6,307
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	127	127	0.01	< 0.005	—	127
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.59	0.30	5.06	2.20	0.03	0.41	—	0.41	0.41	—	0.41	—	6,417	6,417	0.57	0.01	—	6,434
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.58	0.29	4.96	2.11	0.03	0.40	—	0.40	0.40	—	0.40	—	6,290	6,290	0.56	0.01	—	6,307
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	127	127	0.01	< 0.005	—	127
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.59	0.30	5.06	2.20	0.03	0.41	—	0.41	0.41	—	0.41	—	6,417	6,417	0.57	0.01	—	6,434
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	0.11	0.05	0.90	0.38	0.01	0.07	—	0.07	0.07	—	0.07	—	1,041	1,041	0.09	< 0.005	—	1,044
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21.0	21.0	< 0.005	< 0.005	—	21.0
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.11	0.05	0.92	0.40	0.01	0.07	—	0.07	0.07	—	0.07	—	1,062	1,062	0.09	< 0.005	—	1,065

### 4.3. Area Emissions by Source

#### 4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	21.1	21.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	2.54	2.54	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	2.67	2.53	0.27	28.8	< 0.005	0.01	—	0.01	0.01	—	0.01	—	77.5	77.5	< 0.005	< 0.005	—	77.8
Total	26.3	26.1	0.27	28.8	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	77.5	77.5	< 0.005	< 0.005	—	77.8

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	21.1	21.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	2.54	2.54	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	23.6	23.6	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	3.84	3.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.46	0.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.33	0.32	0.03	3.60	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.79	8.79	< 0.005	< 0.005	—	8.82
Total	4.64	4.62	0.03	3.60	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	8.79	8.79	< 0.005	< 0.005	—	8.82

#### 4.4. Water Emissions by Land Use

##### 4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
----------	-----	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	---	------

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	37.6	136	174	0.14	0.08	—	202
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	1.26	1.04	2.31	< 0.005	< 0.005	—	3.24
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	38.9	137	176	0.14	0.09	—	205
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	37.6	136	174	0.14	0.08	—	202
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	1.26	1.04	2.31	< 0.005	< 0.005	—	3.24
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	38.9	137	176	0.14	0.09	—	205
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	6.22	22.5	28.7	0.02	0.01	—	33.4
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Health Club	—	—	—	—	—	—	—	—	—	—	—	0.21	0.17	0.38	< 0.005	< 0.005	—	0.54
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	6.43	22.7	29.1	0.02	0.01	—	33.9

## 4.5. Waste Emissions by Land Use

### 4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	177	0.00	177	17.7	0.00	—	619
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	30.7	0.00	30.7	3.07	0.00	—	107
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	208	0.00	208	20.8	0.00	—	727
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	177	0.00	177	17.7	0.00	—	619
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Health Club	—	—	—	—	—	—	—	—	—	—	—	30.7	0.00	30.7	3.07	0.00	—	107
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	208	0.00	208	20.8	0.00	—	727
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	29.3	0.00	29.3	2.93	0.00	—	103
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	5.09	0.00	5.09	0.51	0.00	—	17.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	34.4	0.00	34.4	3.44	0.00	—	120

## 4.6. Refrigerant Emissions by Land Use

### 4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.97	6.97
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.02	7.02

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.97	6.97
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.02	7.02
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.15	1.15
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.16	1.16

## 4.7. Offroad Emissions By Equipment Type

### 4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipm ent Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

## 4.8. Stationary Emissions By Equipment Type

### 4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipm ent Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

## 4.9. User Defined Emissions By Equipment Type

### 4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipm ent Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

#### 4.10. Soil Carbon Accumulation By Vegetation Type

##### 4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

##### 4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

#### 4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

## 5. Activity Data

### 5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	5/3/2027	9/20/2027	5.00	100	—
Site Preparation	Site Preparation	9/21/2027	12/14/2027	5.00	60.0	—
Grading	Grading	12/15/2027	5/30/2028	5.00	120	—
Building Construction	Building Construction	6/28/2028	2/6/2029	5.00	160	—
Paving	Paving	5/31/2028	6/27/2028	5.00	20.0	—
Architectural Coating	Architectural Coating	7/12/2028	2/20/2029	5.00	160	—
Linear, Grubbing & Land Clearing	Linear, Grubbing & Land Clearing	5/3/2027	5/5/2027	5.00	2.00	—
Linear, Grading & Excavation	Linear, Grading & Excavation	5/6/2027	5/17/2027	5.00	8.00	—
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	5/18/2027	5/27/2027	5.00	7.00	—
Linear, Paving	Linear, Paving	5/28/2027	6/1/2027	5.00	3.00	—

### 5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Back hoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Tractors/Loaders/Back hoes	Diesel	Average	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Back hoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Linear, Drainage, Utilities, & Sub-Grade	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Linear, Drainage, Utilities, & Sub-Grade	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73

Linear, Drainage, Utilities, & Sub-Grade	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Signal Boards	Diesel	Average	3.00	8.00	6.00	0.82
Linear, Drainage, Utilities, & Sub-Grade	Tractors/Loaders/Back hoes	Diesel	Average	2.00	7.00	84.0	0.37
Linear, Drainage, Utilities, & Sub-Grade	Trenchers	Diesel	Average	1.00	8.00	40.0	0.50
Linear, Drainage, Utilities, & Sub-Grade	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36

### 5.3. Construction Vehicles

#### 5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	14.3	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.80	HHDT,MHDT
Site Preparation	Hauling	0.22	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	14.3	LDA,LDT1,LDT2
Grading	Vendor	—	8.80	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	184	14.3	LDA,LDT1,LDT2
Building Construction	Vendor	55.0	8.80	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT

Paving	—	—	—	—
Paving	Worker	15.0	14.3	LDA,LDT1,LDT2
Paving	Vendor	—	8.80	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	36.8	14.3	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.80	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Linear, Grubbing & Land Clearing	—	—	—	—
Linear, Grubbing & Land Clearing	Worker	0.00	14.3	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00	8.80	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	0.00	20.0	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Grading & Excavation	—	—	—	—
Linear, Grading & Excavation	Worker	0.00	14.3	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	0.00	8.80	HHDT,MHDT
Linear, Grading & Excavation	Hauling	0.00	20.0	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT
Linear, Drainage, Utilities, & Sub-Grade	—	—	—	—
Linear, Drainage, Utilities, & Sub-Grade	Worker	25.0	14.3	LDA,LDT1,LDT2
Linear, Drainage, Utilities, & Sub-Grade	Vendor	0.00	8.80	HHDT,MHDT
Linear, Drainage, Utilities, & Sub-Grade	Hauling	0.00	20.0	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	—	—	HHDT

Linear, Paving	—	—	—	—
Linear, Paving	Worker	0.00	14.3	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00	8.80	HHDT,MHDT
Linear, Paving	Hauling	0.00	20.0	HHDT
Linear, Paving	Onsite truck	—	—	HHDT
Demolition	—	—	—	—
Demolition	Worker	15.0	14.3	LDA,LDT1,LDT2
Demolition	Vendor	—	8.80	HHDT,MHDT
Demolition	Hauling	0.44	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT

## 5.4. Vehicles

### 5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

## 5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	1,970,426	656,809	15,000	5,000	15,682

## 5.6. Dust Mitigation

### 5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	3,776	—
Site Preparation	—	100	90.0	0.00	—
Grading	—	—	360	0.00	—

Paving	0.00	0.00	0.00	0.00	12.4
Linear, Grubbing & Land Clearing	—	—	0.85	0.00	—
Linear, Grading & Excavation	—	—	0.85	0.00	—
Linear, Drainage, Utilities, & Sub-Grade	—	—	0.85	0.00	—

### 5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

### 5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Single Family Housing	5.50	0%
Other Asphalt Surfaces	5.00	100%
User Defined Linear	0.85	100%
Health Club	0.00	0%
Parking Lot	1.00	100%

### 5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2027	0.00	267	0.01	< 0.005
2028	0.00	253	0.01	< 0.005
2029	0.00	238	0.01	< 0.005

### 5.9. Operational Mobile Sources

#### 5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
---------------	---------------	----------------	--------------	------------	-------------	--------------	------------	----------

Single Family Housing	2,151	2,151	2,151	785,002	5,720	5,720	5,720	2,087,800
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Health Club	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

## 5.10. Operational Area Sources

### 5.10.1. Hearths

#### 5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	499
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

### 5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
1970426.25	656,809	15,000	5,000	15,682

### 5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

### 5.11. Operational Energy Consumption

#### 5.11.1. Unmitigated

#### Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	4,445,202	238	0.0129	0.0017	19,626,238
Other Asphalt Surfaces	0.00	238	0.0129	0.0017	0.00
Health Club	89,910	238	0.0129	0.0017	395,459
Parking Lot	38,159	238	0.0129	0.0017	0.00

### 5.12. Operational Water and Wastewater Consumption

#### 5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	17,594,241	99,769,161
Other Asphalt Surfaces	0.00	0.00
Health Club	591,431	0.00
Parking Lot	0.00	0.00

### 5.13. Operational Waste Generation

#### 5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	329	—
Other Asphalt Surfaces	0.00	—
Health Club	57.0	—
Parking Lot	0.00	—

## 5.14. Operational Refrigeration and Air Conditioning Equipment

### 5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Health Club	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Health Club	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

## 5.15. Operational Off-Road Equipment

### 5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
----------------	-----------	-------------	----------------	---------------	------------	-------------

## 5.16. Stationary Sources

### 5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
----------------	-----------	----------------	---------------	----------------	------------	-------------

### 5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)
----------------	-----------	--------	--------------------------	------------------------------	------------------------------

### 5.17. User Defined

Equipment Type	Fuel Type
----------------	-----------

### 5.18. Vegetation

#### 5.18.1. Land Use Change

##### 5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
--------------------------	----------------------	---------------	-------------

#### 5.18.1. Biomass Cover Type

##### 5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
--------------------	---------------	-------------

#### 5.18.2. Sequestration

##### 5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
-----------	--------	------------------------------	------------------------------

## 8. User Changes to Default Data

Screen	Justification
--------	---------------

Land Use	Lot acreage adjusted to represent overall acreage of the project site.
Operations: Vehicle Data	Trip rates and VMT adjusted to be consistent with traffic report prepared for the proposed project.
Construction: Construction Phases	Phase timing has been adjusted based on project-specific construction schedule. Based on typical construction practices, architectural coating assumed to start two weeks after the start of building construction and last for the same number of days.
Construction: Off-Road Equipment	Additional construction equipment included for construction of the offsite utility lines.

# Summer Villas Mitigated Custom Report

## Table of Contents

1. Basic Project Information
  - 1.1. Basic Project Information
  - 1.2. Land Use Types
  - 1.3. User-Selected Emission Reduction Measures by Emissions Sector
2. Emissions Summary
  - 2.1. Construction Emissions Compared Against Thresholds
  - 2.2. Construction Emissions by Year, Unmitigated
  - 2.3. Construction Emissions by Year, Mitigated
  - 2.4. Operations Emissions Compared Against Thresholds
  - 2.5. Operations Emissions by Sector, Unmitigated
  - 2.6. Operations Emissions by Sector, Mitigated
3. Construction Emissions Details
  - 3.1. Demolition (2027) - Unmitigated
  - 3.2. Demolition (2027) - Mitigated
  - 3.3. Site Preparation (2027) - Unmitigated

- 3.4. Site Preparation (2027) - Mitigated
- 3.5. Grading (2027) - Unmitigated
- 3.6. Grading (2027) - Mitigated
- 3.7. Grading (2028) - Unmitigated
- 3.8. Grading (2028) - Mitigated
- 3.9. Building Construction (2028) - Unmitigated
- 3.10. Building Construction (2028) - Mitigated
- 3.11. Building Construction (2029) - Unmitigated
- 3.12. Building Construction (2029) - Mitigated
- 3.13. Paving (2028) - Unmitigated
- 3.14. Paving (2028) - Mitigated
- 3.15. Architectural Coating (2028) - Unmitigated
- 3.16. Architectural Coating (2028) - Mitigated
- 3.17. Architectural Coating (2029) - Unmitigated
- 3.18. Architectural Coating (2029) - Mitigated
- 3.19. Linear, Grubbing & Land Clearing (2027) - Unmitigated
- 3.20. Linear, Grubbing & Land Clearing (2027) - Mitigated
- 3.21. Linear, Grading & Excavation (2027) - Unmitigated

3.22. Linear, Grading & Excavation (2027) - Mitigated

3.23. Linear, Drainage, Utilities, & Sub-Grade (2027) - Unmitigated

3.24. Linear, Drainage, Utilities, & Sub-Grade (2027) - Mitigated

3.25. Linear, Paving (2027) - Unmitigated

3.26. Linear, Paving (2027) - Mitigated

#### 4. Operations Emissions Details

##### 4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.1.2. Mitigated

##### 4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.2. Electricity Emissions By Land Use - Mitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.2.4. Natural Gas Emissions By Land Use - Mitigated

##### 4.3. Area Emissions by Source

4.3.1. Unmitigated

4.3.2. Mitigated

##### 4.4. Water Emissions by Land Use

4.4.1. Unmitigated

4.4.2. Mitigated

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

4.5.2. Mitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.6.2. Mitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.7.2. Mitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.8.2. Mitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.9.2. Mitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

## 5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.2.2. Mitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.3.2. Mitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.9.2. Mitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.10.4. Landscape Equipment - Mitigated

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.11.2. Mitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.12.2. Mitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.13.2. Mitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.14.2. Mitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.15.2. Mitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1.2. Mitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.1.2. Mitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

5.18.2.2. Mitigated

8. User Changes to Default Data

# 1. Basic Project Information

## 1.1. Basic Project Information

Data Field	Value
Project Name	Summer Villas Mitigated
Construction Start Date	5/3/2027
Operational Year	2029
Lead Agency	City of Elk Grove
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	37.8
Location	38.43543172974972, -121.35071683505309
County	Sacramento
City	Elk Grove
Air District	Sacramento Metropolitan AQMD
Air Basin	Sacramento Valley
TAZ	739
EDFZ	13
Electric Utility	Sacramento Municipal Utility District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.30

## 1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Single Family Housing	499	Dwelling Unit	71.3	973,050	5,844,716	—	1,397	—

Other Asphalt Surfaces	5.00	Acre	5.00	0.00	0.00	—	—	—
User Defined Linear	4.54	Mile	0.85	0.00	0.00	—	—	—
Health Club	10.0	1000sqft	0.23	10,000	0.00	—	—	—
Parking Lot	80.0	Space	1.00	0.00	0.00	—	—	—

### 1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers
Energy	E-1	Buildings Exceed 2019 Title 24 Building Envelope Energy Efficiency Standards
Water	W-7	Adopt a Water Conservation Strategy

## 2. Emissions Summary

### 2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	60.3	59.9	28.3	31.8	0.06	1.17	19.8	21.0	1.08	10.1	11.2	—	6,812	6,812	0.27	0.26	10.2	6,836
Mit.	59.3	59.1	9.71	36.3	0.06	0.16	19.8	19.9	0.16	10.1	10.2	—	6,812	6,812	0.27	0.26	10.2	6,836
% Reduced	2%	1%	66%	-14%	—	86%	—	5%	85%	—	9%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	60.2	59.8	28.1	29.0	0.06	1.17	19.8	21.0	1.08	10.1	11.2	—	6,792	6,792	0.27	0.33	0.26	6,817
Mit.	59.3	59.1	6.64	36.1	0.06	0.12	19.8	19.9	0.12	10.1	10.2	—	6,792	6,792	0.27	0.33	0.26	6,817

% Reduced	2%	1%	76%	-25%	—	89%	—	5%	89%	—	9%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	21.6	21.3	12.2	17.3	0.03	0.45	3.72	4.15	0.41	1.80	2.22	—	4,341	4,341	0.17	0.14	1.69	4,388
Mit.	20.4	20.3	3.81	20.4	0.03	0.08	3.72	3.80	0.08	1.80	1.84	—	4,341	4,341	0.17	0.14	1.69	4,388
% Reduced	6%	4%	69%	-18%	—	83%	—	8%	82%	—	17%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.94	3.88	2.23	3.15	0.01	0.08	0.68	0.76	0.08	0.33	0.40	—	719	719	0.03	0.02	0.28	727
Mit.	3.72	3.71	0.70	3.72	0.01	0.01	0.68	0.69	0.01	0.33	0.34	—	719	719	0.03	0.02	0.28	727
% Reduced	6%	4%	69%	-18%	—	83%	—	8%	82%	—	17%	—	—	—	—	—	—	—

## 2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	3.95	3.33	28.3	31.8	0.05	1.17	19.8	21.0	1.08	10.1	11.2	—	5,538	5,538	0.22	0.06	1.50	5,564
2028	60.3	59.9	24.4	28.2	0.06	0.99	9.41	10.4	0.91	3.70	4.61	—	6,812	6,812	0.27	0.26	10.2	6,836
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	3.70	3.11	28.1	29.0	0.06	1.17	19.8	21.0	1.08	10.1	11.2	—	6,792	6,792	0.27	0.06	0.02	6,817
2028	60.2	59.8	24.4	27.9	0.06	0.99	9.41	10.4	0.91	3.70	4.61	—	6,788	6,788	0.27	0.33	0.26	6,814
2029	60.1	59.7	12.3	22.6	0.04	0.31	2.65	2.96	0.29	0.63	0.92	—	6,029	6,029	0.24	0.32	0.23	6,131
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2027	1.49	1.25	11.1	11.2	0.02	0.45	3.63	4.08	0.41	1.80	2.22	—	2,153	2,153	0.09	0.02	0.14	2,162
2028	21.6	21.3	12.2	17.3	0.03	0.43	3.72	4.15	0.39	1.32	1.71	—	4,341	4,341	0.17	0.14	1.69	4,388
2029	5.95	5.92	0.91	1.71	< 0.005	0.02	0.20	0.22	0.02	0.05	0.07	—	454	454	0.02	0.02	0.30	461
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.27	0.23	2.03	2.04	< 0.005	0.08	0.66	0.74	0.08	0.33	0.40	—	356	356	0.01	< 0.005	0.02	358
2028	3.94	3.88	2.23	3.15	0.01	0.08	0.68	0.76	0.07	0.24	0.31	—	719	719	0.03	0.02	0.28	727
2029	1.09	1.08	0.17	0.31	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	75.1	75.1	< 0.005	< 0.005	0.05	76.4

### 2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.98	0.93	9.71	31.5	0.05	0.16	19.8	19.9	0.16	10.1	10.2	—	5,538	5,538	0.22	0.06	1.50	5,564
2028	59.3	59.1	6.31	36.3	0.06	0.12	9.41	9.53	0.12	3.70	3.83	—	6,812	6,812	0.27	0.26	10.2	6,836
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.71	0.70	4.49	36.1	0.06	0.12	19.8	19.9	0.12	10.1	10.2	—	6,792	6,792	0.27	0.06	0.02	6,817
2028	59.3	59.1	6.64	36.1	0.06	0.12	9.41	9.53	0.12	3.70	3.83	—	6,788	6,788	0.27	0.33	0.26	6,814
2029	59.2	59.0	6.40	24.3	0.04	0.10	2.65	2.74	0.10	0.63	0.73	—	6,029	6,029	0.24	0.32	0.23	6,131
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.24	0.24	1.95	11.4	0.02	0.04	3.63	3.67	0.04	1.80	1.84	—	2,153	2,153	0.09	0.02	0.14	2,162
2028	20.4	20.3	3.81	20.4	0.03	0.08	3.72	3.80	0.08	1.32	1.40	—	4,341	4,341	0.17	0.14	1.69	4,388
2029	5.88	5.87	0.47	1.84	< 0.005	0.01	0.20	0.20	0.01	0.05	0.05	—	454	454	0.02	0.02	0.30	461
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.04	0.04	0.36	2.07	< 0.005	0.01	0.66	0.67	0.01	0.33	0.34	—	356	356	0.01	< 0.005	0.02	358
2028	3.72	3.71	0.70	3.72	0.01	0.01	0.68	0.69	0.01	0.24	0.25	—	719	719	0.03	0.02	0.28	727

2029	1.07	1.07	0.09	0.34	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	75.1	75.1	< 0.005	< 0.005	0.05	76.4
------	------	------	------	------	---------	---------	------	------	---------	------	------	---	------	------	---------	---------	------	------

## 2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	33.4	33.0	3.08	54.1	0.04	0.05	3.45	3.49	0.04	0.88	0.92	247	7,418	7,665	21.4	0.37	17.2	8,329
Mit.	33.4	33.0	3.08	54.1	0.04	0.05	3.45	3.49	0.04	0.88	0.92	243	7,363	7,606	21.4	0.37	17.2	8,267
% Reduced	—	—	—	—	—	—	—	—	—	—	—	2%	1%	1%	< 0.5%	2%	—	1%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	29.9	29.6	3.26	27.0	0.04	0.03	3.45	3.48	0.03	0.88	0.91	247	7,009	7,256	21.5	0.40	7.28	7,920
Mit.	29.9	29.6	3.26	27.0	0.04	0.03	3.45	3.48	0.03	0.88	0.91	243	6,953	7,196	21.5	0.39	7.28	7,858
% Reduced	—	—	—	—	—	—	—	—	—	—	—	2%	1%	1%	< 0.5%	2%	—	1%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	31.7	31.4	3.21	44.1	0.04	0.04	3.36	3.41	0.04	0.85	0.89	247	7,128	7,374	21.5	0.39	11.4	8,037
Mit.	31.7	31.4	3.21	44.1	0.04	0.04	3.36	3.41	0.04	0.85	0.89	243	7,072	7,315	21.5	0.38	11.4	7,975
% Reduced	—	—	—	—	—	—	—	—	—	—	—	2%	1%	1%	< 0.5%	2%	—	1%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.79	5.72	0.59	8.04	0.01	0.01	0.61	0.62	0.01	0.16	0.16	40.8	1,180	1,221	3.56	0.06	1.89	1,331
Mit.	5.79	5.72	0.59	8.04	0.01	0.01	0.61	0.62	0.01	0.16	0.16	40.2	1,171	1,211	3.55	0.06	1.89	1,320
% Reduced	—	—	—	—	—	—	—	—	—	—	—	2%	1%	1%	< 0.5%	2%	—	1%

## 2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.09	6.82	2.81	25.3	0.04	0.03	3.45	3.48	0.03	0.88	0.91	—	4,222	4,222	0.36	0.27	10.2	4,320
Area	26.3	26.1	0.27	28.8	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	77.5	77.5	< 0.005	< 0.005	—	77.8
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	2,982	2,982	0.16	0.02	—	2,992
Water	—	—	—	—	—	—	—	—	—	—	—	38.9	137	176	0.14	0.09	—	205
Waste	—	—	—	—	—	—	—	—	—	—	—	208	0.00	208	20.8	0.00	—	727
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.02	7.02
Total	33.4	33.0	3.08	54.1	0.04	0.05	3.45	3.49	0.04	0.88	0.92	247	7,418	7,665	21.4	0.37	17.2	8,329
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	6.30	5.99	3.26	27.0	0.04	0.03	3.45	3.48	0.03	0.88	0.91	—	3,890	3,890	0.45	0.29	0.26	3,989
Area	23.6	23.6	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	2,982	2,982	0.16	0.02	—	2,992
Water	—	—	—	—	—	—	—	—	—	—	—	38.9	137	176	0.14	0.09	—	205
Waste	—	—	—	—	—	—	—	—	—	—	—	208	0.00	208	20.8	0.00	—	727
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.02	7.02
Total	29.9	29.6	3.26	27.0	0.04	0.03	3.45	3.48	0.03	0.88	0.91	247	7,009	7,256	21.5	0.40	7.28	7,920
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	6.32	6.04	3.03	24.3	0.04	0.03	3.36	3.40	0.03	0.85	0.88	—	3,956	3,956	0.40	0.28	4.40	4,053
Area	25.4	25.3	0.18	19.7	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	53.1	53.1	< 0.005	< 0.005	—	53.3
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	2,982	2,982	0.16	0.02	—	2,992
Water	—	—	—	—	—	—	—	—	—	—	—	38.9	137	176	0.14	0.09	—	205
Waste	—	—	—	—	—	—	—	—	—	—	—	208	0.00	208	20.8	0.00	—	727

Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.02	7.02
Total	31.7	31.4	3.21	44.1	0.04	0.04	3.36	3.41	0.04	0.85	0.89	247	7,128	7,374	21.5	0.39	11.4	8,037
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.15	1.10	0.55	4.44	0.01	0.01	0.61	0.62	0.01	0.16	0.16	—	655	655	0.07	0.05	0.73	671
Area	4.64	4.62	0.03	3.60	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	8.79	8.79	< 0.005	< 0.005	—	8.82
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	494	494	0.03	< 0.005	—	495
Water	—	—	—	—	—	—	—	—	—	—	—	6.43	22.7	29.1	0.02	0.01	—	33.9
Waste	—	—	—	—	—	—	—	—	—	—	—	34.4	0.00	34.4	3.44	0.00	—	120
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.16	1.16
Total	5.79	5.72	0.59	8.04	0.01	0.01	0.61	0.62	0.01	0.16	0.16	40.8	1,180	1,221	3.56	0.06	1.89	1,331

## 2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.09	6.82	2.81	25.3	0.04	0.03	3.45	3.48	0.03	0.88	0.91	—	4,222	4,222	0.36	0.27	10.2	4,320
Area	26.3	26.1	0.27	28.8	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	77.5	77.5	< 0.005	< 0.005	—	77.8
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	2,956	2,956	0.16	0.02	—	2,966
Water	—	—	—	—	—	—	—	—	—	—	—	35.1	108	143	0.13	0.08	—	169
Waste	—	—	—	—	—	—	—	—	—	—	—	208	0.00	208	20.8	0.00	—	727
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.02	7.02
Total	33.4	33.0	3.08	54.1	0.04	0.05	3.45	3.49	0.04	0.88	0.92	243	7,363	7,606	21.4	0.37	17.2	8,267
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	6.30	5.99	3.26	27.0	0.04	0.03	3.45	3.48	0.03	0.88	0.91	—	3,890	3,890	0.45	0.29	0.26	3,989
Area	23.6	23.6	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00

Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	2,956	2,956	0.16	0.02	—	2,966
Water	—	—	—	—	—	—	—	—	—	—	—	35.1	108	143	0.13	0.08	—	169
Waste	—	—	—	—	—	—	—	—	—	—	—	208	0.00	208	20.8	0.00	—	727
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.02	7.02
Total	29.9	29.6	3.26	27.0	0.04	0.03	3.45	3.48	0.03	0.88	0.91	243	6,953	7,196	21.5	0.39	7.28	7,858
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	6.32	6.04	3.03	24.3	0.04	0.03	3.36	3.40	0.03	0.85	0.88	—	3,956	3,956	0.40	0.28	4.40	4,053
Area	25.4	25.3	0.18	19.7	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	53.1	53.1	< 0.005	< 0.005	—	53.3
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	2,956	2,956	0.16	0.02	—	2,966
Water	—	—	—	—	—	—	—	—	—	—	—	35.1	108	143	0.13	0.08	—	169
Waste	—	—	—	—	—	—	—	—	—	—	—	208	0.00	208	20.8	0.00	—	727
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.02	7.02
Total	31.7	31.4	3.21	44.1	0.04	0.04	3.36	3.41	0.04	0.85	0.89	243	7,072	7,315	21.5	0.38	11.4	7,975
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.15	1.10	0.55	4.44	0.01	0.01	0.61	0.62	0.01	0.16	0.16	—	655	655	0.07	0.05	0.73	671
Area	4.64	4.62	0.03	3.60	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	8.79	8.79	< 0.005	< 0.005	—	8.82
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	489	489	0.03	< 0.005	—	491
Water	—	—	—	—	—	—	—	—	—	—	—	5.81	17.8	23.6	0.02	0.01	—	28.0
Waste	—	—	—	—	—	—	—	—	—	—	—	34.4	0.00	34.4	3.44	0.00	—	120
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.16	1.16
Total	5.79	5.72	0.59	8.04	0.01	0.01	0.61	0.62	0.01	0.16	0.16	40.2	1,171	1,211	3.55	0.06	1.89	1,320

### 3. Construction Emissions Details

#### 3.1. Demolition (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
----------	-----	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	---	------

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.64	2.21	19.9	18.6	0.03	0.80	—	0.80	0.73	—	0.73	—	3,427	3,427	0.14	0.03	—	3,439
Demolition	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	0.61	5.45	5.10	0.01	0.22	—	0.22	0.20	—	0.20	—	939	939	0.04	0.01	—	942
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	1.00	0.93	< 0.005	0.04	—	0.04	0.04	—	0.04	—	155	155	0.01	< 0.005	—	156
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.80	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	164	164	< 0.005	0.01	0.54	166
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	31.1	31.1	< 0.005	< 0.005	0.06	32.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.16	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	40.9	40.9	< 0.005	< 0.005	0.06	41.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.53	8.53	< 0.005	< 0.005	0.01	8.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.78	6.78	< 0.005	< 0.005	0.01	6.87
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.41	1.41	< 0.005	< 0.005	< 0.005	1.48

### 3.2. Demolition (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.36	4.51	18.2	0.03	0.06	—	0.06	0.06	—	0.06	—	3,427	3,427	0.14	0.03	—	3,439
Demolition	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.10	1.23	4.98	0.01	0.02	—	0.02	0.02	—	0.02	—	939	939	0.04	0.01	—	942	
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.23	0.91	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	155	155	0.01	< 0.005	—	156	
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.80	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	164	164	< 0.005	0.01	0.54	166	
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	31.1	31.1	< 0.005	< 0.005	0.06	32.7	
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.16	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	40.9	40.9	< 0.005	< 0.005	0.06	41.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.53	8.53	< 0.005	< 0.005	0.01	8.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.78	6.78	< 0.005	< 0.005	0.01	6.87
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.41	1.41	< 0.005	< 0.005	< 0.005	1.48

### 3.3. Site Preparation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.63	3.05	28.0	28.3	0.05	1.17	—	1.17	1.08	—	1.08	—	5,298	5,298	0.21	0.04	—	5,316
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.63	3.05	28.0	28.3	0.05	1.17	—	1.17	1.08	—	1.08	—	5,298	5,298	0.21	0.04	—	5,316

Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.60	0.50	4.60	4.65	0.01	0.19	—	0.19	0.18	—	0.18	—	871	871	0.04	0.01	—	874
Dust From Material Movement	—	—	—	—	—	—	3.23	3.23	—	1.66	1.66	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.84	0.85	< 0.005	0.04	—	0.04	0.03	—	0.03	—	144	144	0.01	< 0.005	—	145
Dust From Material Movement	—	—	—	—	—	—	0.59	0.59	—	0.30	0.30	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.04	0.93	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	191	191	< 0.005	0.01	0.63	194
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	15.3	15.3	< 0.005	< 0.005	0.03	16.1

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.68	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	170	170	< 0.005	0.01	0.02	172
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	15.3	15.3	< 0.005	< 0.005	< 0.005	16.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.7	28.7	< 0.005	< 0.005	0.04	29.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.52	2.52	< 0.005	< 0.005	< 0.005	2.65
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.74	4.74	< 0.005	< 0.005	0.01	4.81
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.42	0.42	< 0.005	< 0.005	< 0.005	0.44

### 3.4. Site Preparation (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50	0.50	2.59	28.3	0.05	0.10	—	0.10	0.10	—	0.10	—	5,298	5,298	0.21	0.04	—	5,316
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50	0.50	2.59	28.3	0.05	0.10	—	0.10	0.10	—	0.10	—	5,298	5,298	0.21	0.04	—	5,316	
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.08	0.43	4.65	0.01	0.02	—	0.02	0.02	—	0.02	—	871	871	0.04	0.01	—	874	
Dust From Material Movement	—	—	—	—	—	—	3.23	3.23	—	1.66	1.66	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.85	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	144	144	0.01	< 0.005	—	145	
Dust From Material Movement	—	—	—	—	—	—	0.59	0.59	—	0.30	0.30	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.04	0.93	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	191	191	< 0.005	0.01	0.63	194
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	15.3	15.3	< 0.005	< 0.005	0.03	16.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.68	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	170	170	< 0.005	0.01	0.02	172
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	15.3	15.3	< 0.005	< 0.005	< 0.005	16.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.7	28.7	< 0.005	< 0.005	0.04	29.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.52	2.52	< 0.005	< 0.005	< 0.005	2.65
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.74	4.74	< 0.005	< 0.005	0.01	4.81
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.42	0.42	< 0.005	< 0.005	< 0.005	0.44

### 3.5. Grading (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.51	2.95	25.6	27.3	0.06	1.04	—	1.04	0.96	—	0.96	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.85	0.91	< 0.005	0.03	—	0.03	0.03	—	0.03	—	220	220	0.01	< 0.005	—	220
Dust From Material Movement	—	—	—	—	—	—	0.31	0.31	—	0.12	0.12	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.16	0.17	< 0.005	0.01	—	0.01	0.01	—	0.01	—	36.3	36.3	< 0.005	< 0.005	—	36.5
Dust From Material Movement	—	—	—	—	—	—	0.06	0.06	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.78	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	194	194	< 0.005	0.01	0.02	197
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.63	6.63	< 0.005	< 0.005	0.01	6.72
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.10	1.10	< 0.005	< 0.005	< 0.005	1.11
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.6. Grading (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.64	0.64	4.43	35.3	0.06	0.12	—	0.12	0.12	—	0.12	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.15	1.18	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	220	220	0.01	< 0.005	—	220
Dust From Material Movement	—	—	—	—	—	—	0.31	0.31	—	0.12	0.12	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	36.3	36.3	< 0.005	< 0.005	—	36.5
Dust From Material Movement	—	—	—	—	—	—	0.06	0.06	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.78	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	194	194	< 0.005	0.01	0.02	197
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.63	6.63	< 0.005	< 0.005	0.01	6.72
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.10	1.10	< 0.005	< 0.005	< 0.005	1.11
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.7. Grading (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.43	2.88	24.3	27.2	0.06	0.99	—	0.99	0.91	—	0.91	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.43	2.88	24.3	27.2	0.06	0.99	—	0.99	0.91	—	0.91	—	6,598	6,598	0.27	0.05	—	6,621	
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.01	0.85	7.19	8.03	0.02	0.29	—	0.29	0.27	—	0.27	—	1,950	1,950	0.08	0.02	—	1,956	
Dust From Material Movement	—	—	—	—	—	—	2.72	2.72	—	1.08	1.08	—	—	—	—	—	—	—	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.16	1.31	1.47	< 0.005	0.05	—	0.05	0.05	—	0.05	—	323	323	0.01	< 0.005	—	324	
Dust From Material Movement	—	—	—	—	—	—	0.50	0.50	—	0.20	0.20	—	—	—	—	—	—	—	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.04	1.00	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	214	214	< 0.005	< 0.005	0.65	215
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.73	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	190	190	< 0.005	0.01	0.02	193
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.22	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	57.7	57.7	< 0.005	< 0.005	0.08	58.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.55	9.55	< 0.005	< 0.005	0.01	9.68
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.8. Grading (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.64	0.64	4.43	35.3	0.06	0.12	—	0.12	0.12	—	0.12	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.64	0.64	4.43	35.3	0.06	0.12	—	0.12	0.12	—	0.12	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.19	1.31	10.4	0.02	0.04	—	0.04	0.04	—	0.04	—	1,950	1,950	0.08	0.02	—	1,956
Dust From Material Movement	—	—	—	—	—	—	2.72	2.72	—	1.08	1.08	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.24	1.91	< 0.005	0.01	—	0.01	0.01	—	0.01	—	323	323	0.01	< 0.005	—	324

Dust From Material Movement	—	—	—	—	—	—	0.50	0.50	—	0.20	0.20	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.04	1.00	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	214	214	< 0.005	< 0.005	0.65	215
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.73	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	190	190	< 0.005	0.01	0.02	193
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.22	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	57.7	57.7	< 0.005	< 0.005	0.08	58.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.55	9.55	< 0.005	< 0.005	0.01	9.68
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.9. Building Construction (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.36	3.27	4.73	0.01	0.11	—	0.11	0.10	—	0.10	—	877	877	0.04	0.01	—	880
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.60	0.86	< 0.005	0.02	—	0.02	0.02	—	0.02	—	145	145	0.01	< 0.005	—	146
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.70	0.63	0.40	9.16	0.00	0.00	1.86	1.86	0.00	0.44	0.44	—	1,968	1,968	0.02	0.01	6.00	1,978
Vendor	0.15	0.06	2.37	0.95	0.01	0.02	0.42	0.44	0.02	0.11	0.13	—	1,482	1,482	0.09	0.22	2.99	1,554
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.64	0.56	0.54	6.74	0.00	0.00	1.86	1.86	0.00	0.44	0.44	—	1,748	1,748	0.04	0.07	0.16	1,771
Vendor	0.15	0.05	2.53	0.98	0.01	0.02	0.42	0.44	0.02	0.11	0.13	—	1,482	1,482	0.09	0.22	0.08	1,551
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.21	0.17	2.52	0.00	0.00	0.66	0.66	0.00	0.16	0.16	—	657	657	0.01	0.03	0.95	665
Vendor	0.05	0.02	0.91	0.35	< 0.005	0.01	0.15	0.16	0.01	0.04	0.05	—	542	542	0.03	0.08	0.47	568
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.46	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	109	109	< 0.005	< 0.005	0.16	110
Vendor	0.01	< 0.005	0.17	0.06	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	89.8	89.8	0.01	0.01	0.08	94.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.10. Building Construction (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.35	0.33	2.81	14.8	0.02	0.07	—	0.07	0.07	—	0.07	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.33	2.81	14.8	0.02	0.07	—	0.07	0.07	—	0.07	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.12	1.03	5.42	0.01	0.03	—	0.03	0.03	—	0.03	—	877	877	0.04	0.01	—	880
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.19	0.99	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	145	145	0.01	< 0.005	—	146
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.70	0.63	0.40	9.16	0.00	0.00	1.86	1.86	0.00	0.44	0.44	—	1,968	1,968	0.02	0.01	6.00	1,978
Vendor	0.15	0.06	2.37	0.95	0.01	0.02	0.42	0.44	0.02	0.11	0.13	—	1,482	1,482	0.09	0.22	2.99	1,554
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.64	0.56	0.54	6.74	0.00	0.00	1.86	1.86	0.00	0.44	0.44	—	1,748	1,748	0.04	0.07	0.16	1,771
Vendor	0.15	0.05	2.53	0.98	0.01	0.02	0.42	0.44	0.02	0.11	0.13	—	1,482	1,482	0.09	0.22	0.08	1,551
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.21	0.17	2.52	0.00	0.00	0.66	0.66	0.00	0.16	0.16	—	657	657	0.01	0.03	0.95	665
Vendor	0.05	0.02	0.91	0.35	< 0.005	0.01	0.15	0.16	0.01	0.04	0.05	—	542	542	0.03	0.08	0.47	568
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.46	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	109	109	< 0.005	< 0.005	0.16	110
Vendor	0.01	< 0.005	0.17	0.06	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	89.8	89.8	0.01	0.01	0.08	94.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.11. Building Construction (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	0.97	8.58	12.9	0.02	0.28	—	0.28	0.25	—	0.25	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.62	0.93	< 0.005	0.02	—	0.02	0.02	—	0.02	—	174	174	0.01	< 0.005	—	174
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.11	0.17	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	28.7	28.7	< 0.005	< 0.005	—	28.8
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.61	0.54	0.48	6.34	0.00	0.00	1.86	1.86	0.00	0.44	0.44	—	1,717	1,717	0.04	0.07	0.14	1,740
Vendor	0.14	0.04	2.36	0.94	0.01	0.02	0.42	0.44	0.02	0.11	0.13	—	1,438	1,438	0.09	0.21	0.07	1,504
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.47	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	128	128	< 0.005	0.01	0.17	129
Vendor	0.01	< 0.005	0.17	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	104	104	0.01	0.02	0.08	109
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	21.1	21.1	< 0.005	< 0.005	0.03	21.4
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	17.2	17.2	< 0.005	< 0.005	0.01	18.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.12. Building Construction (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.33	2.81	14.8	0.02	0.07	—	0.07	0.07	—	0.07	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.20	1.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	174	174	0.01	< 0.005	—	174
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.04	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	28.7	28.7	< 0.005	< 0.005	—	28.8
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.61	0.54	0.48	6.34	0.00	0.00	1.86	1.86	0.00	0.44	0.44	—	1,717	1,717	0.04	0.07	0.14	1,740
Vendor	0.14	0.04	2.36	0.94	0.01	0.02	0.42	0.44	0.02	0.11	0.13	—	1,438	1,438	0.09	0.21	0.07	1,504
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.47	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	128	128	< 0.005	0.01	0.17	129
Vendor	0.01	< 0.005	0.17	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	104	104	0.01	0.02	0.08	109
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	21.1	21.1	< 0.005	< 0.005	0.03	21.4
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	17.2	17.2	< 0.005	< 0.005	0.01	18.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.13. Paving (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.90	0.90	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.36	0.54	< 0.005	0.01	—	0.01	0.01	—	0.01	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	0.05	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.03	0.75	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	161	161	< 0.005	< 0.005	0.49	161
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.02	8.02	< 0.005	< 0.005	0.01	8.13
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.33	1.33	< 0.005	< 0.005	< 0.005	1.35	
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	

### 3.14. Paving (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	0.36	2.30	10.6	0.01	0.09	—	0.09	0.08	—	0.08	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.90	0.90	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.13	0.58	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	0.05	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	0.02	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.03	0.75	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	161	161	< 0.005	< 0.005	0.49	161
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.02	8.02	< 0.005	< 0.005	0.01	8.13
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.33	1.33	< 0.005	< 0.005	< 0.005	1.35
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.15. Architectural Coating (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.81	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	58.0	58.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.81	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	58.0	58.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.27	0.38	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	45.2	45.2	< 0.005	< 0.005	—	45.4
Architectural Coatings	19.6	19.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.48	7.48	< 0.005	< 0.005	—	7.51
Architectural Coatings	3.58	3.58	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.13	0.08	1.83	0.00	0.00	0.37	0.37	0.00	0.09	0.09	—	394	394	< 0.005	< 0.005	1.20	396
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.11	1.35	0.00	0.00	0.37	0.37	0.00	0.09	0.09	—	350	350	0.01	0.01	0.03	354
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.47	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	121	121	< 0.005	< 0.005	0.18	123
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	20.1	20.1	< 0.005	< 0.005	0.03	20.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.16. Architectural Coating (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.65	0.96	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	58.0	58.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.65	0.96	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	58.0	58.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.22	0.33	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	45.2	45.2	< 0.005	< 0.005	—	45.4

Architect Coatings	19.6	19.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.04	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.48	7.48	< 0.005	< 0.005	—	7.51
Architectural Coatings	3.58	3.58	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.13	0.08	1.83	0.00	0.00	0.37	0.37	0.00	0.09	0.09	—	394	394	< 0.005	< 0.005	1.20	396
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.11	1.35	0.00	0.00	0.37	0.37	0.00	0.09	0.09	—	350	350	0.01	0.01	0.03	354
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.47	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	121	121	< 0.005	< 0.005	0.18	123
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	20.1	20.1	< 0.005	< 0.005	0.03	20.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.17. Architectural Coating (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.79	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	58.0	58.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.3	13.3	< 0.005	< 0.005	—	13.4
Architectural Coatings	5.79	5.79	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	—	2.21	2.21	< 0.005	< 0.005	—	2.21
Architectural Coatings	1.06	1.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.10	1.27	0.00	0.00	0.37	0.37	0.00	0.09	0.09	—	343	343	0.01	0.01	0.03	348	
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	35.2	35.2	< 0.005	< 0.005	0.05	35.7	
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.82	5.82	< 0.005	< 0.005	0.01	5.90	
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00

### 3.18. Architectural Coating (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.65	0.96	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	58.0	58.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.06	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.3	13.3	< 0.005	< 0.005	—	13.4
Architectural Coatings	5.79	5.79	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.21	2.21	< 0.005	< 0.005	—	2.21
Architectural Coatings	1.06	1.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.10	1.27	0.00	0.00	0.37	0.37	0.00	0.09	0.09	—	343	343	0.01	0.01	0.03	348
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	35.2	35.2	< 0.005	< 0.005	0.05	35.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.82	5.82	< 0.005	< 0.005	0.01	5.90
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.19. Linear, Grubbing & Land Clearing (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.20. Linear, Grubbing & Land Clearing (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.21. Linear, Grading & Excavation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.22. Linear, Grading & Excavation (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.23. Linear, Drainage, Utilities, & Sub-Grade (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	0.96	8.24	11.0	0.02	0.26	—	0.26	0.24	—	0.24	—	1,643	1,643	0.07	0.01	—	1,649
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.16	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	31.5	31.5	< 0.005	< 0.005	—	31.6
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.22	5.22	< 0.005	< 0.005	—	5.24
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.06	1.33	0.00	0.00	0.25	0.25	0.00	0.06	0.06	—	273	273	< 0.005	0.01	0.90	277
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.78	4.78	< 0.005	< 0.005	0.01	4.84
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.79	0.79	< 0.005	< 0.005	< 0.005	0.80
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.24. Linear, Drainage, Utilities, & Sub-Grade (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.46	0.41	5.05	11.2	0.02	0.10	—	0.10	0.09	—	0.09	—	1,643	1,643	0.07	0.01	—	1,649
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.22	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	31.5	31.5	< 0.005	< 0.005	—	31.6
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.22	5.22	< 0.005	< 0.005	—	5.24

Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.06	1.33	0.00	0.00	0.25	0.25	0.00	0.06	0.06	—	273	273	< 0.005	0.01	0.90	277
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.78	4.78	< 0.005	< 0.005	0.01	4.84
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.79	0.79	< 0.005	< 0.005	< 0.005	0.80
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.25. Linear, Paving (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
---------	------	------	------	------	------	------	------	------	------	------	------	------	---	------	------	------	------	------

### 3.26. Linear, Paving (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

## 4. Operations Emissions Details

### 4.1. Mobile Emissions by Land Use

#### 4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	7.09	6.82	2.81	25.3	0.04	0.03	3.45	3.48	0.03	0.88	0.91	—	4,222	4,222	0.36	0.27	10.2	4,320
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Health Club	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	7.09	6.82	2.81	25.3	0.04	0.03	3.45	3.48	0.03	0.88	0.91	—	4,222	4,222	0.36	0.27	10.2	4,320

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	6.30	5.99	3.26	27.0	0.04	0.03	3.45	3.48	0.03	0.88	0.91	—	3,890	3,890	0.45	0.29	0.26	3,989
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Health Club	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	6.30	5.99	3.26	27.0	0.04	0.03	3.45	3.48	0.03	0.88	0.91	—	3,890	3,890	0.45	0.29	0.26	3,989
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	1.15	1.10	0.55	4.44	0.01	0.01	0.61	0.62	0.01	0.16	0.16	—	655	655	0.07	0.05	0.73	671
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Health Club	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.15	1.10	0.55	4.44	0.01	0.01	0.61	0.62	0.01	0.16	0.16	—	655	655	0.07	0.05	0.73	671

#### 4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	7.09	6.82	2.81	25.3	0.04	0.03	3.45	3.48	0.03	0.88	0.91	—	4,222	4,222	0.36	0.27	10.2	4,320
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Health Club	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	7.09	6.82	2.81	25.3	0.04	0.03	3.45	3.48	0.03	0.88	0.91	—	4,222	4,222	0.36	0.27	10.2	4,320
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	6.30	5.99	3.26	27.0	0.04	0.03	3.45	3.48	0.03	0.88	0.91	—	3,890	3,890	0.45	0.29	0.26	3,989
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Health Club	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	6.30	5.99	3.26	27.0	0.04	0.03	3.45	3.48	0.03	0.88	0.91	—	3,890	3,890	0.45	0.29	0.26	3,989
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	1.15	1.10	0.55	4.44	0.01	0.01	0.61	0.62	0.01	0.16	0.16	—	655	655	0.07	0.05	0.73	671
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Health Club	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Total	1.15	1.10	0.55	4.44	0.01	0.01	0.61	0.62	0.01	0.16	0.16	—	655	655	0.07	0.05	0.73	671
-------	------	------	------	------	------	------	------	------	------	------	------	---	-----	-----	------	------	------	-----

## 4.2. Energy

### 4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	2,899	2,899	0.16	0.02	—	2,909
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	58.6	58.6	< 0.005	< 0.005	—	58.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	24.9	24.9	< 0.005	< 0.005	—	25.0
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,982	2,982	0.16	0.02	—	2,992
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	2,899	2,899	0.16	0.02	—	2,909
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	58.6	58.6	< 0.005	< 0.005	—	58.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	24.9	24.9	< 0.005	< 0.005	—	25.0

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	2,982	2,982	0.16	0.02	—	2,992
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	480	480	0.03	< 0.005	—	482
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	9.71	9.71	< 0.005	< 0.005	—	9.74
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	—	4.12	4.12	< 0.005	< 0.005	—	4.13
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	494	494	0.03	< 0.005	—	495

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	2,872	2,872	0.16	0.02	—	2,882
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	58.6	58.6	< 0.005	< 0.005	—	58.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	24.9	24.9	< 0.005	< 0.005	—	25.0
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,956	2,956	0.16	0.02	—	2,966

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	2,872	2,872	0.16	0.02	—	2,882
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	58.6	58.6	< 0.005	< 0.005	—	58.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	24.9	24.9	< 0.005	< 0.005	—	25.0
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,956	2,956	0.16	0.02	—	2,966
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	476	476	0.03	< 0.005	—	477
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	9.71	9.71	< 0.005	< 0.005	—	9.74
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	4.12	4.12	< 0.005	< 0.005	—	4.13
Total	—	—	—	—	—	—	—	—	—	—	—	—	489	489	0.03	< 0.005	—	491

#### 4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e	
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
-------	------	------	------	------	------	------	---	------	------	---	------	---	------	------	------	------	---	------

#### 4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

### 4.3. Area Emissions by Source

#### 4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	21.1	21.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	2.54	2.54	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	2.67	2.53	0.27	28.8	< 0.005	0.01	—	0.01	0.01	—	0.01	—	77.5	77.5	< 0.005	< 0.005	—	77.8
Total	26.3	26.1	0.27	28.8	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	77.5	77.5	< 0.005	< 0.005	—	77.8

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	21.1	21.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	2.54	2.54	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	23.6	23.6	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	3.84	3.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.46	0.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.33	0.32	0.03	3.60	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.79	8.79	< 0.005	< 0.005	—	8.82
Total	4.64	4.62	0.03	3.60	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	8.79	8.79	< 0.005	< 0.005	—	8.82

### 4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	21.1	21.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	2.54	2.54	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	2.67	2.53	0.27	28.8	< 0.005	0.01	—	0.01	0.01	—	0.01	—	77.5	77.5	< 0.005	< 0.005	—	77.8
Total	26.3	26.1	0.27	28.8	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	77.5	77.5	< 0.005	< 0.005	—	77.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	21.1	21.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	2.54	2.54	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	23.6	23.6	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	3.84	3.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.46	0.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landsca Equipment	0.33	0.32	0.03	3.60	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.79	8.79	< 0.005	< 0.005	—	8.82
Total	4.64	4.62	0.03	3.60	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	8.79	8.79	< 0.005	< 0.005	—	8.82

## 4.4. Water Emissions by Land Use

### 4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	37.6	136	174	0.14	0.08	—	202
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	1.26	1.04	2.31	< 0.005	< 0.005	—	3.24
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	38.9	137	176	0.14	0.09	—	205
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	37.6	136	174	0.14	0.08	—	202
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	1.26	1.04	2.31	< 0.005	< 0.005	—	3.24

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	38.9	137	176	0.14	0.09	—	205
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	6.22	22.5	28.7	0.02	0.01	—	33.4
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	0.21	0.17	0.38	< 0.005	< 0.005	—	0.54
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	6.43	22.7	29.1	0.02	0.01	—	33.9

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	33.8	107	140	0.12	0.07	—	166
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	1.26	1.04	2.31	< 0.005	< 0.005	—	3.24
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	35.1	108	143	0.13	0.08	—	169

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	33.8	107	140	0.12	0.07	—	166
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	1.26	1.04	2.31	< 0.005	< 0.005	—	3.24
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	35.1	108	143	0.13	0.08	—	169
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	5.60	17.6	23.3	0.02	0.01	—	27.4
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	0.21	0.17	0.38	< 0.005	< 0.005	—	0.54
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.81	17.8	23.6	0.02	0.01	—	28.0

## 4.5. Waste Emissions by Land Use

### 4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
----------	-----	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	---	------

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	177	0.00	177	17.7	0.00	—	619	
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00	
Health Club	—	—	—	—	—	—	—	—	—	—	—	30.7	0.00	30.7	3.07	0.00	—	107	
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00	
Total	—	—	—	—	—	—	—	—	—	—	—	208	0.00	208	20.8	0.00	—	727	
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	177	0.00	177	17.7	0.00	—	619	
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00	
Health Club	—	—	—	—	—	—	—	—	—	—	—	30.7	0.00	30.7	3.07	0.00	—	107	
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00	
Total	—	—	—	—	—	—	—	—	—	—	—	208	0.00	208	20.8	0.00	—	727	
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	29.3	0.00	29.3	2.93	0.00	—	103	
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00	

Health Club	—	—	—	—	—	—	—	—	—	—	—	5.09	0.00	5.09	0.51	0.00	—	17.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	34.4	0.00	34.4	3.44	0.00	—	120

#### 4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	177	0.00	177	17.7	0.00	—	619
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	30.7	0.00	30.7	3.07	0.00	—	107
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	208	0.00	208	20.8	0.00	—	727
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	177	0.00	177	17.7	0.00	—	619
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	30.7	0.00	30.7	3.07	0.00	—	107

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	208	0.00	208	20.8	0.00	—	727
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	29.3	0.00	29.3	2.93	0.00	—	103
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	5.09	0.00	5.09	0.51	0.00	—	17.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	34.4	0.00	34.4	3.44	0.00	—	120

## 4.6. Refrigerant Emissions by Land Use

### 4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e	
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.97	6.97	—
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.02	7.02	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.97	6.97
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.02	7.02
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.15	1.15
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.16	1.16

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.97	6.97
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.02	7.02
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.97	6.97

Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.02	7.02
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.15	1.15
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.16	1.16

#### 4.7. Offroad Emissions By Equipment Type

##### 4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipm ent Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

##### 4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipm ent	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

#### 4.8. Stationary Emissions By Equipment Type

##### 4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipm ent Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

##### 4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipm ent Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

### 4.9. User Defined Emissions By Equipment Type

#### 4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipm ent Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

### 4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipm ent Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

### 4.10. Soil Carbon Accumulation By Vegetation Type

#### 4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

## 5. Activity Data

## 5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	5/3/2027	9/20/2027	5.00	100	—
Site Preparation	Site Preparation	9/21/2027	12/14/2027	5.00	60.0	—
Grading	Grading	12/15/2027	5/30/2028	5.00	120	—
Building Construction	Building Construction	6/28/2028	2/6/2029	5.00	160	—
Paving	Paving	5/31/2028	6/27/2028	5.00	20.0	—
Architectural Coating	Architectural Coating	7/12/2028	2/20/2029	5.00	160	—
Linear, Grubbing & Land Clearing	Linear, Grubbing & Land Clearing	5/3/2027	5/5/2027	5.00	2.00	—
Linear, Grading & Excavation	Linear, Grading & Excavation	5/6/2027	5/17/2027	5.00	8.00	—
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	5/18/2027	5/27/2027	5.00	7.00	—
Linear, Paving	Linear, Paving	5/28/2027	6/1/2027	5.00	3.00	—

## 5.2. Off-Road Equipment

### 5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Back hoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41

Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Tractors/Loaders/Back hoes	Diesel	Average	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Back hoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Linear, Drainage, Utilities, & Sub-Grade	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Linear, Drainage, Utilities, & Sub-Grade	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Linear, Drainage, Utilities, & Sub-Grade	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Signal Boards	Diesel	Average	3.00	8.00	6.00	0.82
Linear, Drainage, Utilities, & Sub-Grade	Tractors/Loaders/Back hoes	Diesel	Average	2.00	7.00	84.0	0.37
Linear, Drainage, Utilities, & Sub-Grade	Trenchers	Diesel	Average	1.00	8.00	40.0	0.50
Linear, Drainage, Utilities, & Sub-Grade	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
------------	----------------	-----------	-------------	----------------	---------------	------------	-------------

Demolition	Rubber Tired Dozers	Diesel	Tier 4 Final	2.00	8.00	367	0.40
Demolition	Excavators	Diesel	Tier 4 Final	3.00	8.00	36.0	0.38
Demolition	Concrete/Industrial Saws	Diesel	Tier 4 Final	1.00	8.00	33.0	0.73
Site Preparation	Rubber Tired Dozers	Diesel	Tier 4 Final	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Back hoes	Diesel	Tier 4 Final	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Tier 4 Final	2.00	8.00	36.0	0.38
Grading	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40
Grading	Scrapers	Diesel	Tier 4 Final	2.00	8.00	423	0.48
Grading	Tractors/Loaders/Back hoes	Diesel	Tier 4 Final	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Tier 4 Final	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 4 Final	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Back hoes	Diesel	Tier 4 Final	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Tier 4 Final	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Tier 4 Final	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 4 Final	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Tier 4 Final	1.00	6.00	37.0	0.48
Linear, Drainage, Utilities, & Sub-Grade	Air Compressors	Diesel	Tier 4 Final	1.00	6.00	37.0	0.48
Linear, Drainage, Utilities, & Sub-Grade	Concrete/Industrial Saws	Diesel	Tier 4 Final	1.00	8.00	33.0	0.73
Linear, Drainage, Utilities, & Sub-Grade	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Signal Boards	Diesel	Average	3.00	8.00	6.00	0.82

Linear, Drainage, Utilities, & Sub-Grade	Tractors/Loaders/Back	Diesel	Tier 4 Final	2.00	7.00	84.0	0.37
Linear, Drainage, Utilities, & Sub-Grade	Trenchers	Diesel	Tier 4 Final	1.00	8.00	40.0	0.50
Linear, Drainage, Utilities, & Sub-Grade	Paving Equipment	Diesel	Tier 4 Final	1.00	8.00	89.0	0.36

### 5.3. Construction Vehicles

#### 5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	14.3	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.80	HHDT,MHDT
Site Preparation	Hauling	0.22	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	14.3	LDA,LDT1,LDT2
Grading	Vendor	—	8.80	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	184	14.3	LDA,LDT1,LDT2
Building Construction	Vendor	55.0	8.80	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	14.3	LDA,LDT1,LDT2
Paving	Vendor	—	8.80	HHDT,MHDT

Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	36.8	14.3	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.80	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Linear, Grubbing & Land Clearing	—	—	—	—
Linear, Grubbing & Land Clearing	Worker	0.00	14.3	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00	8.80	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	0.00	20.0	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Grading & Excavation	—	—	—	—
Linear, Grading & Excavation	Worker	0.00	14.3	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	0.00	8.80	HHDT,MHDT
Linear, Grading & Excavation	Hauling	0.00	20.0	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT
Linear, Drainage, Utilities, & Sub-Grade	—	—	—	—
Linear, Drainage, Utilities, & Sub-Grade	Worker	25.0	14.3	LDA,LDT1,LDT2
Linear, Drainage, Utilities, & Sub-Grade	Vendor	0.00	8.80	HHDT,MHDT
Linear, Drainage, Utilities, & Sub-Grade	Hauling	0.00	20.0	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	—	—	HHDT
Linear, Paving	—	—	—	—
Linear, Paving	Worker	0.00	14.3	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00	8.80	HHDT,MHDT

Linear, Paving	Hauling	0.00	20.0	HHDT
Linear, Paving	Onsite truck	—	—	HHDT
Demolition	—	—	—	—
Demolition	Worker	15.0	14.3	LDA,LDT1,LDT2
Demolition	Vendor	—	8.80	HHDT,MHDT
Demolition	Hauling	0.44	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT

### 5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	14.3	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.80	HHDT,MHDT
Site Preparation	Hauling	0.22	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	14.3	LDA,LDT1,LDT2
Grading	Vendor	—	8.80	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	184	14.3	LDA,LDT1,LDT2
Building Construction	Vendor	55.0	8.80	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	14.3	LDA,LDT1,LDT2
Paving	Vendor	—	8.80	HHDT,MHDT

Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	36.8	14.3	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.80	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Linear, Grubbing & Land Clearing	—	—	—	—
Linear, Grubbing & Land Clearing	Worker	0.00	14.3	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00	8.80	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	0.00	20.0	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Grading & Excavation	—	—	—	—
Linear, Grading & Excavation	Worker	0.00	14.3	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	0.00	8.80	HHDT,MHDT
Linear, Grading & Excavation	Hauling	0.00	20.0	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT
Linear, Drainage, Utilities, & Sub-Grade	—	—	—	—
Linear, Drainage, Utilities, & Sub-Grade	Worker	25.0	14.3	LDA,LDT1,LDT2
Linear, Drainage, Utilities, & Sub-Grade	Vendor	0.00	8.80	HHDT,MHDT
Linear, Drainage, Utilities, & Sub-Grade	Hauling	0.00	20.0	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	—	—	HHDT
Linear, Paving	—	—	—	—
Linear, Paving	Worker	0.00	14.3	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00	8.80	HHDT,MHDT

Linear, Paving	Hauling	0.00	20.0	HHDT
Linear, Paving	Onsite truck	—	—	HHDT
Demolition	—	—	—	—
Demolition	Worker	15.0	14.3	LDA,LDT1,LDT2
Demolition	Vendor	—	8.80	HHDT,MHDT
Demolition	Hauling	0.44	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT

## 5.4. Vehicles

### 5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

## 5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	1,970,426	656,809	15,000	5,000	15,682

## 5.6. Dust Mitigation

### 5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	3,776	—
Site Preparation	—	100	90.0	0.00	—
Grading	—	—	360	0.00	—
Paving	0.00	0.00	0.00	0.00	12.4
Linear, Grubbing & Land Clearing	—	—	0.85	0.00	—
Linear, Grading & Excavation	—	—	0.85	0.00	—

Linear, Drainage, Utilities, & Sub-Grade	—	—	0.85	0.00	—
--	---	---	------	------	---

### 5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

### 5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Single Family Housing	5.50	0%
Other Asphalt Surfaces	5.00	100%
User Defined Linear	0.85	100%
Health Club	0.00	0%
Parking Lot	1.00	100%

### 5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2027	0.00	267	0.01	< 0.005
2028	0.00	253	0.01	< 0.005
2029	0.00	238	0.01	< 0.005

### 5.9. Operational Mobile Sources

#### 5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	2,151	2,151	2,151	785,002	4,862	4,862	4,862	1,774,630
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Health Club	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

### 5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	2,151	2,151	2,151	785,002	4,862	4,862	4,862	1,774,630
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Health Club	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

## 5.10. Operational Area Sources

### 5.10.1. Hearths

#### 5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	499
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

### 5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	499
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

### 5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
1970426.25	656,809	15,000	5,000	15,682

### 5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

### 5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

## 5.11. Operational Energy Consumption

### 5.11.1. Unmitigated

#### Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	4,445,202	238	0.0129	0.0017	0.00
Other Asphalt Surfaces	0.00	238	0.0129	0.0017	0.00
Health Club	89,910	238	0.0129	0.0017	0.00
Parking Lot	38,159	238	0.0129	0.0017	0.00

### 5.11.2. Mitigated

#### Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	4,404,928	238	0.0129	0.0017	0.00
Other Asphalt Surfaces	0.00	238	0.0129	0.0017	0.00
Health Club	89,910	238	0.0129	0.0017	0.00
Parking Lot	38,159	238	0.0129	0.0017	0.00

## 5.12. Operational Water and Wastewater Consumption

### 5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	17,594,241	99,769,161
Other Asphalt Surfaces	0.00	0.00
Health Club	591,431	0.00
Parking Lot	0.00	0.00

### 5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	15,834,817	74,826,871
Other Asphalt Surfaces	0.00	0.00
Health Club	591,431	0.00
Parking Lot	0.00	0.00

### 5.13. Operational Waste Generation

#### 5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	329	—
Other Asphalt Surfaces	0.00	—
Health Club	57.0	—
Parking Lot	0.00	—

#### 5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	329	—
Other Asphalt Surfaces	0.00	—
Health Club	57.0	—
Parking Lot	0.00	—

### 5.14. Operational Refrigeration and Air Conditioning Equipment

#### 5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
---------------	----------------	-------------	-----	---------------	----------------------	-------------------	----------------

Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Health Club	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Health Club	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

### 5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Health Club	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Health Club	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

### 5.15. Operational Off-Road Equipment

#### 5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
----------------	-----------	-------------	----------------	---------------	------------	-------------

#### 5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
----------------	-----------	-------------	----------------	---------------	------------	-------------

## 5.16. Stationary Sources

### 5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
----------------	-----------	----------------	---------------	----------------	------------	-------------

### 5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)
----------------	-----------	--------	--------------------------	------------------------------	------------------------------

## 5.17. User Defined

Equipment Type	Fuel Type
----------------	-----------

## 5.18. Vegetation

### 5.18.1. Land Use Change

#### 5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
--------------------------	----------------------	---------------	-------------

#### 5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
--------------------------	----------------------	---------------	-------------

### 5.18.1. Biomass Cover Type

#### 5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
--------------------	---------------	-------------

#### 5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres
--------------------	---------------	-------------

### 5.18.2. Sequestration

#### 5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
-----------	--------	------------------------------	------------------------------

#### 5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
-----------	--------	------------------------------	------------------------------

## 8. User Changes to Default Data

Screen	Justification
Land Use	Lot acreage adjusted to represent overall acreage of the project site.
Operations: Vehicle Data	Trip rates and VMT adjusted to be consistent with traffic report prepared for the proposed project.
Construction: Construction Phases	Phase timing has been adjusted based on project-specific construction schedule. Based on typical construction practices, architectural coating assumed to start two weeks after the start of building construction and last for the same number of days.
Construction: Off-Road Equipment	Additional construction equipment included for construction of the offsite utility lines.
Operations: Energy Use	The Project would be built all electric.

# Roundabout Construction Estimate Summer Villas Custom Report

## Table of Contents

1. Basic Project Information
  - 1.1. Basic Project Information
  - 1.2. Land Use Types
  - 1.3. User-Selected Emission Reduction Measures by Emissions Sector
2. Emissions Summary
  - 2.1. Construction Emissions Compared Against Thresholds
  - 2.2. Construction Emissions by Year, Unmitigated
3. Construction Emissions Details
  - 3.1. Linear, Grubbing & Land Clearing (2035) - Unmitigated
  - 3.3. Linear, Grading & Excavation (2035) - Unmitigated
  - 3.5. Linear, Drainage, Utilities, & Sub-Grade (2035) - Unmitigated
  - 3.7. Linear, Drainage, Utilities, & Sub-Grade (2036) - Unmitigated
  - 3.9. Linear, Paving (2036) - Unmitigated
4. Operations Emissions Details
  - 4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

## 5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

8. User Changes to Default Data

# 1. Basic Project Information

## 1.1. Basic Project Information

Data Field	Value
Project Name	Roundabout Construction Estimate Summer Villas
Construction Start Date	6/1/2035
Lead Agency	City of Elk Grove
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	37.8
Location	38.438152012982435, -121.35248331382311
County	Sacramento
City	Elk Grove
Air District	Sacramento Metropolitan AQMD
Air Basin	Sacramento Valley
TAZ	739
EDFZ	13
Electric Utility	Sacramento Municipal Utility District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.30

## 1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Road Construction	0.52	Mile	1.83	0.00	—	—	—	—
Road Construction	0.51	Mile	1.49	0.00	0.00	—	—	—

### 1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

## 2. Emissions Summary

### 2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.46	4.60	32.7	58.4	0.12	1.10	7.10	8.20	1.01	0.86	1.88	—	13,838	13,838	0.54	0.15	1.07	13,896
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.45	4.59	32.7	57.7	0.12	1.10	7.10	8.20	1.01	0.86	1.88	—	13,768	13,768	0.55	0.15	0.03	13,825
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.91	1.61	11.4	19.9	0.04	0.39	2.48	2.86	0.36	0.30	0.65	—	4,806	4,806	0.19	0.05	0.16	4,825
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.35	0.29	2.09	3.63	0.01	0.07	0.45	0.52	0.06	0.05	0.12	—	796	796	0.03	0.01	0.03	799

### 2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2035	5.46	4.60	32.7	58.4	0.12	1.10	7.10	8.20	1.01	0.86	1.88	—	13,838	13,838	0.54	0.15	1.07	13,896

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2035	5.45	4.59	32.7	57.7	0.12	1.10	7.10	8.20	1.01	0.86	1.88	—	13,768	13,768	0.55	0.15	0.03	13,825
2036	4.61	3.88	26.2	45.8	0.11	0.88	5.86	6.74	0.81	0.70	1.51	—	11,846	11,846	0.47	0.10	0.02	11,887
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2035	1.91	1.61	11.4	19.9	0.04	0.39	2.48	2.86	0.36	0.30	0.65	—	4,806	4,806	0.19	0.05	0.16	4,825
2036	0.37	0.31	2.39	4.25	0.01	0.07	0.34	0.41	0.06	0.04	0.11	—	921	921	0.04	0.01	0.03	924
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2035	0.35	0.29	2.09	3.63	0.01	0.07	0.45	0.52	0.06	0.05	0.12	—	796	796	0.03	0.01	0.03	799
2036	0.07	0.06	0.44	0.78	< 0.005	0.01	0.06	0.07	0.01	0.01	0.02	—	153	153	0.01	< 0.005	0.01	153

### 3. Construction Emissions Details

#### 3.1. Linear, Grubbing & Land Clearing (2035) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.47	4.70	6.77	0.01	0.17	—	0.17	0.15	—	0.15	—	982	982	0.04	0.01	—	985
Dust From Material Movement	—	—	—	—	—	—	1.06	1.06	—	0.11	0.11	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.26	0.37	< 0.005	0.01	—	0.01	0.01	—	0.01	—	53.8	53.8	< 0.005	< 0.005	—	54.0
Dust From Material Movement	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	< 0.005	0.05	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.91	8.91	< 0.005	< 0.005	—	8.94
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.53	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	144	144	< 0.005	< 0.005	0.20	145
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.22	7.22	< 0.005	< 0.005	< 0.005	7.24
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.19	1.19	< 0.005	< 0.005	< 0.005	1.20
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.3. Linear, Grading & Excavation (2035) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.27	4.43	32.3	55.9	0.12	1.10	—	1.10	1.01	—	1.01	—	12,988	12,988	0.53	0.11	—	13,033
Dust From Material Movement	—	—	—	—	—	—	6.36	6.36	—	0.69	0.69	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.27	4.43	32.3	55.9	0.12	1.10	—	1.10	1.01	—	1.01	—	12,988	12,988	0.53	0.11	—	13,033

Roundabout Construction Estimate Summer Villas Custom Report, 9/24/2025

Dust From Material Movement	—	—	—	—	—	—	6.36	6.36	—	0.69	0.69	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.30	1.09	7.96	13.8	0.03	0.27	—	0.27	0.25	—	0.25	—	3,203	3,203	0.13	0.03	—	3,214
Dust From Material Movement	—	—	—	—	—	—	1.57	1.57	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.45	2.52	0.01	0.05	—	0.05	0.05	—	0.05	—	530	530	0.02	< 0.005	—	532
Dust From Material Movement	—	—	—	—	—	—	0.29	0.29	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.17	0.09	2.28	0.00	0.00	0.66	0.66	0.00	0.15	0.15	—	626	626	0.01	< 0.005	0.87	628
Vendor	< 0.005	< 0.005	0.05	0.03	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	41.9	41.9	< 0.005	0.01	0.04	43.9
Hauling	0.01	< 0.005	0.25	0.12	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	182	182	0.01	0.03	0.17	191

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.16	0.12	1.65	0.00	0.00	0.66	0.66	0.00	0.15	0.15	—	556	556	0.01	< 0.005	0.02	558
Vendor	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	41.9	41.9	< 0.005	0.01	< 0.005	43.9
Hauling	0.01	< 0.005	0.26	0.12	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	182	182	0.01	0.03	< 0.005	191
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.42	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	141	141	< 0.005	< 0.005	0.09	141
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	10.3	10.3	< 0.005	< 0.005	< 0.005	10.8
Hauling	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	44.8	44.8	< 0.005	0.01	0.02	47.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	23.3	23.3	< 0.005	< 0.005	0.02	23.4
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.71	1.71	< 0.005	< 0.005	< 0.005	1.79
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.42	7.42	< 0.005	< 0.005	< 0.005	7.79

### 3.5. Linear, Drainage, Utilities, & Sub-Grade (2035) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.58	3.84	27.3	44.6	0.11	0.93	—	0.93	0.86	—	0.86	—	11,380	11,380	0.46	0.09	—	11,419

Roundabout Construction Estimate Summer Villas Custom Report, 9/24/2025

Dust From Material Movement	—	—	—	—	—	—	5.30	5.30	—	0.57	0.57	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.44	3.10	5.06	0.01	0.11	—	0.11	0.10	—	0.10	—	1,292	1,292	0.05	0.01	—	1,296
Dust From Material Movement	—	—	—	—	—	—	0.60	0.60	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.57	0.92	< 0.005	0.02	—	0.02	0.02	—	0.02	—	214	214	0.01	< 0.005	—	215
Dust From Material Movement	—	—	—	—	—	—	0.11	0.11	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.13	0.10	1.40	0.00	0.00	0.56	0.56	0.00	0.13	0.13	—	471	471	0.01	< 0.005	0.02	472

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.16	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	54.8	54.8	< 0.005	< 0.005	0.04	55.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.07	9.07	< 0.005	< 0.005	0.01	9.10
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.7. Linear, Drainage, Utilities, & Sub-Grade (2036) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.47	3.75	26.2	44.4	0.11	0.88	—	0.88	0.81	—	0.81	—	11,380	11,380	0.46	0.09	—	11,419
Dust From Material Movement	—	—	—	—	—	—	5.30	5.30	—	0.57	0.57	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Roundabout Construction Estimate Summer Villas Custom Report, 9/24/2025

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.38	2.35	0.01	0.05	—	0.05	0.04	—	0.04	—	601	601	0.02	< 0.005	—	603
Dust From Material Movement	—	—	—	—	—	—	0.28	0.28	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.25	0.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	99.5	99.5	< 0.005	< 0.005	—	99.9
Dust From Material Movement	—	—	—	—	—	—	0.05	0.05	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	0.08	1.34	0.00	0.00	0.56	0.56	0.00	0.13	0.13	—	466	466	0.01	< 0.005	0.02	467
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	0.01	25.3

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.18	4.18	< 0.005	< 0.005	< 0.005	4.19
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

### 3.9. Linear, Paving (2036) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.42	1.19	12.2	21.2	0.03	0.26	—	0.26	0.24	—	0.24	—	3,238	3,238	0.13	0.03	—	3,249
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	1.00	1.74	< 0.005	0.02	—	0.02	0.02	—	0.02	—	266	266	0.01	< 0.005	—	267
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.02	0.02	0.18	0.32	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	44.1	44.1	< 0.005	< 0.005	—	44.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.06	0.98	0.00	0.00	0.40	0.40	0.00	0.09	0.09	—	339	339	0.01	< 0.005	0.01	340
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.6	28.6	< 0.005	< 0.005	0.02	28.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.73	4.73	< 0.005	< 0.005	< 0.005	4.74
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

## 4. Operations Emissions Details

### 4.10. Soil Carbon Accumulation By Vegetation Type

#### 4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
---------	-----	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	---	------

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

## 5. Activity Data

### 5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Linear, Grubbing & Land Clearing	Linear, Grubbing & Land Clearing	6/1/2035	6/29/2035	5.00	20.0	—
Linear, Grading & Excavation	Linear, Grading & Excavation	6/30/2035	11/3/2035	5.00	90.0	—
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	11/4/2035	1/27/2036	5.00	60.0	—
Linear, Paving	Linear, Paving	1/28/2036	3/10/2036	5.00	30.0	—

### 5.2. Off-Road Equipment

#### 5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Linear, Grubbing & Land Clearing	Signal Boards	Electric	Average	2.00	8.00	6.00	0.82
Linear, Grubbing & Land Clearing	Crawler Tractors	Diesel	Average	2.00	8.00	87.0	0.43
Linear, Grubbing & Land Clearing	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Linear, Grading & Excavation	Excavators	Diesel	Average	6.00	8.00	36.0	0.38
Linear, Grading & Excavation	Crawler Tractors	Diesel	Average	2.00	8.00	87.0	0.43
Linear, Grading & Excavation	Graders	Diesel	Average	2.00	8.00	148	0.41

Linear, Grading & Excavation	Rollers	Diesel	Average	4.00	8.00	36.0	0.38
Linear, Grading & Excavation	Signal Boards	Electric	Average	2.00	8.00	6.00	0.82
Linear, Grading & Excavation	Tractors/Loaders/Back hoes	Diesel	Average	4.00	8.00	84.0	0.37
Linear, Grading & Excavation	Rubber Tired Loaders	Diesel	Average	2.00	8.00	150	0.36
Linear, Grading & Excavation	Scrapers	Diesel	Average	4.00	8.00	423	0.48
Linear, Drainage, Utilities, & Sub-Grade	Scrapers	Diesel	Average	4.00	8.00	423	0.48
Linear, Drainage, Utilities, & Sub-Grade	Rough Terrain Forklifts	Diesel	Average	2.00	8.00	96.0	0.40
Linear, Drainage, Utilities, & Sub-Grade	Signal Boards	Electric	Average	2.00	8.00	6.00	0.82
Linear, Drainage, Utilities, & Sub-Grade	Tractors/Loaders/Back hoes	Diesel	Average	4.00	8.00	84.0	0.37
Linear, Drainage, Utilities, & Sub-Grade	Plate Compactors	Diesel	Average	2.00	8.00	8.00	0.43
Linear, Drainage, Utilities, & Sub-Grade	Pumps	Diesel	Average	2.00	8.00	11.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Graders	Diesel	Average	2.00	8.00	148	0.41
Linear, Drainage, Utilities, & Sub-Grade	Air Compressors	Diesel	Average	2.00	8.00	37.0	0.48
Linear, Drainage, Utilities, & Sub-Grade	Generator Sets	Diesel	Average	2.00	8.00	14.0	0.74
Linear, Paving	Rollers	Diesel	Average	6.00	8.00	36.0	0.38
Linear, Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Linear, Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Linear, Paving	Signal Boards	Electric	Average	2.00	8.00	6.00	0.82
Linear, Paving	Tractors/Loaders/Back hoes	Diesel	Average	4.00	8.00	84.0	0.37

## 5.3. Construction Vehicles

### 5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Linear, Grubbing & Land Clearing	—	—	—	—
Linear, Grubbing & Land Clearing	Worker	15.0	14.3	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00	8.80	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	0.00	20.0	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Grading & Excavation	—	—	—	—
Linear, Grading & Excavation	Worker	65.0	14.3	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	2.00	8.80	HHDT,MHDT
Linear, Grading & Excavation	Hauling	3.27	20.0	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT
Linear, Drainage, Utilities, & Sub-Grade	—	—	—	—
Linear, Drainage, Utilities, & Sub-Grade	Worker	55.0	14.3	LDA,LDT1,LDT2
Linear, Drainage, Utilities, & Sub-Grade	Vendor	0.00	8.80	HHDT,MHDT
Linear, Drainage, Utilities, & Sub-Grade	Hauling	0.00	20.0	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	—	—	HHDT
Linear, Paving	—	—	—	—
Linear, Paving	Worker	40.0	14.3	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00	8.80	HHDT,MHDT
Linear, Paving	Hauling	0.00	20.0	HHDT
Linear, Paving	Onsite truck	—	—	HHDT

## 5.4. Vehicles

### 5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

## 5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
------------	--	--	--	--	-----------------------------

## 5.6. Dust Mitigation

### 5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Linear, Grubbing & Land Clearing	—	—	3.32	0.00	—
Linear, Grading & Excavation	2,349	—	3.32	0.00	—
Linear, Drainage, Utilities, & Sub-Grade	—	—	3.32	0.00	—

### 5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

## 5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Road Construction	1.83	100%
Road Construction	1.49	100%

## 5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2035	176	375	0.01	< 0.005
2036	117	375	0.01	< 0.005

## 5.18. Vegetation

### 5.18.1. Land Use Change

#### 5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
--------------------------	----------------------	---------------	-------------

### 5.18.1. Biomass Cover Type

#### 5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
--------------------	---------------	-------------

### 5.18.2. Sequestration

#### 5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
-----------	--------	------------------------------	------------------------------

## 8. User Changes to Default Data

# Summer Villas Project - Existing Density Custom Report

## Table of Contents

- 1. Basic Project Information
  - 1.1. Basic Project Information
  - 1.2. Land Use Types
  - 1.3. User-Selected Emission Reduction Measures by Emissions Sector
- 2. Emissions Summary
  - 2.4. Operations Emissions Compared Against Thresholds
  - 2.5. Operations Emissions by Sector, Unmitigated
- 4. Operations Emissions Details
  - 4.1. Mobile Emissions by Land Use
    - 4.1.1. Unmitigated
  - 4.2. Energy
    - 4.2.1. Electricity Emissions By Land Use - Unmitigated
    - 4.2.3. Natural Gas Emissions By Land Use - Unmitigated
  - 4.3. Area Emissions by Source
    - 4.3.1. Unmitigated

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

8. User Changes to Default Data

# 1. Basic Project Information

## 1.1. Basic Project Information

Data Field	Value
Project Name	Summer Villas Project - Existing Density
Operational Year	2029
Lead Agency	City of Elk Grove
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	37.8
Location	38.43543172974972, -121.35071683505309
County	Sacramento
City	Elk Grove
Air District	Sacramento Metropolitan AQMD
Air Basin	Sacramento Valley
TAZ	739
EDFZ	13
Electric Utility	Sacramento Municipal Utility District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.30

## 1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Single Family Housing	58.0	Dwelling Unit	116	113,100	679,346	—	162	—

### 1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

## 2. Emissions Summary

### 2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.39	5.16	2.36	22.5	0.05	0.08	3.96	4.03	0.07	1.01	1.08	24.9	5,605	5,630	2.33	0.19	12.5	5,758
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.89	4.66	2.63	16.2	0.04	0.08	3.96	4.03	0.07	1.01	1.08	24.9	5,206	5,231	2.35	0.21	1.11	5,353
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.05	4.82	2.48	18.0	0.04	0.08	3.78	3.85	0.07	0.96	1.03	24.9	5,199	5,224	2.34	0.20	5.75	5,347
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.92	0.88	0.45	3.28	0.01	0.01	0.69	0.70	0.01	0.18	0.19	4.12	861	865	0.39	0.03	0.95	885

### 2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.31	2.13	1.75	18.9	0.04	0.03	3.96	3.99	0.03	1.01	1.03	—	4,512	4,512	0.18	0.18	11.7	4,582

Summer Villas Project - Existing Density Custom Report, 9/25/2025

Area	3.01	3.00	0.03	3.30	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	8.80	8.80	< 0.005	< 0.005	—	8.83
Energy	0.07	0.03	0.58	0.25	< 0.005	0.05	—	0.05	0.05	—	0.05	—	1,068	1,068	0.08	< 0.005	—	1,071
Water	—	—	—	—	—	—	—	—	—	—	—	4.37	15.8	20.2	0.02	0.01	—	23.4
Waste	—	—	—	—	—	—	—	—	—	—	—	20.5	0.00	20.5	2.05	0.00	—	71.8
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.81	0.81
Total	5.39	5.16	2.36	22.5	0.05	0.08	3.96	4.03	0.07	1.01	1.08	24.9	5,605	5,630	2.33	0.19	12.5	5,758
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.11	1.92	2.06	16.0	0.04	0.03	3.96	3.99	0.03	1.01	1.03	—	4,122	4,122	0.20	0.20	0.30	4,186
Area	2.71	2.71	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Energy	0.07	0.03	0.58	0.25	< 0.005	0.05	—	0.05	0.05	—	0.05	—	1,068	1,068	0.08	< 0.005	—	1,071
Water	—	—	—	—	—	—	—	—	—	—	—	4.37	15.8	20.2	0.02	0.01	—	23.4
Waste	—	—	—	—	—	—	—	—	—	—	—	20.5	0.00	20.5	2.05	0.00	—	71.8
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.81	0.81
Total	4.89	4.66	2.63	16.2	0.04	0.08	3.96	4.03	0.07	1.01	1.08	24.9	5,206	5,231	2.35	0.21	1.11	5,353
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.06	1.88	1.88	15.4	0.04	0.03	3.78	3.80	0.03	0.96	0.99	—	4,109	4,109	0.19	0.18	4.94	4,173
Area	2.92	2.91	0.02	2.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	6.03	6.03	< 0.005	< 0.005	—	6.05
Energy	0.07	0.03	0.58	0.25	< 0.005	0.05	—	0.05	0.05	—	0.05	—	1,068	1,068	0.08	< 0.005	—	1,071
Water	—	—	—	—	—	—	—	—	—	—	—	4.37	15.8	20.2	0.02	0.01	—	23.4
Waste	—	—	—	—	—	—	—	—	—	—	—	20.5	0.00	20.5	2.05	0.00	—	71.8
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.81	0.81
Total	5.05	4.82	2.48	18.0	0.04	0.08	3.78	3.85	0.07	0.96	1.03	24.9	5,199	5,224	2.34	0.20	5.75	5,347
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.38	0.34	0.34	2.82	0.01	0.01	0.69	0.69	< 0.005	0.18	0.18	—	680	680	0.03	0.03	0.82	691
Area	0.53	0.53	< 0.005	0.41	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	1.00	1.00	< 0.005	< 0.005	—	1.00
Energy	0.01	0.01	0.11	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	177	177	0.01	< 0.005	—	177

Water	—	—	—	—	—	—	—	—	—	—	—	—	0.72	2.62	3.34	< 0.005	< 0.005	—	3.88
Waste	—	—	—	—	—	—	—	—	—	—	—	—	3.40	0.00	3.40	0.34	0.00	—	11.9
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.13	0.13
Total	0.92	0.88	0.45	3.28	0.01	0.01	0.69	0.70	0.01	0.18	0.19	4.12	861	865	0.39	0.03	0.95	885	

## 4. Operations Emissions Details

### 4.1. Mobile Emissions by Land Use

#### 4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	2.31	2.13	1.75	18.9	0.04	0.03	3.96	3.99	0.03	1.01	1.03	—	4,512	4,512	0.18	0.18	11.7	4,582
Total	2.31	2.13	1.75	18.9	0.04	0.03	3.96	3.99	0.03	1.01	1.03	—	4,512	4,512	0.18	0.18	11.7	4,582
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	2.11	1.92	2.06	16.0	0.04	0.03	3.96	3.99	0.03	1.01	1.03	—	4,122	4,122	0.20	0.20	0.30	4,186
Total	2.11	1.92	2.06	16.0	0.04	0.03	3.96	3.99	0.03	1.01	1.03	—	4,122	4,122	0.20	0.20	0.30	4,186
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.38	0.34	0.34	2.82	0.01	0.01	0.69	0.69	< 0.005	0.18	0.18	—	680	680	0.03	0.03	0.82	691
Total	0.38	0.34	0.34	2.82	0.01	0.01	0.69	0.69	< 0.005	0.18	0.18	—	680	680	0.03	0.03	0.82	691

## 4.2. Energy

### 4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	337	337	0.02	< 0.005	—	338
Total	—	—	—	—	—	—	—	—	—	—	—	—	337	337	0.02	< 0.005	—	338
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	337	337	0.02	< 0.005	—	338
Total	—	—	—	—	—	—	—	—	—	—	—	—	337	337	0.02	< 0.005	—	338
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	55.8	55.8	< 0.005	< 0.005	—	56.0
Total	—	—	—	—	—	—	—	—	—	—	—	—	55.8	55.8	< 0.005	< 0.005	—	56.0

### 4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	0.07	0.03	0.58	0.25	< 0.005	0.05	—	0.05	0.05	—	0.05	—	731	731	0.06	< 0.005	—	733
Total	0.07	0.03	0.58	0.25	< 0.005	0.05	—	0.05	0.05	—	0.05	—	731	731	0.06	< 0.005	—	733
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.07	0.03	0.58	0.25	< 0.005	0.05	—	0.05	0.05	—	0.05	—	731	731	0.06	< 0.005	—	733
Total	0.07	0.03	0.58	0.25	< 0.005	0.05	—	0.05	0.05	—	0.05	—	731	731	0.06	< 0.005	—	733
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.01	0.01	0.11	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	121	121	0.01	< 0.005	—	121
Total	0.01	0.01	0.11	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	121	121	0.01	< 0.005	—	121

### 4.3. Area Emissions by Source

#### 4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	2.42	2.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.29	0.29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape Equipment	0.30	0.29	0.03	3.30	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.80	8.80	< 0.005	< 0.005	—	8.83
Total	3.01	3.00	0.03	3.30	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	8.80	8.80	< 0.005	< 0.005	—	8.83
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	2.42	2.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.29	0.29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	2.71	2.71	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	0.44	0.44	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.05	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.04	0.04	< 0.005	0.41	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.00	1.00	< 0.005	< 0.005	—	1.00
Total	0.53	0.53	< 0.005	0.41	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	1.00	1.00	< 0.005	< 0.005	—	1.00

#### 4.4. Water Emissions by Land Use

##### 4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	4.37	15.8	20.2	0.02	0.01	—	23.4
Total	—	—	—	—	—	—	—	—	—	—	—	4.37	15.8	20.2	0.02	0.01	—	23.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	4.37	15.8	20.2	0.02	0.01	—	23.4
Total	—	—	—	—	—	—	—	—	—	—	—	4.37	15.8	20.2	0.02	0.01	—	23.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	0.72	2.62	3.34	< 0.005	< 0.005	—	3.88
Total	—	—	—	—	—	—	—	—	—	—	—	0.72	2.62	3.34	< 0.005	< 0.005	—	3.88

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	20.5	0.00	20.5	2.05	0.00	—	71.8
Total	—	—	—	—	—	—	—	—	—	—	—	20.5	0.00	20.5	2.05	0.00	—	71.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	20.5	0.00	20.5	2.05	0.00	—	71.8
Total	—	—	—	—	—	—	—	—	—	—	—	20.5	0.00	20.5	2.05	0.00	—	71.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	3.40	0.00	3.40	0.34	0.00	—	11.9
Total	—	—	—	—	—	—	—	—	—	—	—	3.40	0.00	3.40	0.34	0.00	—	11.9

## 4.6. Refrigerant Emissions by Land Use

### 4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.81	0.81
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.81	0.81
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.81	0.81
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.81	0.81
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.13	0.13
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.13	0.13

#### 4.7. Offroad Emissions By Equipment Type

##### 4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipm ent Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e	
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

#### 4.8. Stationary Emissions By Equipment Type

##### 4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipm Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

#### 4.9. User Defined Emissions By Equipment Type

##### 4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipm ent Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

#### 4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

## 5. Activity Data

### 5.9. Operational Mobile Sources

#### 5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	548	553	496	197,456	5,522	5,580	5,001	1,991,379

### 5.10. Operational Area Sources

#### 5.10.1. Hearths

##### 5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	58
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

### 5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
229027.5	76,343	0.00	0.00	—

### 5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

### 5.11. Operational Energy Consumption

#### 5.11.1. Unmitigated

#### Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	516,677	238	0.0129	0.0017	2,281,206

### 5.12. Operational Water and Wastewater Consumption

#### 5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	2,045,022	11,596,420

### 5.13. Operational Waste Generation

#### 5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
----------	------------------	-------------------------

Single Family Housing	38.1	—
-----------------------	------	---

## 5.14. Operational Refrigeration and Air Conditioning Equipment

### 5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

## 5.15. Operational Off-Road Equipment

### 5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
----------------	-----------	-------------	----------------	---------------	------------	-------------

## 5.16. Stationary Sources

### 5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
----------------	-----------	----------------	---------------	----------------	------------	-------------

### 5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)
----------------	-----------	--------	--------------------------	------------------------------	------------------------------

## 5.17. User Defined

Equipment Type	Fuel Type
----------------	-----------

## 5.18. Vegetation

### 5.18.1. Land Use Change

#### 5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
--------------------------	----------------------	---------------	-------------

### 5.18.1. Biomass Cover Type

#### 5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
--------------------	---------------	-------------

### 5.18.2. Sequestration

#### 5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
-----------	--------	------------------------------	------------------------------

## 8. User Changes to Default Data

Screen	Justification
Land Use	Lot acreage adjusted to be representative of total site acreage.



## Minor Project Health Effects Tool

Latitude	38.43543173	<b>&lt;-- Step 1: Input latitude</b> (Please chose a value between 38.0 and 39.7)
Longitude	-121.350717	<b>&lt;-- Step 2: Input longitude</b> (Please chose a value between -122.5 and -120.0)

PM2.5 Health Endpoint	Age Range <sup>1</sup>	Incidences Across the Reduced Sacramento 4-km Modeling Domain Resulting from Project Emissions (per year) <sup>2,5</sup>	Incidences Across the 5-Air-District Region Resulting from Project Emissions (per year) <sup>2</sup>	Percent of Background Health Incidences Across the 5-Air-District Region <sup>3</sup>	Total Number of Health Incidences Across the 5-Air-District Region (per year) <sup>4</sup>
		(Mean)	(Mean)		
<b>Respiratory</b>					
Emergency Room Visits, Asthma	0 - 99	0.91	0.83	0.0045%	18419
Hospital Admissions, Asthma	0 - 64	0.060	0.055	0.0030%	1846
Hospital Admissions, All Respiratory	65 - 99	0.29	0.25	0.0013%	19644
<b>Cardiovascular</b>					
Hospital Admissions, All Cardiovascular (less Myocardial Infarctions)	65 - 99	0.16	0.14	0.00059%	24037
Acute Myocardial Infarction, Nonfatal	18 - 24	0.000075	0.000069	0.0018%	4
Acute Myocardial Infarction, Nonfatal	25 - 44	0.0067	0.0063	0.0020%	308
Acute Myocardial Infarction, Nonfatal	45 - 54	0.017	0.016	0.0022%	741
Acute Myocardial Infarction, Nonfatal	55 - 64	0.028	0.026	0.0021%	1239
Acute Myocardial Infarction, Nonfatal	65 - 99	0.10	0.092	0.0018%	5052
<b>Mortality</b>					
Mortality, All Cause	30 - 99	1.9	1.7	0.0038%	44766

Ozone Health Endpoint	Age Range <sup>1</sup>	Incidences Across the Reduced Sacramento 4-km Modeling Domain Resulting from Project Emissions (per year) <sup>2,5</sup>	Incidences Across the 5-Air-District Region Resulting from Project Emissions (per year) <sup>2</sup>	Percent of Background Health Incidences Across the 5-Air-District Region <sup>3</sup>	Total Number of Health Incidences Across the 5-Air-District Region (per year) <sup>4</sup>
		(Mean)	(Mean)		
<b>Respiratory</b>					
Hospital Admissions, All Respiratory	65 - 99	0.067	0.053	0.00027%	19644
Emergency Room Visits, Asthma	0 - 17	0.35	0.29	0.0050%	5859
Emergency Room Visits, Asthma	18 - 99	0.54	0.46	0.0036%	12560
<b>Mortality</b>					
Mortality, Non-Accidental	0 - 99	0.041	0.035	0.00011%	30386

1. Affected age ranges are shown. Other age ranges are available, but the endpoints and age ranges shown here are the ones used by the USEPA in their health assessments. The age ranges are consistent with the epidemiological study that is the basis of the health function.
2. Health effects are shown in terms of incidences of each health endpoint and how it compares to the base (2035 base year health effect incidences, or “background health incidence”) values. Health effects are shown for the Reduced Sacramento 4-km Modeling Domain and the 5-Air-District Region.
3. The percent of background health incidence uses the mean incidence. The background health incidence is an estimate of the average number of people that are affected by the health endpoint in a given population over a given period of time. In this case, the background incidence rates cover the 5-Air-District Region (estimated 2035 population of 3,271,451 persons). Health incidence rates and other health data are typically collected by the government as well as the World Health Organization. The background incidence rates used here are obtained from BenMAP.
4. The total number of health incidences across the 5-Air-District Region is calculated based on the modeling data. The information is presented to assist in providing overall health context.
5. The technical specifications and map for the Reduced Sacramento 4-km Modeling Domain are included in Appendix A, Table A-1 and Appendix B, Figure B-2 of the *Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District*.

---

---

# Appendix D

---

---

**DRAFT**

**Biological Resources  
Assessment**

Summer Villas

Elk Grove, Sacramento County, California

September 2025



**Prepared for:**

Sheldon Business Park  
8940 Elder Creek Road  
Sacramento, CA 95829

**Recommended Citation:**

Madrone Ecological Consulting, LLC (Madrone). 2025. *Draft Biological Resources Assessment, Summer Villas*. Prepared for Sheldon Business Park. Published on 2 September 2025.

## CONTENTS

# DRAFT Biological Resources Assessment Summer Villas

<b>1.0 INTRODUCTION</b>	<b>1</b>
<b>1.1 Project Description</b>	<b>1</b>
<b>2.0 REGULATORY SETTING</b>	<b>1</b>
<b>2.1 Federal Regulations</b>	<b>1</b>
2.1.1 Federal Endangered Species Act	1
2.1.2 Clean Water Act, Section 404	2
2.1.3 Migratory Bird Treaty Act	2
2.1.4 Bald and Golden Eagle Protection Act	3
<b>2.2 State Regulations</b>	<b>3</b>
2.2.1 California Environmental Quality Act	3
2.2.2 State Endangered Species Act	4
2.2.3 California Fully Protected Species	4
2.2.4 California Species of Special Concern	4
2.2.5 Native Plant Protection Act	5
2.2.6 Clean Water Act, Section 401	5
2.2.7 California Water Code, Porter-Cologne Act	5
2.2.8 California Fish and Game Code, Section 1600 – Streambed and Lake Alteration	5
2.2.9 California Fish and Game Code, Section 3503.5 - Raptor Nests	6
<b>2.3 Local Regulations</b>	<b>6</b>
2.3.1 City of Elk Grove General Plan	6
2.3.2 City of Elk Grove Tree Preservation and Protection	7
2.3.3 City of Elk Grove Swainson’s Hawk Code	7
<b>3.0 METHODOLOGY</b>	<b>7</b>
<b>3.1 Literature Review</b>	<b>7</b>
<b>3.2 Field Surveys</b>	<b>8</b>
<b>4.0 EXISTING CONDITIONS</b>	<b>9</b>
<b>4.1 Terrestrial Land Covers</b>	<b>9</b>
<b>4.2 Soils</b>	<b>11</b>
<b>4.3 Aquatic Resources</b>	<b>11</b>
4.3.1 Seasonal Wetland	11
4.3.2 Seasonal Wetland Swale	11
4.3.3 Vernal Pool	11
4.3.4 Creek	12
4.3.5 Ephemeral Drainage	12
4.3.6 Roadside Ditch	12
<b>4.4 Special Lands</b>	<b>12</b>
<b>5.0 RESULTS</b>	<b>12</b>

<b>5.1</b>	<b>Plants .....</b>	<b>13</b>
5.1.1	Big-Scale Balsamroot.....	13
5.1.2	Bristly Sedge.....	13
5.1.3	Dwarf Downingia.....	20
5.1.4	Boggs Lake Hedge-Hyssop .....	20
5.1.5	Woolly Rose-Mallow .....	20
5.1.6	Ahart’s Dwarf Rush.....	21
5.1.7	Legenere .....	21
5.1.8	Pincushion Navarretia.....	21
5.1.9	Slender Orcutt Grass .....	22
5.1.10	Sacramento Orcutt Grass.....	22
5.1.11	Sanford’s Arrowhead.....	22
<b>5.2</b>	<b>Invertebrates .....</b>	<b>23</b>
5.2.1	Crotch’s Bumble Bee .....	23
5.2.2	Vernal Pool Fairy Shrimp .....	23
5.2.3	Monarch.....	24
5.2.4	Vernal Pool Tadpole Shrimp .....	25
<b>5.3</b>	<b>Amphibians .....</b>	<b>25</b>
5.3.1	Western Spadefoot.....	25
<b>5.4</b>	<b>Reptiles .....</b>	<b>26</b>
5.4.1	Northwestern Pond Turtle .....	26
<b>5.5</b>	<b>Birds .....</b>	<b>26</b>
5.5.1	Tricolored Blackbird.....	26
5.5.2	Golden Eagle .....	27
5.5.3	Burrowing Owl .....	27
5.5.4	Swainson’s Hawk .....	28
5.5.5	Northern Harrier .....	28
5.5.6	White-Tailed Kite .....	28
5.5.7	Loggerhead Shrike .....	29
<b>5.6</b>	<b>Mammals .....</b>	<b>29</b>
5.6.1	Pallid Bat .....	29
5.6.2	Townsend’s Big-Eared Bat .....	29
5.6.3	Silver-Haired Bat.....	30
5.6.4	Western Red Bat .....	30
5.6.5	Hoary Bat .....	31
5.6.6	American Badger .....	31
<b>6.0</b>	<b>IMPACTS TO SENSITIVE BIOLOGICAL RESOURCES .....</b>	<b>31</b>
<b>6.1</b>	<b>Terrestrial Land Covers .....</b>	<b>32</b>
<b>6.2</b>	<b>Aquatic Resources .....</b>	<b>32</b>
<b>6.3</b>	<b>Special-Status Plant Species .....</b>	<b>32</b>
<b>6.4</b>	<b>Crotch’s Bumble Bee .....</b>	<b>32</b>
<b>6.5</b>	<b>Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp.....</b>	<b>32</b>

6.6	Monarch.....	33
6.7	Western Spadefoot.....	33
6.8	Northwestern Pond Turtle.....	33
6.9	Nesting Raptors and Migratory Birds.....	33
6.10	Foraging Raptors .....	33
6.11	Burrowing Owl .....	33
6.12	Roosting Bats .....	34
6.13	American Badger .....	34
6.14	Native Trees and Other Protected Trees .....	34
7.0	<b>AVOIDANCE, MINIMIZATION, AND MITIGATION FOR IMPACTS TO SENSITIVE BIOLOGICAL RESOURCES</b> .....	<b>34</b>
7.1	Aquatic Resources .....	34
7.2	Special-Status Plant Species .....	35
7.3	Crotch’s Bumble Bee .....	37
7.4	Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp.....	39
7.5	Monarch Butterfly .....	40
7.6	Western Spadefoot.....	41
7.7	Northwestern Pond Turtle.....	42
7.8	Nesting Raptors and Other Birds .....	43
7.9	Foraging Raptors .....	45
7.10	Roosting Bats .....	45
7.11	Native Trees and Other Protected Trees .....	46
7.12	Worker Environmental Awareness Training .....	47
8.0	<b>REFERENCES</b> .....	<b>48</b>

**Tables:**

Table 1.	Terrestrial Land Covers and Aquatic Resources within the Study Area.....	10
Table 2.	Special-Status Species with Potential to Occur within the Summer Villas Study Area.....	14

**Figures:**

- Figure 1. Site and Vicinity
- Figure 2. Programmatic Project Areas
- Figure 3. California Natural Diversity Database Occurrences of Plant Species
- Figure 4. California Natural Diversity Database Occurrences of Wildlife Species
- Figure 5. Terrestrial Vegetation Communities and Aquatic Resources in the Study Area
- Figure 6. Natural Resources Conservation Service Soils
- Figure 7. Impacts Associated with Potential Development Plan

**Attachments:**

Attachment A. General Plan Amendment Exhibit, Summer Villas  
Attachment B. IPaC Trust Resource Report for the Study Area  
Attachment C. CNPS Inventory of Rare and Endangered Plants Query for the "Elk Grove, California"  
USGS Quadrangle and Eight Surrounding Quadrangles  
Attachment D. Preliminary Jurisdictional Determination and Aquatic Resource Delineation Map  
Attachment E. Special-Status Plant Survey Report  
Attachment F. Giant Garter Snake Habitat Assessment

## 1.0 INTRODUCTION

This report presents the results of a Biological Resources Assessment (BRA) conducted for the Summer Villas General Plan Amendment (Project), which includes a development area (On-Site Area) and areas supporting associated off-site infrastructure (Off-Site Area) required for the Project. The on-site area and the off-site area are collectively referred to in this document as the Study Area. The 133.1-acre Study Area is located largely along Sheldon and Waterman Roads, and the southeastern corner of their intersection in the City of Elk Grove, Sacramento County, California (**Figure 1**). The Study Area is located in portions of Sections 19, 20, 29, and 30, Township 7 North, Range 6 East (MDB&M) as shown on the "Elk Grove, California" 7.5-Minute Series USGS Topographic Quadrangle (USGS 2022).

This document has been prepared to support the City of Elk Grove's (City's) California Environmental Quality Act (CEQA) review of the proposed Project.

### 1.1 Project Description

The Project is a General Plan/Rural Area Community Plan Amendment and a Rezone to allow for the creation of the 116-acre Summer Villas Special Planning Area (SPA). The Summer Villas SPA is proposed to contain three distinct sub-zones: an Active Adult Neighborhood (71.3 acres), the Laguna Creek Open Space (20.3 acres), and the Waterman Recreational Open Space (19.4 acres). A General Plan Amendment Exhibit is included as **Attachment A**. Development is not proposed at this time, and as such, final impact boundaries have not been identified. General impact and avoidance areas have been identified, and are shown on **Figure 2**; however, as the specific impact boundaries have not been identified, the impact analysis in this document is conducted in a programmatic fashion. It should be noted that the Project has been designed to avoid Laguna Creek and a vernal pool/seasonal wetland swale complex that drains into Laguna Creek in the southern portion of the Project Area.

Much of analysis throughout this document is subdivided into a description of the On-Site Area and the Off-Site Area. The Off-Site Area is the "Offsite Infrastructure Area" shown on **Figure 2**, and the On-site Area is the remainder of the Study Area on **Figure 2**.

## 2.0 REGULATORY SETTING

This section describes federal, state, and local laws and policies that are relevant to this assessment of biological resources.

### 2.1 Federal Regulations

#### 2.1.1 *Federal Endangered Species Act*

The Federal Endangered Species Act (FESA) of 1973 protects species that are federally listed as endangered or threatened with extinction. FESA prohibits the unauthorized "take" of listed wildlife species. Take includes

harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such activities. Harm includes significant modifications or degradations of habitats that may cause death or injury to protected species by impairing their behavioral patterns. Harassment includes disruption of normal behavior patterns that may result in injury to or mortality of protected species. Civil or criminal penalties can be levied against persons convicted of unauthorized “take.” In addition, FESA prohibits malicious damage or destruction of listed plant species on federal lands or in association with federal actions, and the removal, cutting, digging up, damage, or destruction of listed plant species in violation of state law. FESA does not afford any protections to federally listed plant species that are not also included on a state endangered species list on private lands with no associated federal action.

### **2.1.2 Clean Water Act, Section 404**

Section 404 of the Federal Clean Water Act requires that a Department of the Army permit be issued prior to the discharge of dredged or fill material into waters of the United States, including some wetlands. The U.S. Army Corps of Engineers (USACE) administers this program, with oversight from the U. S. Environmental Protection Agency. As of the date of this document, waters of the United States (waters of the U.S.) are defined as follows (40 CFR 120.2):

1. Waters which are:
  - i. Currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
  - ii. The territorial seas; or
  - iii. Interstate waters;
2. Impoundments of waters otherwise defined as waters of the United States under this definition, other than impoundments of waters identified under item (5) below;
3. Tributaries of waters identified in items (1) or (2) above that are relatively permanent, standing or continuously flowing bodies of water;
4. Wetlands adjacent to the following waters:
  - i. Waters identified in item (1) of this section; or
  - ii. Relatively permanent, standing or continuously flowing bodies of water identified in items (2) or (3) above and with a continuous surface connection to those waters;
5. Intrastate lakes and ponds not identified in paragraphs (1) through (4) of this section that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in items (1) or (3) above.

Under the current definition of waters of the U.S., “adjacent” means *having a continuous surface connection*. Waters subject to regulation under Section 404 are referred to as “jurisdictional waters”.

### **2.1.3 Migratory Bird Treaty Act**

The Migratory Bird Treaty Act (MBTA) prohibits the take, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase or barter, any native migratory bird, their eggs, parts, and

nests, except as authorized under a valid permit (50 CFR 21.11.). Likewise, Section 3513 of the California Fish & Game Code prohibits the “take or possession” of any migratory non-game bird identified under the MBTA. Therefore, activities that may result in the injury or mortality of native migratory birds, including eggs and nestlings, would be prohibited under the MBTA.

#### **2.1.4 Bald and Golden Eagle Protection Act**

The Bald and Golden Eagle Protection Act of 1940 (as amended) provides for the protection of bald eagle and golden eagle by prohibiting the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit [16 USC 668(a); 50 CFR 22]. The U.S. Fish and Wildlife Service (USFWS) may authorize take of bald eagles and golden eagles for activities where the take is associated with, but not the purpose of, the activity and cannot practicably be avoided (50 CFR 22.26).

## **2.2 State Regulations**

### **2.2.1 California Environmental Quality Act**

CEQA requires evaluations of project effects on biological resources. Determining the significance of those effects is guided by Appendix G of the CEQA guidelines. These evaluations must consider direct effects on a biological resource within the project site itself, indirect effects on adjacent resources, and cumulative effects within a larger area or region. Effects can be locally important but not significant according to CEQA if they would not substantially affect the regional population of the biological resource. Significant adverse impacts on biological resources would include the following:

- Substantial adverse effects on any species identified as candidate, sensitive, or special-status in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife (CDFW) or the USFWS (these effects could be either direct or via habitat modification);
- Substantial adverse impacts to species designated by CDFW as Species of Special Concern;
- Substantial adverse effects on riparian habitat or other sensitive habitat identified in local or regional plans, policies, or regulations or by CDFW and USFWS;
- Substantial adverse effects on federally protected wetlands defined under Section 404 of the Clean Water Act (these effects include direct removal, filling, or hydrologic interruption of marshes, vernal pools, coastal wetlands, or other wetland types);
- Substantial interference with movements of native resident or migratory fish or wildlife species population, or with use of native wildlife nursery sites;
- Conflicts with local policies or ordinances protecting biological resources (e.g. tree preservation policies); and
- Conflict with provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan.

### **2.2.2 State Endangered Species Act**

With limited exceptions, the California Endangered Species Act (CESA) of 1984 protects state-designated endangered and threatened species in a way similar to FESA. For projects on private property (i.e., that for which a state agency is not a lead agency), CESA enables CDFW to authorize take of a listed species that is incidental to carrying out an otherwise lawful project that has been approved under CEQA (Fish and Game Code Section 2081).

### **2.2.3 California Fully Protected Species**

The State of California first began to designate species as “fully protected” prior to the creation of the federal and California ESAs. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under the federal and/or California ESAs. The regulations that implement the Fully Protected Species Statute (California Fish and Game Code, § 4700 for mammals, § 3511 for birds, § 5050 for reptiles and amphibians, and § 5515 for fish) provide that fully protected species may not be taken or possessed at any time. Furthermore, CDFW prohibits any state agency from issuing incidental take permits for fully protected species. CDFW will issue licenses or permits for take of these species for necessary scientific research or live capture and relocation pursuant to the permit.

### **2.2.4 California Species of Special Concern**

The Species of Special Concern (CSC) are defined by CDFW as a species, subspecies, or distinct population of an animal native to California that are not legally protected under the federal or California ESAs or the California Fish and Game Code, but currently satisfies one or more of the following criteria:

- The species has been completely extirpated from the state or, as in the case of birds, it has been extirpated from its primary seasonal or breeding role.
- The species is listed as federally (but not state) threatened or endangered or meets the state definition of threatened or endangered but has not formally been listed.
- The species has or is experiencing serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status.
- The species has naturally small populations that exhibit high susceptibility to risk from any factor that if realized, could lead to declines that would qualify it for state threatened or endangered status.

CSC are typically associated with habitats that are threatened. Project-related impacts to CSC, state-threatened or endangered species are considered “significant” under CEQA.

### **2.2.5 Native Plant Protection Act**

The Native Plant Protection Act (NPPA) was enacted in 1977 and allows the Fish and Game Commission to designate plants as rare or endangered. There are 64 species, subspecies, and varieties of plants that are protected as rare under the NPPA. The NPPA prohibits take of endangered or rare native plants but includes some exceptions for agricultural and nursery operations; emergencies; and after properly notifying CDFW for vegetation removal from canals, roads, and other sites, changes in land use, and in certain other situations.

### **2.2.6 Clean Water Act, Section 401**

Section 401 of the Clean Water Act requires any applicant for a 404 permit in support of activities that may result in any discharge into waters of the United States to obtain a water quality certification with the Regional Water Quality Control Board (RWQCB). This program is meant to protect these waters and wetlands by ensuring that waste discharged into them meets state water quality standards. Because the water quality certification program is triggered by the need for a Section 404 permit (and both programs are a part of the Clean Water Act), the definition of waters of the United States under Section 401 is the same as that used by the USACE under Section 404.

### **2.2.7 California Water Code, Porter-Cologne Act**

Waters that are not considered waters of the U.S. may be considered waters of the State of California (waters of the state) under the Porter-Cologne Water Quality Control Act (Porter-Cologne). Porter-Cologne, from Division 7 of the California Water Code, requires any person discharging waste or proposing to discharge waste that could affect the quality of waters of the state to file a report of waste discharge (RWD) with the RWQCB. The RWQCB can waive the filing of a report, but once a report is filed, the RWQCB must either waive or adopt water discharge requirements (WDRs). Waters of the state are defined as any surface water or groundwater, including saline waters, within the boundaries of the state of California. Wetlands that are waters of the state include natural wetlands; wetlands created by modification of a surface water of the state; and artificial wetlands that meet specific criteria.

### **2.2.8 California Fish and Game Code, Section 1600 – Streambed and Lake Alteration**

The CDFW is responsible for conserving, protecting, and managing California’s fish, wildlife, and native plant resources. To meet this responsibility, the Fish and Game Code, Section 1600, requires notification to CDFW of any proposed activity that may substantially modify a river, stream, or lake. Notification is required by any person, business, state or local government agency, or public utility that proposes an activity that will:

- substantially divert or obstruct the natural flow of any river, stream or lake;
- substantially change or use any material from the bed, channel, or bank of any river, stream, or lake;
- or
- deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

The California Code of Regulations defines a river or stream thusly: “A stream is a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation” (CCR Title 14, Section 1.72). For the purposes of Section 1600, rivers, streams, and lakes include those that are dry for periods of time as well as those that flow year round. If notification is required and CDFW believes the proposed activity is likely to substantially adversely affect fish and wildlife resources, it will require that the parties enter into a Lake or Streambed Alteration Agreement (LSAA).

### **2.2.9 California Fish and Game Code, Section 3503.5 - Raptor Nests**

Section 3503.5 of the Fish and Game Code makes it unlawful to take, possess, or destroy hawks or owls, unless permitted to do so, or to destroy the nest or eggs of any hawk or owl.

## **2.3 Local Regulations**

### **2.3.1 City of Elk Grove General Plan**

The City of Elk Grove (City) General Plan (last updated in 2021) contains a number of open-space and conservation related policies, including policies that address the location and uses of open space areas, special status species habitat preservation, wildlife movement, stream buffer zones, wetland and riparian area avoidance, tree preservation, and maintenance of water quality. The General Plan states that development should preserve and enhance natural areas that serve, or may potentially serve, as habitat for special-status species and that unavoidable impacts must be mitigated (Policy NR-1-2); retain movement corridor(s) adequate (both in size and in habitat quality) to allow for the continued wildlife use based on the species anticipated in the corridor (Policy NR-1.2b); avoid impacts to wetlands, vernal pools, marshland, and riparian (streamside) areas unless shown to be technically infeasible and ensure that no net loss of wetland areas occurs (Policy NR-1-4); preserve large native oak and other native tree species as well as large non-native tree species that are an important part of the City’s historic and aesthetic character (Policy NR-2-1); and integrate sustainable stormwater management techniques in site design to reduce stormwater runoff and control erosion (Policy NR-3-2).

The General Plan identifies the Study Area as a potential infill area within the Eastern Elk Grove Community Plan area (City of Elk Grove 2021). The General Plan land use map shows most of the western half of the Project parcel as low-density residential and the eastern half and northwest corner of the Project parcel as resource management and conservation (City of Elk Grove 2021). As proposed, the Project maintains an open space area in the resource management and conservation portion, which facilitates avoidance of some of the wetlands in the Study Area and special status species that may use those wetlands and adjacent grassland areas, retains a clear north-south corridor of undeveloped land through which wildlife could move, and provides a storm water management system that would prevent impacts related to storm water runoff. Tree removal would be governed by the City’s municipal code (see **Section 2.3.2** below). The Project would be required to mitigate impacts to aquatic resources as required by state and federal regulations.

### **2.3.2 City of Elk Grove Tree Preservation and Protection**

The City has adopted regulations for the preservation and protection of certain trees within the City limits (Municipal Code Chapter 19.12). The City's adopted regulations apply to four types of trees as follows (referred to as "Protected Trees" throughout the remainder of this document):

- Landmark trees, which are trees specifically identified for protection by the Elk Grove City Council;
- Trees of local importance, which are trees of the following varieties that are greater than six inches in diameter:
  - Coast live oak (*Quercus agrifolia*);
  - Valley oak (*Quercus lobata*);
  - Blue oak (*Quercus douglasii*);
  - Interior live oak (*Quercus wislizenii*);
  - Oracle oak (*Quercus x moreha*);
  - California sycamore (*Platanus racemosa*); and
  - California black walnut (*Juglans hindsii*).
- Secured trees, which are trees that were mitigation for, or protected as part of, the development process for residential subdivisions and commercial developments; and
- Trees on City property or in the public right-of-way and that are landmark trees, trees of local importance, or secured trees.

A tree permit must be secured from the City prior to removal (or other work) on Protected Trees.

### **2.3.3 City of Elk Grove Swainson's Hawk Code**

In 2003, the City established and adopted Chapter 16.130 of the Elk Grove Municipal Code (Swainson's Hawk Code) to provide options for mitigating a project's impacts to Swainson's hawk foraging habitat. Chapter 16.130 applies to projects that would subdivide parcels five (5) acres and larger zoned for agricultural uses. Chapter 16.130 outlines potential compensatory mitigation for projects that must comply with the Swainson's Hawk Code.

## **3.0 METHODOLOGY**

### **3.1 Literature Review**

A list of special-status species with potential to occur within the Study Area was developed by utilizing the following publicly available information sources:

- California Natural Diversity Database (CNDDDB) (CNDDDB 2024) query of the Study Area and all areas within 5 miles of the Study Area (Figures 3 and 4);
- USFWS Information for Planning and Conservation (IPaC) (USFWS 2024) query for the Study Area (Attachment B);

- California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (CNPS 2024) query of the “Elk Grove, California” USGS topo quadrangle, and the eight surrounding quadrangles (Attachment C);
- Verified records from Bumble Bee Watch (BBW 2024);
- Western Monarch Milkweed Mapper (WMMM) [Western Monarch and Milkweed Occurrence Database (WMMOD) 2024] and Western Monarch Overwintering Site Viewer (Xerces Society 2024) records;
- Research grade observations from iNaturalist (iNaturalist 2024);
- Confirmed nesting records and observation records from Cornell Laboratory of Ornithology’s eBird database (Cornell Lab 2024); and
- Western Bat Working Group (WBWG) Species Matrix (WBWG 2024).

In addition, any special-status species that are known to occur in the region, but that were not identified in any of the above information sources were also analyzed for their potential to occur within the Study Area.

For the purposes of this Biological Resources Assessment, special-status species is defined as those species that are:

- listed as threatened or endangered, or proposed or candidates for listing by the USFWS or National Marine Fisheries Service;
- listed as threatened or endangered and candidates for listing by CDFW;
- identified as Fully Protected species or species of special concern by CDFW;
- identified as Medium or High priority species by the WBWG (WBWG 2024); and
- plant species considered to be rare, threatened, or endangered in California by the CNPS and CDFW [California Rare Plant Rank (CRPR) 1, 2, and 3]:
  - CRPR 1A: Plants presumed extinct.
  - CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere.
  - CRPR 2A: Plants extirpated in California, but common elsewhere.
  - CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere.
  - CRPR 3: Plants about which the CNPS needs more information – a review list.

### **3.2 Field Surveys**

Madrone Ecological Consulting (Madrone) biologists Daria Snider, Dustin Brown, and Matt Shaffer conducted site visits of the On-Site Area on 16 and 17 November and 13 and 21 December 2022; Madrone biologist Tara Collins visited the On-Site Area on 26 and 29 April, 9 May, and 21 June 2024; and Madrone biologist Daria Snider surveyed the Off-Site Area on 17 and 28 October 2024. During their site visits, Madrone biologists mapped vegetation communities, evaluated the location and extent of previously mapped aquatic resources, and generally evaluated habitat conditions in the Study Area.

During the 2022 site visits, Madrone updated the aquatic resource delineation map of the On-Site Area to reflect the current conditions, and enhanced linework precision. This updated aquatic resources delineation

was verified by the USACE in 2023 (Preliminary Jurisdictional Determination and associated map included as **Attachment D**) and is shown on **Figure 4**.

During the April through June 2024 site visits, Ms. Collins conducted a special-status plant survey of the On-Site Area in accordance with the U.S. Fish and Wildlife Service's *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* (USFWS 1996), California Department of Fish and Wildlife's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018), and the *CNPS Botanical Survey Guidelines* (CNPS 2001). A copy of the special-status plant survey report is included as **Attachment E**.

Lastly, during the October 2024 visits, Ms. Snider conducted an aquatic resources delineation and land cover mapping of the Off-Site Area. These data are presented in **Figure 4**.

## **4.0 EXISTING CONDITIONS**

The On-Site Study Area is characterized by slightly rolling, cattle grazed annual brome grasslands interspersed with seasonal wetlands, seasonal wetlands, and vernal pools. Laguna Creek winds through the approximate center of the northern portion, and runs in and out of the eastern boundary of the southern portion of the On-Site Area. A rural residence is present in the northern portion of the On-Site Area, and high-tension power lines run through a broad corridor along the western edge. The elevation ranges from approximately 50 feet above mean sea level to approximately 75 feet along the western edge of the On-Site Area. The On-site Study Area is bordered by rural residential development on the northwest, north, northeast, and south sides. An undeveloped area borders the southeastern portion of the On-Site Area, and a wetland preserve is present across Waterman Road to the southwest.

The Off-Site Area runs along Sheldon Road, Waterman Road, and Elk Grove Florin Road. The Off-site Area is almost entirely comprised of paved roadways, but also includes slivers of rural residential, unvegetated, ruderal, and annual brome grassland. The majority of the aquatic resources in the Off-Site Area are roadside ditches and two small, constructed Detention Basins, but a portion of a vernal pool also occurs west of Waterman Road in the southern portion of the Off-Site Area. Elevations within the Off-Site Area range from approximately 45 feet along Elk Grove Florin Road to approximately 80 feet on the north end of Waterman Blvd. The Off-Site Area is largely bounded by rural residential, although they do run adjacent to some urban residential on the western and northern edges.

### **4.1 Terrestrial Land Covers**

The On-Site Area and portions of the Off-Site Area are comprised of annual brome grassland (**Table 1** and **Figure 5**), as described below. The remainder of the Study Area is comprised of urban-associated landcovers. Areas mapped as "Road" on **Figure 5** are paved roadways, and a number of areas adjacent to the paved roadways are mapped as "Unvegetated" as they appear to be regularly maintained to be free of vegetation. "Ruderal" areas support scattered non-native forbs, such as filaree (*Erodium botrys*), Russian thistle (*Salsola tragus*), and stinkwort (*Dittrichia graveolens*). Lastly, "Rural Residential" areas were mapped

where the landcover was comprised of residential buildings and associated features such as driveways and maintained landscaping.

The annual brome grassland is primarily dominated by non-native annual grass species including soft chess (*Bromus hordeaceus*), Mediterranean barley (*Hordeum marinum*), and ryegrass (*Festuca perennis*). Common forb species within the annual brome grassland habitat include hairy hawkbit (*Leontodon saxatilis*), subterranean clover (*Trifolium subterraneum*), cut leaf geranium (*Geranium dissectum*), and filaree (*Erodium botrys*). Immediately along Laguna Creek and its tributary, the annual brome grassland is interspersed with scattered native riparian vegetation, including Oregon ash (*Fraxinus latifolia*), California button willow (*Cephalanthus occidentalis*), Santa Barbara sedge (*Carex barbarae*), and western goldenrod (*Euthamia occidentalis*), as well as non-native species that often invade riparian areas, including Southern catalpa (*Catalpa bignonioides*), rattlebox (*Sesbania punicea*), eucalyptus (*Eucalyptus sp.*), and Himalayan blackberry (*Rubus armeniacus*). Scattered valley oak (*Quercus lobata*) trees occur along the northern boundary adjacent to Sheldon Road. One small area of a heavy clay inclusion was located near the southeast corner of the On-Site Area that was dominated by sparse, low-growing forbs, such as Douglas' microseris (*Microseris douglasii*), hairy hawkbit, South American soliva (*Soliva sessilis*), and filaree. The annual brome grasslands were moderately grazed.

**Table 1. Terrestrial Land Covers and Aquatic Resources within the Study Area**

Land Cover/Resource	Area (acres)
<i>Terrestrial Land Covers</i>	
Annual Brome Grassland	107.1
Road	13.2
Ruderal	1.7
Rural Residential	3.7
Unvegetated	1.4
<u>Total Terrestrial Land Covers</u>	<u>127.0</u>
<i>Aquatic Resources</i>	
<i>Wetlands</i>	
Seasonal Wetland	0.45
Seasonal Wetland Swale	0.29
Vernal Pool	1.30
<i>Non-Wetlands</i>	
Laguna Creek	3.26
Detention Basin	0.21
Ephemeral Drainage	0.14
Roadside Ditch	0.49
<u>Total Aquatic Resources</u>	<u>6.12</u>
<b>Total</b>	<b>133.1</b>

Summation errors may occur due to rounding.

## 4.2 Soils

The Natural Resources Conservation Service (NRCS) has mapped seven soil units within the Study Area (Figure 5) (NRCS 2024): (151) Galt clay, leveled, 0 to 1 percent slopes; (158) Hicksville loam, 0 to 2 percent slopes, occasionally flooded; (198) Redding gravelly loam, 0 to 8 percent slopes, MLRA 17; (213) San Joaquin silt loam, leveled, 0 to 1 percent slopes; (214) San Joaquin silt loam, 0 to 3 percent slopes; (215) - San Joaquin silt loam, 3 to 8 percent slopes; and (216) San Joaquin-Durixeralfs complex, 0 to 1 percent slopes.

These soils include acidic gravelly loams, neutral to acidic silt loams, slightly acidic loams, and slightly acidic clays (NRCS 2024). Alkaline soils do not occur within the Study Area.

## 4.3 Aquatic Resources

A protocol-level aquatic resources delineation was conducted for the Study Area. As noted above, a PJD has been issued for the On-Site Area by the USACE (Attachment D). The aquatic resources within the Off-Site area have not been submitted to the USACE for verification to date. Aquatic resources mapped within the Study Area are depicted in Figure 5. Table 1 summarizes these mapped aquatic resource types and a description by type is included below.

### 4.3.1 Seasonal Wetland

A number of seasonal wetlands occur within the Study Area. Seasonal wetlands are depressional wetlands that pond water seasonally. These features are often topographically and hydrologically similar to vernal pools, but have a short hydroperiod, and as a result, support a slightly different plant community that is not characterized by a dominance of vernal pool endemics. The seasonal wetlands within the Study Area are largely dominated by ryegrass, Mediterranean barley, hyssop loosestrife (*Lythrum hyssopifolia*), toad rush (*Juncus bufonius*), and great valley popcornflower (*Plagiobothrys stipitatus*).

### 4.3.2 Seasonal Wetland Swale

The Study Area supports multiple wetland swales. Seasonal wetland swales are sloping, linear seasonal wetlands that convey surface runoff, and may detain it for short periods of time. The most common plants occurring within the wetland swales include ryegrass and Mediterranean barley.

### 4.3.3 Vernal Pool

The Study Area supports a number of vernal pools. Vernal pools are topographic basins that are underlain with an impermeable or semi-permeable hardpan or duripan layer. Vernal pools inundate during the wet season, and typically dry by late spring and remain dry through the summer months. The vernal pool was differentiated from depressional seasonal wetlands within the Study Area based upon the predominance of vernal pool endemic plant species. The vernal pools were dominated by vernal pool buttercup (*Ranunculus bonariensis*), Mediterranean barley, and great valley popcornflower. Longer ponding vernal pools also

supported creeping spikerush (*Eleocharis macrostachya*), California damasonium (*Damasonium californicum*), and bractless hedge-hyssop (*Gratiola ebracteata*).

#### **4.3.4 Creek**

The Study Area includes a portion of Laguna Creek and a portion of one of its tributaries. Laguna Creek is one of the primary creek corridors in southern Sacramento County. Historically, Laguna Creek and its tributaries were dry for much of the year, but agricultural and urban runoff have increasingly caused major sections to flow year-round, including the portions that run through the Study Area. Urbanization along other portions of Laguna Creek has led to issues with minor flooding along the more developed portions of the creek. Laguna Creek supports a mostly unvegetated rocky bottom with the creek margins dominated by the same species as found in the adjacent annual brome grassland, interspersed with scattered native riparian vegetation, including Oregon ash, California button willow, Santa Barbara sedge, and western goldenrod, as well as non-native species that often invade riparian areas, including Southern catalpa, rattlebox, eucalyptus, and Himalayan blackberry.

#### **4.3.5 Ephemeral Drainage**

Ephemeral drainages are linear features that exhibit a bed and bank and an OHWM. These features typically convey runoff for short periods of time, during and immediately following rain events, and are not influenced by groundwater sources at any time during the year. Four ephemeral drainages occur in the western portion of the Study Area within the annual brome grassland. These features are vegetated by annual grasses species including ryegrass, Mediterranean barley, and annual blue grass (*Poa annua*).

#### **4.3.6 Roadside Ditch**

Several roadside ditches run along the northern edge of the Study Area, on the southern edge of Sheldon Road. Additional roadside ditches occur along the western edge of the site, east of Waterman Road. These ditches are partially graveled and show sign of herbicide use nearby. Ruderal vegetation is present with dominants including turkey-mullein (*Croton setiger*), spotted spurge (*Euphorbia maculata*), and filaree.

### **4.4 Special Lands**

The Study Area is not within the primary or secondary zones of the Sacramento-San Joaquin Delta. The site does not support critical habitat for any federally listed species and is not within the South Sacramento Habitat Conservation Plan area.

## **5.0 RESULTS**

**Table 2** provides a list of special-status species that were evaluated, including the listing status, habitat associations, and their potential to occur in the Study Area for each. The following criteria were used to determine each species' potential for occurrence in the Study Area:

- Present: Species occurs on the site based on CNDDDB records, and/or was observed on the site during field surveys.
- High: The site is within the known range of the species and suitable habitat exists.
- Moderate: The site is within the known range of the species and very limited suitable habitat exists.
- Low: The site is within the known range of the species and there is marginally suitable habitat, or the species was not observed during protocol-level surveys conducted on-site.
- No Habitat Present: The site does not contain suitable habitat for the species or the site is outside the known range of the species.
- Absent: At least marginally suitable habitat is present, but the species was not observed during protocol-level surveys conducted on-site.

Figures 3 and 4 show CNDDDB occurrences of special status plant species and wildlife species within five miles of the Study Area, respectively. A discussion of all special-status plant and animal species with potential to occur on the site follows Table 2.

## 5.1 Plants

### 5.1.1 *Big-Scale Balsamroot*

Big-scale balsamroot (*Balsamorhiza macrolepis*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. It is a perennial herbaceous species that occurs in chaparral, cismontane woodland and valley and foothill grasslands between 150 and 5,100 feet (CNPS 2024a). Big-scale balsamroot blooms from March through June and may be found on serpentine soils, though it is known to grow on other soil types as well (CNPS 2024a).

The annual brome grassland throughout the Study Area represents suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the Study Area.

### 5.1.2 *Bristly Sedge*

Bristly sedge (*Carex comosa*) is not a state or federally listed species but is classified as a CRPR List 2B.1 plant. It is a perennial herbaceous species that occurs in Marshes and swamps along lake margins in coastal prairie and valley and foothill grasslands between sea level and 2,050 feet. Bristly sedge blooms from March through September (CNPS 2024).

The edges of Laguna Creek within the Study Area provide marginal habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the Study Area. Although this species was not a target for this survey, the survey was floristic in nature and conducted during the identifiable period for this bristly sedge; as such, if it were present, it would have been documented. This species has not been documented within five miles of the Study Area in the CNDDDB (CNDDDB 2024).

**Table 2. Special-Status Species with Potential to Occur within the Summer Villas Study Area**

<i>Scientific Name</i> (Common Name)	Federal Status <sup>1</sup>	State Status <sup>1</sup>	Habitat Requirements	Potential for Occurrence
<i>Plants</i>				
<i>Balsamorhiza macrolepis</i> Big-scale balsamroot	--	CRPR 1B.2	Prefers chaparral, cismontane woodland, and valley and foothill grasslands. Often associated with serpentine soils (elevation 150'-5,100').	<b>Low.</b> Marginally suitable habitat for this species occurs within annual brome grasslands throughout the Study Area. This plant was not found during protocol surveys of the On-site Area in 2024 and is considered absent from that area. However, small slivers of grassland in the Off-site Area have not yet been surveyed, and this plant has low potential to occur in those areas.
<i>Brasenia schreberi</i> Watershield	--	CRPR 2B.3	Freshwater marshes and swamps (0' - 7,220')	<b>No Habitat Present.</b> The Study Area does not support habitat for this species. Although the creek ponds, it does not move slowly enough to support this species.
<i>Calycadenia spicata</i> Spicate rosinweed	--	CRPR 1B.3	Occurs in disturbed areas and openings in cismontane woodland and annual grassland. Often associated with adobe clay, gravelly areas, rock outcrops and mine tailings (elevation 130'-4,600').	<b>No Habitat Present.</b> The Study Area is outside of the elevational range of the species.
<i>Carex comosa</i> Bristly sedge	--	CRPR 2B.1	Fresh water marshes or other wet habitats. Occurs between 0-2,050'.	<b>Absent.</b> Marginally suitable habitat for this species occurs along Laguna Creek within the On-site Area. This plant was not found during protocol surveys of the On-site Area in 2024. Although it was not a target of the survey, the survey was floristic in nature and would have detected the species.

**Table 2. Special-Status Species with Potential to Occur within the Summer Villas Study Area**

<b>Scientific Name (Common Name)</b>	<b>Federal Status<sup>1</sup></b>	<b>State Status<sup>1</sup></b>	<b>Habitat Requirements</b>	<b>Potential for Occurrence</b>
<i>Cicuta maculata</i> var. <i>bolanderi</i> Bolander's water-hemlock	--	CRPR 2B.1	Coastal, fresh, or brackish marshes and swamps (0' – 656').	<b>No Habitat Present.</b> The Study Area does not support habitat for this species. The creek does not support marsh vegetation along its edges.
<i>Cuscuta obtusiflora</i> var. <i>glandulosa</i> Peruvian dodder	--	CRPR 2B.2	Freshwater marshes and swamp. Found in elevations between 50 to 920 feet.	<b>No Habitat Present.</b> The Study Area does not support habitat for this species. The creek does not support marsh vegetation along its edges.
<i>Downingia pusilla</i> Dwarf downingia	--	CRPR 2B.2	Mesic areas in valley and foothill grassland, and vernal pools (3' – 1,460').	<b>High.</b> Suitable habitat is present in seasonal wetlands, seasonal wetland swales and vernal pools within the Study Area. This plant was not found during protocol surveys of the On-site Area in 2024 and is considered absent from that area, but the one vernal pool that represents habitat in the Off-site Area has not yet been surveyed, and this plant has high potential to occur in that feature.
<i>Gratiola heterosepala</i> Boggs Lake hedge-hyssop	--	CE, CRPR 1B.2	Vernal pools and margins of lakes/ponds on clay soils (35' - 7,790').	<b>High.</b> Suitable habitat is present in seasonal wetlands, seasonal wetland swales and vernal pools within the Study Area. This plant was not found during protocol surveys of the On-site Area in 2024 and is considered absent from that area, but the one vernal pool that represents habitat in the Off-site Area has not yet been surveyed, and this plant has high potential to occur in that feature.

**Table 2. Special-Status Species with Potential to Occur within the Summer Villas Study Area**

<b>Scientific Name (Common Name)</b>	<b>Federal Status<sup>1</sup></b>	<b>State Status<sup>1</sup></b>	<b>Habitat Requirements</b>	<b>Potential for Occurrence</b>
<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i> Woolly rose-mallow	--	CRPR 1B.2	Occurs in freshwater wetlands/marshes including edges. Often in riprap on sides of levees, but has also been found in detention basins. Found in elevations between sea level to 395 feet.	<b>Absent.</b> Marginally suitable habitat for this species occurs along Laguna Creek within the On-site Area. This plant was not found during protocol surveys of the On-site Area in 2024. Although it was not a target of the survey, the survey was floristic in nature and would have detected the species.
<i>Juncus leiospermus</i> var. <i>ahartii</i> Ahart's dwarf rush	--	CRPR 1B.2	Occurs along edges of vernal pool and other seasonally ponded features between 100 and 750 feet.	<b>High.</b> Suitable habitat is present in seasonal wetlands, seasonal wetland swales and vernal pools within the Study Area. This plant was not found during protocol surveys of the On-site Area in 2024 and is considered absent from that area, but the one vernal pool that represents habitat in the Off-site Area has not yet been surveyed, and this plant has high potential to occur in that feature.
<i>Lasthenia chrysantha</i> Alkali-sink goldfields	--	CRPR 1B.1	Alkaline vernal pools (0' - 655').	<b>No Habitat Present.</b> The Study Area does not support alkaline soils.
<i>Lathyrus jepsonii</i> var. <i>jepsonii</i> Delta tule pea	None	CRPR 1B.2	Prefers tidally influenced channels, brackish marshes and swamps below 15 feet.	<b>No Habitat Present.</b> The Study Area does not support habitat for this species and is outside of the elevational range.
<i>Legenere limosa</i> Legenere	--	CRPR 1B.1	Occurs in vernal pools between 5 and 2885 feet.	<b>Present.</b> This species was observed in a vernal pool within the On-Site Area during protocol surveys in 2024. One vernal pool that represents habitat in the Off-site Area has not yet been surveyed, and this plant has high potential to occur in that feature.
<i>Lepidium latipes</i> var. <i>heckardii</i> Heckard's pepper-grass	--	CRPR 1B.2	This annual prefers valley and foothill grasslands with alkaline soils.	<b>No Habitat Present.</b> The Study Area does not support alkaline soils.

**Table 2. Special-Status Species with Potential to Occur within the Summer Villas Study Area**

<b>Scientific Name (Common Name)</b>	<b>Federal Status<sup>1</sup></b>	<b>State Status<sup>1</sup></b>	<b>Habitat Requirements</b>	<b>Potential for Occurrence</b>
<i>Lilaeopsis masonii</i> Mason's lilaeopsis	--	CR, CRPR 1B.1	This species prefers brackish or freshwater swamps, intertidal marshes, and riparian scrub at or below 35 feet.	<b>No Habitat Present.</b> The Study Area does not support habitat for this species and is outside of the elevational range.
<i>Limosella australis</i> Delta mudwort	--	CRPR 2B.1	Favors freshwater and brackish marshes, swamps, or riparian scrub. Usually found in association with muddy banks in the Delta. (0-10 feet)	<b>No Habitat Present.</b> The Study Area does not support habitat for this species and is outside of the elevational range.
<i>Orcuttia tenuis</i> Slender Orcutt grass	FT	CE, CRPR 1B.1	Occurs in vernal pools and other seasonally ponded features between 115 and 5775 feet.	<b>Low.</b> Suitable habitat is present in seasonal wetlands, seasonal wetland swales and vernal pools within the Study Area. This plant was not found during protocol surveys of the On-site Area in 2024 and is considered absent from that area, but the one vernal pool that represents marginal habitat in the Off-site Area has not yet been surveyed, and this plant has low potential to occur in that feature.
<i>Navarretia myersii</i> ssp. <i>myersii</i> Pincushion navarretia	--	CRPR 1B.1	Found in vernal pools (often acidic) (elevation 65' - 1,085').	<b>High.</b> Suitable habitat is present in seasonal wetlands, seasonal wetland swales and vernal pools within the Study Area. This plant was not found during protocol surveys of the On-site Area in 2024 and is considered absent from that area, but the one vernal pool that represents habitat in the Off-site Area has not yet been surveyed, and this plant has high potential to occur in that feature.

**Table 2. Special-Status Species with Potential to Occur within the Summer Villas Study Area**

<b>Scientific Name (Common Name)</b>	<b>Federal Status<sup>1</sup></b>	<b>State Status<sup>1</sup></b>	<b>Habitat Requirements</b>	<b>Potential for Occurrence</b>
<i>Orcuttia viscida</i> Sacramento Orcutt grass	FE	CE, CRPR 1B.1	Occurs in vernal pools between 100 and 330 feet.	<b>Low.</b> Suitable habitat is present in seasonal wetlands, seasonal wetland swales and vernal pools within the Study Area. This plant was not found during protocol surveys of the On-site Area in 2024 and is considered absent from that area, but the one vernal pool that represents marginal habitat in the Off-site Area has not yet been surveyed, and this plant has low potential to occur in that feature.
<i>Sagittaria sanfordii</i> Sanford's arrowhead	--	CRPR 1B.2	Occurs in emergent marsh habitat, typically associated with drainages, canals, or irrigation ditches (0' - 2,135').	<b>Absent.</b> Suitable habitat for this species occurs along Laguna Creek within the On-site Area. This plant was not found during protocol surveys of the On-site Area in 2024.
<i>Scutellaria galericulata</i> Marsh skullcap	--	CRPR 2B.2	Lower montane coniferous forest, marshes and swamps, and mesic meadows and seeps (0' – 6,890')	<b>No Habitat Present.</b> The Study Area does not support habitat for this species. The creek does not support marsh vegetation along its edges.
<i>Scutellaria lateriflora</i> Side-flowering skullcap	--	CRPR 2B.2	Freshwater marshes or other wet habitats between 0 and 10 feet. Known in California only from the tidally influenced Sacramento San Joaquin Delta.	<b>No Habitat Present.</b> The Study Area does not support habitat for this species and is outside of the elevational range.
<i>Trifolium hydrophilum</i> Saline clover	--	CRPR 1B.2	Grows in marshes, swamps, and vernal pools with alkaline soils between sea level and 985 feet elevation.	<b>No Habitat Present.</b> The Study Area does not support alkaline soils.
<b>Invertebrates</b>				
<i>Bombus crotchii</i> Crotch's bumble bee	--	CC	Occurs in open grasslands and scrub habitats.	<b>High.</b> The annual grasslands could support suitable foraging flower populations.

**Table 2. Special-Status Species with Potential to Occur within the Summer Villas Study Area**

<b>Scientific Name (Common Name)</b>	<b>Federal Status<sup>1</sup></b>	<b>State Status<sup>1</sup></b>	<b>Habitat Requirements</b>	<b>Potential for Occurrence</b>
<i>Branchinecta lynchi</i> Vernal pool fairy shrimp	FT	--	Occurs in vernal pools.	<b>High.</b> Vernal pools and seasonal wetlands in the Study Area provide suitable habitat for this species. The species has been observed adjacent to the Off-Site Area (CNDDDB 2024).
<i>Danaus plexippus</i> Monarch	PT	--	Migratory species; most prevalent in the Central Valley in summer and early fall. Dependent upon milkweed ( <i>Asclepias</i> species) plants as its exclusive larval host.	<b>Low.</b> Scattered individual milkweed plants are present on-site. No monarch butterflies or caterpillars were observed at the time of the special-status plant survey.
<i>Desmocerus californicus dimorphus</i> Valley elderberry longhorn beetle	FT	--	Dependent upon elderberry ( <i>Sambucus</i> species) plant as primary host species.	<b>No Habitat Present.</b> The Study Area does not support any elderberry shrubs.
<i>Lepidurus packardii</i> Vernal pool tadpole shrimp	FE	--	Occurs in vernal pools.	<b>High.</b> Vernal pools and seasonal wetlands in the Study Area provide suitable habitat for this species.
<b>Fish</b>				
<i>Oncorhynchus mykiss irideus</i> Steelhead – Central Valley Distinct Population Segment (DPS)	FE	--	This anadromous species requires freshwater water courses with gravelly substrates for breeding. The young remain in freshwater areas before migrating to estuarine and marine environments.	<b>No Habitat Present.</b> Downstream migration barriers preclude salmonid access to the portion of Laguna Creek that runs through the Study Area.
<b>Amphibians</b>				
<i>Spea hammondi</i> Western spadefoot	PT	CSC	Breeds in vernal pools, seasonal wetlands and associated swales. Forages and hibernates in adjacent grasslands.	<b>High.</b> Long-duration seasonal wetlands and vernal pools throughout the site are suitable habitat for this species.

**Table 2. Special-Status Species with Potential to Occur within the Summer Villas Study Area**

<b>Scientific Name (Common Name)</b>	<b>Federal Status<sup>1</sup></b>	<b>State Status<sup>1</sup></b>	<b>Habitat Requirements</b>	<b>Potential for Occurrence</b>
<i>Reptiles</i>				
<i>Actinemys marmorata</i> Northwestern pond turtle	PT	CSC	Occurs in ponds, rivers, streams, wetlands, and irrigation ditches with associated marsh habitat.	<b>High.</b> Laguna Creek represents suitable habitat for this species. Turtles were observed within Laguna Creek in 2024, but they could not be identified to species.
<i>Thamnophis gigas</i> Giant garter snake	FT	CT	Occurs in rivers, canals, irrigation ditches, rice fields, and other aquatic habitats with slow moving water and heavy emergent vegetation.	<b>No Habitat Present.</b> A habitat assessment for this species was conducted for the On-Site Area (where potential habitat occurs). The assessment concluded that Laguna Creek does not represent suitable habitat for this species ( <b>Attachment F</b> ).
<i>Birds</i>				
<i>Agelaius tricolor</i> Tricolored blackbird	--	CE, CSC	Colonial nester in cattails ( <i>Typha</i> species), bulrush ( <i>Schoenoplectus</i> species), or blackberry ( <i>Rubus</i> species) associated with marsh habitats.	<b>High.</b> The Study Area lacks suitable nesting habitat, but the annual brome grassland provides suitable foraging habitat for this species.
<i>Aquila chrysaetos</i> Golden eagle	--	CFP	Forages in open areas including grasslands, savannahs, deserts, and early successional stages of shrub and forest communities. Nests in large trees and cliffs.	<b>Low.</b> The Study Area lacks suitable nesting habitat. The site is surrounded by rural residential development, and while annual grassland provides suitable foraging habitat, this species is unlikely to forage in the Study Area.
<i>Athene cunicularia</i> Burrowing owl	--	CC, CSC	Nests in abandoned ground squirrel ( <i>Otospermophilus beecheyi</i> ) burrows associated with open grassland habitats.	<b>Low.</b> No ground squirrel burrows were observed within the Study Area, but marginally suitable burrow habitat may be present in debris scattered around the site.

**Table 2. Special-Status Species with Potential to Occur within the Summer Villas Study Area**

<b>Scientific Name (Common Name)</b>	<b>Federal Status<sup>1</sup></b>	<b>State Status<sup>1</sup></b>	<b>Habitat Requirements</b>	<b>Potential for Occurrence</b>
<i>Buteo swainsoni</i> Swainson's hawk	--	CT	Nests in large trees, preferably in riparian areas. Forages in fields, cropland, irrigated pasture, and grassland near large riparian corridors.	<b>High.</b> Annual grassland in the Study Area provides suitable foraging habitat for this species. Suitable nest trees are located within and adjacent to the Study Area.
<i>Circus hudsonius</i> Northern harrier	--	CSC	Nests in emergent wetland/marsh, open grasslands, or savannah habitats. Forages in open areas such as marshes, agricultural fields, and grasslands.	<b>High.</b> Annual grassland in the Study Area provides suitable foraging habitat for this species, but suitable nesting habitat does not occur within the Study Area.
<i>Elanus leucurus</i> White-tailed kite	--	CFP	Open grasslands, fields, and meadows are used for foraging. Isolated trees in proximate to foraging habitat are used for perching and nesting.	<b>High.</b> Annual grassland in the Study Area provides suitable foraging habitat for this species. Suitable nest trees are located within and adjacent to the Study Area.
<i>Haliaeetus leucocephalus</i> Bald eagle	--	CE	Nest in large trees within 1 mile of lakes, rivers, or larger streams.	<b>No Habitat Present.</b> Laguna Creek does not represent foraging habitat for bald eagle due to its small size, intermittent nature, and lack of large fish. No suitable nesting trees are present.
<i>Lanius ludovicianus</i> Loggerhead shrike	--	CSC	Occurs in open areas with sparse trees, shrubs, and other perches.	<b>High.</b> Annual grassland in the Study Area provides suitable foraging habitat for this species. This species could nest in trees and shrubs within and adjacent to the Study Area.

**Table 2. Special-Status Species with Potential to Occur within the Summer Villas Study Area**

<b>Scientific Name (Common Name)</b>	<b>Federal Status<sup>1</sup></b>	<b>State Status<sup>1</sup></b>	<b>Habitat Requirements</b>	<b>Potential for Occurrence</b>
<i>Mammals</i>				
<i>Antrozous pallidus</i> Pallid bat	--	CSC, WBWG H	Inhabits low elevation (<6,000 feet) rocky arid deserts and canyonlands, shrub-steppe grasslands, karst formations, and higher elevation coniferous forests (>7,000 feet). Day and night roosts include crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., bole cavities of oaks, exfoliating valley oak bark), and various human structures such as bridges, barns, porches, bat boxes, and human-occupied as well as vacant buildings.	<b>Moderate.</b> Limited suitable roosting habitat may be present in the residence within the On-site Area, and in the trees throughout the Study Area.
<i>Corynorhinus townsendii townsendii</i> Townsend's big-eared bat	--	CSC, WBWG H	Roosts in caves and cave analogues, such as abandoned mines, buildings, bridges, rock crevices and large basal hollows of coast redwoods ( <i>Sequoia sempervirens</i> ) and giant sequoia ( <i>Sequoiadendron giganteum</i> ). Extremely sensitive to human disturbance (WBWG 2022).	<b>Low.</b> Marginally suitable habitat may be present in abandoned or infrequently used buildings around the residence.
<i>Lasionycteris noctivagans</i> Silver-haired bat	--	WBWG M	Roosts in abandoned woodpecker holes, under bark, and occasionally in rock crevices. It forages in open wooded areas near water features.	<b>High.</b> Trees scattered throughout the Study Area, particularly along the Off-Site alignments, may provide suitable roosting habitat for this species.

**Table 2. Special-Status Species with Potential to Occur within the Summer Villas Study Area**

<b>Scientific Name (Common Name)</b>	<b>Federal Status<sup>1</sup></b>	<b>State Status<sup>1</sup></b>	<b>Habitat Requirements</b>	<b>Potential for Occurrence</b>
<i>Lasiurus blossevillii</i> Western red bat	--	CSC, WBWG H	Requires large leaf trees such as cottonwoods ( <i>Populus</i> species), willows ( <i>Salix</i> species), and fruit/nut trees for daytime roosts. Often associated with wooded habitats that are protected from above and open below. Often found in association with riparian corridors. Requires open space for foraging.	<b>High.</b> Trees scattered throughout the Study Area, particularly along the Off-Site alignments, may provide suitable roosting habitat for this species.
<i>Lasiurus cinereus</i> Hoary bat	--	WBWG M	Roosts primarily in foliage of both coniferous and deciduous trees at the edges of clearings (WBWG 2024).	<b>High.</b> Trees scattered throughout the Study Area are suitable roosting habitat for this species.
<i>Taxidea taxus</i> American badger	--	CSC	This species prefers dry open fields, grasslands, and pastures.	<b>Low.</b> The annual brome grassland represents marginally suitable habitat due to the relative isolation of this patch of habitat.

<sup>1</sup>Status Codes:

CC – California Candidate for Listing

CSC – CDFW Species of Concern

CE – California Endangered

CT – California Threatened

CR – California Rare

CFP – California Fully Protected

CRPR – California Rare Plant Rank

WL – CDFW Special Animals Watch List

WBWG H – Western Bat Working Group High Threat Rank

WBWG M – Western Bat Working Group Medium Threat Rank

FE – Federally Endangered

FT – Federally Threatened

FC – Federal Candidate for Listing

PT – Proposed for Federal Listing as Threatened

### **5.1.3 Dwarf Downingia**

Dwarf downingia (*Downingia pusilla*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. It is a diminutive annual herb that is strongly associated with vernal pools and other seasonally inundated features at elevations ranging from sea level to approximately 1,500 feet (CNPS 2024). Dwarf downingia is typically associated with areas that experience a moderate degree of disturbance, and it blooms from March to May.

The vernal pools, seasonal wetlands and seasonal wetland swales within the Study Area represent suitable habitat for this species. Dwarf downingia was previously documented within the southern portion of the Study Area in 1991 and 2002 (CNDDDB Occurrence #54) (CNDDDB 2024). This species was not observed during the 2024 protocol-level special status plant surveys of the On-Site Study Area, which was conducted when this species was identifiable at known locations in the vicinity. A single vernal pool within the Off-Site Area represents potential habitat for dwarf downingia. This feature was not surveyed in 2024. There are two records of dwarf downingia within five miles of the Study Area in the CNDDDB (Figure 2), the nearest of which is the on-site Occurrence #54 discussed above. This species is considered to be absent from the On-Site Study Area, but has a high potential to occur in the un-surveyed vernal pool within the Off-site Area.

### **5.1.4 Boggs Lake Hedge-Hyssop**

Boggs Lake hedge-hyssop (*Gratiola heterosepala*) is not federally listed, but it is a California endangered species and a CRPR List 1B.2 plant. Boggs Lake hedge-hyssop grows in vernal pools and around the perimeter of lakes and ponds between 30 and 7,800 feet (CNPS 2024). This small annual herb favors clay soils, and blooms from April to August (CNPS 2024).

The larger vernal pools and seasonal wetlands within the Study Area represent suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the On-Site Study Area. A single vernal pool within the Off-Site Area represents potential habitat for Bogg's Lake hedge-hyssop. This feature was not surveyed in 2024. There are four records of Boggs Lake hedge-hyssop within five miles of the Study Area in the CNDDDB (Figure 2) (CNDDDB 2024). The nearest of these (CNDDDB Occurrence #33) is located approximately 0.4 miles west and south of the Study Area (CNDDDB 2024).

### **5.1.5 Woolly Rose-Mallow**

Woolly rose-mallow (*Hibiscus lasiocarpus* var. *occidentalis*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. It generally occurs in shallow freshwater marshy habitats along the edges of drainages and detention basins with perennial or nearly perennial inundation. This perennial rhizomatous species blooms from June through September and occurs from sea level to approximately 395 feet (CNPS 2024).

The edges of Laguna Creek within the Study Area represent marginally suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the Study Area, which covered all areas of suitable habitat for this species. This species has not been documented within five miles of the Study Area in the CNDDDB (CNDDDB 2024).

#### **5.1.6 Ahart's Dwarf Rush**

Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. Ahart's dwarf rush grows along the edges of seasonal wet habitats such as vernal pools and swales within valley and foothill grasslands between elevations of approximately 100 feet and 750 feet (CNPS 2024). This annual herb blooms from March to May (CNPS 2024).

The vernal pools, seasonal wetlands and seasonal wetland swales within the Study Area represent suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the On-Site Study Area. A single vernal pool within the Off-Site Area represents potential habitat for Ahart's dwarf rush. This feature was not surveyed in 2024. This species has not been documented within five miles of the Study Area in the CNDDDB (CNDDDB 2024).

#### **5.1.7 Legenere**

Legenere (*Legenere limosa*) is not federally or state listed, but it is classified as a CRPR List 1B.1 species. This annual herb is primarily associated with vernal pools (CNPS 2024). Legenere occurs at elevations between 5 and 2885 feet, and blooms from April to June (CNPS 2024).

The larger vernal pools and seasonal wetlands within the Study Area represent suitable habitat for this species. This species was observed in one vernal pool along the southern border of the On-Site Area during the 2024 protocol-level special status plant surveys of the On-Site Study Area (**Figure 5**). A single vernal pool within the Off-Site Area represents potential habitat for legenere. This feature was not surveyed in 2024. There are nine records of Legenere within five miles of the Study Area in the CNDDDB (**Figure 2**) (CNDDDB 2024).

#### **5.1.8 Pincushion Navarretia**

Pincushion navarretia (*Navarretia myersii* ssp. *myersii*) is not federally or state listed, but it is classified as a CRPR List 1B.1 plant. This species is found in vernal pools, often on acidic micro habitats (CNPS 2024a). Pincushion navarretia is found between approximately 65 and 1,085 feet and blooms in April and May (CNPS 2024a).

The vernal pools, seasonal wetlands and seasonal wetland swales within the Study Area represent suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the On-Site Study Area. A single vernal pool within the Off-Site Area represents potential habitat

for Ahart's dwarf rush. This feature was not surveyed in 2024. This species has not been documented within five miles of the Study Area in the CNDDDB (CNDDDB 2024).

#### **5.1.9 Slender Orcutt Grass**

Slender Orcutt grass (*Orcuttia tenuis*) is listed as threatened pursuant to the federal Endangered Species Act. A total of 82 occurrences are known, of which 76 are presumed to be extant (USFWS 2005). In addition to the counties listed in its historic range, slender Orcutt grass is also known from Lassen, Modoc, Butte, and Plumas Counties (USFWS 2005). The highest concentration of slender Orcutt grass occurs in Tehama County, where 27 natural occurrences are found (USFWS 2005).

The vernal pools within the Study Area represent suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the On-Site Area. A single vernal pool within the Off-Site Area represents marginal habitat for slender Orcutt grass. This feature was not surveyed in 2024 but will be surveyed for this species in 2025. There are two records of slender Orcutt grass within five miles of the Study Area in the CNDDDB (Figure 2) (CNDDDB 2024). The nearest of these (CNDDDB Occurrence #90) is located approximately 3.5 miles northeast of the site, 0.3-mile northeast of the intersection of Excelsior and Dierks Road, south of Laguna Creek (CNDDDB 2024).

#### **5.1.10 Sacramento Orcutt Grass**

Sacramento Orcutt grass (*Orcuttia viscida*) is listed as endangered pursuant to the federal Endangered Species Act. The earliest collection of this species was in 1936 near Phoenix Field; however, by 1990, Sacramento Orcutt grass was known from seven natural occurrences and one introduction (USFWS 2005). The current distribution of the species is restricted to eight extant populations in Sacramento County. One additional population was discovered after 1990; but one known population and a portion of another have been extirpated (USFWS 2005). The highest concentration of occupied habitat occurs within a 2.3-square mile area near Rancho Cordova (USFWS 2005).

The vernal pools within the Study Area represent suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the On-Site Area. A single vernal pool within the Off-Site Area represents marginal habitat for Sacramento Orcutt grass. This feature was not surveyed in 2024 but will be surveyed for this species in 2025. There is one record of Sacramento Orcutt grass within five miles of the Study Area in the CNDDDB (Figure 2) (CNDDDB 2024). This occurrence (CNDDDB Occurrence #20) is located approximately 4.4 miles northeast of the site, northeast of the intersection of Excelsior and Florin Road (CNDDDB 2024).

#### **5.1.11 Sanford's Arrowhead**

Sanford's arrowhead (*Sagittaria sanfordii*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. It generally occurs in shallow freshwater habitats associated with drainages, canals, and larger

ditches that sustain inundation and/or slow-moving water into early summer. This perennial rhizomatous species blooms from May to October and occurs from sea level to approximately 2,000 feet (CNPS 2024).

Laguna Creek within the Study Area represent marginally suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the Study Area, which covered all areas of suitable habitat for this species. There are 16 records of Sanford's arrowhead within five miles of the Study Area in the CNDDDB (Figure 2) (CNDDDB 2024). The nearest of these (CNDDDB Occurrence #58) is located in Laguna Creek within the Study Area (CNDDDB 2024). This record was documented in 2002, but this population was not observed on-site during the special-status plant survey, which was conducted when the plant would have been identifiable.

## **5.2 Invertebrates**

### **5.2.1 Crotch's Bumble Bee**

Crotch's bumble bee (*Bombus crotchii*) is not federally listed but is a candidate for listing under CESA. The historic range of this species extends from central California south to Baja California del Norte, Mexico, and includes coastal areas east to the edges of the deserts and the Central Valley, but largely excluding mountainous areas of California (Thorp et al., 1983, Williams et al. 2014). Recent observations indicate declines in both relative abundance and persistence (IUCN 2023). This species was historically common in the Central Valley of California, but now appears to be absent from most of it, especially in the center of its historic range (Hatfield et al. 2014).

In California, this species inhabits open grasslands and scrub habitats. Like most bumble bees, Crotch's bumble bee may nest underground in abandoned rodent nests or above ground in tufts of grass, old bird nests, rock piles, or cavities in dead trees. Bumble bees are generalist foragers and have been reported visiting a wide variety of flowering plants. They require plants that bloom and provide adequate nectar and pollen throughout the colony's life cycle, which is generally from March to August for Crotch's bumble bee (IUCN 2023).

The Study Area provides suitable foraging habitat for the species, but nesting or overwintering habitat is sparse. The CNDDDB does not list any occurrences of this species within five miles of the Study Area. The nearest sighting recorded in Bumble Bee Watch is a total of five Crotch's bumble bees documented about 9.7 miles to the northeast, around Mather Regional Park in May and June 2024 (BBW 2024). The iNaturalist database shows one research grade record about 4.2 miles to the northwest of the Study Area, south of Elaine Drive and east of French Road, recorded in April 2024 (iNaturalist 2024).

### **5.2.2 Vernal Pool Fairy Shrimp**

The vernal pool fairy shrimp (*Branchinecta lynchi*) is listed as threatened pursuant to the federal Endangered Species Act. Historically, the range of vernal pool fairy shrimp extended throughout the Central Valley of California. Vernal pool fairy shrimp populations have been found in several locations throughout California,

with habitat extending from Stillwater Plain in Shasta County through the Central Valley to Pixley in Tulare County, and along the Central Coast range from northern Solano County to Pinnacles National Monument in San Benito County (Eng *et al.* 1990, Fugate 1992). Additional populations occur in San Luis Obispo, Santa Barbara, and Riverside counties. The historic and current ranges of vernal pool fairy shrimp are very similar in extent; however, the remaining populations are more fragmented and isolated than during historical times (USFWS 2005). The life cycle of vernal pool fairy shrimp is adapted to seasonally inundated features such as vernal pools, seasonal wetlands, and seasonal wetland swales. Fairy shrimp embryos survive the dry season in cyst form. Cysts “hatch” soon after pools become inundated during the wet season. Fairy shrimp complete their life cycle quickly and feed on small particles of detritus, algae, and bacteria (Eriksen and Belk 1999).

The vernal pools, seasonal wetlands, and seasonal wetland swales throughout the Study Area represent suitable habitat for this species. Protocol-level surveys for this species have not been conducted within the Study Area. There are 24 CNDDDB occurrences of vernal pool fairy shrimp within five miles of the Study Area, the closest of which are two adjacent to the Off-Site Area (Occurrences #100 and #163) (CNDDDB 2024).

### **5.2.3 Monarch**

The monarch butterfly (*Danaus plexippus*) is proposed for listing as threatened under FESA. It is a large conspicuous species that occurs in North, Central, and South America; Australia; New Zealand; islands of the Pacific and Caribbean, and elsewhere (Malcolm and Zalucki 1993 in USFWS 2020). During the breeding season, monarchs lay their eggs on their obligate milkweed host plant (*Asclepias* spp.), and larvae emerge after two to five days (Zalucki 1982 in USFWS 2020). Larvae develop over a period of 9 to 18 days, feeding on the milkweed and then pupate into chrysalis before eclosing 6 to 14 days later as an adult butterfly (USFWS 2020). Multiple generations of monarchs are produced during the breeding season, with most adult butterflies living approximately two to five weeks (USFWS 2020).

In California, monarchs continue to occupy and breed in areas near their overwintering groves along the California coast into northern Baja California throughout the year, and also disperse over multiple generations to occupy and breed throughout the state in the spring through fall (USFWS 2020). Migrating monarchs in western North America tend to occur more frequently near water sources such as rivers, creeks, roadside ditches, and irrigated gardens (Morris *et al.* 2015 in USFWS 2020). Adult monarch butterflies require a diversity of blooming nectar resources during breeding and migration (spring through fall). Monarchs also need milkweed (for both oviposition and larval feeding) embedded within this diverse nectaring habitat.

This species was not observed in the Study Area during Project-related surveys; however, a couple of patches of narrowleaf milkweed (*Asclepias fascicularis*) and woolypod milkweed (*Asclepias eriocarpa*) plants occur within the Study Area, which represent larval host plants for this species. No CNDDDB occurrences of this species are documented within five miles of the Study Area, but the CNDDDB only tracks over-wintering locations of this species, which occur near the coast (CNDDDB 2024). iNaturalist reports five research-grade records of monarch butterflies within five miles of the Study Area (iNaturalist 2024). The WMMM shows

three records of monarchs within five miles of the Study Area (WMMOD 2024). None of the records in iNaturalist or WMMM document monarch breeding (iNaturalist 2024, WMMOD 2024). The site is not proximate to any overwintering areas for the species (Xerxes Society 2024, CNDDDB 2024). Monarch butterfly could occur within the Study Area during the breeding season, and larval host plants are present within the Study Area that represent breeding habitat for Monarch butterfly.

#### **5.2.4 Vernal Pool Tadpole Shrimp**

The vernal pool tadpole shrimp (*Lepidurus packardii*) is listed as endangered pursuant to the federal Endangered Species Act. The historic range of the vernal pool tadpole shrimp likely extended throughout the Central Valley of California and has been documented from east of Redding in Shasta County south to Fresno County, and from the San Francisco Bay Wildlife Refuge in Alameda County. The historic and current ranges of vernal pool tadpole shrimp are very similar in extent; however, the remaining populations are more fragmented and isolated than during historical times (USFWS 2005).

This species is associated with long-duration seasonal pools in grasslands throughout the northern and eastern portions of the Central Valley (USFWS 2005). Suitable vernal pools and seasonal swales are generally underlain by hardpan or sandstone. Much like vernal pool fairy shrimp, vernal pool tadpole shrimp are adapted to seasonally inundated features such as vernal pools, seasonal wetlands, and seasonal wetland swales (USFWS 2005).

The vernal pools and seasonal wetlands throughout the Study Area represent suitable habitat for this species. Protocol-level surveys for this species have not been conducted within the Study Area. The CNDDDB shows 24 occurrences of this species within five miles of the Study Area, the closest being a 2004 record about one mile to the northeast, in the Churchill Downs Wetland Preserve (Occurrence #165; CNDDDB 2024).

### **5.3 Amphibians**

#### **5.3.1 Western Spadefoot**

The western spadefoot (*Spea hammondi*) is proposed for listing as threatened under FESA and is a CDFW species of special concern. This amphibian is a nocturnal animal that forages in grassland, open chaparral, and pine-oak woodlands for a variety of invertebrates such as insects and worms (USFWS 2005). Western Spadefoot breeds from January through May in variety of temporary wetlands including creeks, pools in intermittent drainages, vernal pools, and seasonal wetlands, and other fish-free water features. The tadpoles develop in 3 to 11 weeks, and must complete their metamorphosis before the temporary pools dry. Post-metamorphic juveniles feed and then immediately seek underground refugia. Following metamorphosis, the adults are largely terrestrial in nature and will burrow into sandy or gravelly soils utilizing the "spades" on the hind feet. The majority of an adult's life is spent in underground burrows (USFWS 2005).

Several of the seasonal wetlands and vernal pools within the Study Area represent suitable breeding habitat for western spadefoot and the surrounding annual brome grasslands provide suitable dry-season habitat.

The CNDDDB contains one record of this species within five miles of the Study Area (CNDDDB 2024). This record (Occurrence #501) is approximately 4.6 miles north of the Study Area, and was documented in 1929 “approximately 7 mi E of Sacramento” (CNDDDB 2024). nor does the iNaturalist database. The nearest recent, presumed extant record in the CNDDDB is about 9.3 miles to the northeast, in Mather Regional Park (Occurrence #396; CNDDDB 2024). Adults were first recorded in this location in 1993, and tadpoles were observed in 2018.

## **5.4 Reptiles**

### **5.4.1 Northwestern Pond Turtle**

The northwestern pond turtle (*Actinemys marmorata*) is proposed for listing as threatened under FESA and is designated as a CDFW species of special concern. Its favored habitats include streams, large rivers and canals with slow-moving water, aquatic vegetation, and open basking sites. Although the turtles must live near water, they can tolerate drought by burrowing into the muddy beds of dried drainages. This species feeds mainly on invertebrates such as insects and worms, but will also consume small fish, frogs, mammals and some plants. Northwestern pond turtle predators include raccoons, coyotes, raptors, weasels, large fish, and bullfrogs. This species breeds from mid to late spring in adjacent open grasslands or sandy banks.

Laguna Creek within the Study Area represents suitable aquatic habitat for this species. Because females move overland for up to 325 feet in the spring and summer to find suitable sites for egg-laying, areas within 325 feet of Laguna Creek could support dispersing turtles. The CNDDDB lists two occurrences of this species within five miles of the Study Area, the nearest of which (Occurrence #233) was recorded in 2004 in the Sacramento Bufferlands, encompassing Lost Lake, Laguna Creek, and Fish Head Lake (CNDDDB 2024).

## **5.5 Birds**

### **5.5.1 Tricolored Blackbird**

Tricolored blackbird (*Agelaius tricolor*) populations, which are currently in decline throughout the state, were listed as threatened under CESA by the California Fish and Game Commission on 19 April 2018. Historically, colonies were established in freshwater marshes dominated by cattails (*Typha* spp.) and bulrushes (*Scirpus* or *Schoenoplectus* spp.). More recently, they have utilized non-native mustards (*Brassica* spp.), blackberries (*Rubus* spp.), thistles (*Cirsium* spp.), and mallows (*Malva* spp.) as nesting substrate (Airola et al. 2016). Since the 1980s, the largest colonies have been observed in the San Joaquin Valley in cultivated fields of triticale, which is a hybrid of wheat and rye often grown as livestock fodder (Meese 2014). This current trend of nesting in active agricultural fields has further imperiled the species as nestlings typically are not fledged by the time the triticale is harvested.

Nesting habitat is not present within the Study Area, but the annual brome grassland throughout the Study Area represents suitable foraging habitat. The CNDDDB shows 24 nesting records for tricolored blackbird within five miles of the Study Area, the closest of which is partially within the Study Area (CNDDDB 2024).

This record (Occurrence #232) notes that successful nesting occurred at the site in 1992, 1993, 1994, 1995, and 1996. The last documented unsuccessful nesting attempt was made in 1999, and no birds were observed in 1997, 1998, 2000, 2011, and 2014. The nesting habitat was blackberry and wild rose along Laguna Creek (CNDDDB 2024). The Cornell Lab of Ornithology's eBird database (eBird) shows quite a few observations of flyover birds within five miles of the Study Area, but no nesting observations in that area (Cornell Lab 2024).

### **5.5.2 Golden Eagle**

The golden eagle (*Aquila chrysaetos*) is not federally or state listed but is a CDFW fully protected species and is protected under the federal Bald and Golden Eagle Protection Act. It is a very large solitary raptor that forages in large, expansive open grasslands and savannahs, and nests on cliff ledges or in large, lone trees in rolling to mountainous terrain (Shuford and Gardali 2008). Though its natural densities are generally believed to be low, it once was relatively common to the open areas of California.

The annual brome grasslands within the Study Area represent suitable foraging habitat for this species. The CNDDDB does not list any occurrences of golden eagle nest sites within five miles of the Study Area (CNDDDB 2024). Both eBird and iNaturalist show observations of the birds within five miles of the Study Area, but no nesting records (Cornell Lab 2024, iNaturalist 2024).

### **5.5.3 Burrowing Owl**

Burrowing owl (*Athene cunicularia*) is a candidate for listing under the California Endangered Species Act and is designated as a species of special concern by CDFW. They typically inhabit dry open rolling hills, grasslands, desert floors, and open bare ground with gullies and arroyos. This species typically uses burrows created by fossorial mammals, most notably the California ground squirrel, but may also use man-made structures such as culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement (CDFG 1995). The breeding season extends from February 1 through August 31 (CBOC 1993, CDFG 1995).

The annual brome grasslands within the Study Area represent suitable foraging habitat for this species, but the lack of ground squirrel burrows for nesting habitat substantially reduces the potential for this species to occur. Debris piles in various locations throughout the Study Area could provide marginally suitable nesting or wintering habitat. The CNDDDB lists 12 records for burrowing owl within five miles of the Study Area, the closest of which was recorded in 2007 approximately 1.6 miles southwest of the Study Area, near the Highway 99 southbound on-ramp at Laguna Boulevard (Observation #1258; CNDDDB 2024). The closest eBird record is from 2014 and 2015 and is approximately 1.4 miles west of the west end of the Study Area, at the intersection of Sheldon Road and East Stockton Boulevard (Cornell Lab 2024).

#### **5.5.4 Swainson's Hawk**

Swainson's hawk (*Buteo swainsoni*) is a raptor species that is not federally listed, but is listed as threatened under CESA. Breeding pairs typically nest in tall trees associated with riparian corridors, and forage in grassland, irrigated pasture, and cropland with a high density of rodents (Shuford and Gardali 2008). The Central Valley populations breed and nest in the late spring through early summer before migrating to Central and South America for the winter (Shuford and Gardali 2008).

Annual brome grasslands throughout the Study Area represent suitable foraging habitat for Swainson's hawk, and trees within the Study Area represent suitable nesting habitat. The CNDDDB documents 49 records of Swainson's hawk nesting within five miles of the Study Area, the closest of which (about 0.3 miles to the northeast) was a Valley oak tree that was removed due to development in 2011 (Occurrence #2245; CNDDDB 2024). eBird includes numerous observations of Swainson's hawks within five miles of the Study Area over the last 10 years (Cornell Lab 2024).

#### **5.5.5 Northern Harrier**

The northern harrier (*Circus hudsonius*) is not listed pursuant to either the California or federal Endangered Species Acts; however, it is considered to be a species of special concern by the CDFW. This species is known to nest within the Central Valley, along the Pacific Coast, and in northeastern California (Shuford and Gardali 2008). The northern harrier is a ground nesting species, and typically nests in emergent wetland/marsh, open grasslands, or savannah habitats. Foraging occurs within a variety of open habitats such as marshes, agricultural fields, and grasslands (Shuford and Gardali 2008).

Annual brome grasslands throughout the Study Area represent suitable foraging habitat for northern harrier, though the species is not likely to nest on-site due to the proximity to developed areas. The CNDDDB does not list any occurrences of this species within five miles of the Study Area (CNDDDB 2024), probably due to lack of reporting rather than scarcity of the species. eBird includes numerous observations of northern harriers within five miles of the Study Area over the last 10 years (Cornell Lab 2024). The nearest of these is three observations of a single bird on a parcel almost immediately northeast of the Study Area in 2021 (Cornell Lab 2024).

#### **5.5.6 White-Tailed Kite**

White-tailed kite (*Elanus leucurus*) is not federally or state listed, but is a CDFW fully protected species. This species is a yearlong resident in the Central Valley and is primarily found in or near foraging areas such as open grasslands, meadows, farmlands, savannahs, and emergent wetlands (Shuford and Gardali 2008). White-tailed kites typically nest from March through June in trees within riparian, oak woodland, and savannah habitats of the Central Valley and Coast Range (Shuford and Gardali 2008).

Annual brome grasslands throughout the Study Area represent suitable foraging habitat for white-tailed kite, and trees within the Study Area could be used for perching and nesting. The CNDDDB documents four

records of white-tailed kite nesting within five miles of the Study Area, the closest of which (about 2.6 miles to the north) was in 1990 on a rural residential property along McCoy Avenue (Occurrence #28; CNDDDB 2024). eBird includes numerous observations of white-tailed kites within five miles of the Study Area over the last 10 years, including a record of a “probable nesting site” in a tree approximately 0.25 miles west of the On-Site Area and 0.25 mile south of the Off-Site Area in a tree at the end of St. Anthony Court in 2018 (Cornell Lab 2024).

### **5.5.7 Loggerhead Shrike**

The loggerhead shrike (*Lanius ludovicianus*) is not listed and protected pursuant to either the California or federal Endangered Species Acts; but is a CDFW species of special concern. Loggerhead shrikes nest in small trees and shrubs in woodland and savannah vegetation communities, and forage in open habitats throughout California (Shuford and Gardali 2008). The nesting season ranges from March through June.

Annual brome grasslands within the Study Area represent suitable foraging habitat for this species, and it could use trees within the Study Area for perching. The CNDDDB does not contain any occurrences of this species within five miles of the Study Area (CNDDDB 2024), probably due to lack of reporting rather than scarcity of the species. eBird includes an unconfirmed 2013 observation record along the Elk Grove Creek Trail west of Highway 99 in Elk Grove, about 2.3 miles southwest of the Study Area (Cornell Lab 2024).

## **5.6 Mammals**

### **5.6.1 Pallid Bat**

Pallid bat (*Antrozous pallidus*) is not federally or state listed, but is considered a CDFW species of special concern and is classified by the WBWG as a High priority species. It favors roosting sites in crevices in rock outcrops, caves, abandoned mines, hollow trees, and human-made structures such as barns, attics, and sheds (WBWG 2024). Though pallid bats are gregarious, they tend to group in smaller colonies of 10 to 100 individuals. It is a nocturnal hunter and captures prey in flight, but unlike most American bats, the species has been observed foraging for flightless insects, which it seizes after landing (WBWG 2024).

Suitable roosting habitat may be present in the residence within the On-site Area, and in the trees throughout the Study Area. The annual grassland within the Study Area could provide foraging habitat. Neither the CNDDDB nor iNaturalist contains any records of pallid bat within five miles of the Study Area (CNDDDB 2024, iNaturalist 2024).

### **5.6.2 Townsend’s Big-Eared Bat**

Townsend’s big-eared bat (*Corynorhinus townsendii*) is not federally or state listed, but is considered a CDFW species of special concern and is classified by the WBWG as a High priority species. Townsend’s big-eared bat is a fairly large bat with prominent bilateral nose lumps and large rabbit-like ears. This species occurs throughout the west and ranges from the southern portion of British Columbia south along the

Pacific coast to central Mexico and east into the Great Plains. This species has been reported from a wide variety of habitat types and elevations from sea level to 10,827 feet (NPS 2023). Habitats used include coniferous forests, mixed mesophytic forests, deserts, native prairies, riparian communities, active agricultural areas, and coastal habitat types. Its distribution is strongly associated with the availability of caves and cave-like roosting habitat including abandoned mines, buildings, bridges, rock crevices, and hollow trees. This species is readily detectable when roosting due to their habit of roosting pendant-like on open surfaces. Townsend's big-eared bat is a moth specialist with over 90 percent of its diet composed of Lepidopterans. Foraging habitat includes edge habitats along streams as well as adjacent to and within a variety of wooded habitats. This species often travels long distances when foraging and large home ranges have been documented in California (WBWG 2024).

The buildings in and around the residence within the Study Area may provide suitable roosting habitat for the Townsend's big-eared bat. The open areas within the Study Area provide suitable foraging habitat for this species. Neither the CNDDDB nor iNaturalist contains any records of Townsend's big-eared bat within five miles of the Study Area (CNDDDB 2024, iNaturalist 2024).

### **5.6.3 Silver-Haired Bat**

Silver-haired bat (*Lasionycteris noctivagans*) is not federally or state listed but is classified by the WBWG as a Medium priority species. The silver-haired bat occurs in more xeric environments during winter and seasonal migrations (WBWG 2024). This species changes roosts frequently, and use multiple roosts within a limited area, indicating that clusters of large trees are necessary (WBWG 2024). Silver-haired bat roosts in hollow trees, abandoned woodpecker holes, under sloughing bark, in rock crevices, and occasionally under wood piles. They tend to forage above the canopy, over open meadows, and in the riparian zone along water courses. This species is known to eat a wide variety of species; however, moths appear to be a major portion of dietary prey (WBWG 2024).

Suitable roosting habitat may be present in trees throughout the Study Area. The annual grassland within the Study Area could provide foraging habitat. Neither the CNDDDB nor iNaturalist contains any records of silver-haired bat within five miles of the Study Area (CNDDDB 2024, iNaturalist 2024).

### **5.6.4 Western Red Bat**

The Western red bat (*Lasiurus blossevillii*) is not federally or state listed, but is considered a CDFW species of special concern, and is classified by the WBWG as a high-priority species. This species is typically solitary, roosting primarily in the foliage of trees or shrubs (WBWG 2024). Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores). Roost sites are generally hidden from all directions except below; allowing the bat to drop downward for flight (WBWG 2024).

Suitable roosting habitat may be present in trees and shrubs throughout the Study Area. Neither the CNDDDB nor iNaturalist contains any records of Western red bat within five miles of the Study Area (CNDDDB 2024, iNaturalist 2024).

### **5.6.5 Hoary Bat**

The hoary bat (*Lasiurus cinereus*) is not federally or state listed but is classified by the WBWG as a medium priority species. It is also considered to be one of the most widespread of all American bats with a range extending from Canada to central Chile and Argentina as well as Hawaii. Hoary bats are solitary and roost primarily in foliage of both coniferous and deciduous trees, and usually at the edge of a clearing (WBWG 2024). This species is primarily crepuscular or nocturnal and requires open areas to hunt its preferred prey item, moths. The hoary bat is considered a forest/woodland species, and in California they are often associated with undisturbed riparian or stream corridors (WBWG 2024).

Suitable roosting habitat may be present in trees throughout the Study Area. The annual grassland within the Study Area could provide foraging habitat. Neither the CNDDDB nor iNaturalist contains any records of hoary bat within five miles of the Study Area (CNDDDB 2024, iNaturalist 2024).

### **5.6.6 American Badger**

The American badger (*Taxidea taxus*) is not federally or state listed but is designated as a species of special concern by CDFW. The species historically ranged throughout much of the state except in humid coastal forests. Badgers were once numerous in the Central Valley; however, populations now occur in low numbers in the surrounding peripheral parts of the valley and in the adjacent lowlands of eastern Monterey, San Benito, and San Luis Obispo counties (Williams 1986). Badgers occupy a variety of habitats, including grasslands and savannas. The principal requirements seem to be significant food supply, friable soils, and relatively open uncultivated ground (Williams 1986).

The annual brome grasslands within the Study Area provide only marginal habitat for American badger due to the parcel's small size and surrounding development. No evidence of this species was observed during surveys of the Study Area. Neither the CNDDDB nor iNaturalist contains any records of American badger within five miles of the Study Area (CNDDDB 2024, iNaturalist 2024).

## **6.0 IMPACTS TO SENSITIVE BIOLOGICAL RESOURCES**

This section details impacts to the biological resources discussed above that may be associated with development of the Project. As noted above, the Project is a General Plan/Rural Area Community Plan Amendment and a Rezone, and although general impact and avoidance areas have been identified, the specific impact boundaries have not. As such, the impact analysis below is programmatic in nature. **Figure 7** shows the Potential Development Areas overlaid on the terrestrial land covers and aquatic resources for illustrative purposes.

## **6.1 Terrestrial Land Covers**

The Project may result in impacts to annual brome grassland, roads, ruderal, rural residential, and unvegetated areas. Impacts to annual brome grassland could affect lifecycle activities of species that rely on annual brome grassland for nesting and foraging, including Crotch's bumblebee, monarch, western spadefoot, northwestern pond turtle, several species of special-status birds, special-status bats, and American badger.

## **6.2 Aquatic Resources**

The Project may result in impacts to seasonal wetlands, seasonal wetland swales, vernal pools, small portions of Laguna Creek, detention basins, ephemeral drainages, and/or roadside ditches. Impacts to the detention basins and roadside ditches within the off-site areas may be mostly temporary, but the impacts to other feature types would likely be mostly permanent.

## **6.3 Special-Status Plant Species**

The Project as currently proposed would avoid the vernal pool that supports legenere, a CRPR 1B.1 species, but the final development plan could result in the fill of this vernal pool, which would permanently impact the legenere plants.

Additionally, at the time this document was produced, the Off-Site Area had not been surveyed for special-status plants. If construction would affect suitable habitat in the Off-Site Area and special status plants were present, they would be killed.

## **6.4 Crotch's Bumble Bee**

The annual brome grassland within the Study Area represents suitable habitat for Crotch's bumble bee. The disturbance and/or removal of this habitat could adversely affect this species if construction activity results in the removal of active Crotch's bumble bee nests.

## **6.5 Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp**

Vernal pools, seasonal wetlands, and seasonal wetland swales that represent potential habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp may be filled as a result of construction. The Study Area has not been surveyed for vernal pool branchiopods, and unless surveys are performed in the future, it is assumed that these species could be present in the Study Area. As such, fill of any of these features is expected to adversely affect vernal pool fairy shrimp and vernal pool tadpole shrimp.

## **6.6 Monarch**

The Study Area supports patches of narrow-leaf milkweed and wooly pod milkweed, host plants for monarch. If milkweed plants are removed during construction, and monarch eggs, larvae, and/or chrysalis are present, individuals of this species could be killed.

## **6.7 Western Spadefoot**

Vernal pools and seasonal wetlands within the Study Area represent potential aquatic habitat for western spadefoot, and the surrounding annual brome grasslands provide suitable dry-season (upland) habitat. The Study Area has not been surveyed for western spadefoot, and this species could be present in the Study Area. If western spadefoot (any stage) is present in any of the ultimate construction areas, individuals could be injured or killed during construction.

## **6.8 Northwestern Pond Turtle**

Laguna Creek within the Study Area represents potential aquatic habitat for northwestern pond turtle, and the surrounding annual brome grasslands provide suitable nesting habitat. If northwestern pond turtle are within these areas, and construction either results in direct impacts to the aquatic habitat or impacts to dispersing or nesting turtles, individual turtles could be injured or killed.

## **6.9 Nesting Raptors and Migratory Birds**

Swainson's hawk, white-tailed kite, northern harrier, tricolored blackbird, and loggerhead shrike have the potential to nest within the Study Area, as do other more common bird species protected by the MBTA. If any of these protected species were nesting on-site during construction, nest disturbance or removal could result in injury or death. Additionally, birds nesting in avoided areas adjacent to active construction areas could be disturbed by construction, which could result in nest abandonment.

## **6.10 Foraging Raptors**

The annual brome grassland within the Study Area provides suitable foraging habitat for burrowing owl, Swainson's hawk, white-tailed kite, northern harrier, and other more common raptors. Removal of the annual brome grassland by residential development could reduce reproductive success of raptors nesting in the area.

## **6.11 Burrowing Owl**

The annual brome grassland throughout Study Area provides suitable foraging habitat for burrowing owl, and debris piles within the Study Area provide marginally suitable burrow habitat. If ground disturbance occurred while burrowing owls were in burrows, individuals of this species could be killed. If burrowing

owls were found foraging in the annual brome grassland, removal of the annual brome grassland by residential development could reduce potential foraging opportunities.

### **6.12 Roosting Bats**

Trees and buildings within the Study Area could provide roosting habitat for special-status bats. If the buildings and/or trees or shrubs supported roosting bats, and development resulted in removal of the buildings and/or trees, individual bats could be killed.

### **6.13 American Badger**

Annual brome grasslands provide habitat for this species, and if American badger were in a burrow on the site within a proposed development area, that individual could be killed by Project construction.

### **6.14 Native Trees and Other Protected Trees**

Protected Trees may occur within the Study Area, and if present, could be impacted by Project construction, depending on the final development plan.

## **7.0 AVOIDANCE, MINIMIZATION, AND MITIGATION FOR IMPACTS TO SENSITIVE BIOLOGICAL RESOURCES**

The avoidance and minimization measures presented in this section may be required by the CEQA lead agency to mitigate impacts to sensitive biological resources associated with construction of the Project. Note that as development plans have not been prepared for the Project, it is unknown whether specific resources will be impacted. Therefore, measures have been prepared for all sensitive biological resources that have potential to occur within the Study Area; if the resource will be impacted by the Project when it has been designed, then the corresponding mitigation measure shall be implemented.

### **7.1 Aquatic Resources**

The Project may result in the loss of aquatic resources. We recommend the following measures to ensure that impacts to aquatic resources are mitigated consistent with General Plan policy and state and federal regulations.

- For any areas within a proposed impact area that have not been verified by the USACE, submit an aquatic resources delineation map to the USACE with a request for verification. Alternatively, this map may be submitted as part of a permit application to the USACE.
- If the USACE determines that some or all of the aquatic resources in the Study Area that will be filled are waters of the U.S., the Project proponent shall obtain authorization to fill such waters of the U.S. under Clean Water Act Section 404. Aquatic resources that will be filled shall be replaced or rehabilitated on a "no-net-loss" basis. Habitat restoration, rehabilitation, and/or replacement

shall be at a location and by methods acceptable to the USACE. A Section 404 permit is not needed for the fill of aquatic resources that are not waters of the U.S.

- If the USACE determines that some or all of the aquatic resources in the Study Area that will be filled are waters of the U.S., the Project proponent shall apply for a Clean Water Act Section 401 water quality certification from the Central Valley RWQCB and adhere to the certification conditions. If the USACE determines that none of the aquatic resources in the Study Area that will be filled are waters of the U.S., the Project proponent shall submit a Report of Waste Discharge to the Central Valley RWQCB with a request for waste discharge requirements and adhere to the waste discharge requirements.
- If the final Project design will result in permanent impacts to aquatic resources that meet the definition of a river or stream under the California Code of Regulations, riparian vegetation or the 100-year floodplain of a river or stream, the Project proponent shall notify CDFW of the proposed alteration pursuant to Fish and Game Code Section 1600, Lake or Streambed Alteration. Minimization and avoidance measures will be proposed as appropriate and may include preconstruction species surveys and reporting, protective fencing around avoided biological resources, worker environmental awareness training, seeding disturbed areas adjacent to open space areas with native seed, and installation of project-specific storm water BMPs. Mitigation may include restoration or enhancement of resources on- or off-site, purchase of habitat credits from an agency-approved mitigation/conservation bank off-site, working with a local land trust to preserve land, or any other method acceptable to CDFW.

## **7.2 Special-Status Plant Species**

The Study Area is known to support a population of legenera, a CRPR List 1B.1 species. The current development plan would avoid this population, but the final development plan could be different and result in impacts to this population. Additionally, populations of special-status plant species may be present within the unsurveyed Off-Site Area. If this the legenera population would be directly impacted by construction, or if populations of special-status plant species within the unsurveyed Off-Site Area would be impacted by construction, then following mitigation is recommended:

- The Project proponent shall conduct a special-status plant survey of all areas of suitable habitat for special-status plants within the final development footprint not surveyed during the 2024 protocol special-status plant survey. This survey shall be conducted in accordance with the *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants* (USFWS 2000), the *Botanical Survey Guidelines of the California Native Plant Society* (CNPS 2001), and *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018). This protocol includes conducting surveys at the appropriate time of year, when plants are in bloom.
- If construction in areas surveyed in 2024 does not commence prior to July 1 of 2027, another round of special-status plant surveys shall be conducted in areas proposed for impact prior to commencement of construction. Surveys shall be conducted area in accordance with the *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants* (USFWS 2000), the *Botanical Survey Guidelines of the California Native Plant Society* (CNPS

2001), and *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018). This protocol includes conducting surveys at the appropriate time of year, when the target plant species are in bloom.

- If the Project avoids the known special-status plant populations and an associated "Avoidance Zone," then no impacts to the plants would occur, and no mitigation is necessary. The size of the Avoidance Zone needed to prevent impacts may vary based on the plant species and their habitat requirements. If an ESA or CESA listed special-status plant is found and is to be avoided, then an appropriate Avoidance Zone shall be developed in consultation with USFWS or CDFW (as applicable). If the species is not listed under ESA or CESA, an appropriate Avoidance Zone shall be developed by a qualified botanist in consultation with the City. Avoidance Zone areas may differ by species and site-specific conditions, and they should be developed such that the avoided special-status plant population is likely to persist in perpetuity. Avoidance zones may be based on a fixed buffer distance from the special-status plant population, at the limit of a hydrologic break, or as otherwise determined appropriate for the species in question. A 100-foot buffer is an appropriate Avoidance Zone for legumens. This could be reduced if it could be demonstrated that a hydrologic break exists between the plants and proposed development such that the development would not impact hydrology for the plants. In addition to the Avoidance Zone, the Project shall be designed such that no unseasonal or landscaping water is directed into the wetland, and no residential backyards are located along the edge of the Avoidance Zone.
- If any impacts would occur to special-status plants, the Project Proponent shall mitigate according to one or a combination of the options below. A Special-Status Plant Mitigation Plan shall be developed and submitted to the City. The Special-Status Plant Mitigation Plan shall be approved by the City prior to issuance of a grading permit that would impact the plants. Note that the options below are minimum recommendations. Impacts would occur if grading or other disturbance occurs within mapped populations. Recommended mitigation for impacts is 1:1 for preservation of an existing population, or 2:1 for relocation/translocation of impacted plants/seeds. These ratios may be based on the acreage of occupied habitat or number of plants; this metric will be clearly defined in the Special-Status Plant Mitigation Plan.

Mitigation Options are as follows:

1. Preservation: Identify one or more existing, unprotected populations of the special-status plant that will be impacted by the Project in the Project vicinity and protect this population in perpetuity by establishing a preserve on the land that supports those populations. Once the proposed mitigation area is approved by the City, the mitigation area shall be protected by a recorded conservation easement or deed restriction and managed in accordance with a long-term management plan that maintains the habitats the conservation easement was established to protect (including the special-status plants). Additionally, a preserve management endowment shall be established to fund the long-term management outlined in the long-term management plan, or sufficient annual management funding shall be a condition of a Homeowner's Association, Community Services District, or other alternative as approved by the City. As this option would preserve an existing, established population, there would be no temporal loss, and low risk of failure. As a result, the required mitigation ratio for this option would be 1:1. This ratio may be

based on the acreage of occupied habitat or number of plants; this metric will be clearly defined in the Special-Status Plant Mitigation Plan. This option may be implemented at a mitigation/conservation bank if the target plant species is present at the bank, and the Special-Status Plant Mitigation Plan shall describe how the purchase of bank credits translates into appropriate 1:1 preservation.

2. Relocation or Translocation: Mitigate impacts by establishment of a new special-status plant population or expansion of an existing special-status plant population. The proposed mitigation area may be on-site or off-site and shall be permanently protected by the recordation of a conservation easement or deed restriction, development of a long-term management plan that maintains the habitats that the conservation easement was established to protect, and include the establishment of a preserve management endowment, or sufficient annual management funding shall be a condition of a Homeowner's Association, Community Services District, or other alternative as approved by the City or regulating agency. The Project proponent would locate and protect the mitigation area(s), translocate seeds or relocate perennial plants to the mitigation area(s), monitor the translocated/relocated seeds/plants for a minimum of five years, and meet established success criteria as detailed in the Special-Status Plant Mitigation Plan. The minimum success criterion for this option would be 2:1 replacement of directly impacted plants and 1:1 replacement for indirectly impacted plants by year five of monitoring. This ratio may be based on the acreage of occupied habitat or number of plants; this metric will be clearly defined in the Special-Status Plant Mitigation Plan. If the success criteria are not met, then additional habitat shall be set aside as set forth under Option 1 or as agreed upon by the City as appropriate. Because population sizes for annual plants can vary widely from year to year, for Option 2, population counts or acreage mapping would be conducted in the last two years of monitoring, and the highest count or acreage shall be at least equivalent to the number of required replacement plants.
3. Avoidance and Monitoring: If impacts will occur within the Avoidance Zone of a special-status plant population but the Applicant feels that work would not permanently impact the plant population, they may elect to monitor the potentially indirectly impacted plant population for five years to document the lack of impact. The Applicant will prepare a monitoring plan that will be submitted to the applicable agency (City, CDFW and/or USFWS) for approval prior to grading permit issuance, and that will include monitoring methodology, success criteria (i.e., what conditions will demonstrate the lack of impact), considerations for drought years and adjacent land uses, and reporting. If at the end of the monitoring period, the population is determined to have substantially decreased, the plants will be mitigated as outlined in Options 1 or 2 above at a ratio of 1:1.

### **7.3 Crotch's Bumble Bee**

Crotch's bumble bee could utilize the annual brome grassland for foraging or nesting. Crotch's bumble bee was designated as a candidate for listing under the CESA in 2019, but no decision on listing has been published. If, at the time of project implementation, the species is not a CESA candidate or CESA listed, and it does not fall into any of the other special-status categories defined in **Section 3.0**, then it would not qualify for protections under CEQA and no mitigation is necessary.

Because Crotch's bumble bee is a candidate species, appropriate mitigation measures are still being developed and refined. The following measures have been developed based on current literature and research and CDFW's *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species* (CDFW 2023). If at a later date a different mitigation measure is determined to be more appropriate, that can be submitted to the City at that time for review and approval.

If Project activities will result in development within annual brome grassland, then:

- Initial ground-disturbing work (e.g., grading, vegetation removal, staging) shall take place between 1 September and 31 March (i.e., outside the colony active period), if feasible, to avoid impacts on Crotch's bumble bee.
- If completing all initial ground-disturbing work between 1 September and 31 March is not feasible, then a qualified biologist shall conduct a pre-construction survey for Crotch's bumble bee in the area proposed for impact no more than 14 days prior to the commencement of construction activities. The survey shall occur during the period from one hour after sunrise to two hours before sunset, with temperatures between 65° F and 90° Fahrenheit, with low wind and no rain. If the timing of the start of construction makes the survey infeasible due to the temperature requirements, the surveying biologist shall select the most appropriate days based on the National Weather Service seven-day forecast, and shall survey at a time of day that is closest to the temperature range stated above. The survey duration shall be commensurate with the extent of suitable floral resources (which represent foraging habitat) present within the area proposed for impact and the level of effort shall be based on the metric of a minimum of one person-hour of searching per three acres of suitable floral resources/foraging habitat. A meandering pedestrian survey shall be conducted throughout the area proposed for impact in order to identify patches of suitable floral resources. Suitable floral resources for Crotch's bumble bee include species in the following families: Apocynaceae, Asteraceae, Boraginaceae, Fabaceae, and Lamiaceae.
- At a minimum, pre-construction survey methods shall include the following:
  - Search areas with floral resources for foraging bumble bees. Observed foraging activity may indicate a nest is nearby, and therefore, the survey duration shall be increased when foraging bumble bees are present.
  - If bumble bees are observed, attempt to photograph the individual and identify it to species.
  - If Crotch's bumble bees are observed, watch the individuals and observe their flight patterns. Attempt to track their movements between foraging areas and the nest.
  - Visually look for nest entrances. Observe burrows, any other underground cavities, logs, or other possible nesting habitat.
  - If floral resources or other vegetation preclude observance of the nest, small areas of vegetation may be removed via hand removal, line trimming, or mowing to a height of no less than 4 inches to assist with locating the nest.
  - Look for concentrated special-status bumble bee activity.
  - Listen for the humming of a nest colony.
- The biologist conducting the survey shall record when the survey was conducted, a general description of any suitable foraging habitat/floral resources present, a description of observed bumble bee activity, a list of bumble bee species observed, a description of any vegetation removed

to facilitate the survey, and their determination of if survey observations suggest a special-status bumble bee nest(s) may be present or if construction activities could otherwise harm special-status bumble bees. The report shall be submitted to the City prior to the commencement of construction activities.

- If no bumble bees are located during the pre-construction survey or the bumble bees located are definitively identified as common (i.e., not special-status) species, then no further mitigation or coordination with the City and/or CDFW is required.
- If any sign(s) of a bumble bee nest is observed, and/or if it cannot be established the species present is not a special-status bumble bee, then construction shall not commence until either 1) the bumble bees present are positively identification as common (i.e., not special status) by an experienced bumble bee taxonomist, or 2) the completion of coordination with CDFW to identify appropriate mitigation measures, which may include but not be limited to waiting until the colony active season ends; establishment of nest buffers; or obtaining an Incidental Take Permit (ITP) from CDFW.
- It is recommended, but not required, that the Project proponent also survey the proposed impact areas the year before construction begins in order to avoid potential last-minute delays associated with identifying special-status bumble bees on-site immediately prior to construction activities. To be most effective, this optional survey should follow the protocol outlined above.
- If, after coordination with CDFW, impacts to Crotch's bumble bee cannot be avoided, the Project proponent shall obtain an ITP from CDFW prior to the City's approval of permits authorizing construction, and the Project proponent shall implement all conditions identified in the ITP. Mitigation required by the ITP may include but will not be limited to, the Project proponent translocating nesting substrate in accordance with the latest scientific research to another suitable location (i.e., a location that supports similar or better floral resources as the impact area), enhancing floral resources on areas of the Project site that will remain appropriate habitat, worker awareness training, and/or other measures specified by CDFW.

In addition to these measures, mitigation for the loss of Swainson's hawk foraging habitat would compensate for the loss of annual brome grassland that may be utilized by Crotch's bumble bee.

#### **7.4 Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp**

The Project may result in the loss of potential vernal pool fairy shrimp and vernal pool tadpole shrimp habitat. The applicant may choose to conduct surveys for this species; these surveys shall be conducted in accordance with the *Survey Guidelines for the Listed Large Branchiopods* (USFWS 2017). If vernal pool fairy shrimp and vernal pool tadpole shrimp are not found during protocol-level wet and dry season surveys, no further mitigation will be required. If protocol-level surveys of these features are not conducted, or if vernal pool fairy or vernal pool tadpole shrimp are found during protocol-level wet- or dry season surveys of the features, then the Project proponent shall consider redesigning the Project to avoid all potential vernal pool fairy shrimp and vernal pool tadpole shrimp habitat. If avoidance is not possible, then the Project Proponent or the USACE (depending on the regulatory mechanism) shall consult with the USFWS regarding impacts to vernal pool fairy shrimp associated with the Project. Regardless of the consultation method, it is expected that the USFWS will assign measures to avoid, minimize, and mitigate impacts to vernal pool fairy shrimp

and vernal pool tadpole shrimp and will require compensatory mitigation. As such, we recommend the following measures:

- The Project proponent shall prepare a Biological Assessment, which will include details on potential impacts to and mitigation for impacts to vernal pool fairy shrimp and vernal pool tadpole shrimp, to be submitted to the USACE and/or USFWS.
- The Project proponent shall abide by mitigation measures developed during the course of the FESA consultation. At a minimum, the applicant shall preserve 2 acres of vernal pool branchiopod habitat for each acre of unsurveyed or documented occupied habitat impacted. Measures could include preservation, restoration, or enhancement of habitat on- or off-site, purchase of habitat credits from a USFWS-approved mitigation/conservation bank, working with a local land trust to preserve land, or any other method acceptable to USFWS.
- The Project proponent shall ensure that vernal pools and seasonal wetlands that will not be filled are protected during construction by installing exclusion fencing at the edge of the permitted impact area. No construction-related activity may take place in the exclusion area, and exclusion fencing shall be designed to prevent the discharge of storm water runoff from the impact area into the exclusion zone. Exclusion fencing shall be inspected by the project biologist or a trained on-site monitor at least weekly and immediately before and after storm events. Any breaches to the exclusion fencing shall be reported to the project biologist and repaired promptly. The exclusion fencing shall remain in place until all ground-disturbing construction activity is completed.

## **7.5 Monarch Butterfly**

Monarch butterfly has been proposed for federal listing as threatened under the ESA. If, at the time of project implementation, it is not a ESA candidate or ESA listed, and it does not fall into any of the other “special-status” categories defined in **Section 3.0**, then it would not qualify for protections under CEQA and no mitigation is necessary. As this is a proposed threatened species, appropriate mitigation measures are still being developed and refined for this species. We have developed the following measure based on current literature and research. If at a later date, a different mitigation measure is determined to be more appropriate, that can be submitted to the City and USFWS at that time for review and approval. Note that USFWS staff have stated that they will not formally consult on species proposed for listing or designated as candidates, so until such time as this species is formally listed, USFWS may not respond to communications regarding this species.

If construction will occur within annual brome grassland during the time when milkweed plants may host monarch eggs or caterpillars (approximately mid-March through late September), a pre-construction survey shall be conducted by a qualified biologist within 15 days prior to construction within the proposed impact area and a 50-foot buffer in accessible areas (cumulatively, Survey Area). The biologist shall comprehensively search the Survey Area for milkweed plants, and all milkweed plants found shall be surveyed for monarch eggs, larvae (i.e., caterpillars), and chrysalises. Additionally, other plants immediately adjacent to milkweed plants shall also be searched for chrysalises. If no eggs, caterpillars, or chrysalises are detected, no additional mitigation measures are necessary.

If eggs, caterpillars or chrysalises are found, the plants shall be avoided with a 50-foot buffer until metamorphosis is completed and adult butterflies emerge and voluntarily leave the host plant. If the eggs, larvae, or chrysalises cannot be avoided, all eggs, larvae, and chrysalises, including the portion of the plant to which they are attached, will be translocated to an alternative location. That location must be a minimum of 50 feet outside of the impact area and contain a similarly sized or larger population of larval host plants. The portions of the plants supporting eggs or chrysalises shall be tied to the live stem of the avoided larval host plant while caterpillars will be placed directly on a stem or leaf of a larval host plant. Should the species be listed under FESA in the future, coordination with USFWS shall be conducted prior to translocation.

## 7.6 Western Spadefoot

We recommend the following measures to avoid and minimize impacts to western spadefoot. Note that USFWS staff have stated that they will not formally consult on species proposed for listing or designated as candidates, so until such time as this species is formally listed, USFWS may not respond to communications regarding this species. Therefore in the measures below, “federally-listed” refers only to species formally listed as threatened or endangered under the ESA.

- Prior to construction, the Project proponent shall survey all suitable aquatic habitat on the Project site (including features proposed for avoidance) by sampling the features thoroughly with dipnets during March or early April, when spadefoot tadpoles would be present. In addition, one nocturnal acoustic survey of all areas within 300 feet of suitable aquatic habitat will be conducted. Acoustic surveys consist of walking through the area and listening for the distinctive snore-like call of this species. Timing and methodology for the aquatic and acoustic surveys shall be based on those described in *Distribution of the Western Spadefoot (Spea hammondi) in the Northern Sacramento Valley of California, with Comments on Status and Survey Methodology* (Shedd 2017). Note that due to the timing requirements, these surveys will likely occur several months before commencement of construction. If both the aquatic survey and the nocturnal acoustic survey are negative, no further mitigation is necessary.
- If western spadefoot is found within the proposed work area and the species is not a federally-listed species at the time of construction, the following mitigation measure will be implemented:
  - Western spadefoot tadpoles (as many as are reasonably possible to capture) shall be captured and relocated by a CDFW-approved biologist either to on-site avoided and fenced aquatic habitat, or to an off-site open space preserve with suitable habitat in the vicinity of the Study Area. If western spadefoot is observed within aquatic habitat proposed for avoidance, then the Project proponent may either (1) relocate the tadpoles to an off-site open space preserve with suitable habitat in the vicinity of the Study Area, or (2) install silt fencing along the edge of the proposed impact area within 300 feet of the occupied aquatic habitat to prevent metamorphosed individuals from dispersing into the construction area.
- If western spadefoot are found adjacent to but outside of the work area, the following measures shall be implemented:
  - The Project proponent shall install exclusion fencing to prevent western spadefoot from moving into the active construction area. Installation of spadefoot exclusion fencing shall be monitored

- by a qualified biologist. The fencing shall be inspected and repaired, if necessary, at least weekly. The fencing may be removed following the completion of construction.
- After the exclusion fencing is installed, a western spadefoot survey shall be conducted no more than 24 hours prior to construction in areas within 300 feet of suitable aquatic habitat. If no western spadefoot are found, no further mitigation is necessary. If a western spadefoot is observed within the proposed impact area, a CDFW-approved biologist shall relocate the individual to suitable habitat outside of the proposed impact area prior to construction.
  - If western spadefoot move into the work area at any time, work shall cease, and the Project biologist shall be notified. A CDFW-approved biologist shall relocate the individual to suitable habitat outside of the impact area.
  - If western spadefoot is identified within the proposed work area and the species is a federally-listed species at the time of construction, the following mitigation measure will be implemented:
    - The Project proponent shall consult with the USFWS regarding impacts to western spadefoot associated with the proposed Project. The Project proponent shall obtain and comply with any conditions of the appropriate take authorization from the USFWS. The conditions in this take authorization may include, but will not be limited to fencing off avoided habitat, worker awareness trainings, preservation, restoration, or enhancement of habitat on- or off-site to compensate for indirect and/or direct effects; purchase of habitat credits from an agency-approved mitigation/conservation bank; working with a local land trust to preserve land; or any other method acceptable to USFWS.

## 7.7 Northwestern Pond Turtle

To minimize potential impacts to northwestern pond turtle, we recommend the following measures. Note that USFWS staff have stated that they will not formally consult on species proposed for listing or designated as candidates, so until such time as this species is formally listed, USFWS may not respond to communications regarding this species. Therefore in the measures below, “federally-listed” refers only to species formally listed as threatened or endangered under the ESA.

- If construction would affect inundated portions of Laguna Creek during the active season of northwestern pond turtle (generally April to September), the Project proponent shall conduct a northwestern pond turtle survey to determine whether this species is utilizing Laguna Creek. The survey shall be conducted consistent with visual encounter survey guidance provided in Chapter 4 of *Western Pond Turtle: Biology, Sampling Techniques, Inventory and Monitoring, Conservation, and Management* (Bury et al. 2012). If no northwestern pond turtles are observed utilizing the aquatic habitat, no further mitigation is necessary.
- If northwestern pond turtles are observed utilizing Laguna Creek within the proposed work area and the species is not a federally-listed species at the time of construction, the following measures shall be implemented:
  - Project work within 325 feet of Laguna Creek should be implemented during the turtles’ active season (generally April through September). If northwestern pond turtles are documented to have left the vicinity of the Project, work within 325 feet of Laguna Creek may occur outside of this work window.

- Prior to dewatering the work area, a qualified biologist shall prepare a northwestern pond turtle avoidance and management plan for review and approval by the City. The plan will include requirements for monitoring during the dewatering process to ensure no turtles are harmed; turtle capture and relocation; exclusion fencing to prevent turtle movement into the work area following dewatering; and encounter protocol should northwestern pond turtles move into the work area following dewatering.
- If northwestern pond turtles are observed utilizing Laguna Creek adjacent to but outside of the work area, the following measures shall be implemented:
  - The Project proponent shall install exclusion fencing to prevent turtles from moving into the active construction area. The fencing shall be inspected and repaired, if necessary, at least weekly. The fencing may be removed following the completion of construction.
  - After the exclusion fencing is installed, a northwestern pond turtle survey shall be conducted no more than 24 hours prior to construction in areas within 325 feet of the limits of inundated areas of Laguna Creek. If no northwestern pond turtles are found, no further mitigation is necessary. If a northwestern pond turtle is observed within the proposed impact area, a qualified biologist shall relocate the individual to suitable habitat outside of the proposed impact area prior to construction.
  - If northwestern pond turtles move into the work area at any time, work shall cease, and the Project biologist shall be notified. A qualified biologist shall relocate the individual to suitable habitat outside of the impact area.
- If northwestern pond turtles are observed utilizing Laguna Creek within the proposed work area and the species is a federally-listed species at the time of construction, the following mitigation measure shall be implemented:
  - The Project proponent shall consult with the USFWS regarding impacts to northwestern pond turtle associated with the proposed Project. The Project proponent shall obtain and comply with any conditions of the appropriate take authorization from the USFWS. The conditions in this take authorization may include, but will not be limited to fencing off avoided habitat, ceasing construction around northwestern pond turtles found on-site, and allowing them to leave on their own, worker awareness trainings, preservation, restoration, or enhancement of habitat on- or off-site to compensate for indirect and/or direct effects; purchase of habitat credits from an agency-approved mitigation/conservation bank; working with a local land trust to preserve land; or any other method acceptable to USFWS.

## **7.8 Nesting Raptors and Other Birds**

We recommend the following measures to avoid and minimize potential impacts to nesting raptors and other birds protected by the MBTA and/or state and federal regulations.

- If ground disturbance or other construction activities are proposed during the bird nesting season (February 1 – August 31), a focused survey for nesting raptors and migratory bird nests shall be conducted by a qualified biologist within 14 days prior to the beginning of construction activities in order to identify active nests. This survey shall be conducted within the proposed construction area and all accessible areas within the following buffer areas:

- 0.25 mile for Swainson’s hawk,
- 500 feet for tree-nesting raptors and burrowing owls, and
- 50 feet for all other species
- Pre-construction (take avoidance) burrowing owl surveys of suitable habitat will be conducted consistent with the CDFW *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). Non-breeding season protocol will be used for surveys conducted when construction begins between September 1 and January 31 and breeding season protocol will be used for surveys conducted when construction begins between February 1 and August 31.
- If no active nests/burrows are found, no further mitigation is required. Surveys must be repeated if a lapse in construction activity exceeds 14 days and construction resumes during the nesting season.
- If active nests/burrows are found:
  - Active raptor nests: no construction activities shall take place within 0.25-mile for Swainson’s hawk or within 500 feet of other raptor nest(s). The buffer(s) may be removed once the young have fledged and/or are no longer dependent on the nest;
  - Occupied burrowing owl burrows: a minimum buffer of 164 feet shall established and maintain around the occupied burrow throughout construction. The actual buffer size shall be determined by the qualified biologist based on the time of year and level of disturbance in accordance with guidance provided in the CDFW *Staff Report on Burrowing Owl Mitigation* (CDFW 2012) and may be as large as 1,640 feet. No construction activities shall take place within the buffer, and the no-disturbance buffer shall be marked on-site. The buffer may be removed once a qualified biologist determines that the burrow is no longer occupied ;
  - Active tricolored blackbird nests: no construction activities shall take place within 500 feet of active nesting colonies, and a no-disturbance buffer shall be marked on-site. The Project proponent shall coordinate with the City and CDFW to identify appropriate monitoring requirements;
  - Active nests of other birds: no construction activities shall take place within 100 feet of an active nest, and the no-disturbance buffer shall be marked on-site. The buffer may be removed once the young have fledged and/or are no longer dependent on the nest.
- No-disturbance buffers for all species may be reduced based on consultation and approval by the City and/or CDFW for Swainson’s hawk, burrowing owl, and tricolored blackbird.
- The perimeter of protected areas on-site shall be indicated by bright orange temporary fencing. No construction activities or personnel shall enter protected areas, except with approval of the biologist. If trees containing nests or nests/burrows must be removed as a result of Project implementation, removal shall be completed during the nonbreeding season (September 1 to January 31) if possible, or after a qualified biologist determines that the young have fledged (during the breeding season).
- Survey results shall be provided to the City within 14 days of completion of all surveys.

## 7.9 Foraging Raptors

Impacts to Swainson's hawk foraging habitat shall be mitigated consistent with the City's Swainson's Hawk Code (Chapter 16.130 of the Elk Grove Municipal Code). The City's Swainson's Hawk Code allows a project applicant to provide mitigation by one or a combination of the following options:

1. Provide direct land preservation to the City by fee title or conservation easement on a per acre basis (one-to one mitigation ratio), including an endowment for easement monitoring. Interests in mitigation lands are to be held in trust by an entity acceptable to the City and/or the City in perpetuity.
2. Pay Swainson's Hawk impact mitigation fee on a per acre basis of habitat impacted. The current fee (January 2025) is \$16,975 per acre, but the fee paid shall be that in affect at the time of application. The City utilizes the fees collected to mitigate the project's impacts by acquiring land in fee title and/or conservation easements on suitable Swainson's hawk foraging habitat. Note that payment of a Swainson's Hawk mitigation fee is limited to projects less than 40 acres and therefore may not be applicable to this project, depending on the final design.
3. Purchase mitigation credits at a 1:1 ratio at an accredited mitigation bank that is acceptable to the City and CDFW.
4. Purchase credits from a property owner with eligible credits for projects in Elk Grove that is acceptable to the City and CDFW.
5. Provide other instruments to preserve suitable habitat as determined by CDFW.

If nesting burrowing owls are found during the pre-construction survey, mitigation for the permanent loss of burrowing owl foraging habitat (defined as all areas of suitable habitat within 250 feet of the active burrow) shall be accomplished at a 1:1 ratio or at a ratio acceptable to the City. The mitigation provided shall be consistent with recommendations in the CDFW *Staff Report on Burrowing Owl Mitigation* and may be accomplished within the Swainson's hawk foraging habitat mitigation area for the Project if burrowing owls have been documented utilizing that area, or if the qualified biologist, the City, and CDFW collectively determine that the mitigation strategy is suitable for both species.

## 7.10 Roosting Bats

- A qualified biologist shall conduct a bat habitat assessment of all potential roosting habitat features, including trees and structures within the proposed impact footprint. This habitat assessment shall identify all potentially suitable roosting habitat and may be conducted up to one (1) year prior to the start of construction.
- If potential roosting habitat is identified (cavities in trees or potential roosts within structures) within the areas proposed for impact, the biologist shall survey the potential roosting habitat within 7 days prior to habitat removal. As roosting bats are seasonally active, it may be beneficial to conduct an additional survey well ahead of the preconstruction survey during the active season (generally April through October or from January through March on days with temperatures in excess of 50 degrees F) to determine presence of roosting bats. These surveys are recommended to be conducted utilizing methods that are considered acceptable by CDFW and bat experts. Methods may include

evening emergence surveys, acoustic surveys, inspecting potential roosting habitat with fiberoptic cameras or a combination thereof.

- If pre-construction surveys indicate that no roosts of special-status bats are present, or that roosts are inactive or potential habitat is unoccupied, no further mitigation is required.
- If roosting bats are identified within any of the trees planned for removal, or if presence is assumed, the trees shall be removed outside of pup season only on days with temperatures in excess of 50 degrees F. Pup season is generally during the months of May through August. Two-step tree removal shall be utilized under the supervision of the qualified biologist. Two-step tree removal involves removal of all branches of the tree that do not provide roosting habitat on the first day, and then the next day cutting down the remaining portion of the tree.
- Additionally, it is recommended that all other tree removal be conducted from January through March on days with temperatures in excess of 50 degrees F to avoid potential impacts to foliage-roosting bat species.
- If roosting bats are identified within any structures planned for removal, a bat exclusion plan shall be prepared by a qualified bat biologist describing the methods to be used to humanely exclude bats prior to disturbance. Each exclusion is specific to the structure and no two are the same. All exclusions involve the installation of one-way doors or flaps during the non-breeding season that allow the bats to leave and not re-enter the structure. This plan shall be approved by the County and by CDFW and shall be implemented prior to the start of construction.

### **7.11 Native Trees and Other Protected Trees**

The City of Elk Grove regulates impacts to Protected Trees. If any Protected Trees are within the proposed development area, the applicant shall inventory all Protected Trees and apply for a Tree Permit from the City.

The project applicant shall implement all mitigation required by the Tree Permit. As outlined in City Code, impacts to Protected Trees shall be mitigated at a 1:1 ratio (one diameter inch of new trees per each diameter inch of lost trees). The applicant for the tree permit shall prepare a Tree Mitigation Plan for review and approval by the City Arborist. Trees planted as mitigation shall be of an equivalent species as those being removed, with consideration given to species diversity and ensuring that the right tree is planted in the right location. One or more of the following mitigation options shall be identified in the Tree Mitigation Plan.

- A. On-Site or Off-Site Replacement. The plan shall specify where the tree(s) shall be planted and how the tree(s) shall be monitored and maintained for a minimum of five years. The City may require the establishment of a performance bond or other surety as a way to ensure that the replacement trees survive for the minimum establishment period. The City will allow the use of on-site trees planted under a mitigation plan as a way to meet any other on-site landscaping requirement, including parking lot shading, street landscaping, and street trees on residential lots.
- B. Payment of an In-Lieu Fee as Adopted by Resolution of the City Council. The applicant may pay an in-lieu fee for the loss of the tree(s) at a rate established by the City Council. Such monies shall be deposited in the tree preservation fund.

- C. Credit for Existing Trees Smaller Than When a Permit Is Required. An applicant may be entitled to mitigation credit when they preserve species of trees that are listed in EGMC Section 19.12.040 (Trees of local importance) but are smaller than six (6") inches in diameter. The City Arborist shall make the determination after reviewing the location of the tree(s), the quality of the environment (both pre- and post-project) in which the tree(s) is located, potential impacts to the tree(s) from proposed development, and other relevant factors that the City Arborist deems relevant to the long-term viability of the tree(s). If approved for credit, retained trees shall receive a credit of one (1") inch per tree for trees between two (2") and five (5") inches in diameter. The City may require the establishment of a performance bond or other surety as a way to ensure that the tree(s) survive for the minimum establishment period.

The following equivalent sizes shall be used whenever new trees are planted (either on site or off site) under a mitigation plan:

- Smaller than fifteen (15) gallon container = one (1") inch diameter.
- Fifteen (15) gallon container or larger = two (2") inch diameter.

#### **7.12 Worker Environmental Awareness Training**

We recommend the following measure to ensure that construction crews understand potential biological resource concerns and the need for awareness during construction.

Prior to any ground-disturbing or vegetation-removal activities, a Worker Environmental Awareness Training (WEAT) shall be prepared and administered to the construction crews. The WEAT will address the state and federal Endangered Species Act; the Clean Water Act and/or Porter-Cologne; the Project's permits and CEQA documentation and associated mitigation measures; consequences and penalties for violation or noncompliance with applicable laws and regulations; identification of special-status wildlife; location of any avoided resources; hazardous substance spill prevention and containment measures; and the contact person in the event of the discovery of a special-status species. The WEAT will also discuss the different habitats used by the species' different life stages and the annual timing of these life stages. A handout summarizing the WEAT information shall be provided to workers to keep on-site for future reference. Upon completion of the WEAT training, workers will sign a form stating that they attended the training, understand the information presented and will comply with the regulations discussed. Workers will be shown designated avoidance areas during the WEAT training; worker access should be restricted to outside of those areas to minimize the potential for inadvertent environmental impacts. If not already required, fencing and signage around the boundary of avoidance areas may be helpful.

## 8.0 REFERENCES

- Airola, Daniel A., Deren Ross, Christopher W. Swarth, Dawn Lasprugato, Robert J. Meese, and Montana C. Marshall. 2016. *Breeding Status of the Tricolored Blackbird in the Grassland-Dominated Region of the Sierra Nevada, California in 2016*
- Bumble Bee Watch (BBW). 2024. Query of the Bumble Bee Sightings Map database. <https://www.bumblebeewatch.org/app/#/bees/map>. Accessed December 2024.
- Bury, R. Bruce, Hartwell H Welsh, Jr., David J Germano, and Donald T. Ashton, editors. 2012. *Western Pond Turtle: Biology, Sampling Techniques, Inventory and Monitoring, Conservation, and Management*. In Northwest Fauna Number 7, Society For Northwestern Vertebrate Biology, Olympia, Washington.
- California Burrowing Owl Consortium (CBOC). 1993. *Burrowing Owl Survey Protocol and Mitigation Guidelines*. Dated April 1993.
- California Department of Fish and Game (CDFG). 1995. *Staff Report on Burrowing Owl Mitigation*. Dated 25 September 1995.
- California Department of Fish and Game (CDFG). 2012. *Staff Report on Burrowing Owl Mitigation*. Dated 7 March 2012.
- California Department of Fish and Wildlife (CDFW). 2018. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities*. State of California Natural Resource Agency Department of Fish and Wildlife. 20 March.
- California Department of Fish and Wildlife (CDFW). 2023. *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species*. Published June 6 2023.
- California Native Plant Society (CNPS). 2024. Inventory of Rare and Endangered Plants (online edition, v9.5). California Native Plant Society, Sacramento, CA. Website <http://www.rareplants.cnps.org>. Accessed 1 November 2024.
- California Native Plant Society (CNPS). 2001. *CNPS botanical survey guidelines*. Pages 38-40 in California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California (D.P. Tibor, editor). Sixth edition. Special Publication No. 1, California Native Plant Society, Sacramento, 387 pp.
- California Natural Diversity Database (CNDDDB). 2024. *RareFind 6*. California Department of Fish and Wildlife. Accessed December 2024.
- City of Elk Grove. 2021. *Elk Grove General Plan*. Adopted August 11 2021.

- Cornell Lab of Ornithology. 2024. *eBird database queries for the Study Area and surrounding region*. <https://ebird.org/>. Accessed December 2024.
- Eng, L., D. Belk, and C. Eriksen. 1990. *Californian Anostraca: Distribution, Habitat, and Status*. *Journal of Crustacean Biology* 10(2):247-277.
- Eriksen, C. and D. Belk. 1999. *Fairy Shrimps of California's Puddles, Pools, and Playas*. Mad River Press, Inc. Eureka, CA.
- Fugate, M. 1992. *Speciation in the fairy shrimp genus Branchinecta (Crustacea: Anostraca) from North America*. Ph.D. thesis, University of California, Riverside.
- Hatfield, R., Jepsen, S., Thorp, R., Richardson, L. & Colla, S. 2014. *Bombus bimaculatus*. The IUCN Red List of Threatened Species 2014: e.T44937719A69000240.
- iNaturalist. 2024. *iNaturalist Observation Database*. <https://www.inaturalist.org/>. Accessed December 2024.
- International Union for Conservation of Nature and Natural Resources (IUCN). 2023. *RED List information for Crotch bumble bee*. Available online at <https://www.iucnredlist.org/species/44937582/46440211>. Accessed November.
- Meese, R.J. 2014. *Results of the 2014 Tricolored Blackbird Statewide Survey*. Available from the Tricolored Blackbird Portal: <http://tricolor.ice.ucdavis.edu/reports>
- Shedd, J.O. 2017. *Distribution of the Western Spadefoot (Spea hammondi) in the Northern Sacramento Valley of California, with Comments on Status and Survey Methodology* (PDF Download Available). Available from: [https://www.researchgate.net/publication/312153742\\_Distribution\\_of\\_the\\_Western\\_Spadefoot\\_Spea\\_hammondi\\_in\\_the\\_Northern\\_Sacramento\\_Valley\\_of\\_California\\_with\\_Comments\\_on\\_Status\\_and\\_Survey\\_Methodology](https://www.researchgate.net/publication/312153742_Distribution_of_the_Western_Spadefoot_Spea_hammondi_in_the_Northern_Sacramento_Valley_of_California_with_Comments_on_Status_and_Survey_Methodology).
- Shuford, W. D., and Gardali, T., editors. 2008. *California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California*. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento
- Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture (NRCS). 2024. *Web Soil Survey*. Available online at <http://websoilsurvey.nrcs.usda.gov/>. Accessed December 2024.
- Thorp, R.W., Horning, D.S., & Dunning, L.L. 1983. *Bumble bees and cuckoo bumble bees of California* (Hymenoptera, Apidae).

- U.S. Department of the Interior, Fish and Wildlife Service (USFWS). 1996. *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants*. Sacramento, CA.
- U.S. Department of the Interior, Fish and Wildlife Service (USFWS). 2005. *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon*. Portland, Oregon. xxvi + 606 pages.
- U.S. Department of the Interior, Fish and Wildlife Service (USFWS). 2020. *Monarch (Danaus plexippus) Species Status Assessment Report*. September.
- U.S. Department of the Interior, Fish and Wildlife Service (USFWS). 2024. *IPaC Trust Resource Report for the Study Area*. Generated from <http://ecos.fws.gov/ipac/> on 16 December 2024.
- U.S. Geological Survey (USGS). 2022. "Elk Grove, California" 7.5-Minute Series Topographic Quadrangle Map. U.S. Geological Survey. Denver, Colorado.
- Western Bat Working Group (WBWG). 2024. *Species Matrix and Species Accounts*. Available on-line at <http://wbwg.org/> . Accessed December 2024.
- Western Monarch and Milkweed Occurrence Database. 2024. *Data accessed from the Western Monarch Milkweed Mapper, a project by the Xerxes Society, U.S. Fish and Wildlife Service, Idaho Department of Fish and Game, and Washington Department of Fish and Wildlife*. Available: [www.monarchmilkweedmapper.org](http://www.monarchmilkweedmapper.org). Accessed: December 2024.
- Williams, D. F. 1986. *Mammalian Species of Special Concern in California*. State of California Department of Fish and Game, Wildlife Management Division. Sacramento, California. 112pp.
- Williams, P. H., R. W. Thorp, L. L. Richardson, and S. R. Colla. 2014. *The Bumble bees of North America: An Identification guide*. Princeton University Press, Princeton.
- Xerxes Society for Invertebrate Conservation (Xerxes Society). 2024. *Western monarch overwintering site viewer*. Accessed December 2024.

# Figures

---

Figure 1. Site and Vicinity

Figure 2. Programmatic Project Areas

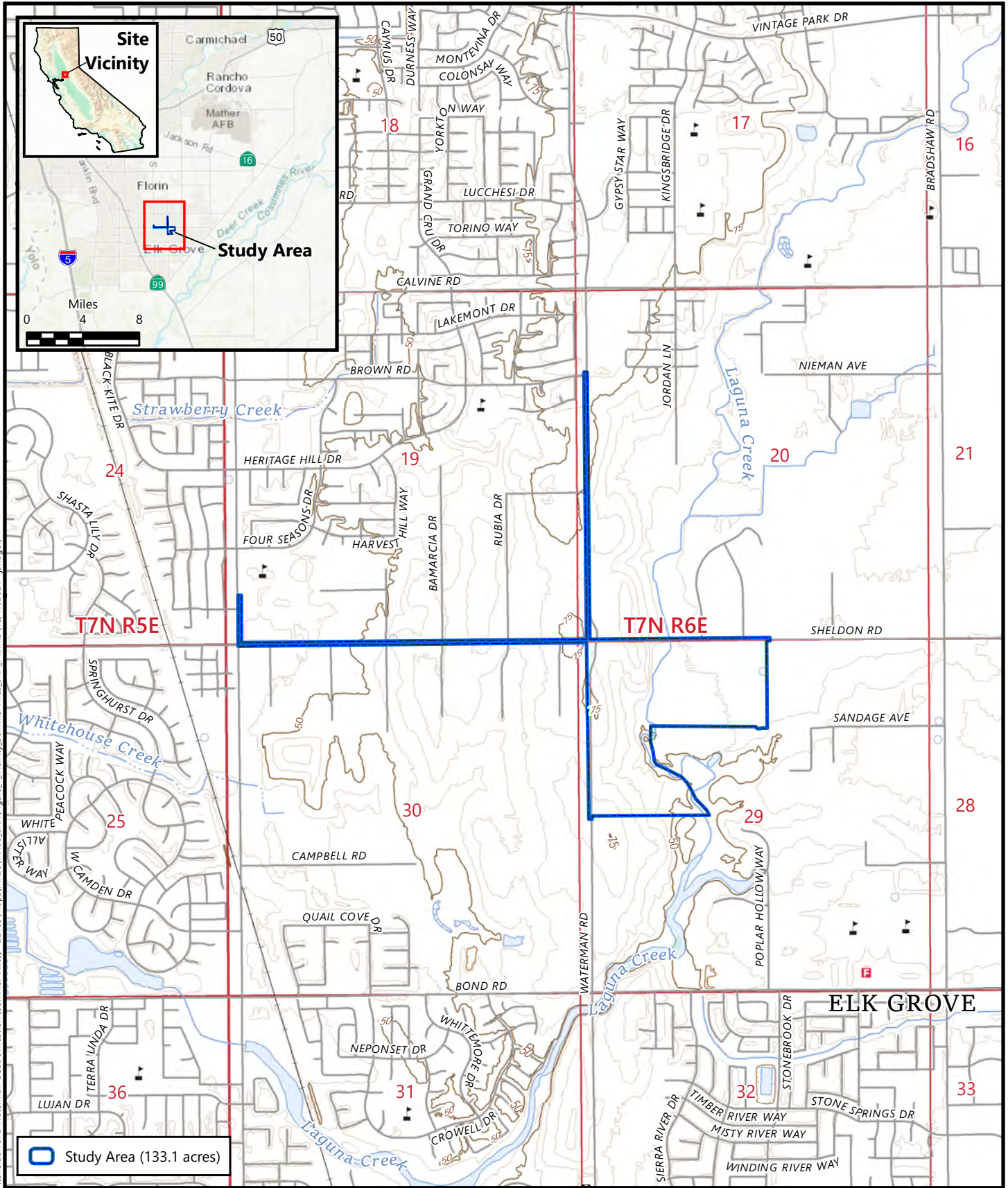
Figure 3. California Natural Diversity Database Occurrences of Plant Species

Figure 4. California Natural Diversity Database Occurrences of Wildlife Species

Figure 5. Terrestrial Vegetation Communities and Aquatic Resources in the Study Area

Figure 6. Natural Resources Conservation Service Soils

Figure 7. Impacts Associated with Potential Development Plan



P:\Sheldon and Waterman GGS\Definition (Summer Villas) - 22109\MapS\MXD\S\MXD: BRA\Figure\_1\_Vicinity\_SummerVillas\_BRA\_v1.mxd (12/17/2024 - jwagner)

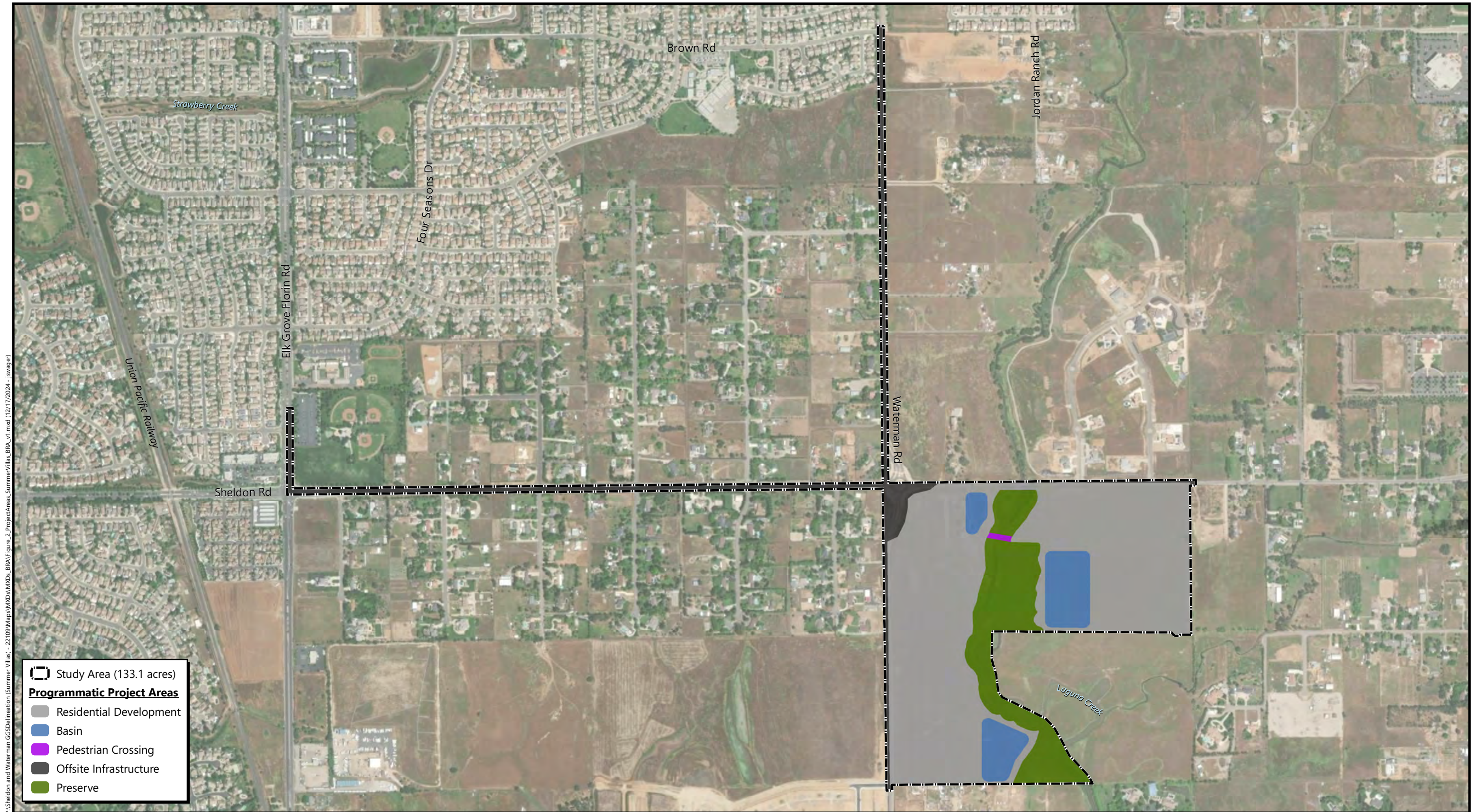


**Figure 1**  
**Site and Vicinity**

Source: United States Geologic Survey, 2022  
 "Elk Grove, California" 7.5-Minute Topographic Quadrangle  
 Sections 19-20, 29-30, Township 7 North, Range 6 East, MDBM  
 Latitude (NAD83): 38.435564°, Longitude (NAD83): -121.350312°

Summer Villas  
 Elk Grove, Sacramento County, California





P:\Sheldon and Waterman GSD\Delination (Summer Villas) - 2/2/09\Maps\MXD\BAs\_BRA\Figure\_2\_ProjectAreas\_SummerVillas\_BRA\_v1.mxd (12/17/2024 - jswager)

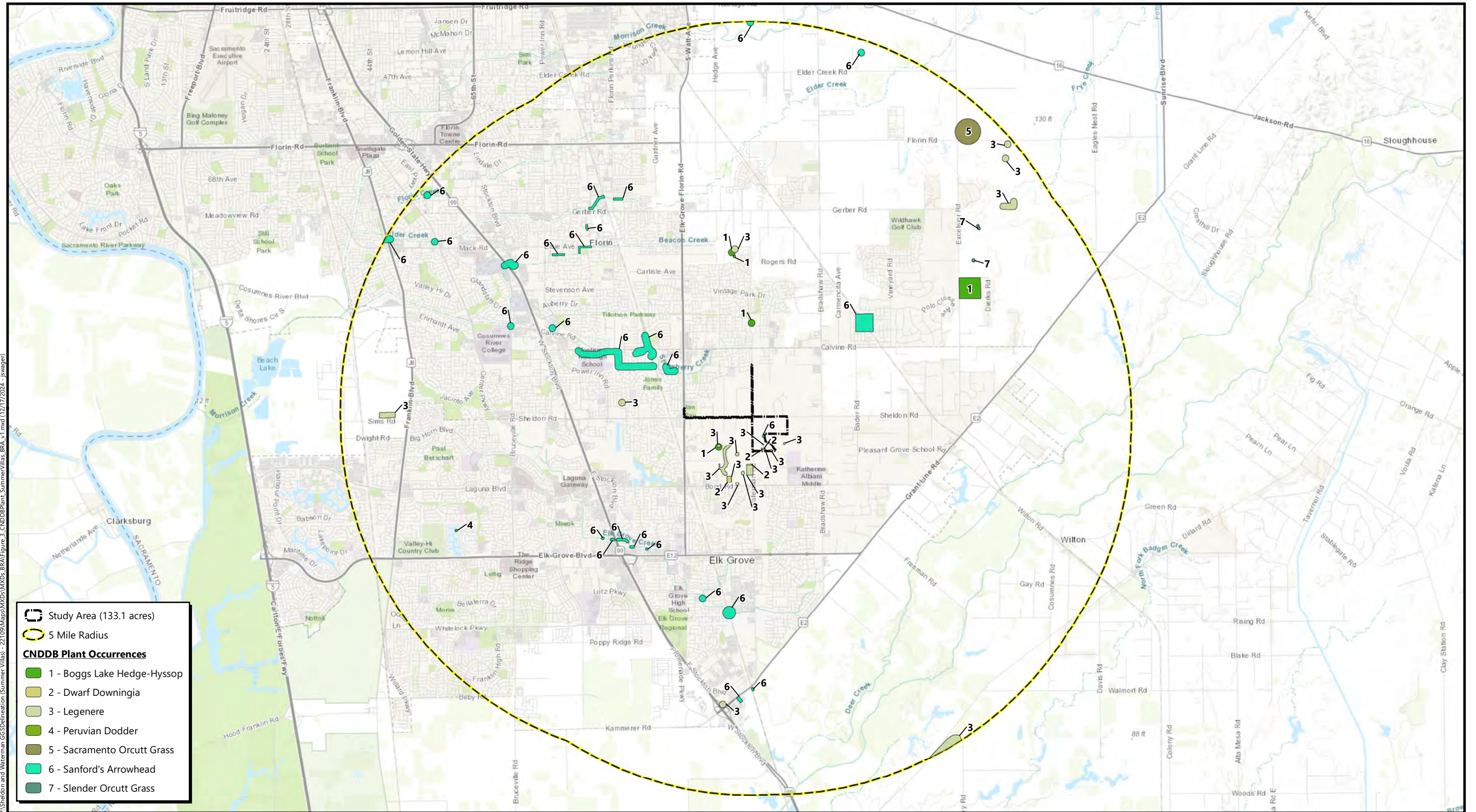
Boundary Source: Wood Rodgers  
 Aerial Source: Maxar, 26 April 2022

**Figure 2**  
**Programmatic Project Areas**

Summer Villas  
 Elk Grove, Sacramento County, California



PS:Sheldon and Waterman GSDelineation (Summer Villas) - 22109\Maps\MXD\Map3\_CNDDBPlant\_SummerVillas\_BBA\_v1.mxd (12/17/2024 - jswager)

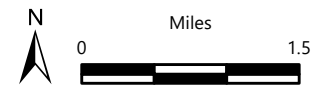


**Study Area (133.1 acres)**

**5 Mile Radius**

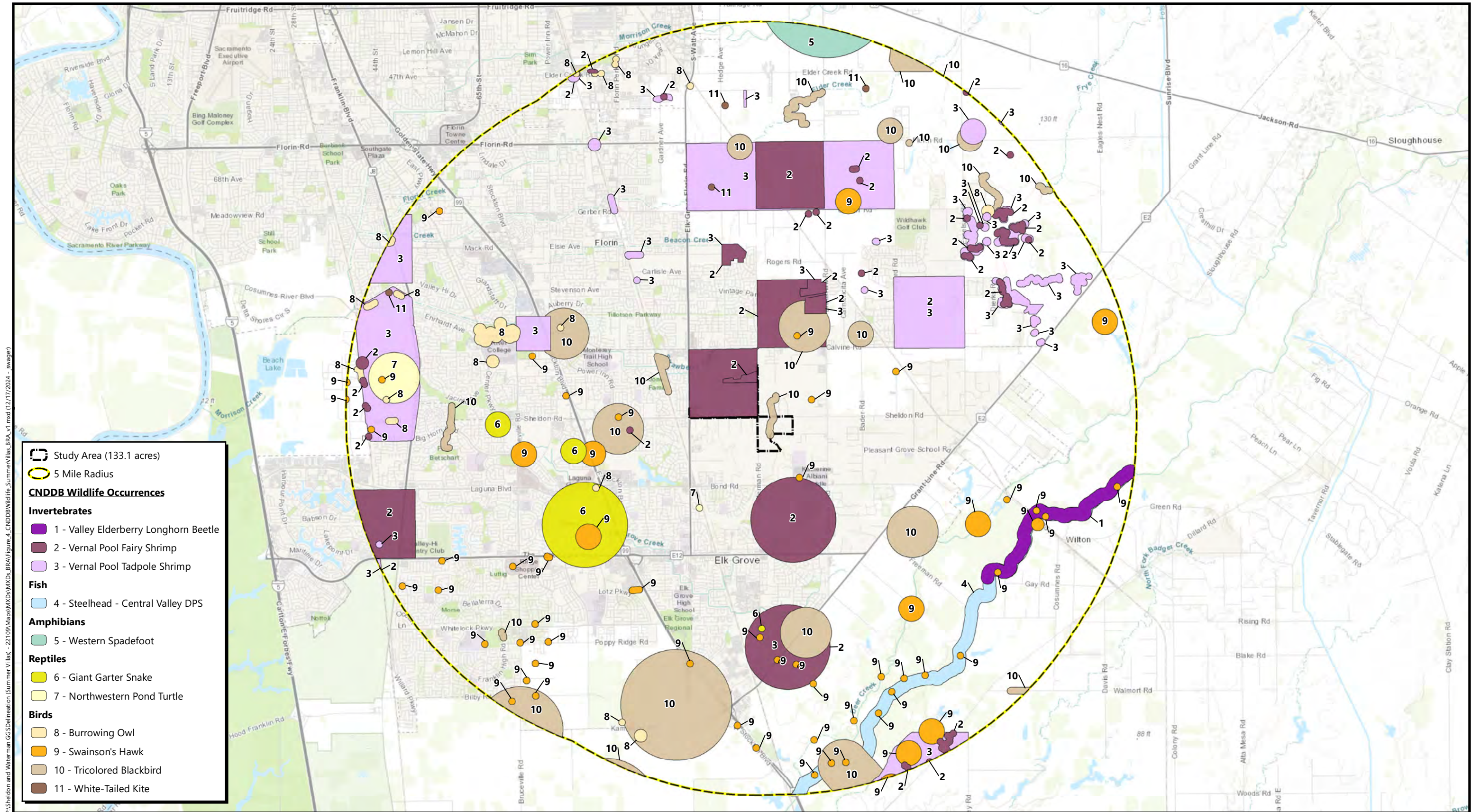
**CNDDB Plant Occurrences**

- 1 - Boggs Lake Hedge-Hyssop
- 2 - Dwarf Downingia
- 3 - Legenere
- 4 - Peruvian Dodder
- 5 - Sacramento Orcutt Grass
- 6 - Sanford's Arrowhead
- 7 - Slender Orcutt Grass

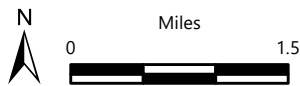


**Figure 3**  
**California Natural Diversity Database Occurrences**  
**of Plant Species**

Source: California Department of Fish and Wildlife, November 2024  
 Basemap Source: ESRI World Topographic Map



P:\Sheldon and Waterman\GSDelineation (Summer Villas) - 2/21/2019\Map\MXD\SummerVillas\_BRA\_v1.mxd (12/17/2024 - jwagren)



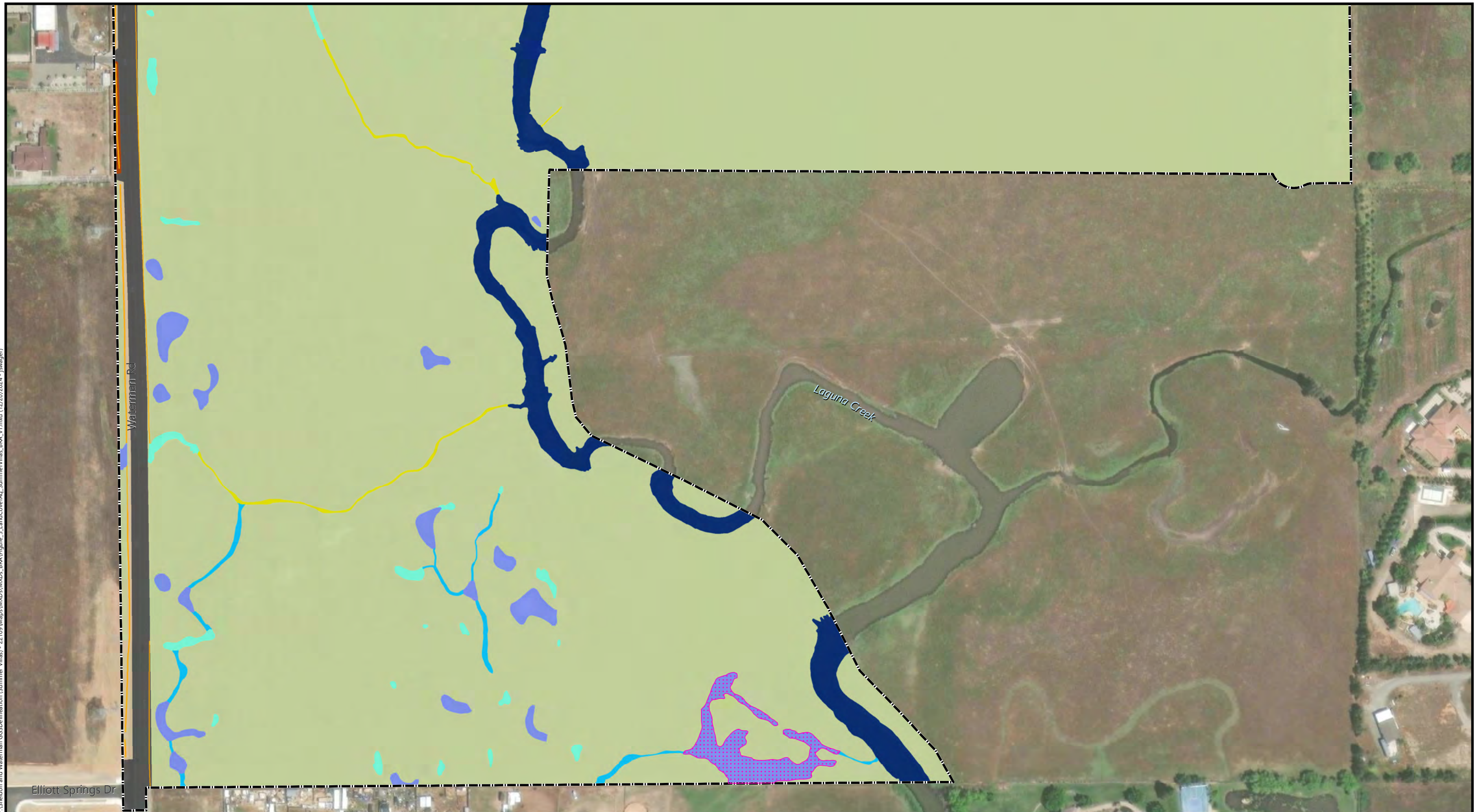
**Figure 4**  
**California Natural Diversity Database Occurrences**  
**of Wildlife Species**

Source: California Department of Fish and Wildlife, November 2024  
 Basemap Source: ESRI World Topographic Map

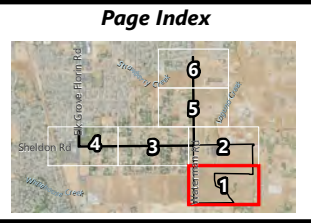
Summer Villas  
 Elk Grove, Sacramento County, California



P:\Sheldon and Waterman\GIS\Delination (Summer Villas) - 22109\Maps\XADS\MXD5\_BBA\Figure\_5\_LandCoverAd\_SummerVillas\_BBA\_v1.mxd (12/20/2024 - jswagen)



N  
 Feet  
 0 200  
 Boundary Source: Wood Rodgers  
 Aerial Source: Maxar, 26 April 2022



Study Area (133.1 acres)  
**Special-Status Plant Populations**  
*Legenere limosa* (0.525 acre)

**Overall Terrestrial Vegetation (127.0 acres)**

- Annual Grassland (107.1 acres)
- Road (13.1 acres)
- Ruderal (1.7 acres)
- Rural Residential (3.7 acres)
- Unvegetated (1.4 acres)

**Overall Aquatic Resources (6.12 acres)**


**Wetlands (2.03 acres)**

- Seasonal Wetland (0.45 acre)
- Seasonal Wetland Swale (0.29 acre)
- Vernal Pool (1.30 acres)

**Other Waters (4.09 acres)**

- Creek (3.26 acres)
- Detention Basin (0.21 acre)
- Ephemeral Drainage (0.14 acre)
- Roadside Ditch (0.49 acre)

**Figure 5**  
**Terrestrial Vegetation Communities and Aquatic Resources in the Study Area**  
 (Page 1 of 6)  
 Summer Villas  
 Elk Grove, Sacramento, California

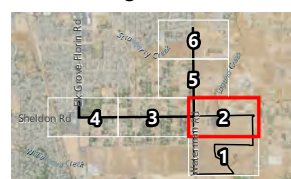


P:\Sheldon and Waterman\GIS\Delimitation (Summer Villas) - 22109\Maps\MXDs\MXD5\_BBA\Figure\_5\_LandCoverAq\_SummerVillas\_BBA\_v1.mxd (12/20/2024 - jswager)



Boundary Source: Wood Rodgers  
Aerial Source: Maxar, 26 April 2022

**Page Index**



Study Area (133.1 acres)

**Overall Terrestrial Vegetation (127.0 acres)**

- Annual Grassland (107.1 acres)
- Road (13.1 acres)
- Ruderal (1.7 acres)
- Rural Residential (3.7 acres)
- Unvegetated (1.4 acres)

**Overall Aquatic Resources (6.12 acres)**

- Wetlands (2.03 acres)**
- Seasonal Wetland (0.45 acre)
  - Seasonal Wetland Swale (0.29 acre)
  - Vernal Pool (1.30 acres)

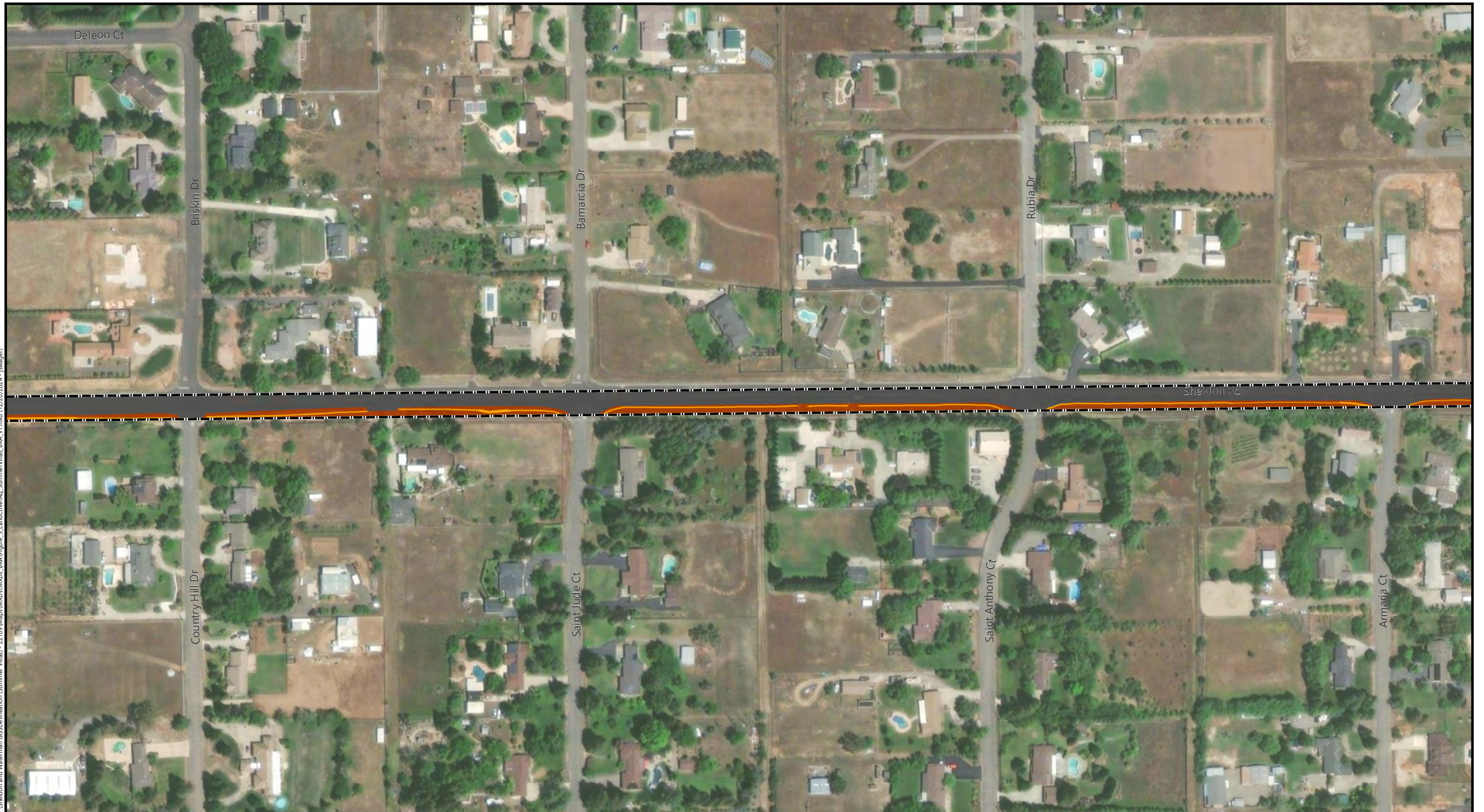
**Other Waters (4.09 acres)**

- Creek (3.26 acres)
- Detention Basin (0.21 acre)
- Ephemeral Drainage (0.14 acre)
- Roadside Ditch (0.49 acre)

**Figure 5**  
**Terrestrial Vegetation Communities and**  
**Aquatic Resources in the Study Area**  
(Page 2 of 6)  
Summer Villas  
Elk Grove, Sacramento, California

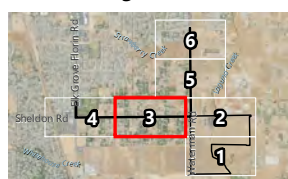


P:\Sheldon and Waterman\GIS\Delination (Summer Villas) - 22109\Map\XADS\MXD5\_BRA\Figure\_5\_LandCoverAd\_SummerVillas\_BRA\_v1.mxd (12/20/2024 - jswagen)



Boundary Source: Wood Rodgers  
Aerial Source: Maxar, 26 April 2022

**Page Index**



Study Area (133.1 acres)

**Overall Terrestrial Vegetation (127.0 acres)**

- Annual Grassland (107.1 acres)
- Road (13.1 acres)
- Ruderal (1.7 acres)
- Rural Residential (3.7 acres)
- Unvegetated (1.4 acres)

**Overall Aquatic Resources (6.12 acres)**

- Wetlands (2.03 acres)**
- Seasonal Wetland (0.45 acre)
  - Seasonal Wetland Swale (0.29 acre)
  - Vernal Pool (1.30 acres)

**Other Waters (4.09 acres)**

- Creek (3.26 acres)
- Detention Basin (0.21 acre)
- Ephemeral Drainage (0.14 acre)
- Roadside Ditch (0.49 acre)

**Figure 5**  
**Terrestrial Vegetation Communities and Aquatic Resources in the Study Area**  
(Page 3 of 6)  
Summer Villas  
Elk Grove, Sacramento, California



P:\Sheldon and Waterman\GIS\Delination (Summer Villas) - 22109\Maps\XADS\MXD5\_BRA\Figure\_5\_LandCoverAd\_SummerVillas\_BRA\_v1.mxd (12/20/2024 - jswager)



Boundary Source: Wood Rodgers  
Aerial Source: Maxar, 26 April 2022

**Page Index**



Study Area (133.1 acres)

**Overall Terrestrial Vegetation (127.0 acres)**

- Annual Grassland (107.1 acres)
- Road (13.1 acres)
- Ruderal (1.7 acres)
- Rural Residential (3.7 acres)
- Unvegetated (1.4 acres)

**Overall Aquatic Resources (6.12 acres)**

- Wetlands (2.03 acres)**
- Seasonal Wetland (0.45 acre)
  - Seasonal Wetland Swale (0.29 acre)
  - Vernal Pool (1.30 acres)

**Other Waters (4.09 acres)**

- Creek (3.26 acres)
- Detention Basin (0.21 acre)
- Ephemeral Drainage (0.14 acre)
- Roadside Ditch (0.49 acre)

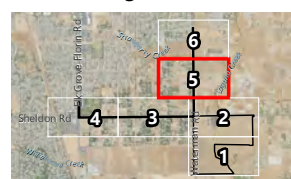
**Figure 5**  
**Terrestrial Vegetation Communities and**  
**Aquatic Resources in the Study Area**  
(Page 4 of 6)  
Summer Villas  
Elk Grove, Sacramento, California





Boundary Source: Wood Rodgers  
Aerial Source: Maxar, 26 April 2022

**Page Index**



Study Area (133.1 acres)

**Overall Terrestrial Vegetation (127.0 acres)**

- Annual Grassland (107.1 acres)
- Road (13.1 acres)
- Ruderal (1.7 acres)
- Rural Residential (3.7 acres)
- Unvegetated (1.4 acres)

**Overall Aquatic Resources (6.12 acres)**

- Wetlands (2.03 acres)**
- Seasonal Wetland (0.45 acre)
  - Seasonal Wetland Swale (0.29 acre)
  - Vernal Pool (1.30 acres)

**Other Waters (4.09 acres)**

- Creek (3.26 acres)
- Detention Basin (0.21 acre)
- Ephemeral Drainage (0.14 acre)
- Roadside Ditch (0.49 acre)

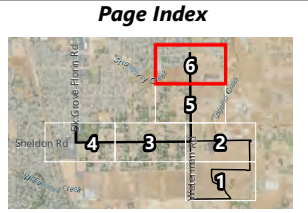
**Figure 5**  
**Terrestrial Vegetation Communities and**  
**Aquatic Resources in the Study Area**  
(Page 5 of 6)  
Summer Villas  
Elk Grove, Sacramento, California





P:\Sheldon and Waterman\GIS\Delimitation (Summer Villas) - 22109\Maps\XADS\MXD5\_BBA\Figure\_5\_LandCoverAd\_SummerVillas\_BBA\_v1.mxd (12/20/2024 - jswagen)

N  
 Feet  
 0 200  
 Boundary Source: Wood Rodgers  
 Aerial Source: Maxar, 26 April 2022




Study Area (133.1 acres)

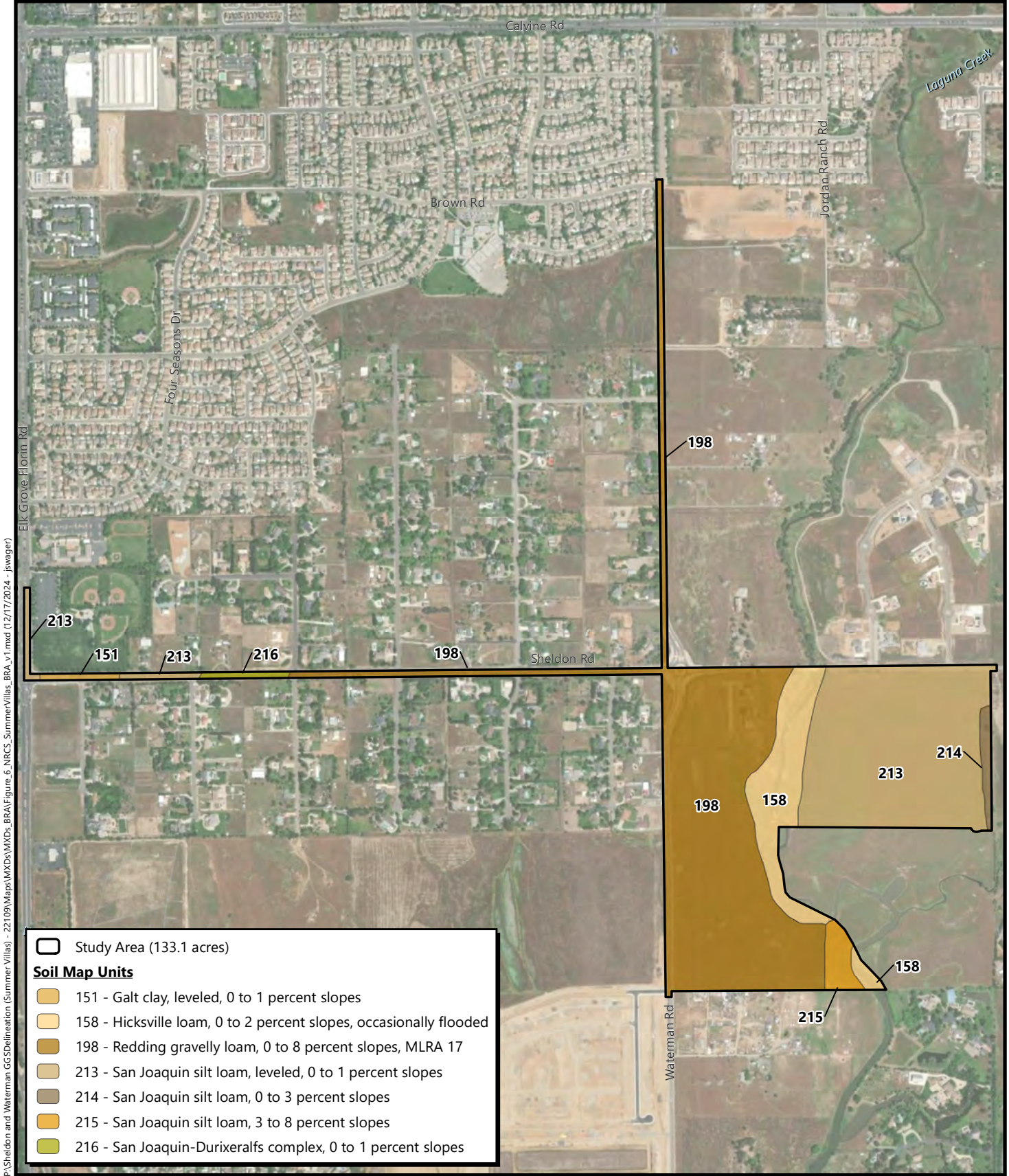
- Overall Terrestrial Vegetation (127.0 acres)**
- Annual Grassland (107.1 acres)
  - Road (13.1 acres)
  - Ruderal (1.7 acres)
  - Rural Residential (3.7 acres)
  - Unvegetated (1.4 acres)

- Overall Aquatic Resources (6.12 acres)**
- Wetlands (2.03 acres)**
- Seasonal Wetland (0.45 acre)
  - Seasonal Wetland Swale (0.29 acre)
  - Vernal Pool (1.30 acres)

- Other Waters (4.09 acres)**
- Creek (3.26 acres)
  - Detention Basin (0.21 acre)
  - Ephemeral Drainage (0.14 acre)
  - Roadside Ditch (0.49 acre)

**Figure 5**  
**Terrestrial Vegetation Communities and Aquatic Resources in the Study Area**  
 (Page 6 of 6)  
 Summer Villas  
 Elk Grove, Sacramento, California





P:\Sheldon and Waterman GGS\Delimitation (Summer Villas) - 22109\Maps\MXD\W\XDs\_BRA\Figure\_6\_NRCS\_SummerVillas\_BRA\_v1.mxd [2/17/2024 - jswager]

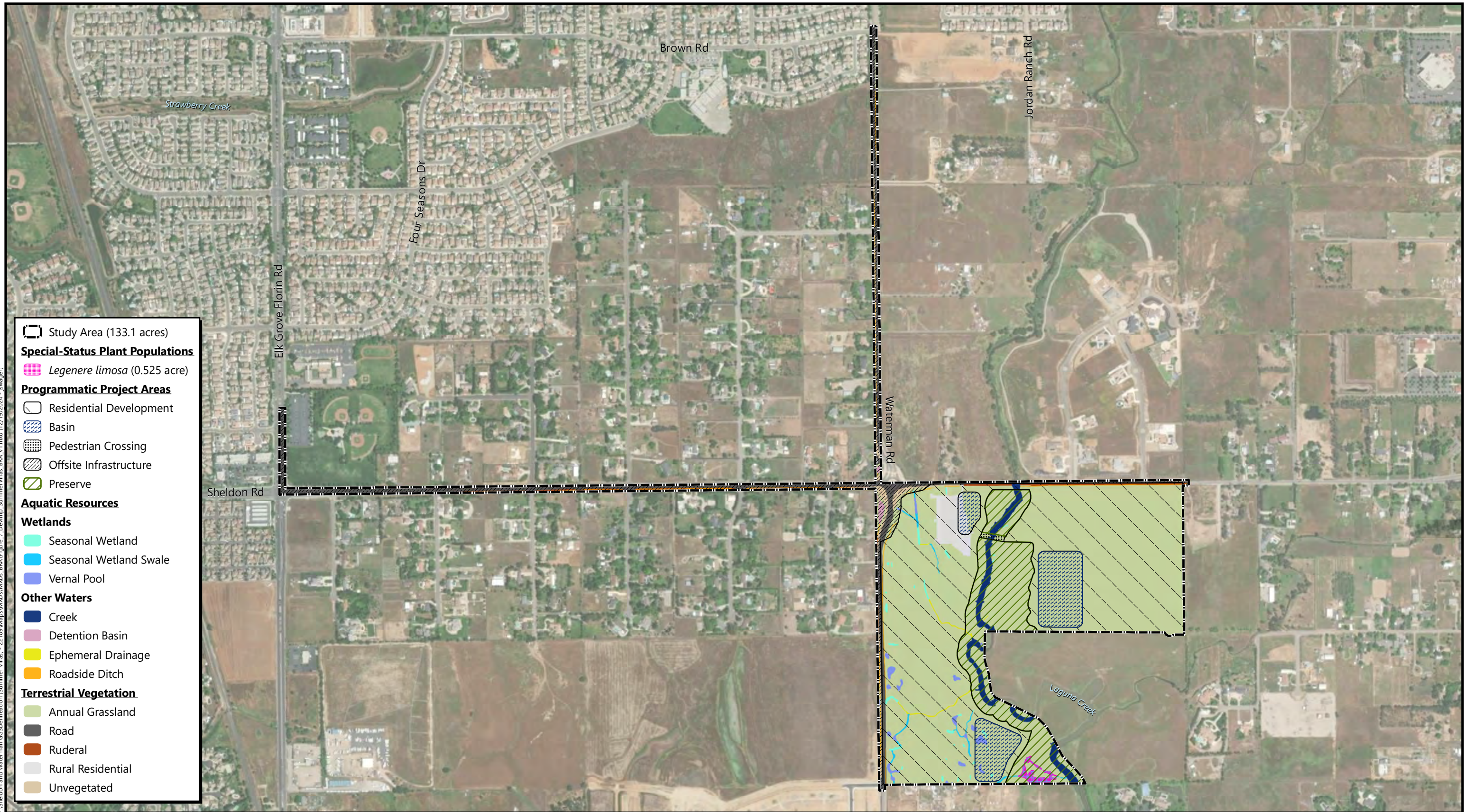
**Figure 6**  
**Natural Resources Conservation Service Soils**

Soil Survey Source: *USDA, Natural Resources Conservation Service Soil Survey Geographic (SSURGO) database for Sacramento County, California*  
Aerial Source: Maxar, 26 April 2022

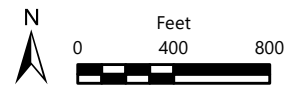
Summer Villas  
Elk Grove, Sacramento County, California



P:\Sheldon and Waterman GSD\Delimitation (Summer Villas) - 22109\Maps\MXD\3\MXD3\_BRA\_Figure\_7\_Develop\_SummerVillas\_BRA\_v1.mxd (12/19/2024 - jswager)



- Study Area (133.1 acres)
- Special-Status Plant Populations**
- Legenere limosa* (0.525 acre)
- Programmatic Project Areas**
- Residential Development
- Basin
- Pedestrian Crossing
- Offsite Infrastructure
- Preserve
- Aquatic Resources**
- Wetlands**
- Seasonal Wetland
- Seasonal Wetland Swale
- Vernal Pool
- Other Waters**
- Creek
- Detention Basin
- Ephemeral Drainage
- Roadside Ditch
- Terrestrial Vegetation**
- Annual Grassland
- Road
- Ruderal
- Rural Residential
- Unvegetated



Boundary Source: Wood Rodgers  
 Aerial Source: Maxar, 26 April 2022

**Figure 7**  
**Impacts Associated with Potential Development Plan**

Summer Villas  
 Elk Grove, Sacramento County, California



# Attachments

---

Attachment A. General Plan Amendment Exhibit, Summer Villas

Attachment B. IPaC Trust Resource Report for the Study Area

Attachment C. CNPS Inventory of Rare and Endangered Plants Query for the "Elk Grove, California"

USGS Quadrangle and Eight Surrounding Quadrangles

Attachment D. Preliminary Jurisdictional Determination and Aquatic Resource Delineation Map

Attachment E. Special-Status Plant Survey Report

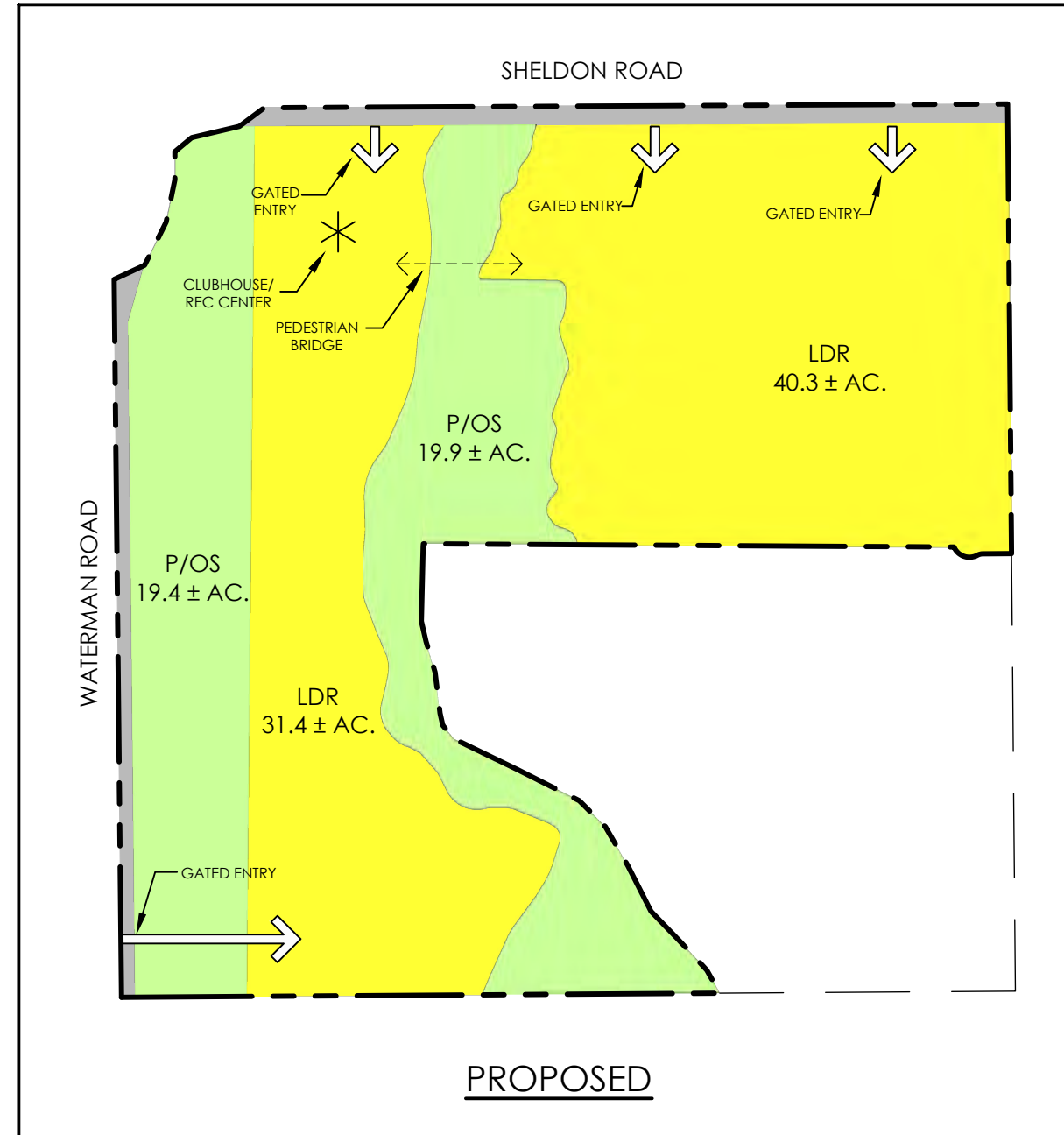
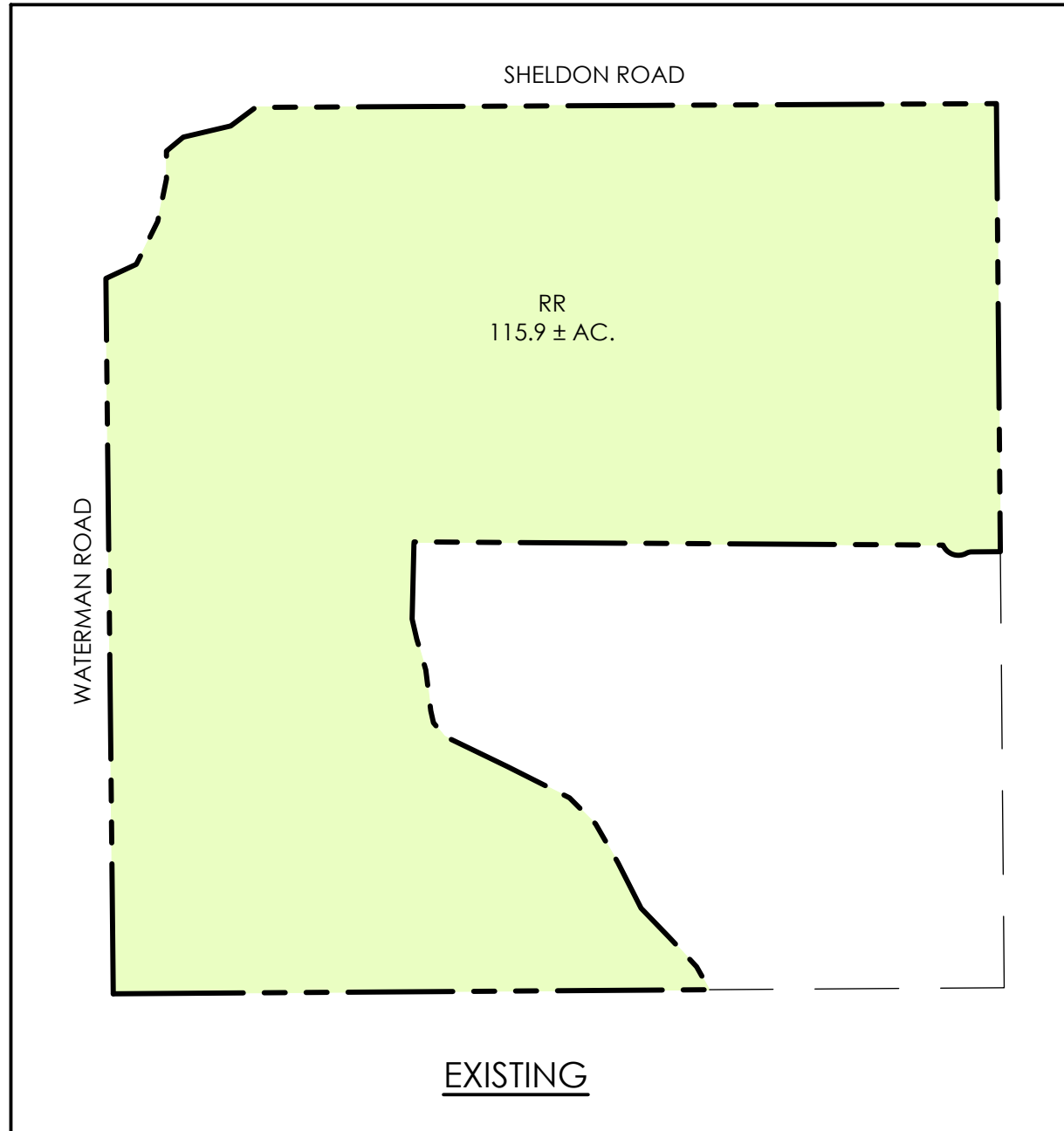
Attachment F. Giant Garter Snake Habitat Assessment

# Attachment A





---

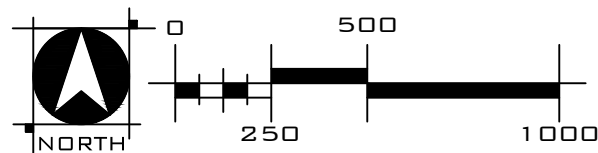
## **General Plan Amendment Exhibit Summer Villas**

GENERAL PLAN  
AMENDMENT EXHIBIT  
**SUMMER  
VILLAS**  
CITY OF ELK GROVE,  
CALIFORNIA  
OCTOBER 13, 2023



SUMMARY TABLE

DESIGNATION	LAND USE	EXISTING AC.	PROPOSED AC.	DIFF.
 RR	AGRICULTURAL RESIDENTIAL	115.9	0.0	-115.9
 LDR	LOW DENSITY RESIDENTIAL	0.0	71.7	71.7
 P/OS	PARKS AND OPEN SPACE	0.0	39.3	39.3
 RIGHT OF WAY	WATERMAN ROAD & SHELDON ROAD	0.0	4.9	4.9
<b>TOTAL</b>		<b>115.9</b>	<b>115.9</b>	<b>0.0</b>



# Attachment B

---

**IPaC Trust Resource Report  
for the Study Area**

# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

Sacramento County, California



## Local office

Sacramento Fish And Wildlife Office

☎ (916) 414-6600

📅 (916) 414-6713

Federal Building  
2800 Cottage Way, Room W-2605  
Sacramento, CA 95825-1846

NOT FOR CONSULTATION

# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

- 
1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

## Reptiles

NAME	STATUS
<b>Giant Garter Snake</b> <i>Thamnophis gigas</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/4482">https://ecos.fws.gov/ecp/species/4482</a>	Threatened
<b>Northwestern Pond Turtle</b> <i>Actinemys marmorata</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/1111">https://ecos.fws.gov/ecp/species/1111</a>	Proposed Threatened

## Amphibians

NAME	STATUS
<b>Western Spadefoot</b> <i>Spea hammondi</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/5425">https://ecos.fws.gov/ecp/species/5425</a>	Proposed Threatened

## Insects

NAME	STATUS
<b>Monarch Butterfly</b> <i>Danaus plexippus</i> Wherever found There is <b>proposed</b> critical habitat for this species. <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	Proposed Threatened
<b>Valley Elderberry Longhorn Beetle</b> <i>Desmocerus californicus dimorphus</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/7850">https://ecos.fws.gov/ecp/species/7850</a>	Threatened

## Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/498">https://ecos.fws.gov/ecp/species/498</a>	Threatened
Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/2246">https://ecos.fws.gov/ecp/species/2246</a>	Endangered

## Flowering Plants

NAME	STATUS
Sacramento Orcutt Grass <i>Orcuttia viscida</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/5507">https://ecos.fws.gov/ecp/species/5507</a>	Endangered
Slender Orcutt Grass <i>Orcuttia tenuis</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/1063">https://ecos.fws.gov/ecp/species/1063</a>	Threatened

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

# Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act<sup>1</sup> and the Migratory Bird Treaty Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats<sup>3</sup>, should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below.

Specifically, please review the "[Supplemental Information on Migratory Birds and Eagles](#)".

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds  
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds  
<https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC  
<https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to [Bald Eagle Nesting and Sensitivity to Human Activity](#)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
<p>Bald Eagle <i>Haliaeetus leucocephalus</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> <p><a href="https://ecos.fws.gov/ecp/species/1626">https://ecos.fws.gov/ecp/species/1626</a></p>	Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1680>

## Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "[Supplemental Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

### Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

### Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

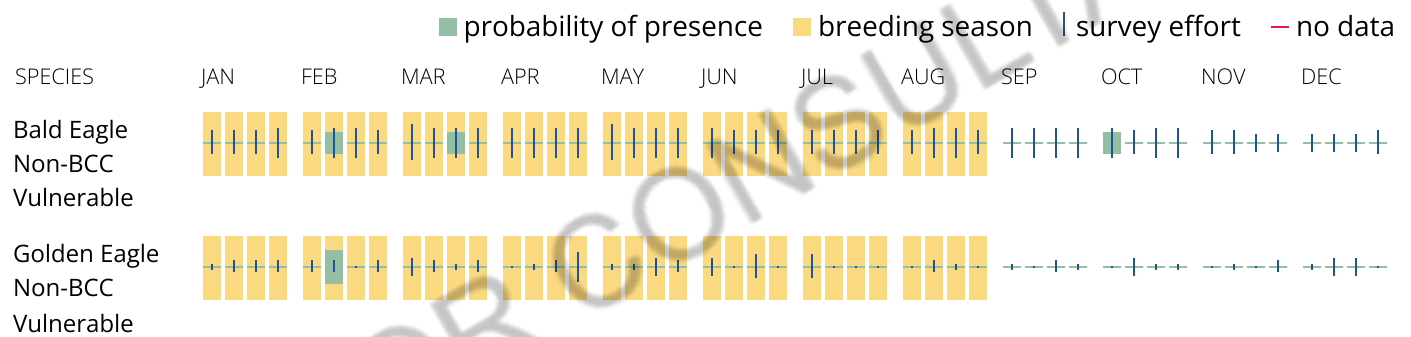
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

### No Data (-)

A week is marked as having no data if there were no survey events for that week.

### Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



### What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply). To see a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

### What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid

cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the [Eagle Act](#) should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats<sup>3</sup> should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "[Supplemental Information on Migratory Birds and Eagles](#)".

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

**The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location.** To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around

your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
<p><b>Bald Eagle</b> <i>Haliaeetus leucocephalus</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> <p><a href="https://ecos.fws.gov/ecp/species/1626">https://ecos.fws.gov/ecp/species/1626</a></p>	Breeds Jan 1 to Aug 31
<p><b>Belding's Savannah Sparrow</b> <i>Passerculus sandwichensis beldingi</i></p> <p>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p> <p><a href="https://ecos.fws.gov/ecp/species/8">https://ecos.fws.gov/ecp/species/8</a></p>	Breeds Apr 1 to Aug 15
<p><b>Bullock's Oriole</b> <i>Icterus bullockii</i></p> <p>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p>	Breeds Mar 21 to Jul 25
<p><b>California Gull</b> <i>Larus californicus</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Mar 1 to Jul 31
<p><b>Common Yellowthroat</b> <i>Geothlypis trichas sinuosa</i></p> <p>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p> <p><a href="https://ecos.fws.gov/ecp/species/2084">https://ecos.fws.gov/ecp/species/2084</a></p>	Breeds May 20 to Jul 31

<p>Golden Eagle <i>Aquila chrysaetos</i>  This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.  <a href="https://ecos.fws.gov/ecp/species/1680">https://ecos.fws.gov/ecp/species/1680</a></p>	Breeds Jan 1 to Aug 31
<p>Lawrence's Goldfinch <i>Spinus lawrencei</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9464">https://ecos.fws.gov/ecp/species/9464</a></p>	Breeds Mar 20 to Sep 20
<p>Northern Harrier <i>Circus hudsonius</i>  This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA  <a href="https://ecos.fws.gov/ecp/species/8350">https://ecos.fws.gov/ecp/species/8350</a></p>	Breeds Apr 1 to Sep 15
<p>Nuttall's Woodpecker <i>Dryobates nuttallii</i>  This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA  <a href="https://ecos.fws.gov/ecp/species/9410">https://ecos.fws.gov/ecp/species/9410</a></p>	Breeds Apr 1 to Jul 20
<p>Oak Titmouse <i>Baeolophus inornatus</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9656">https://ecos.fws.gov/ecp/species/9656</a></p>	Breeds Mar 15 to Jul 15
<p>Olive-sided Flycatcher <i>Contopus cooperi</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/3914">https://ecos.fws.gov/ecp/species/3914</a></p>	Breeds May 20 to Aug 31
<p>Santa Barbara Song Sparrow <i>Melospiza melodia graminea</i>  This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA  <a href="https://ecos.fws.gov/ecp/species/5513">https://ecos.fws.gov/ecp/species/5513</a></p>	Breeds Mar 1 to Sep 5
<p>Tricolored Blackbird <i>Agelaius tricolor</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/3910">https://ecos.fws.gov/ecp/species/3910</a></p>	Breeds Mar 15 to Aug 10

Wrentit *Chamaea fasciata*

Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-billed Magpie *Pica nuttalli*

Breeds Apr 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9726>

## Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "[Supplemental Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

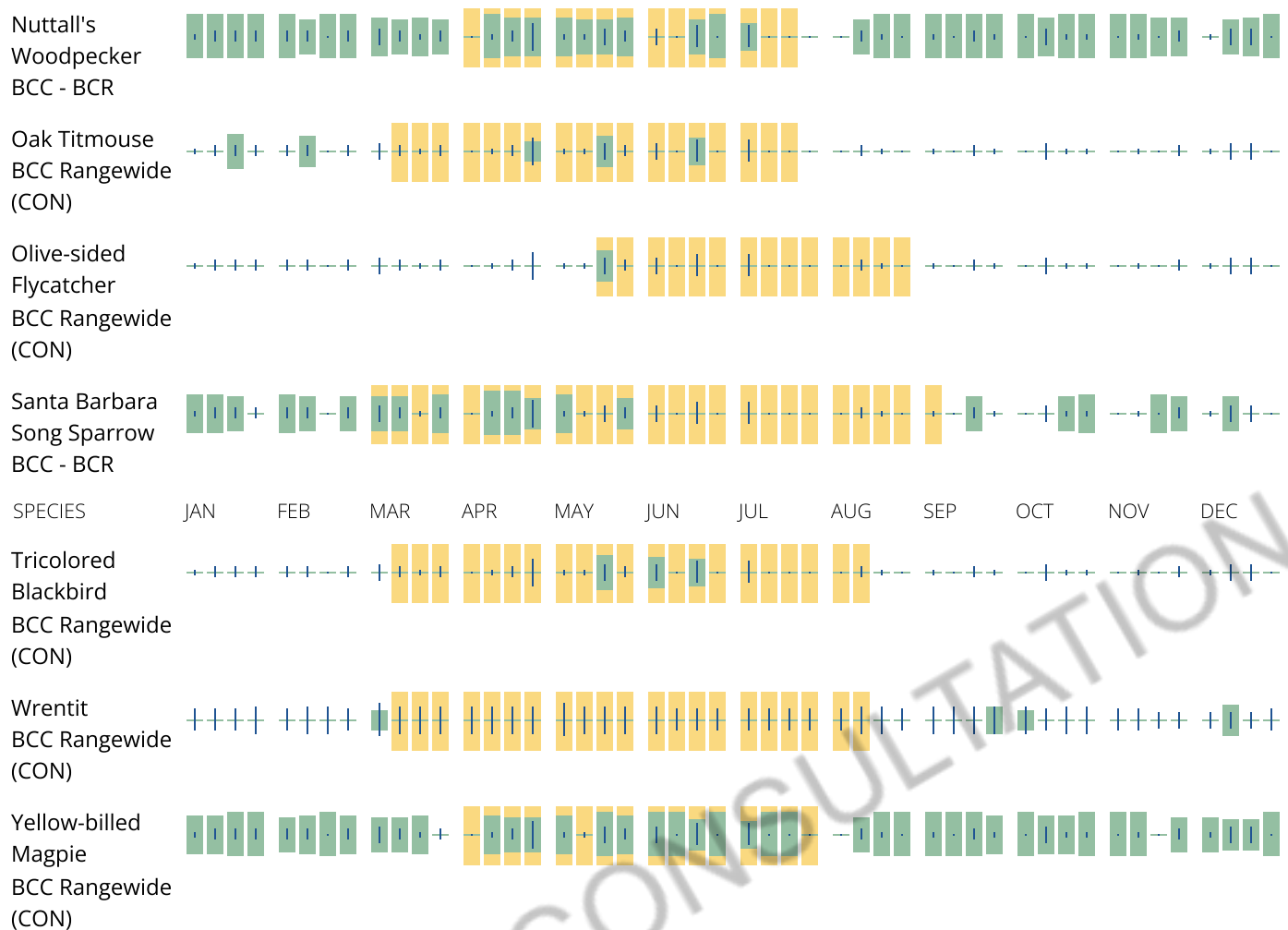
Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.





**Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.**

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

**What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?**

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

### **What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?**

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

### **How do I know if a bird is breeding, wintering or migrating in my area?**

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

### **What are the levels of concern for migratory birds?**

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

### **Details about birds that are potentially affected by offshore projects**

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

### Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

## Facilities

### National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

# Fish hatcheries

There are no fish hatcheries at this location.

## Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

[PEM1C](#)

FRESHWATER FORESTED/SHRUB WETLAND

[PSSC](#)

FRESHWATER POND

[PUBHx](#)

[PUBFx](#)

RIVERINE

[R4SBC](#)

[R5UBF](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

**NOTE:** This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

### **Data exclusions**

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

### **Data precautions**

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

# Attachment C

---

**CNPS Inventory of Rare and Endangered Plants Query  
for the "Elk Grove, California" USGS Quadrangle  
and Eight Surrounding Quadrangles**



## CNPS Rare Plant Inventory

### Search Results

21 matches found. Click on scientific name for details

Search Criteria: CRPR is one of [1A:1B:2A:2B:3] , 9-Quad include [3812132:3812153:3812143:3812142:3812133:3812152:3812144:3812134:3812154]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	BLOOMING PERIOD	FED LIST	STATE LIST	CA RARE PLANT RANK	GENERAL HABITATS	MICROHABITATS	LOWEST ELEVATION (FT)	HIGHEST ELEVATION (FT)
<a href="#"><u><i>Brasenia schreberi</i></u></a>	watershield	Cabombaceae	Jun-Sep	None	None	2B.3	Marshes and swamps (freshwater)		0	7220
<a href="#"><u><i>Calycadenia spicata</i></u></a>	spicate calycadenia	Asteraceae	May-Sep	None	None	1B.3	Cismontane woodland, Valley and foothill grassland	Adobe, Clay, Disturbed areas, Dry, Gravelly, Openings, Roadsides, Rocky	130	4595
<a href="#"><u><i>Carex comosa</i></u></a>	bristly sedge	Cyperaceae	May-Sep	None	None	2B.1	Coastal prairie, Marshes and swamps (lake margins), Valley and foothill grassland		0	2050
<a href="#"><u><i>Cicuta maculata</i> var. <i>bolanderi</i></u></a>	Bolander's water-hemlock	Apiaceae	Jul-Sep	None	None	2B.1	Marshes and swamps (brackish, coastal, freshwater)		0	655
<a href="#"><u><i>Cuscuta obtusiflora</i> var. <i>glandulosa</i></u></a>	Peruvian dodder	Convolvulaceae	Jul-Oct	None	None	2B.2	Marshes and swamps (freshwater)		50	920
<a href="#"><u><i>Downingia pusilla</i></u></a>	dwarf downingia	Campanulaceae	Mar-May	None	None	2B.2	Valley and foothill grassland (mesic), Vernal pools		5	1460
<a href="#"><u><i>Gratiola heterosepala</i></u></a>	Boggs Lake hedge-hyssop	Plantaginaceae	Apr-Aug	None	CE	1B.2	Marshes and swamps (lake margins), Vernal pools	Clay	35	7790
<a href="#"><u><i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i></u></a>	woolly rose-mallow	Malvaceae	Jun-Sep	None	None	1B.2	Marshes and swamps (freshwater)		0	395

<u><i>Juncus leiospermus</i></u> <u>var. ahartii</u>	Ahart's dwarf rush	Juncaceae	Mar-May	None	None	1B.2	Valley and foothill grassland (mesic)		100	750
<u><i>Lasthenia chrysantha</i></u>	alkali-sink goldfields	Asteraceae	Feb-Apr	None	None	1B.1	Vernal pools	Alkaline	0	655
<u><i>Lathyrus jepsonii</i></u> <u>var. jepsonii</u>	Delta tule pea	Fabaceae	May-Jul(Aug-Sep)	None	None	1B.2	Marshes and swamps (brackish, freshwater)		0	15
<u><i>Legenere limosa</i></u>	legenere	Campanulaceae	Apr-Jun	None	None	1B.1	Vernal pools		5	2885
<u><i>Lepidium latipes</i></u> <u>var. heckardii</u>	Heckard's pepper-grass	Brassicaceae	Mar-May	None	None	1B.2	Valley and foothill grassland (alkaline flats)		5	655
<u><i>Lilaeopsis masonii</i></u>	Mason's lilaeopsis	Apiaceae	Apr-Nov	None	CR	1B.1	Marshes and swamps (brackish, freshwater), Riparian scrub		0	35
<u><i>Limosella australis</i></u>	Delta mudwort	Scrophulariaceae	May-Aug	None	None	2B.1	Marshes and swamps (brackish, freshwater), Riparian scrub	Streambanks (usually)	0	10
<u><i>Orcuttia tenuis</i></u>	slender Orcutt grass	Poaceae	May-Sep(Oct)	FT	CE	1B.1	Vernal pools	Gravelly (often)	115	5775
<u><i>Orcuttia viscida</i></u>	Sacramento Orcutt grass	Poaceae	Apr-Jul(Sep)	FE	CE	1B.1	Vernal pools		100	330
<u><i>Sagittaria sanfordii</i></u>	Sanford's arrowhead	Alismataceae	May-Oct(Nov)	None	None	1B.2	Marshes and swamps (shallow freshwater)		0	2135
<u><i>Scutellaria galericulata</i></u>	marsh skullcap	Lamiaceae	Jun-Sep	None	None	2B.2	Lower montane coniferous forest, Marshes and swamps, Meadows and seeps (mesic)		0	6890
<u><i>Scutellaria lateriflora</i></u>	side-flowering skullcap	Lamiaceae	Jul-Sep	None	None	2B.2	Marshes and swamps, Meadows and seeps (mesic)		0	1640
<u><i>Trifolium hydrophilum</i></u>	saline clover	Fabaceae	Apr-Jun	None	None	1B.2	Marshes and swamps, Valley and foothill grassland (mesic, alkaline), Vernal pools		0	985

Showing 1 to 21 of 21 entries

**Suggested Citation:**

# Attachment D

---

## **Preliminary Jurisdictional Determination and Aquatic Resource Delineation Map**



DEPARTMENT OF THE ARMY  
U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT  
1325 J STREET  
SACRAMENTO CA 95814-2922

May 26, 2023

Regulatory Division (SPK-1990-01278)

Sheldon Business Park  
Attn: Mr. Bryan Wilson  
8940 Elder Creek Road  
Sacramento, California 95829-1031  
[bryancwr@gmail.com](mailto:bryancwr@gmail.com)

Dear Mr. Wilson:

We are responding to your March 10, 2023, request for a preliminary jurisdictional determination (JD) for the *Sheldon at Waterman site*. The approximately 161-acre project site is located on 9350 Sheldon Road, Latitude 38.43448°, Longitude -121.34858°, Elk Grove, Sacramento County, California.

Based on available information, we concur with your aquatic resources delineation for the site as depicted on the enclosed January 10, 2023, *Aquatic Resources Delineation Sheldon at Waterman Sacramento County, California* drawing prepared by Madrone Ecological Consulting (*enclosure 1*). The approximately 3.18 acres of wetlands, 6.24 acre of creek, 0.14 acre of ephemeral drainage, and 3,630 linear feet of roadside ditch present within the survey area are potential jurisdictional aquatic resources ("waters of the United States") regulated under Section 404 of the Clean Water Act. This letter verifies that the location and boundaries of wetlands were delineated consistent with the wetland definition at 33 CFR §328.3(c)(16), the 1987 *Corps of Engineers Wetlands Delineation Manual* (Wetlands Research Program Technical Report Y-87-1) and the applicable regional supplements; the location and boundaries of tidal waters conform with the high tide line defined at 33 CFR §328.3(c)(4); and the location and boundaries of non-tidal waters conform with the ordinary high water mark definition at 33 CFR §328.3(c)(7), Regulatory Guidance Letter 05-05, and any applicable regional guide.

At your request, we have completed a preliminary JD for the site. Enclosed find a copy of the *Preliminary Jurisdictional Determination Form* (*enclosure 2*). Please sign and return the completed form to the address listed below within 30 days of the date of this letter. If you do not return the signed form within 30 days, we will presume concurrence and finalize the preliminary jurisdictional determination.

We recommend you provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

The delineation included herein has been conducted to identify the location and extent of the aquatic resource boundaries for the particular site identified in this request. This preliminary jurisdictional determination may not be valid for the Wetland Conservation Provisions of the Food Security Act of 1985, as amended. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should discuss the applicability of a certified wetland determination with the local USDA service center, prior to starting work.

You may request an approved JD for this site at any time prior to starting work within waters, including after a permit decision is made. To request an approved JD for this site, complete the attached *Request for Aquatic Resources Delineation or Jurisdictional Determination Form* (enclosure 3) and return it to this office at the address listed below. A *Notification of Appeal Process and Request for Appeal Form* is attached below to notify you of your options with this determination.

We appreciate feedback, especially about interactions with our staff and processes.

Please refer to identification number SPK-1990-01278 in any correspondence concerning this project. If you have any questions, please contact Jeffrey Wang by email at [Jeffrey.H.Wang@usace.army.mil](mailto:Jeffrey.H.Wang@usace.army.mil), or telephone at (916) 557-5269. For program information or to complete our Customer Survey, visit our website at [www.spk.usace.army.mil/Missions/Regulatory.aspx](http://www.spk.usace.army.mil/Missions/Regulatory.aspx).

Sincerely,



FOR  
Mary Pakenham-Walsh  
Chief, CA Delta Section

Enclosures

cc: Sarah VonderOhe, Madrone Ecological Consulting, [svonderohe@MadroneEco.com](mailto:svonderohe@MadroneEco.com)

**NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND  
REQUEST FOR APPEAL**

Applicant: Sheldon Business Park, Attn: Mr. Bryan Wilson		File No.: SPK-1990-01278	Date: May 26, 2023
Attached is:			See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)		A
	PROFFERED PERMIT (Standard Permit or Letter of permission)		B
	PERMIT DENIAL		C
	APPROVED JURISDICTIONAL DETERMINATION		D
→	PRELIMINARY JURISDICTIONAL DETERMINATION		E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at [http://www.usace.army.mil/cecw/pages/reg\\_materials.aspx](http://www.usace.army.mil/cecw/pages/reg_materials.aspx) or Corps regulations at 33 CFR Part 331.

**A: INITIAL PROFFERED PERMIT:** You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

**B: PROFFERED PERMIT:** You may accept or appeal the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

**C: PERMIT DENIAL:** You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

**D: APPROVED JURISDICTIONAL DETERMINATION:** You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

**E: PRELIMINARY JURISDICTIONAL DETERMINATION:** You do not need to respond to the Corps regarding the preliminary JD. The preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also, you may provide new information for further consideration by the Corps to reevaluate the JD.

**SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT**

**REASONS FOR APPEAL OR OBJECTIONS:** (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

**ADDITIONAL INFORMATION:** The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

**POINT OF CONTACT FOR QUESTIONS OR INFORMATION:**

If you have questions regarding this decision and/or the appeal process, you may contact:  
Jeffrey Wang  
Regulatory Project Manager  
Delta Section  
U.S. Army Corps of Engineers  
1325 J Street, Sacramento, CA 95814  
Phone: (916) 557-5269, FAX 916-557-7803  
Email: *Jeffrey.H.Wang@usace.army.mil*

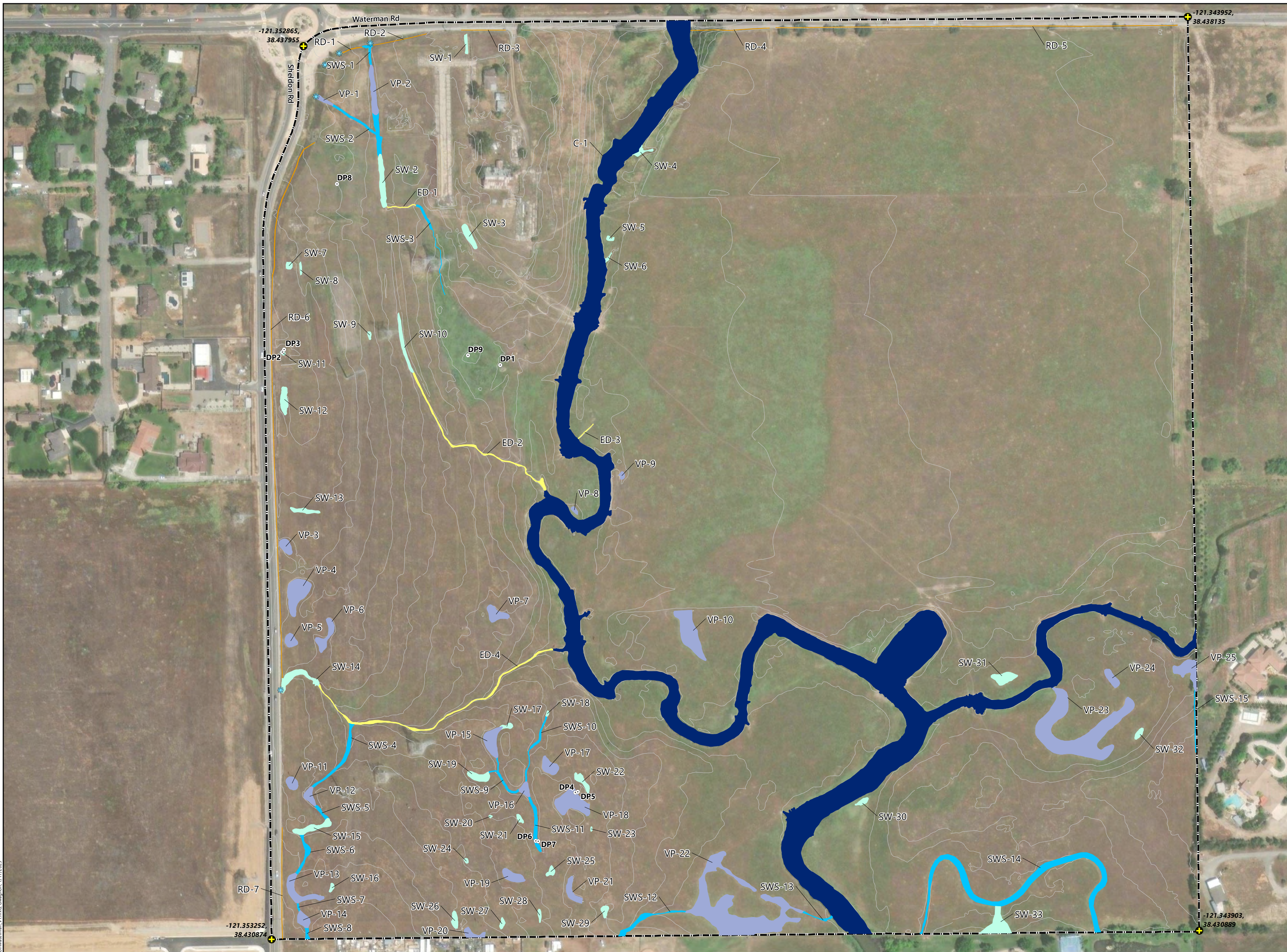
If you only have questions regarding the appeal process, you may also contact:  
Thomas J. Cavanaugh  
Administrative Appeal Review Officer  
U.S. Army Corps of Engineers  
South Pacific Division  
1455 Market Street, 2052B  
San Francisco, California 94103-1399  
Phone: 415-503-6574, FAX: 415-503-6646  
Email: *Thomas.J.Cavanaugh@usace.army.mil*

**RIGHT OF ENTRY:** Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation and will have the opportunity to participate in all site investigations.

\_\_\_\_\_  
Signature of appellant or agent.

Date:

Telephone number:



AQUATIC RESOURCES		
WETLANDS		
Seasonal Wetland		
Feature ID	Acres	Linear Ft.
SW-1	0.010	N/A
SW-2	0.050	N/A
SW-3	0.029	N/A
SW-4	0.011	N/A
SW-5	0.005	N/A
SW-6	0.004	N/A
SW-7	0.008	N/A
SW-8	0.005	N/A
SW-9	0.005	N/A
SW-10	0.034	N/A
SW-11	0.003	N/A
SW-12	0.032	N/A
SW-13	0.020	N/A
SW-14	0.050	N/A
SW-15	0.041	N/A
SW-16	0.006	N/A
SW-17	0.008	N/A
SW-18	0.003	N/A
SW-19	0.030	N/A
SW-20	0.001	N/A
SW-21	0.007	N/A
SW-22	0.023	N/A
SW-23	0.002	N/A
SW-24	0.003	N/A
SW-25	0.011	N/A
SW-26	0.017	N/A
SW-27	0.008	N/A
SW-28	0.007	N/A
SW-29	0.013	N/A
SW-30	0.011	N/A
SW-31	0.040	N/A
SW-32	0.011	N/A
SW-33	0.071	N/A
	<b>0.579</b>	<b>N/A</b>
Seasonal Wetland Swale		
Feature ID	Acres	Linear Ft.
SWS-1	0.012	N/A
SWS-2	0.057	N/A
SWS-3	0.016	N/A
SWS-4	0.042	N/A
SWS-5	0.009	N/A
SWS-6	0.025	N/A
SWS-7	0.003	N/A
SWS-8	0.007	N/A
SWS-9	0.018	N/A
SWS-10	0.019	N/A
SWS-11	0.034	N/A
SWS-12	0.036	N/A
SWS-13	0.008	N/A
SWS-14	0.326	N/A
SWS-15	0.008	N/A
	<b>0.621</b>	<b>N/A</b>
Vernal Pool		
Feature ID	Acres	Linear Ft.
VP-1	0.012	N/A
VP-2	0.047	N/A
VP-3	0.027	N/A
VP-4	0.101	N/A
VP-5	0.025	N/A
VP-6	0.043	N/A
VP-7	0.040	N/A
VP-8	0.006	N/A
VP-9	0.006	N/A
VP-10	0.133	N/A
VP-11	0.024	N/A
VP-12	0.024	N/A
VP-13	0.064	N/A
VP-14	0.028	N/A
VP-15	0.061	N/A
VP-16	0.020	N/A
VP-17	0.038	N/A
VP-18	0.109	N/A
VP-19	0.036	N/A
VP-20	0.021	N/A
VP-21	0.033	N/A
VP-22	0.525	N/A
VP-23	0.464	N/A
VP-24	0.028	N/A
VP-25	0.065	N/A
	<b>1.978</b>	<b>N/A</b>
OTHER WATERS		
Creek		
Feature ID	Acres	Linear Ft.
C-1	6.240	6,227
	<b>6.240</b>	<b>6,227</b>
Ephemeral Drainage		
Feature ID	Acres	Linear Ft.
ED-1	0.004	88
ED-2	0.055	578
ED-3	0.003	59
ED-4	0.075	821
	<b>0.136</b>	<b>1,546</b>
Roadside Ditch		
Feature ID	Acres	Linear Ft.
RD-1	0.003	70
RD-2	0.004	155
RD-3	0.003	125
RD-4	0.006	225
RD-5	0.027	1,157
RD-6	0.046	1,579
RD-7	0.007	319
	<b>0.095</b>	<b>3,630</b>

**Notes:**  
**Map Scale:** 1 inch = 200 feet  
**Coordinate System:** NAD 1983 State Plane California II  
**Datum:** NAD83 (North American Datum 1983)  
**Projection:** Lambert Conformal Conic  
**Vertical Data:** NAVD88 (North American Vertical Datum 1988)  
**Topographic Data:** 2-ft. Contours, Wood Rodgers, 2016  
 2-ft. Contours, Sacramento County, 2018  
**Aerial Base:** Maxar, WV02, 26 April 2022  
**Date Map Prepared:** 10 January 2023  
**Map Prepared by:** D. Wagon  
**Delineation Performed by:** D. Snider, D. Brown, M. Shaffer  
**Definitions:**  
 NAD = North American Datum  
 NAVD = North American Vertical Datum  
 USGS = United States Geological Survey

**Prepared For:**  
**Bryan Wilson**  
 Sheldon Business Park  
 8940 Elder Creek Road  
 Sacramento, CA 95829

N  
 Feet  
 0 100 200

- Study Area Boundary (161 acres)
- Data Points
- Culverts
- Reference Points
- 2-ft. Topographic Contours

- Aquatic Resources (9.650 acres, 11,403 linear feet)**
- Wetlands (3.178 acres)**
- Seasonal Wetland (0.579 acre)
  - Seasonal Wetland Swale (0.621 acre)
  - Vernal Pool (1.978 acres)

- Other Waters (6.472 acres, 11,403 linear feet)**
- Creek (6.240 acres, 6,227 linear feet)
  - Ephemeral Drainage (0.136 acre, 1,546 linear feet)
  - Roadside Ditch (0.095 acre, 3,630 linear feet)

**Aquatic Resources Delineation**  
 Sheldon at Waterman  
 Sacramento County, California

8421 Auburn Boulevard, Suite 248  
 Citrus Heights, California 95610  
 (916) 822.3230 | www.madroneco.com

# Attachment E

---

## **Special-Status Plant Survey Report**



# **Special-Status Plant Survey Report**

Summer Villas

City of Elk Grove, Sacramento County  
November 2024



**Prepared for:**

Bryan Wilson  
Sheldon Business Park  
8940 Elder Creek Road  
Sacramento, CA 95829

**Recommended Citation:**

Madrone Ecological Consulting, LLC (Madrone). 2024. *Special-Status Plant Survey Report for Summer Villas*. Prepared for Bryan Wilson. Published on 21 November 2024.

**CONTENTS**

**Special-Status Plant Survey Report  
Summer Villas**

**1.0 INTRODUCTION** \_\_\_\_\_ **1**

**2.0 METHODOLOGY** \_\_\_\_\_ **1**

**3.0 EXISTING SITE CONDITIONS** \_\_\_\_\_ **2**

**3.1 Terrestrial Vegetation Communities**..... **2**

        3.1.1 Annual Brome Grassland .....2

        3.1.2 Road and Unvegetated .....3

        3.1.3 Ruderal.....3

        3.1.4 Rural Residential-Developed .....3

**3.2 Soils**..... **3**

**3.3 Aquatic Resources** ..... **4**

        3.2.1 Seasonal Wetland.....4

        3.2.2 Seasonal Wetland Swale.....4

        3.2.3 Vernal Pool.....4

        3.2.4 Creek.....5

        3.2.5 Ephemeral Drainage.....5

**4.0 SURVEY RESULTS** \_\_\_\_\_ **5**

**4.1 Big-Scale Balsamroot** ..... **5**

**4.2 Dwarf Downingia**..... **6**

**4.3 Boggs Lake Hedge-Hyssop**..... **6**

**4.4 Ahart’s Dwarf Rush**..... **6**

**4.5 Legenere** ..... **6**

**4.6 Pincushion Navarretia** ..... **7**

**4.7 Slender Orcutt Grass**..... **7**

**4.8 Sacramento Orcutt Grass** ..... **7**

**4.9 Sanford’s Arrowhead**..... **7**

**5.0 CONCLUSION** \_\_\_\_\_ **8**

**6.0 REFERENCES** \_\_\_\_\_ **8**

**Tables:**

Table 1. Aquatic Resources Mapped within the Study Area .....4

**Figures:**

- Figure 1. Site and Vicinity
- Figure 2. Terrestrial Vegetation and Aquatic Resources
- Figure 3. Special-Status Plant Locations
- Figure 4. Natural Resources Conservation Service Soils

**Attachments:**

Attachment A: Botanist Qualifications

Attachment B: Target Plant Species Reference Population Information

Attachment C: Plant Species Observed within the Summer Villas Study Area

## 1.0 INTRODUCTION

This report presents the results of special-status plant surveys conducted for the approximately 161-acre Summer Villas Project (Study Area). The Study Area is also known as the Sheldon and Waterman Project. The Study Area is located southeast of the intersection of Waterman Road and Sheldon Road in Sacramento County, California. The Study Area is located in portions of Section 20 and 29, Township 7 North, Range 6 East (MDB&M) of the "Elk Grove, California" 7.5-Minute Series USGS Topographic Quadrangles (USGS 2022) (Figure 1).

## 2.0 METHODOLOGY

Madrone Ecological Consulting, LLC (Madrone) botanist Tara Collins conducted special-status plant surveys of the Study Area on 26 and 29 April, 9 May, and 21 June 2024. The special-status plant surveys were conducted in accordance with the U.S. Fish and Wildlife Service's *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* (USFWS 1996), the California Department of Fish and Wildlife's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018), and the *CNPS Botanical Survey Guidelines* (CNPS 2001).

A list of special-status plant species with potential to occur within the Study Area was developed by reviewing the following literature, and then refining the list based on habitats present within the Study Area:

- The California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (CNPS 2024a) query of CRPR Lists 1A, 1B, 2A, 2B, and 3 within the "Elk Grove, California" (USGS 2022) and eight surrounding quadrangles; and
- The California Natural Diversity Database occurrences of special-status plant species within 5 miles of the Study Area (CNDDDB 2024).

The target species for this survey were:

- Big-scale balsamroot (*Balsamorhiza macrolepis*);
- Dwarf downingia (*Downingia pusilla*);
- Boggs Lake hedge-hyssop (*Gratiola heterosepala*);
- Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*);
- Legenere (*Legenere limosa*);
- Pincushion navarretia (*Navarretia myersii* ssp. *myersii*);
- Slender Orcutt grass (*Orcuttia tenuis*);
- Sacramento Orcutt grass (*Orcuttia viscida*); and
- Sanford's arrowhead (*Sagittaria sanfordii*).

Meandering pedestrian surveys were conducted throughout the Study Area. The surveys were floristic in nature, which means that all plant species observed on-site were identified to the taxonomic level necessary to determine rarity. Thus, if a special-status plant was present but not on the target list, it would have been detected and documented. Plant taxonomy was based on the nomenclature in the *Jepson eFlora* (Jepson

Flora Project 2024). Vegetation communities were classified according to the *Manual of California Vegetation, Second Edition* as updated online (CNPS 2024b). Qualifications for the botanist that conducted the survey are included in **Attachment A**, a list of reference populations of target plants visited is included in **Attachment B**, and a comprehensive list of all plant species observed during surveys of the Study Area is included in **Attachment C**.

### **3.0 EXISTING SITE CONDITIONS**

The Study Area is characterized by gently rolling topography supporting annual grassland interspersed with wetlands and drainages. Laguna Creek runs north-south through the general center of the site, with an east-west running tributary joining Laguna Creek near the southeast corner. The elevation of the Study Area ranges from approximately 50 to 80 feet. A residential home is present near the northwestern corner of the site with ungrazed lots to the east and west, each approximately 4.5 acres in size. The remainder of the Study Area had been grazed by livestock, mainly cattle, but also a couple horses. Three large power lines run north-south along the western boundary of the Study Area. The Study Area is surrounded by a mixture of residential developments, rural residences and undeveloped land.

#### **3.1 Terrestrial Vegetation Communities**

The Study Area includes five terrestrial vegetation types. These are shown on **Figure 2** and described further below.

##### **3.1.1 Annual Brome Grassland**

The majority of the Study Area supports the Wild Oats (*Avena* spp.) and Annual Brome (*Bromus* spp.) Herbaceous Semi-Natural Alliance as described in *A California Manual of Vegetation* (CNPS 2024b) (hereafter "annual brome grassland") and is primarily dominated by non-native annual grass species including soft chess (*Bromus hordeaceus*), Mediterranean barley (*Hordeum marinum*), and ryegrass (*Festuca perennis*). Common forb species within the annual brome grassland habitat include hairy hawkbit (*Leontodon saxatilis*), subterranean clover (*Trifolium subterraneum*), cut leaf geranium (*Geranium dissectum*), and filaree (*Erodium botrys*). Immediately along Laguna Creek and its tributary, the annual brome grassland is interspersed with scattered native riparian vegetation, including Oregon ash (*Fraxinus latifolia*), California button willow (*Cephalanthus occidentalis*), Santa Barbara sedge (*Carex barbarae*), and western goldenrod (*Euthamia occidentalis*), as well as non-native species that often invade riparian areas, including Southern catalpa (*Catalpa bignonioides*), rattlebox (*Sesbania punicea*), eucalyptus (*Eucalyptus* sp.), and Himalayan blackberry (*Rubus armeniacus*). Scattered valley oak (*Quercus lobata*) trees occur along the northern boundary adjacent to Sheldon Road. One small area of a heavy clay inclusion was located near the southeast corner and was dominated by sparse, low-growing forbs, such as Douglas' microseris (*Microseris douglasii*), hairy hawkbit, South American soliva (*Soliva sessilis*), and filaree. The annual brome grasslands were moderately grazed.

### **3.1.2 Road and Unvegetated**

The Study Area includes portions of Sheldon Road and Waterman Road, which are paved single loaded roads with associated road shoulders, most of which were treated with herbicides and generally devoid of vegetation. Landscaping and hardscaping occurs in the northwest corner at the round-about intersection of Sheldon Road and Waterman Road. These developed areas do not provide suitable habitat for any special-status plant species and were not included in the special-status plant survey.

### **3.1.3 Ruderal**

A strip along the northern boundary of the Study Area adjacent to Sheldon Road supports ruderal vegetation composed primarily of nonnative plant species characteristic of recently disturbed sites. Dominant plant species within the ruderal vegetation communities in the Study Area include black mustard (*Brassica nigra*), filaree, radish (*Raphanus sativus*), rose clover, (*Trifolium hirtum*), and Italian thistle (*Carduus pycnocephalus*).

### **3.1.4 Rural Residential-Developed**

Near the northwest corner of the Study Area is a rural residential-developed area. This area is approximately 2.96-acres in size and includes an occupied house, a garage, graveled/dirt roads, old building foundations, a large covered dirt stockpile, and various disturbed areas with stored materials. Many of these areas are characterized as bare dirt, while others are occupied by landscaping (near the house) and ruderal vegetation (non-native forbs and grasses characteristic of recently disturbed sites). These rural residential-developed areas do not provide suitable habitat for any special-status plant species and were not included in the special-status plant survey.

## **3.2 Soils**

According to the Natural Resources Conservation Service (NRCS) Soil Survey Database (NRCS 2024), five soil mapping units occur within the Study Area (**Figure 3**): (158) Hicksville loam, 0 to 2 percent slopes, occasionally flooded; (198) Redding gravelly loam, 0 to 8 percent slopes, MLRA 17; (213) San Joaquin silt loam, leveled, 0 to 1 percent slopes; (214) San Joaquin silt loam, 0 to 3 percent slopes; and (215) San Joaquin silt loam, 3 to 8 percent slopes. All five soil types are moderately well drained and contain hydric inclusions (NRCS 2024). The various San Joaquin silt loam soil types have low permeability resulting in pooled water for short periods after heavy winter/spring rains or over-irrigation. One small area of heavy clay soils was located in the southeast corner of the Study Area within the (215) San Joaquin silt loam, 3 to 8 percent slopes soil type.

### 3.3 Aquatic Resources

A protocol-level aquatic resources delineation was conducted for the Study Area (Madrone 2023). Aquatic resources mapped within the Study Area during this survey are depicted in Figure 2. Table 1 summarizes these mapped aquatic resource types and a description by type is included below.

**Table 1. Aquatic Resources Mapped within the Study Area**

<b>Waters Type</b>	<b>Acreage</b>
<i>Wetlands</i>	
Seasonal Wetland	0.58
Seasonal Wetland Swale	0.62
Vernal Pool	1.98
<i>Other Waters</i>	
Creek (Laguna Creek and Tributary to Laguna Creek)	6.24
Ephemeral Drainage	0.14
Roadside Ditch	0.10
<b>Total</b>	<b>9.65</b>

#### 3.2.1 Seasonal Wetland

A number of seasonal wetlands occur within the Study Area. Seasonal wetlands are depressional wetlands that pond water seasonally. These features are often topographically and hydrologically similar to vernal pools, but have a short hydroperiod, and as a result, support a slightly different plant community that is not characterized by a dominance of vernal pool endemics. The seasonal wetlands within the Study Area are largely dominated by ryegrass, Mediterranean barley, hyssop loosestrife (*Lythrum hyssopifolia*), toad rush (*Juncus bufonius*), and great valley popcornflower (*Plagiobothrys stipitatus*).

#### 3.2.2 Seasonal Wetland Swale

The Study Area supports multiple wetland swales. Seasonal wetland swales are sloping, linear seasonal wetlands that convey surface runoff, and may detain it for short periods of time. The most common plants occurring within the wetland swales include ryegrass and Mediterranean barley.

#### 3.2.3 Vernal Pool

The Study Area supports a number of vernal pools. Vernal pools are topographic basins that are underlain with an impermeable or semi-permeable hardpan or duripan layer. Vernal pools inundate during the wet season, and typically dry by late spring and remain dry through the summer months. The vernal pool was differentiated from depressional seasonal wetlands within the Study Area based upon the predominance of vernal pool endemic plant species. The vernal pools were dominated by vernal pool buttercup (*Ranunculus bonariensis*), Mediterranean barley, and great valley popcornflower. Longer ponding vernal pools also

supported creeping spikerush (*Eleocharis macrostachya*), California damasonium (*Damasonium californicum*), and bractless hedge-hyssop (*Gratiola ebracteata*).

### **3.2.4 Creek**

The Study Area includes a portion of Laguna Creek and a portion of one of its tributaries. Laguna Creek is one of the primary creek corridors in southern Sacramento County. Historically, Laguna Creek and its tributaries were dry for much of the year, but agricultural and urban runoff have increasingly caused major sections to flow year-round, including the portions that run through the Study Area. Urbanization along other portions of Laguna Creek has led to issues with minor flooding along the more developed portions of the creek. Laguna Creek supports a mostly unvegetated rocky bottom with the creek margins dominated by the same species as found in the adjacent annual brome grassland, interspersed with scattered native riparian vegetation, including Oregon ash, California button willow, Santa Barbara sedge, and western goldenrod, as well as non-native species that often invade riparian areas, including Southern catalpa, rattlebox, eucalyptus, and Himalayan blackberry.

### **3.2.5 Ephemeral Drainage**

Ephemeral drainages are linear features that exhibit a bed and bank and an OHWM. These features typically convey runoff for short periods of time, during and immediately following rain events, and are not influenced by groundwater sources at any time during the year. Four ephemeral drainages occur in the western portion of the Study Area within the annual brome grassland. These features are vegetated by annual grasses species including ryegrass, Mediterranean barley, and annual blue grass (*Poa annua*).

### **3.2.6 Roadside Ditch**

Several roadside ditches run along the northern edge of the Study Area, on the southern edge of Sheldon Road. Additional roadside ditches occur along the western edge of the site, east of Waterman Road. These ditches are partially graveled and show sign of herbicide use nearby. Ruderal vegetation is present with dominants including turkey-mullein (*Croton setiger*), spotted spurge (*Euphorbia maculata*), and filaree.

## **4.0 SURVEY RESULTS**

### **4.1 Big-Scale Balsamroot**

Big-scale balsamroot (*Balsamorhiza macrolepis*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. It is a perennial herbaceous species that occurs in chaparral, cismontane woodland and valley and foothill grasslands between 150 and 5,100 feet (CNPS 2024a). Big-scale balsamroot blooms from March through June and may be found on serpentine soils, though it is known to grow on other soil types as well (CNPS 2024a).

The annual brome grassland throughout the Study Area represents suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the Study Area.

#### **4.2 Dwarf Downingia**

Dwarf downingia (*Downingia pusilla*) is not federally or state listed, but it is classified as a CRPR List 2B.2 plant. It is a diminutive annual herb that is strongly associated with vernal pools mesic valley and foothill grassland habitats at elevations ranging from five to 1,460 feet (CNPS 2024a). Dwarf downingia is typically associated with areas that experience a moderate degree of disturbance, and it blooms from March to May.

The vernal pools, seasonal wetlands, and seasonal wetland swales within the Study Area represent suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the Study Area.

#### **4.3 Boggs Lake Hedge-Hyssop**

Boggs Lake hedge-hyssop (*Gratiola heterosepala*) is not federally listed, but it is a California endangered species and a CRPR List 1B.2 plant. Boggs Lake hedge-hyssop grows in vernal pools and around the perimeter of marshes and swamps between 35 and 7,790 feet (CNPS 2024a). This small annual herb favors clay soils, and blooms from April to August (CNPS 2024a).

The larger/longer-ponding vernal pools and seasonal wetlands within the Study Area represent suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the Study Area.

#### **4.4 Ahart's Dwarf Rush**

Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. Ahart's dwarf rush grows in mesic valley and foothill grassland habitats between elevations of approximately 100 feet and 750 feet (CNPS 2024a). This annual herb blooms from March to May (CNPS 2024a).

The vernal pools, seasonal wetlands, and seasonal wetland swales within the Study Area represent suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the Study Area.

#### **4.5 Legenere**

Legenere (*Legenere limosa*) is not federally or state listed, but it is classified as a CRPR List 1B.1 species. This annual herb is primarily associated with vernal pools (CNPS 2024a). Legenere occurs at elevations between 5 and 2,885 feet, and blooms from April to June (CNPS 2024a).

The larger/longer-ponding vernal pools and seasonal wetlands within the Study Area represent suitable habitat for this species. This species was observed in one vernal pool during the 2024 protocol-level special status plant surveys of the Study Area.

#### **4.6 Pincushion Navarretia**

Pincushion navarretia (*Navarretia myersii* ssp. *myersii*) is not federally or state listed, but it is classified as a CRPR List 1B.1 plant. This species is found in vernal pools, often on acidic micro habitats (CNPS 2024a). Pincushion navarretia is found between approximately 65 and 1,085 feet and blooms in April and May (CNPS 2024a).

The vernal pools and seasonal wetlands within the Study Area represent suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the Study Area.

#### **4.7 Slender Orcutt Grass**

Slender Orcutt grass (*Orcuttia tenuis*) is a federally threatened and California endangered species and is classified as a CNPS 1B.1 listed plant. This annual herb is often found in vernal pools with gravelly substrates and is found at elevations generally ranging between 115 and 5,775 feet (CNPS 2024a). Slender Orcutt grass typically blooms from May to October (CNPS 2024a).

The larger/longer-ponding vernal pools and seasonal wetlands within the Study Area represent suitable habitat for this species. This species was not observed during the 2024 protocol level special-status plant surveys of the Study Area.

#### **4.8 Sacramento Orcutt Grass**

Sacramento Orcutt grass (*Orcuttia viscida*) is listed as both a federally and state endangered species and is classified as a 1B.1 List plant. This herbaceous annual favors vernal pool habitats and is found between elevations of 100 and 330 feet (CNPS 2024a). Sacramento Orcutt grass typically blooms from April to July though it has been occasionally known to bloom as late as September (CNPS 2024a).

The larger/longer-ponding vernal pools and seasonal wetlands within the Study Area represent suitable habitat for this species. This species was not observed during the 2024 protocol level special-status plant surveys of the site.

#### **4.9 Sanford's Arrowhead**

Sanford's arrowhead (*Sagittaria sanfordii*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. It generally occurs in shallow freshwater habitats associated with marshes and swamps, including drainages, canals, and larger ditches that sustain inundation and/or slow moving water into early summer.

This emergent perennial rhizomatous species blooms from May to October (November) and occurs from sea level to 2,135 feet (CNPS 2024a).

Laguna Creek and its tributary within the Study Area represent suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the Study Area.

## 5.0 CONCLUSION

Legenere was observed during the 2024 protocol-level special-status plant surveys of the Summer Villas Study Area along the southern boundary (**Figure 4**). Hogwallow starfish (*Hesperex caulescens*), a California Rare Plant Rank 4.2 species, was also found within the Study Area near the southeast corner and is shown on **Figure 4**.

## 6.0 REFERENCES

California Department of Fish and Wildlife (CDFW). 2018. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities*. State of California Natural Resource Agency Department of Fish and Wildlife. Dated 20 March 2018. Website <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959> [Accessed January through May 2024].

California Native Plant Society (CNPS). 2001. *CNPS botanical survey guidelines*. Pages 38-40 in California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California (D.P. Tibor, editor). Sixth edition. Special Publication No. 1, California Native Plant Society, Sacramento, 387 pp.

California Native Plant Society (CNPS). 2024a. *Inventory of Rare and Endangered Plants (online edition, v9.5)*. California Native Plant Society, Sacramento, CA. Website: <http://www.rareplants.cnps.org> [Accessed January through May 2024].

California Native Plant Society (CNPS). 2024b. *A Manual of California Vegetation, Online Edition*. California Native Plant Society, Sacramento, CA. Website: <http://www.cnps.org/cnps/vegetation/> [Accessed May 2024].

California Natural Diversity Database (CNDDDB). 2023. *RareFind 6*. California Department of Fish and Wildlife. Dated January 2023.

Jepson Flora Project (eds.) 2024. *Jepson eFlora*. Website: <http://ucjeps.berkeley.edu/eflora/> [Accessed March through May 2024].

Madrone Ecological Consulting, LLC (Madrone). 2023. *Aquatic Resources Delineation Sheldon at Waterman, Sacramento County, California*. Prepared for Sheldon Business Park. Dated 10 January 2023.

U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). 2024. *Soil Survey Geographic (SSURGO) Database for Solano County, California* [Accessed October 2024].

U.S. Geological Survey (USGS). 2015. *"Elk Grove, California" 7.5-Minute Series Topographic Quadrangle*. U.S. Geological Survey. Denver, Colorado.

U.S. Department of the Interior, Fish and Wildlife Service (USFWS). 2020. *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants*. Sacramento, CA.

# Figures

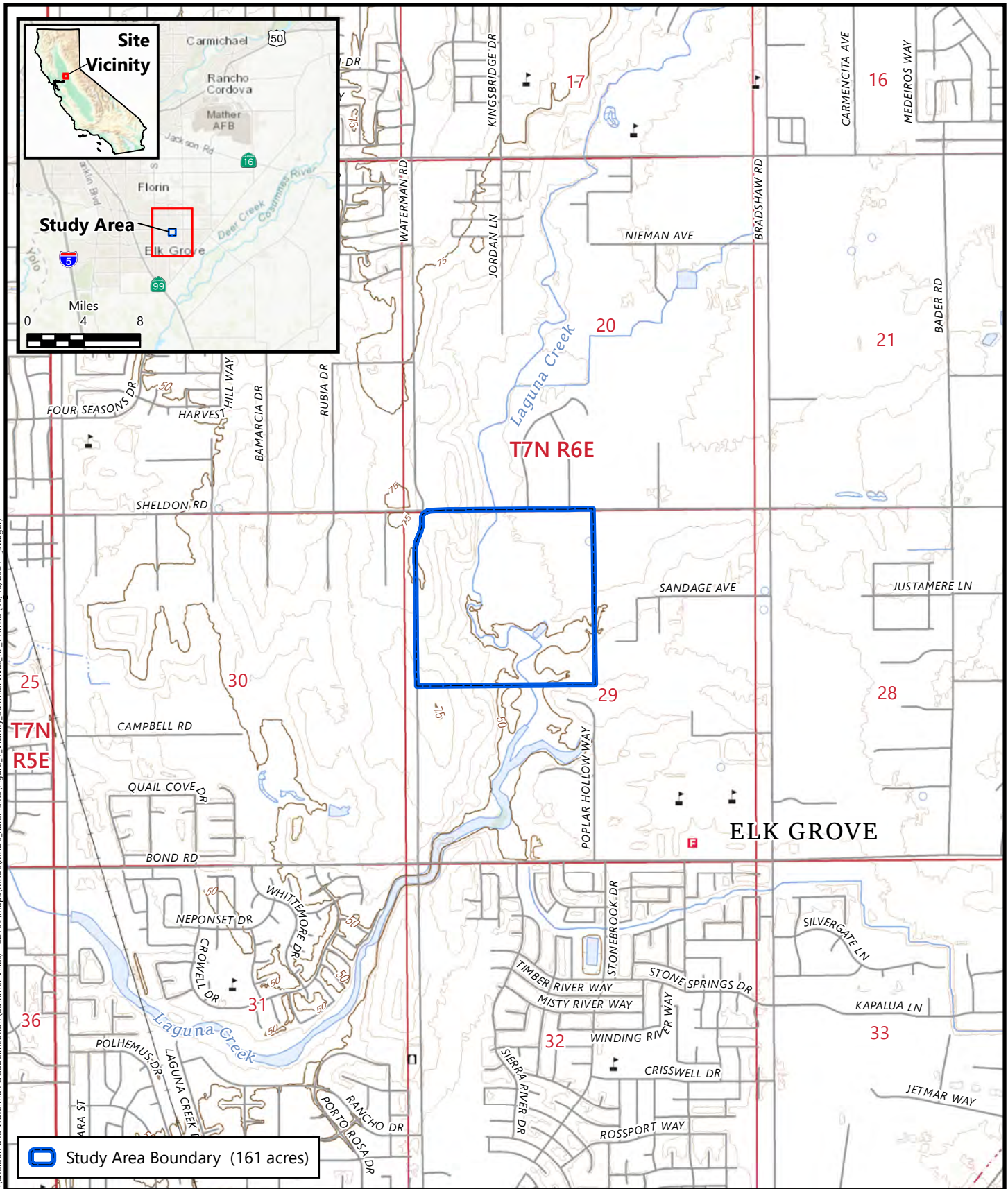
---

Figure 1. Site and Vicinity

Figure 2. Terrestrial Vegetation and Aquatic Resources

Figure 3. Special-Status Plant Locations

Figure 4. Natural Resources Conservation Service Soils



P:\Sheldon and Waterman\_GGSDeineation (Summer Villas) - 22109\Maps\MXD\S\MXD\_S\_RarePlants\Figure\_1\_Vicinity\_SummerVillas.RP\_v1.mxd (10/15/2024 - jwager)

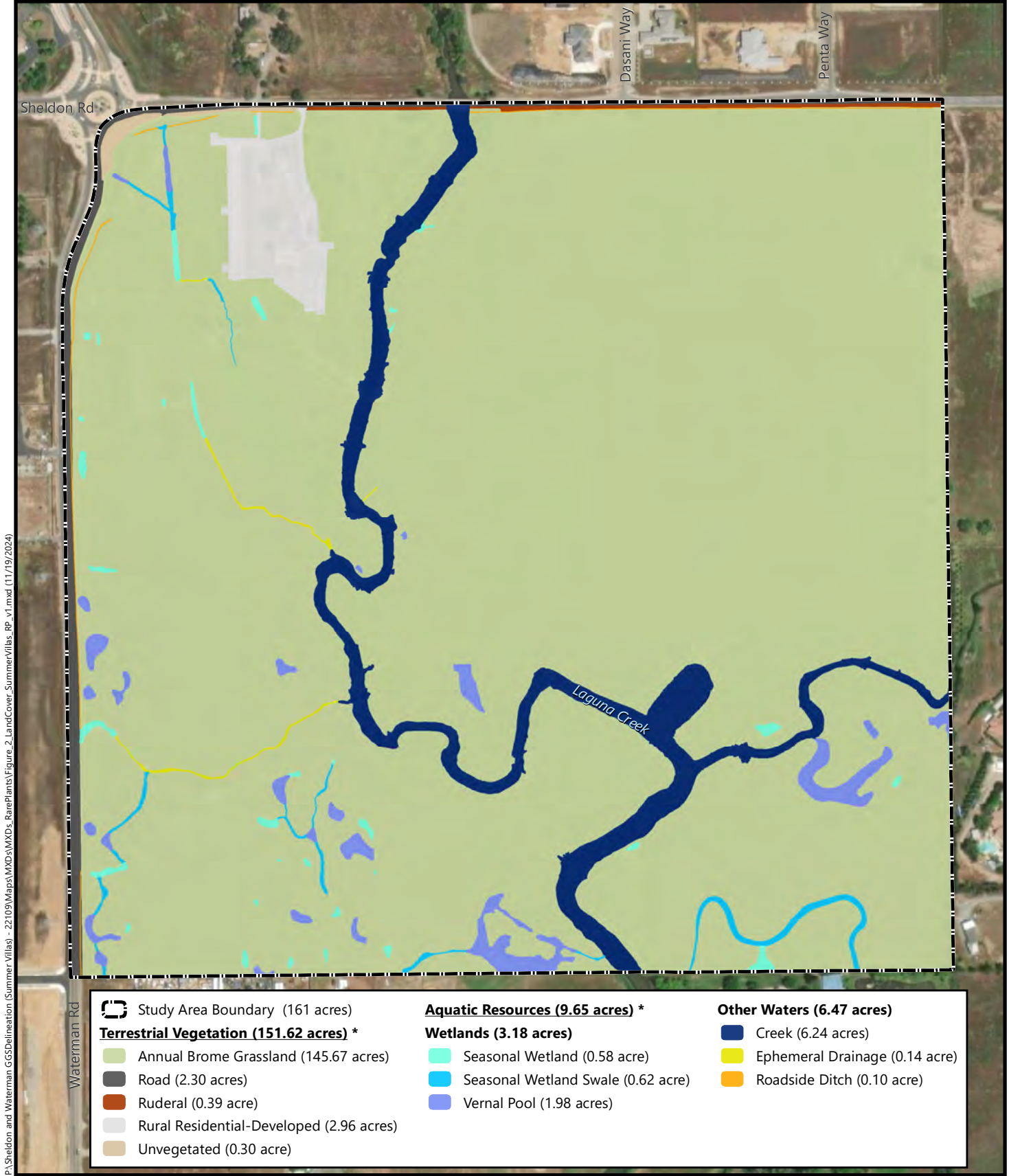


Source: United States Geologic Survey, 2022  
 "Elk Grove, California" 7.5-Minute Topographic Quadrangle  
 Sections 20, 29, Township 7 North, Range 6 East, MDBM  
 Latitude (NAD83): 38.434485°, Longitude (NAD83): -121.34857°

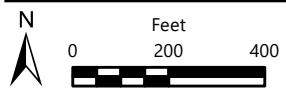
**Figure 1**  
**Site and Vicinity**

Summer Villas  
 Sacramento County, California





P:\Sheldon and Waterman G6SD\lineation (Summer Villas) - 22109\Maps\MXDs\MXD\RarePlants\Figure 2 LandCover\_SummerVillas\_RP\_v1.mxd [11/19/2024]

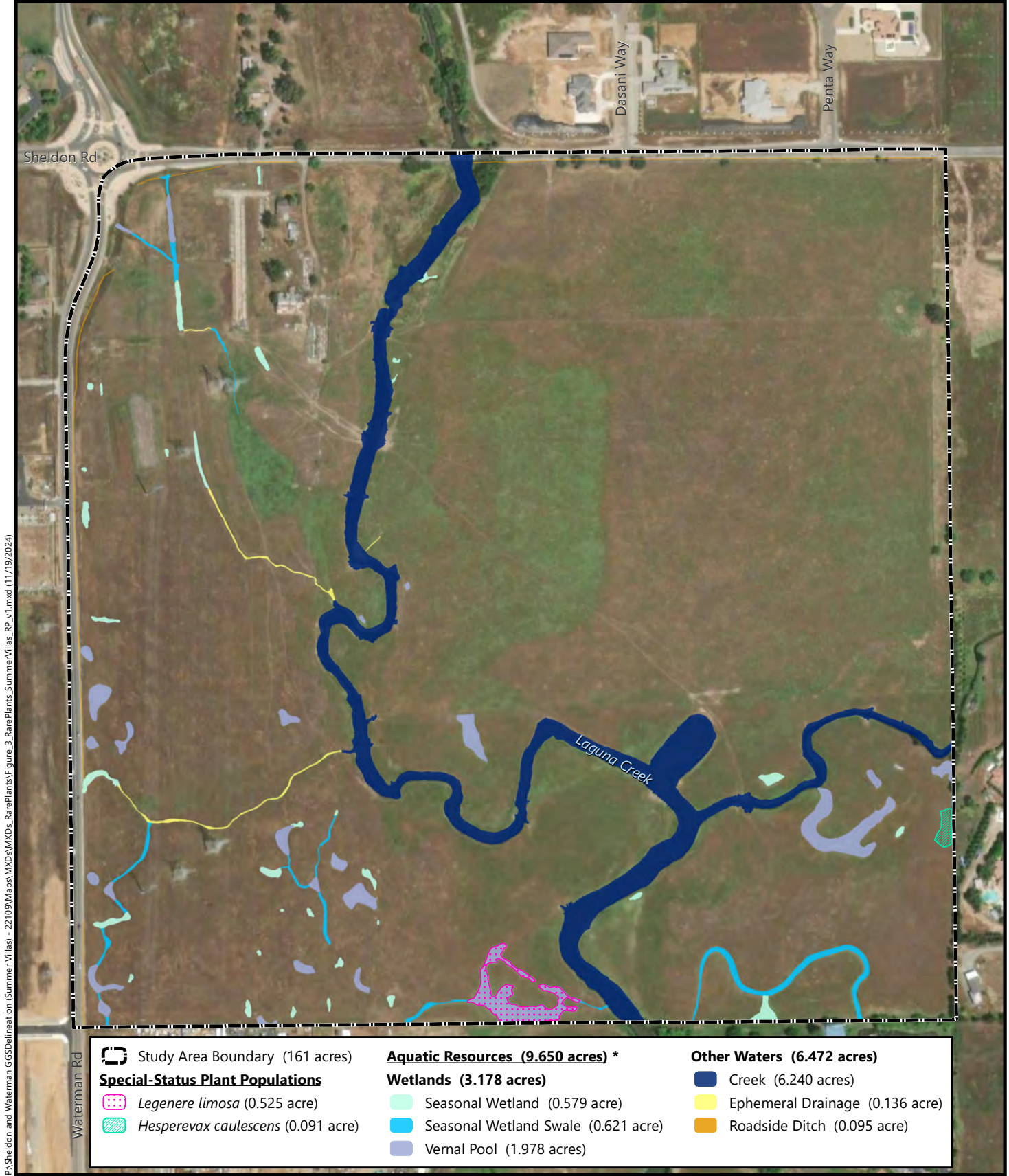


**Figure 2**  
**Terrestrial Vegetation and Aquatic Resources**

Summer Villas  
 Sacramento County, California

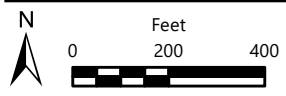


\* Small summation errors may occur due to rounding  
 Aerial Source: Maxar, 26 April 2022



P:\Sheldon and Waterman GDS\del\neation (Summer Villas) - 22109\Maps\MXDs\MXD4-RarePlants\Figure\_3\_RarePlants\_SummerVillas\_RP\_v1.mxd (11/19/2024)

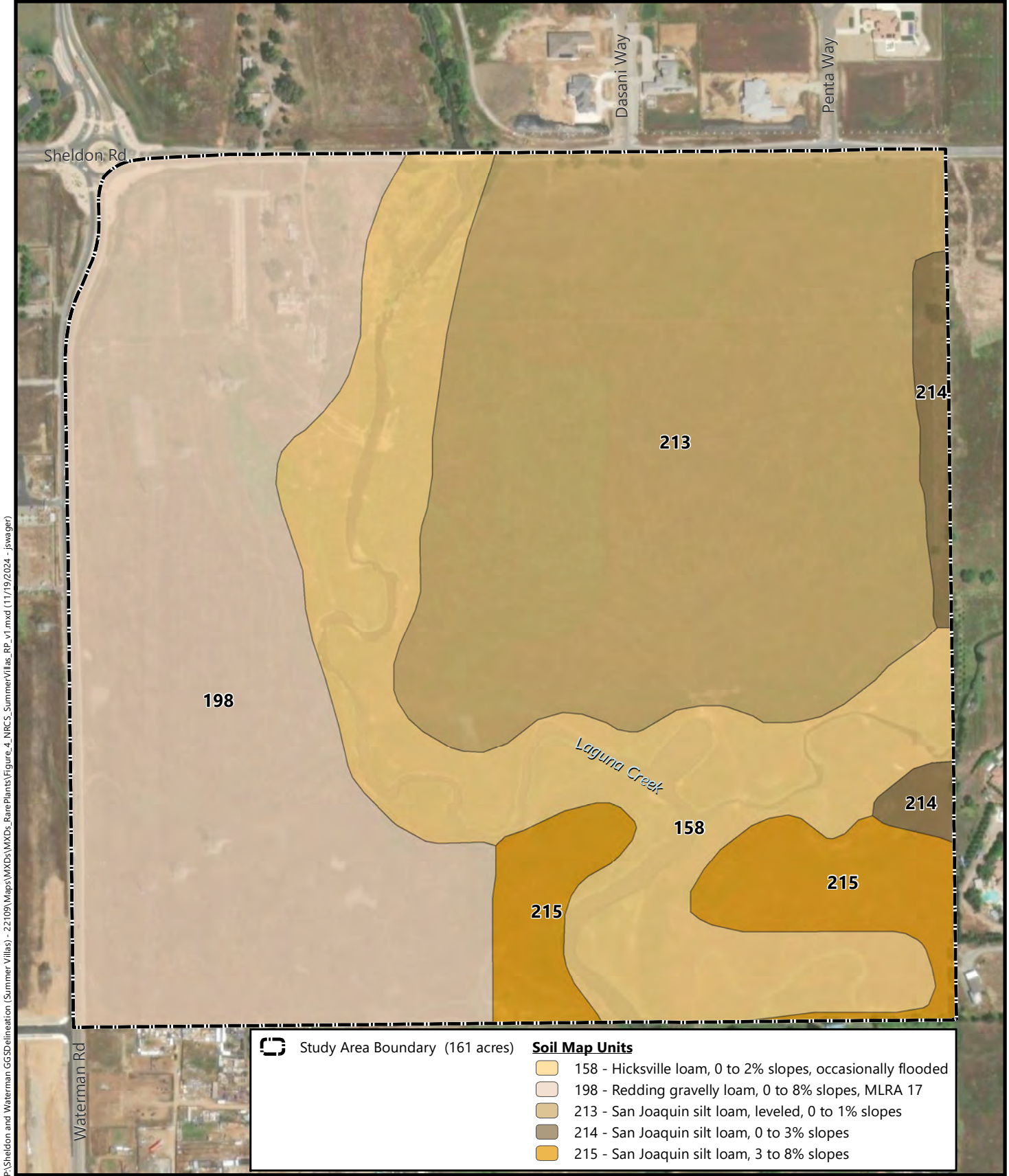
Study Area Boundary (161 acres)	<b>Aquatic Resources (9.650 acres) *</b>	<b>Other Waters (6.472 acres)</b>
<b>Special-Status Plant Populations</b>	<b>Wetlands (3.178 acres)</b>	Creek (6.240 acres)
<i>Legenere limosa</i> (0.525 acre)	Seasonal Wetland (0.579 acre)	Ephemeral Drainage (0.136 acre)
<i>Hesperevax caulescens</i> (0.091 acre)	Seasonal Wetland Swale (0.621 acre)	Roadside Ditch (0.095 acre)
	Vernal Pool (1.978 acres)	



**Figure 3**  
**Special-Status Plant Locations**

\* Small summation errors may occur due to rounding  
Aerial Source: Maxar, 26 April 2022





Soil Survey Source: *USDA, Natural Resources Conservation Service*  
*Soil Survey Geographic (SSURGO) database for*  
*Sacramento County, California*  
 Aerial Source: Maxar, 26 April 2022

**Figure 4**  
**Natural Resources Conservation**  
**Service Soils**

Summer Villas  
 Sacramento County, California



P:\Sheldon and Waterman GGD\Delin\lineation (Summer Villas) - 22109\Maps\WXDs\WXDs - Rare Plants\Figure\_4\_NRCS\_SummerVillas\_RP\_v1.mxd (11/19/2024 - jswager)

# Attachments

---

Attachment A: Botanist Qualifications

Attachment B: Target Plant Species Reference Population Information

Attachment C: Plant Species Observed within the Summer Villas Study Area

# Attachment A

---

## **Botanist Qualifications**

## **Special-Status Plant Survey Botanist Qualifications**

### **Tara Collins**

Ms. Collins has a B.S. in Botany from Humboldt State University and more than 24 years of experience conducting botanical inventories. As a senior biologist, she specializes in rare plant surveys, constructed/restored wetland floristic monitoring, and open space preserve management. In addition to rare plant surveys, her botanical experience includes general vegetation surveys, aerial and field vegetation mapping, CRAM assessments, measuring and monitoring special-status species plant populations, and invasive species identification and mapping. Ms. Collins' experience includes a wide variety of upland and wetland vegetation communities including annual grassland, vernal pool complex, ephemeral and emergent wetlands, preserved and created/restored vernal pools, seasonal marshes, floodplain wetlands, managed marshes, oak woodlands, riparian woodland/scrub, chaparral, coastal sage scrub, Mojave Desert scrub, desert riparian, iodine bush scrub, alkali sink habitat, and coniferous forests. Her geographic expertise covers much of California, from Shasta County in the north to the Mojave Desert and San Gabriel Mountains in the south, and from Contra Costa County in the west to the Sierra Nevada foothills in the east. Her primary focus is on the Sacramento Valley and San Joaquin Valley.

# Attachment B

---

## **Target Plant Species Reference Population Information**

**Target Plant Species Reference Population Information  
for the Summer Villas  
Special-Status Plant Survey**

<b>Plant Species</b>	<b>Location of Reference Population</b>	<b>Date of Visit</b>	<b>Phenology of Reference Population/ Distinctive Characteristics</b>
<i>Balsamorhiza macrolepis</i> Big-scale balsamroot	Herbarium specimen at UC Davis Center for Plant Diversity  Online Jepson Manual and Calflora	23 April 2019  March through May 2024	Pressed specimen. Similar to <i>Wyethia</i> , but with grey, dissected leaves. Leaves are mostly basal (as opposed to <i>Wyethia</i> , which has basal and cauline leaves).
<i>Downingia pusilla</i> Dwarf downingia	Woodcreek Oaks Open Space Preserve (CNDDDB #142)	10 April 2024	Plants are just coming into bloom below <i>Plagiobothrys stipitatus</i> and <i>Ranunculus bonariensis</i> . Should be in full bloom in about a week.
<i>Gratiola heterosepala</i> Boggs Lake hedge-hyssop	Churchill Downs Wetland Preserve (CNDDDB Occurrence #35)	29 April 2024	Hundreds to thousands of <i>Gratiola heterosepala</i> plants were observed in this location this year. About half were in bud and half in full bloom. Pool was not inundated, but soil was still saturated.  Individuals of this species were also observed in an adjacent pool. That feature was drier, and the plants were half in bloom and half in fruit.
<i>Juncus leiospermus</i> var. <i>ahartii</i> Ahart's dwarf rush	Mather Regional Park (CNDDDB Occurrence #8)	12 April 2024	A few plants scattered within the area; seems like a decent year for this species, but all of the plants are quite small. The plants were all in fruit, but the long style was still readily apparent on the top of the fruits.
<i>Legenere limosa</i> Legenere	Sacramento County (CNDDDB Occurrence #27)	17 April 2024  20 May 2024	Pool is still inundated, but millions of plants are present, above the water level.  Plants were still green and identifiable, with most in fruit but some still in flower.

Plant Species	Location of Reference Population	Date of Visit	Phenology of Reference Population/ Distinctive Characteristics
<i>Navarretia myersii</i> ssp. <i>myersii</i> Pincushion navarretia	Herbarium specimen at UC Davis Center for Plant Diversity  Online Jepson Manual and Calflora	23 April 2019  March through May 2024	Pressed specimen. Corollas for this species are quite long (12-21 mm vs 4-10 mm for the similar but more common <i>Navarretia leucocephala</i> ssp. <i>leucocephala</i> ). In addition, the calyx lobes for this species are long-hairy as opposed to the generally glabrous calyx lobes for <i>N. leucocephala</i> ssp. <i>leucocephala</i> .
<i>Orcuttia tenuis</i> Slender Orcutt grass	Herbarium specimen at UC Davis Center for Plant Diversity  Online Jepson Manual and Calflora	23 April 2019  March through May 2024	Pressed specimen. Leaves and leaf sheaths are continuous with no ligule, and lemmas are toothed. Inflorescences are tall and slender in comparison to <i>Orcuttia viscida</i> , the only other <i>Orcuttia</i> species known to occur in the area.
<i>Orcuttia viscida</i> Sacramento Orcutt grass	Population at Phoenix Park in Sacramento County (CNDDDB Occurrence #15)	5 June 2024	Only four plants were observed in this pool, where thousands have been observed in past years. An exhaustive search was not conducted, but there are clearly fewer plants, and those that are present are small. They were still green and identifiable to species. Other botanists state that populations at other locations did not decline as substantially this year.
<i>Sagittaria sanfordii</i> Sanford's arrowhead	Population in Laguna Creek north of Elk Grove Blvd in Elk Grove (CNDDDB Occurrence #43)	20 May 2024	Plants were in early bloom, with some plants still entirely aquatic. Those that had terrestrial leaves exhibited the typical triangular cross-section, and the blooms and fruit made blooming plants readily identifiable to species.

# Attachment C

---

## **Plant Species Observed within the Summer Villas Study Area**

Plant Species Observed within the Summer Villas Study Area  
26 and 29 April, 9 May, and 21 June 2024

Family / Species Name	Common Name	Native / Non-Native
<b>AGAVACEAE</b>		
<i>Chlorogalum pomeridianum</i>	Wavyleaf soap plant	Native
<b>ALISMATACEAE</b>		
<i>Damasonium californicum</i>	California damasonium	Native
<b>AMARANTHACEAE</b>		
<i>Amaranthus blitoides</i>	Procumbent pigweed	Native
<b>ANACARDIACEAE</b>		
<i>Pistacia chinensis</i>	Chinese pistachio	Non-Native
<b>APIACEAE</b>		
<i>Eryngium castrense</i>	Great valley coyote-thistle	Native
<i>Scandix pecten-veneris</i>	Venus' needle	Non-Native
<b>APOCYNACEAE</b>		
<i>Asclepias eriocarpa</i>	Kotolo	Native
<i>Asclepias fascicularis</i>	Narrow-leaf milkweed	Native
<b>ASTERACEAE</b>		
<i>Achyrrachaena mollis</i>	Blow wives	Native
<i>Bidens frondosa</i>	Sticktight	Native
<i>Carduus pycnocephalus</i>	Italian thistle	Non-Native
<i>Centaurea solstitialis</i>	Yellow star-thistle	Non-Native
<i>Centromadia fitchii</i>	Fitch's spikeweed	Native
<i>Cotula coronopifolia</i>	Brass-buttons	Non-Native
<i>Erigeron canadensis</i>	Horseweed	Native
<i>Euthamia occidentalis</i>	Western goldenrod	Non-Native
<i>Grindelia camporum</i>	Great Valley gumweed	Native
<i>Hesperevax caulescens</i>	Hogwallow starfish	Native
<i>Holocarpha virgata</i>	Slender tarweed	Native
<i>Hypochaeris glabra</i>	Smooth cat's-ear	Non-Native
<i>Lasthenia fremontii</i>	Fremont's goldfields	Native
<i>Lasthenia glabrata</i>	Yellow rayed goldfields	Native
<i>Leontodon saxatilis</i>	Hairy hawkbit	Non-Native
<i>Matricaria discoidea</i>	Pineapple weed	Native
<i>Microseris douglasii</i>	Douglas' microseris	Native

Plant Species Observed within the Summer Villas Study Area  
26 and 29 April, 9 May, and 21 June 2024

Family / Species Name	Common Name	Native / Non-Native
<b>ASTERACEAE, cont.</b>		
<i>Pseudognaphalium luteoalbum</i>	Jersey cudweed	Non-Native
<i>Psilocarphus chilensis</i>	Round woolly-marbles	Native
<i>Senecio vulgaris</i>	Common groundsel	Non-Native
<i>Silybum marianum</i>	Milk thistle	Non-Native
<i>Soliva sessilis</i>	South American soliva	Non-Native
<i>Sonchus oleraceus</i>	Common sow thistle	Non-Native
<i>Symphyotrichum subulatum</i>	Annual saltmarsh aster	Native
<i>Xanthium spinosum</i>	Spiny cocklebur	Non-Native
<i>Xanthium strumarium</i>	Cocklebur	Native
<b>BIGNONIACEAE</b>		
<i>Catalpa bignonioides</i>	Southern catalpa	Non-Native
<b>BORAGINACEAE</b>		
<i>Amsinckia intermedia</i>	Common fiddleneck	Native
<i>Heliotropium curassavicum</i>	Seaside heliotrope	Native
<i>Plagiobothrys stipitatus</i>	Great valley popcornflower	Native
<b>BRASSICACEAE</b>		
<i>Brassica nigra</i>	Black mustard	Non-Native
<i>Capsella bursa-pastoris</i>	Shepherd's purse	Non-Native
<i>Lepidium nitidum</i>	Shining peppergrass	Native
<i>Raphanus sativus</i>	Radish	Non-Native
<i>Rorippa curvipes</i>	Bluntleaf yellow cress	Native
<b>CAMPANULACEAE</b>		
<i>Downingia bicornuta</i>	Double-horned downingia	Native
<i>Downingia ornatissima</i>	Ornate downingia	Native
<i>Legenere limosa</i>	Legenere	Native
<b>CARYOPHYLLACEAE</b>		
<i>Cerastium glomeratum</i>	Sticky mouse-ear chickweed	Non-Native
<i>Sagina apetala</i>	Dwarf pearlwort	Non-Native
<i>Silene gallica</i>	Windmill pink	Non-Native
<i>Spergularia rubra</i>	Red sand-spurry	Non-Native

Plant Species Observed within the Summer Villas Study Area  
26 and 29 April, 9 May, and 21 June 2024

Family / Species Name	Common Name	Native / Non-Native
<b>CHENOPODIACEAE</b>		
<i>Chenopodium album</i>	Lamb's quarters	Non-Native
<b>CONVOLVULACEAE</b>		
<i>Convolvulus arvensis</i>	Bindweed	Non-Native
<b>CRASSULACEAE</b>		
<i>Crassula aquatica</i>	Water pygmy weed	Native
<i>Crassula tillaea</i>	Moss pygmy weed	Non-Native
<b>CYPERACEAE</b>		
<i>Carex barbarae</i>	Santa Barbara sedge	Native
<i>Carex praegracilis</i>	Field sedge	Native
<i>Cyperus eragrostis</i>	Tall nutsedge	Native
<i>Eleocharis acicularis</i>	Needle spikerush	Native
<i>Eleocharis macrostachya</i>	Creeping spikerush	Native
<i>Eleocharis parishii</i>	Parish's spikerush	Native
<b>EUPHORBIACEAE</b>		
<i>Croton setiger</i>	Turkey-mullein	Native
<i>Euphorbia maculata</i>	Spotted spurge	Non-Native
<i>Triadica sebifera</i>	Chinese tallow tree	Non-Native
<b>FABACEAE</b>		
<i>Acmispon americanus</i>	Spanish lotus	Native
<i>Lotus corniculatus</i>	Bird's-foot trefoil	Non-Native
<i>Lupinus bicolor</i>	Miniature lupine	Native
<i>Medicago polymorpha</i>	Burclover	Non-Native
<i>Sesbania punicea</i>	Rattlebox	Non-Native
<i>Trifolium cernuum</i>	Nodding clover	Non-Native
<i>Trifolium depauperatum</i>	Dwarf sack clover	Native
<i>Trifolium fragiferum</i>	Strawberry clover	Non-Native
<i>Trifolium glomeratum</i>	Clustered clover	Non-Native
<i>Trifolium hirtum</i>	Rose clover	Non-Native
<i>Trifolium microcephalum</i>	Small-head clover	Native
<i>Trifolium repens</i>	White clover	Non-Native
<i>Trifolium subterraneum</i>	Subterranean clover	Non-Native
<i>Trifolium tomentosum</i>	Woolly clover	Non-Native

Plant Species Observed within the Summer Villas Study Area  
26 and 29 April, 9 May, and 21 June 2024

Family / Species Name	Common Name	Native / Non-Native
<b>FABACEAE, cont.</b>		
<i>Trifolium variegatum</i>	White tip clover	Native
<i>Vicia sativa</i>	Spring vetch	Non-Native
<i>Vicia villosa</i>	Winter vetch	Non-Native
<b>FAGACEAE</b>		
<i>Quercus agrifolia</i>	Coast live oak	Native
<i>Quercus lobata</i>	Valley oak	Native
<b>GENTIANACEAE</b>		
<i>Cicendia quadrangularis</i>	Timwort	Native
<i>Zeltnera</i> sp.	Centaury	Native/Non-Native
<b>GERANIACEAE</b>		
<i>Erodium botrys</i>	Filaree	Non-Native
<i>Erodium cicutarium</i>	Cut leaf filaree	Non-Native
<i>Geranium dissectum</i>	Cut leaf geranium	Non-Native
<i>Geranium molle</i>	Soft geranium	Non-Native
<b>IRIDACEAE</b>		
<i>Iris pseudacorus</i>	Yellowflag iris	Non-Native
<b>JUGLANDACEAE</b>		
<i>Juglans hindsii</i>	Northern California black walnut	Native
<b>JUNCACEAE</b>		
<i>Juncus bufonius</i>	Toad rush	Native
<i>Juncus capitatus</i>	Dwarf rush	Non-Native
<i>Juncus effusus</i>	Common bog rush	Native
<b>JUNCAGINACEAE</b>		
<i>Triglochin scilloides</i>	Flowering quillwort	Native
<b>LAMIACEAE</b>		
<i>Mentha pulegium</i>	Pennyroyal	Non-Native
<i>Pogogyne zizyphoroides</i>	Sacramento mesa mint	Native

Plant Species Observed within the Summer Villas Study Area  
26 and 29 April, 9 May, and 21 June 2024

Family / Species Name	Common Name	Native / Non-Native
<b>LYTHRACEAE</b>		
<i>Lythrum hyssopifolia</i>	Hyssop loosestrife	Non-Native
<b>MALVACEAE</b>		
<i>Malva parviflora</i>	Cheeseweed	Non-Native
<b>MARSILEACEAE</b>		
<i>Marsilea vestita</i>	Hairy water fern	Native
<b>MONTIACEAE</b>		
<i>Montia fontana</i>	Water chickweed	Native
<b>MYRSINACEAE</b>		
<i>Lysimachia arvensis</i>	Scarlet pimpernel	Non-Native
<b>MYRTACEAE</b>		
<i>Eucalyptus</i> sp.	Eucalyptus tree	Non-Native
<b>OLEACEAE</b>		
<i>Fraxinus latifolia</i>	Oregon ash	Native
<b>ONAGRACEAE</b>		
<i>Epilobium campestre</i>	Smooth Boisduvalia	Native
<i>Epilobium ciliatum</i>	Slender willow herb	Native
<i>Epilobium torreyi</i>	Torrey's willow herb	Native
<i>Ludwigia peploides</i>	Water primrose	Non-Native
<b>OROBANCHACEAE</b>		
<i>Castilleja attenuata</i>	Valley tassels	Native
<i>Castilleja campestris</i>	Yellow owl's clover	Native
<b>PHRYMACEAE</b>		
<i>Mimulus guttatus</i>	Seep-spring monkeyflower	Native
<i>Mimulus tricolor</i>	Tricolor monkeyflower	Native
<b>PLANTAGINACEAE</b>		
<i>Callitriche marginata</i>	Winged water starwort	Native
<i>Gratiola ebracteata</i>	Bractless hedge-hyssop	Native

Plant Species Observed within the Summer Villas Study Area  
26 and 29 April, 9 May, and 21 June 2024

Family / Species Name	Common Name	Native / Non-Native
<b>PLANTAGINACEAE, cont.</b>		
<i>Kickxia spuria</i>	Fluellin	Non-Native
<i>Plantago lanceolata</i>	English plantain	Non-Native
<i>Veronica peregrina</i>	Purslane speedwell	Native
<b>POACEAE</b>		
<i>Alopecurus saccatus</i>	Pacific foxtail	Native
<i>Avena barbata</i>	Slender wild oat	Non-Native
<i>Briza minor</i>	Small quaking grass	Non-Native
<i>Bromus diandrus</i>	Ripgut grass	Non-Native
<i>Bromus hordeaceus</i>	Soft chess	Non-Native
<i>Cynodon dactylon</i>	Bermuda grass	Non-Native
<i>Deschampsia danthonioides</i>	Annual hair grass	Native
<i>Elymus glaucus</i>	Blue or western wild-rye	Native
<i>Elymus triticoides</i>	Beardless wild-rye	Native
<i>Festuca bromoides</i>	Brome fescue	Non-Native
<i>Festuca myuros</i>	Rattail fescue	Non-Native
<i>Festuca perennis</i>	Ryegrass	Non-Native
<i>Glyceria declinata</i>	Low manna grass	Non-Native
<i>Hordeum brachyantherum</i>	Meadow barley	Native
<i>Hordeum marinum</i>	Mediterranean barley	Non-Native
<i>Hordeum murinum</i>	Wall barley	Non-Native
<i>Leersia oryzoides</i>	Rice cutgrass	Native
<i>Muhlenbergia rigens</i>	Deer grass	Native
<i>Paspalum dilatatum</i>	Dallis grass	Non-Native
<i>Poa annua</i>	Annual blue grass	Non-Native
<i>Polypogon monspeliensis</i>	Annual beard grass	Non-Native
<i>Setaria parviflora</i>	Knotroot bristle grass	Native
<b>POLYGONACEAE</b>		
<i>Persicaria hydropiperoides</i>	Water pepper	Native
<i>Polygonum aviculare</i>	Prostrate knotweed	Non-Native
<i>Rumex dentatus</i>	Toothed dock	Non-Native
<i>Rumex pulcher</i>	Fiddle dock	Non-Native
<b>PORTULACACEAE</b>		
<i>Portulaca oleracea</i>	Purslane	Non-Native

Plant Species Observed within the Summer Villas Study Area  
26 and 29 April, 9 May, and 21 June 2024

Family / Species Name	Common Name	Native / Non-Native
<b>RANUNCULACEAE</b>		
<i>Ranunculus aquatilis</i>	Water buttercup	Native
<i>Ranunculus bonariensis</i>	Vernal pool buttercup	Native
<i>Ranunculus muricatus</i>	Spiny fruit buttercup	Non-Native
<b>ROSACEAE</b>		
<i>Heteromeles arbutifolia</i>	Toyon	Native
<i>Pyrus calleryana</i>	Callery pear	Non-Native
<i>Rosa sp.</i>	Rose	Native/Non-Native
<i>Rubus armeniacus</i>	Himalayan blackberry	Non-Native
<b>RUBIACEAE</b>		
<i>Cephalanthus occidentalis</i>	California button willow	Native
<i>Galium aparine</i>	Goose grass	Native
<i>Sherardia arvensis</i>	Field madder	Non-Native
<b>SALICACEAE</b>		
<i>Populus fremontii</i>	Fremont's cottonwood	Native
<i>Salix laevigata</i>	Red willow	Native
<b>SOLANACEAE</b>		
<i>Solanum americanum</i>	White nightshade	Native
<b>THEMIDACEAE</b>		
<i>Brodiaea appendiculata</i>	Hoover's brodiaea	Native
<i>Brodiaea nana</i>	Dwarf brodiaea	Native
<i>Triteleia hyacinthina</i>	White brodiaea	Native
<i>Triteleia laxa</i>	Ithurriel's spear	Native
<b>VERBENACEAE</b>		
<i>Phyla nodiflora</i>	Frog fruit	Native

# Attachment F

---

## **Giant Garter Snake Habitat Assessment**



# **Giant Garter Snake Habitat Assessment**

Summer Villas at Sheldon Road

Elk Grove, California

16 January 2023



**Prepared for:**

Mr. Bryan Wilson  
Sheldon Business Park  
8940 Elder Creek Road  
Sacramento, CA 95829

**Recommended Citation:**

Madrone Ecological Consulting, LLC (Madrone). 2023. *Giant Garter Snake Habitat Assessment. Summer Villas at Sheldon Road*. Prepared for Sheldon Business Park. Published 16 January 2023.

**CONTENTS**

**Giant Garter Snake Habitat Assessment  
Summer Villas at Sheldon Road**

**1.0 Introduction** \_\_\_\_\_ **1**  
    **1.1 Existing Conditions**..... **1**  
**2.0 Species Background** \_\_\_\_\_ **1**  
**3.0 Methods** \_\_\_\_\_ **5**  
**4.0 Results** \_\_\_\_\_ **7**  
**5.0 Conclusion** \_\_\_\_\_ **8**  
**6.0 References** \_\_\_\_\_ **9**

**Figures**

Figure 1. Site Vicinity

Figure 2. Potential Giant Garter Snake Habitat

Figure 3. California Natural Diversity Database Occurrences of Giant Garter Snake

**Attachments**

Attachment A - Site Photographs

Attachment B - Habitat Evaluation and Scoring Form

Attachment C - Instructions for Completing the Habitat Evaluation and Scoring Form

Attachment D - CNDDDB Occurrence Reports

## 1.0 Introduction

Madrone Ecological Consulting, LLC (Madrone) was retained by Sheldon Business Park to conduct a habitat assessment for giant garter snake (GGG; *Thamnophis gigas*) at the Summer Villas at Sheldon Road Project site (Project). GGS is listed as threatened under both the federal Endangered Species Act and the California Endangered Species Act. The approximately 161-acre Project is located in the City of Elk Grove, Sacramento County, California southeast of the intersection of Sheldon Road and Waterman Road. It is situated at an elevation of 50 to 70 feet above Mean Sea Level (MSL) in Sections 20, 29, and 30, Township 7 North, Range 6 East, MDB&M, and is portrayed on the "Elk Grove, California" USGS 7.5-Minute Topographic Quadrangle (Figure 1)(USGS 2022).

### 1.1 Existing Conditions

The Project consists mostly of non-native annual grassland with Laguna Creek (perennial stream) flowing from north to south through the central portion of the Project. This major aquatic feature dominates the topography of the Project and is fed by an unnamed intermittent drainage that converges with Laguna Creek in the southern portion of the Project. Historically, there was a dairy or feed lot located within the northwestern portion of the Project. Most of the structures associated with the dairy or feed lot including linear barns and other structures have been razed except for two houses and a garage that are currently under renovation and are uninhabited. The area around these structures was burned by a fire in the summer of 2022 that burned east to the bank of Laguna Creek. Land uses surrounding the Project include rural and large lot residential. There is a portion of open annual grassland to the west of the Project.

Aquatic resources within the Project include Laguna Creek (perennial stream), an unnamed tributary to Laguna Creek (intermittent drainage), and scattered seasonal wetlands, vernal pools, and wetland swales that are mostly located within the southern portion of the Property (Figure 2). The uplands within the Project consist of non-native annual grassland which is dominated by soft chess (*Bromus hordeaceus*), brome fescue (*Festuca bromoides*), narrow tarplant (*Holocarpha virgata*), and Italian star thistle (*Centaurea solstitialis*) with some foxtail barley (*Hordeum murinum*) and ryegrass (*Festuca perennis*).

## 2.0 Species Background

### *Distribution*

Historically, GGS ranged from Butte County southward to Kern County. Current known populations are scattered within the Central Valley from near Chico in Butte County, south to the Mendota Wildlife Area in Fresno County, with a gap within the central part of the valley from southern San Joaquin County to Merced County. Current locality records show that GGS are distributed in nine different isolated locations/populations associated with historic flood basins, marshes, wetlands, and streams. It is likely that GGS once occupied a much larger contiguous area within the Central Valley; however, intense agricultural practices have eliminated most of the suitable GGS habitat (Hansen 1980, Brode and Hansen 1992, U.S. Fish and Wildlife Service [USFWS] 1997, USFWS 1999, USFWS 2006, USFWS 2012).

### *Habitat Requirements*

GGs inhabit a variety of permanent and seasonal wetlands including slow-moving creeks, sloughs, drainage and irrigation canals, freshwater marshes, and margins of rice fields from sea level to 400 feet above sea level.

GGs are mostly associated with freshwater aquatic features that have the following four characteristics:

- Sufficient water during the snake's active season (early spring through mid-fall) to supply escape cover and food (small fish and amphibians),
- Emergent, herbaceous wetland vegetation, such as cattails (*Typha* spp.) and bulrushes (*Schoenoplectus* spp.), accompanied by vegetated banks to provide basking and foraging habitat and escape cover during the active season,
- Upland habitat (bankside burrows, holes, and crevices) that provides short-term refugia during the active season, and
- High ground or upland habitat above the annual high-water mark to provide cover and refuge from flood waters during the dormant winter period (Hansen and Brode 1980, Hansen 1988).

GGs seem to be absent from permanent wetlands with established populations of predatory game fish (centrarchids); streams with sand, gravel or rock substrates; and from riparian woodlands which lack suitable basking sites, prey, and cover vegetation (USFWS 1999). GGs are also absent from waterways that have routine mechanical or weed control or maintenance of bank soils (Hansen 1988, Hansen and Brode 1993).

### *Reproduction*

Male GGs emerge from overwintering sites in spring and immediately start to search for females. Breeding takes place from March through early May with females giving birth to live young from late July through early September (Hansen and Hansen 1990).

### *Longevity*

There have been no studies to date that have documented the survivorship or longevity of GGs. An individual survival rate study was conducted on valley garter snakes (*Thamnophis sirtalis fitchi*). This study found that 28.7 to 43.0 percent of all neonate (first year) snakes survive their first year, and 16.4 percent of all neonate snakes survive into their second year. Snakes that are two years and older have a survival rate of 32.7 percent (Jayne and Bennett 1990).

### *Sources of Mortality*

GGs are subject to various sources of mortality such as road mortality, maintenance activities and modification of agricultural ditches and drains and flood control systems, flooding, and competition by the introduction of invasive watersnakes of the genus *Nerodia* (USFWS 1999, USFWS 2012, Stitt et al. 2005, Balfour and Stitt 2002, Brown 2000).

### *Behavior*

GGs typically emerge from winter retreats from late March to early April after spending the cool winter months in dormancy or periods of reduced activity. They remain active through October, with the timing of

annual activity subject to varying seasonal weather conditions. Daily activity consists of: 1) emergence from burrows after sunrise, 2) basking to warm bodies to active temperatures, and 3) foraging or courting for the remainder of the day (Hansen and Brode 1993). Activity generally peaks during spring emergence and courtship from April into June, whereupon observations of GGS diminish significantly until a second peak is observed after females give birth during late July into August (Hansen and Brode 1993, USFWS 1999, Hansen 2004). GGS then remain active, foraging and occasionally courting, until the onset of cooler fall temperatures.

### *Movement*

GGS are associated with aquatic habitats, typically over-wintering in burrows and crevices near to their active-season foraging habitat. Individuals have been noted using burrows as far as 164 feet (50 meters) from marsh edges during the active season, and retreating as far as 820 feet (250 meters) from the edge of wetland habitats while overwintering, presumably to reach hibernacula that are located above the annual high water mark (Hansen 1986a, USFWS 1999).

Changing agricultural regimes, development, and other shifts in land use create an ever-changing mosaic of available habitat. GGS move around in response to these changes in order to find suitable sources of prey and cover. Connectivity between regions is therefore extremely important for providing access to available habitat and for genetic interchange. In an agricultural setting, GGS rely largely upon the interconnected network of canals and ditches that provide irrigation and drainage.

Data based on radiotelemetry studies show that GGS home ranges varies by location, with median home range estimates varying between 23 acres (range 10.3 to 203 acres, n=8) in a semi-native perennial marsh system and 131 acres (range 3.2 to 2,792 acres, n=29) in a managed season marsh refuge (wildlife refuge) (USFWS 1999). Differential dispersal and home range patterns between males and females are not reported; however, females are generally larger than males and spend the majority of the active season gestating young. Lifetime dispersal patterns of both neonates and adults of this species are unknown.

### *Ecological Relationships*

GGS feed on small fish, frogs, and tadpoles (Fitch 1940, Hansen 1980, USFWS 1999), specializing in ambushing prey underwater (Brode 1988). Historically, GGS probably preyed on native fish and frog species such as the thick-tailed chub (*Gila crassicauda*) and California red-legged frog (*Rana aurora draytonii*), which have been extirpated from the snake's current range, as well as the Sierran treefrog (*Pseudachris sierra*) and Sacramento blackfish (*Orthodox microlepidus*) (USFWS 1999). GGS now prey upon introduced species, including small bullfrogs (*Rana catesbeiana*) and their larvae (tadpoles), small carp (*Cyprinus carpio*), and mosquitofish (*Gambusia affinis*). While juveniles probably consume insects and other small invertebrates, GGS are not known to consume larger terrestrial prey such as small mammals or birds (Hansen 1986a).

Large mammals and birds that prey on GGS include raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), red foxes (*Vulpes vulpes*), gray foxes (*Urocyon cinereoagentius*), river otters (*Lutra canadensis*), opossums (*Didelphis virginiana*), northern harriers (*Circus cyaneus*), hawks (*Buteo* spp.), herons (*Ardea herodias*, *Nycticorax nycticorax*), egrets (*Ardea alba*, *Egretta thula*), and American bitterns (*Botaurus lentiginosus*) (USFWS 1999). In areas near urban development, GGS may also fall prey to domestic or feral house cats. In permanent waterways, introduced predatory game fishes such as black and striped bass (*Micropterus* spp.), sunfish (*Lepomis* spp.), and catfish (*Ictalurus* spp.) probably prey on GGS and compete with them for smaller prey (Hansen 1988, USFWS 1993).

GGS coexist with the valley garter snake and, in limited instances, both may be found together with the mountain garter snake (*Thamnophis elegans elegans*), a western terrestrial garter snake subspecies, where this species' range extends to the Central Valley floor. The extent of competition among these species is unknown, but it is likely that differences in habitat use and foraging behavior allow their coexistence (Brode 1988, USFWS 1999).

### *Population Threats*

Potential population threats include urbanization, population fragmentation and isolation, flood control and canal maintenance, agricultural practices, wetland management for waterfowl, introduction and establishment of yellow water primrose (*Ludwigia hexapetala*) (Hansen 2010) and eradication and removal of non-native plants immediately adjacent to aquatic habitat (levee vegetation management), water transfers, invasive predatory species, introduced snake species, floods, drought and climate change, mosquito abatement, roads, netting/erosion control products, selenium contamination and decreased water quality, recreation, heavy grazing, and natural gas exploration (USFWS 2012).

### *Compatible Land Uses*

In the Central Valley, rice fields have become important habitat for GGS. Irrigation water typically enters the rice lands during April along canals and ditches. GGS use these canals and their banks as permanent habitat for both spring and summer active behavior and winter hibernation. Where these canals are not regularly maintained, lush aquatic, emergent, and streamside vegetation develop prior to the spring emergence of GGS. This vegetation, in combination with cracks and holes in the soil, provides much needed sheltering cover during spring emergence and throughout the remainder of the summer active period.

Rice is planted during the spring after the winter fallow fields have been cultivated and flooded with several inches of standing water. In some cases, GGS move from the canals and ditches into these rice fields soon after the rice plants emerge above the water's surface, and continue to use the fields until the water is drained during late summer or fall (Hansen and Brode 1993). It appears that the majority of GGS move back into the canals and ditches as the rice fields are drained, although a few may overwinter in the fallow fields where they hibernate within burrows located in the small berms separating the rice checks (Hansen 1998).

The rice fields provide shallow warm water habitat where the snakes forage for small fish and the tadpoles of bullfrogs and treefrogs. For shelter and basking sites, GGS utilize the rice plants, the small vegetated berms dividing the rice checks, and the vegetated field margins. Gravid (pregnant) females may be observed within the rice fields during the summer, and at least some GGS are born there (Hansen and Brode 1993; Hansen 1988).

Water is drained from the fields during the late summer or fall by a network of drainage ditches. These ditches are sometimes routed alongside irrigation canals, and are often separated from the irrigation canals by narrow vegetated berms that may provide additional shelter. Remnants of old sloughs also may remain within rice-growing regions where they serve as drains or irrigation canals. GGS may use vegetated portions along any of these waterways as permanent aquatic and upland habitat.

Managed wetlands also provide suitable opportunities for GGS. Wetland conservation in the Central Valley mostly occurs through a combination of both public and privately managed refuges, mitigation banks, and duck clubs, creating a large network of wetland preserves throughout the historical range of the giant garter

snake. However, a large percentage of these wetland conservation efforts are focused on waterfowl management, which places greater emphasis on winter water, rather than the summer water on which GGS are dependent (USFWS 1999). With proper consideration given to design, location, and management, these conservation efforts might also significantly benefit the giant garter snake and other wetland dependent species (USFWS 1999).

### *Specific Habitat Requirements for the Southern Sacramento Valley*

GGS in the southern Sacramento Valley, including the Laguna Creek watershed, have been shown to only occur in suitable aquatic habitats that support emergent and aquatic vegetation consisting of low growing thickets and mats of annual and perennial plants. GGS have also been documented to inhabit a band of suitable habitat encircling the Sacramento/San Joaquin Delta and floodplains between 10 and 40 feet in elevation. Larger bodies of open water, shallow water, or those with lightly or unvegetated banks are avoided by GGS. Historic aquatic GGS habitats have lost their ability to support GGS when exposed to heavy grazing and the loss of protective plant cover (including tules). Soil compaction from cattle trampling can result in the destruction of underground and aquatic retreats such as rodent and crayfish burrows and other cracks and holes. Remaining GGS have been exposed to predators and other stresses related to loss of shelter. Habitats suitable for GGS within the southern Sacramento County persist, albeit 10 miles downstream of the Project, although overgrazing and urbanization pose a real threat to GGS remaining or expanding in range. (Brode 1986b).

### **3.0 Methods**

Prior to conducting the field visit, a review of data from the USFWS (2012) Giant Garter Snake 5-Year Review and the California Natural Diversity Data Base (CNDDDB; California Department of Fish and Wildlife [CDFW] 2022) for all current known locations of GGS within the vicinity of the Project was conducted.

After reviewing background information, a field survey was conducted by Madrone biologist Dustin Brown on 16 and 17 November 2022. The field survey focused on evaluating the section of Laguna Creek within the Project for its potential to support GGS. Additionally, all areas within 200 feet of the Project were evaluated for the potential for GGS habitat. Photographs of the Project are included in **Attachment A**.

During the survey Mr. Brown walked meandering transects through the Project site. Vegetation communities and habitat types were noted and were based on dominant vegetation and hydrology (ponding or flowing water). Laguna Creek within the Project and associated upland habitats were evaluated with the use of a modified scoring method developed by Eric Hansen (2008).

According to Hansen's (2008) analysis, habitat evaluation criteria are based on recognized minimum ecological requirements for GGS. Each criterion is scored, with a final numerical total represented categorically. All results are then confirmed with a visual assessment of habitat. This evaluation provides a habitat value, supporting a detailed classification, by trait, of habitat variables within the Project sites and Survey Areas.

Hansen's (2008) scoring method was modified from the USFWS 1999 Draft Recovery Plan for the Giant Garter Snake (Appendix D: Page 157). The evaluation form was updated by Eric Hansen for a higher degree of rigor in assessing habitat value and incorporates a step-wise scale to reduce scoring ambiguity. The modified habitat evaluation and scoring form and instructions for completing this form are included as **Attachments B and C**.

The USFWS (1997) requires that a 200-foot buffer of upland on each bank side of a linear habitat be included as suitable habitat for GGS when assessing a project's disturbance area. The USFWS's measure of suitable habitat is part of the Programmatic Formal Consultation with the U.S. Army Corps of Engineers 404 Permitted Projects with Relatively Small Effects on the Giant Garter Snake within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter and Yolo Counties, California (USFWS 1997). Further, the 200-foot upland buffer has become a standard requirement in subsequent Biological Opinions and impacts analyses; therefore, it was applied to this assessment.

All GGS habitat attributes were recorded in data sheets containing all scoring factors associated with suitable GGS habitat. Habitat attributes were tallied to provide a total habitat score for each feature identified as potential GGS habitat. The scores were then separated into three classes resulting in a suitability score of aquatic habitats with corresponding habitat values. Habitat suitability categories and score ranges are as follows:

- Unsuitable (0-6 points)
- Marginal (7-13 points)
- Suitable (14-19 points)

Habitat classification values (unsuitable, marginal, and suitable) are based upon recognized habitat characteristics and knowledge of GGS and their life history, distribution, and habitat requirements (Hansen and Brode 1980, Hansen 1988, USFWS 1999, Wylie and Martin 2000, Hansen 2003, Hansen 2004) and are defined below.

*Unsuitable habitat* is characterized by lack of the water, vegetation, and refugia necessary to support GGS for a biologically meaningful period. Such habitat is generally composed of large rivers, lakes, and concrete (gunite) drains or temporary swales that possess no water during the active spring and summer seasons. As such, unsuitable habitat corridors are no more likely to support GGS than any non-aquatic environment, and if they do so, they do so only by chance. Transient features, such as shallow trenches and furrows intended only to direct winter runoff, typically do not persist through the remainder of the season and do not provide the aquatic habitat necessary to support GGS for a meaningful time and should therefore be assigned to this category. However, because transient features still exhibit characteristics such as winter water, bank sun, and bank or upland vegetation, they can potentially accumulate the number of points necessary to qualify as marginal habitat in this evaluation scheme.

*Marginal habitat* is characterized by any combination of those suitable habitat features listed below such that it can support transient GGS on a temporary basis or act as a connective corridor between areas of more stable or desirable habitat. This habitat need only possess the water, vegetation, and refugia required to provide minimal coverage for dispersing snakes. Marginal habitat is incapable of supporting permanent populations of GGS and is typically ephemeral, providing no permanent source of prey.

*Suitable habitat* is characterized by containing all of the features necessary to support permanent populations of GGS, including: 1) sufficient water during the active summer season to supply cover and food such as small fish and amphibians; 2) emergent, herbaceous aquatic vegetation accompanied by vegetated banks to provide basking and foraging habitat; 3) bankside burrows, holes and crevices to provide short-term aestivation sites; and 4) high ground or upland habitat above the annual high-water mark to provide cover and refugia from floodwaters during the dormant winter season (Hansen 1988, Hansen and Brode 1980).

## 4.0 Results

### *CNDDDB Results*

The CNDDDB search (CDFW 2022) revealed no documented occurrences of GGS within 1 mile of the Project and a total of four documented occurrences within 5-miles of the Project (**Figure 3**). See **Attachment D** for CNDDDB Occurrence reports.

The nearest occurrence (Occurrence Number 169) is located along Waterman Road approximately 2.5 mile south of the Project. This occurrence was documented in 2002 and consists of an observation of a single snake along a roadside ditch on the east side of Waterman Road approximately 0.8 mile north of Grant Line Road. Madrone senior biologist Dustin Brown visited of the area where Occurrence 169 is located and determined that there is no suitable GGS habitat in the vicinity. The ditches along Waterman Road are highly ephemeral and do not support a prey base. Additionally, the high velocity vehicular traffic along Waterman Road would preclude a population of GGS from inhabiting the area. See page 3 of **Attachment A** for photographs of the Occurrence 169.

There is a documented occurrence of GGS (Occurrence Number 84) located approximately 4 miles downstream of the Project along Laguna Creek. GGS were observed in a marsh surrounded by irrigated pasture and grazed grassland in 1976 and 1982. None were observed during surveys conducted at this location in 1986-1987. This area was developed into housing and the marsh was converted to a constructed wetland since the observations. It is assumed by the CNDDDB that this population of GGS is possibly extirpated (CNDDDB 2022).

The next closest occurrence of GGS (Occurrence Number 13) is located approximately 3 miles southwest of the Project along Elk Grove Creek. GGS were identified at this location in 1929, 1976, and 1982. The marsh was filled in 1984 as part of a development and no GGS have been observed in the area since. It is assumed by the CNDDDB that this population of GGS is extirpated (CNDDDB 2022).

The nearest extant GGS occurrence is located approximately 9 miles west of the Project along Morrison Creek near the Sacramento Regional Wastewater Treatment Plant. Habitat at this location consists of the confluence of Morrison, Union House, and Laguna Creeks through a low wide marshy basin with tule and cattail (CNDDDB 2022). This occurrence is located approximately 10-miles downstream of the Project in which Laguna Creek flows through almost continuous urban development with many stretches of poor-quality ephemeral habitat.

### *Laguna Creek*

Madrone identified one aquatic feature within the Project and within 200 feet of the Project, Laguna Creek. Laguna Creek within the Project was ponded but not flowing at the time of the November 2022 habitat assessment. Wetted width ranged from 20 to 50 feet. Substrate along the bed and banks of Laguna Creek was soil/mud and water depth was generally shallow and averaged between 6 and 10 inches with deeper areas observed in the southern portion of the Project. The banks are cut vertical from cattle trampling, range from 2 to 6 feet in height and are sparsely vegetated by annual grasses and forbs with few small patches of Armenian blackberry (*Rubus armeniacus*). Laguna Creek with the Project contained no aquatic or emergent vegetation to provide cover or refugia to GGS. There is a run-of-river dam located along Laguna Creek

approximately 0.65 miles downstream. This dam has created an in-stream reservoir approximately 1.5-miles in length which includes the entire length of Laguna Creek in the Project. It is assumed, based upon the presence of an old water pump located within Laguna Creek within the Project, that water within this reservoir was historically pumped out of the creek to be used to irrigate the northeastern 60-acre portion of the Project as pasture for cattle. The uplands surrounding Laguna Creek consist of non-native grazed annual grassland.

The non-native mosquitofish (*Gambusia affinis*) and spotted bass (*Micropterus punctulatus*) were observed within Laguna Creek at the time of the survey.

Laguna Creek scored a "6" on the GGS habitat suitability scale (**Attachment B**) and is thus classified as unsuitable habitat for GGS.

## **5.0 Conclusion**

Laguna Creek and the uplands within the Project do not represent suitable habitat for GGS. Factors include the lack aquatic and emergent vegetation, the lack of substantial bank vegetation, the lack of subterranean retreats in the bank and adjacent uplands, the presence of introduced game fish in Laguna Creek, and no connectivity to extant GGS populations. Also, it should be noted that the Project is outside of the known elevation range for the species within the southern Sacramento Valley (Brode 1986b). Based on the lack of suitable habitat located within the Project and within 200 feet of the Project, we believe GGS are not present within the Project area.

## 6.0 REFERENCES

- Balfour, P.S. and E. W. Stitt. 2002. "*Nerodia fasciata fasciata*." *Herpetological Review* 33(2): 150.
- Brode, J. 1988. Natural history of the giant garter snake (*Thamnophis couchii gigas*). Pages 25-28, In Proceedings of the conference on California herpetology, H.F. DeListe, P.R. Brown, B. Kaufman, and B.M. McGurty (eds). Southwestern Herpetologists Society, Special Publications No. 4.
- Brode, J. and G. Hansen. 1992. *Status and future management of the giant garter snake (Thamnophis gigas) within the southern American Basin, Sacramento and Sutter counties, California*. California Department of Fish and Game, Inland Fisheries Division, January 1992.
- Brown, D. 2000. "The *Nerodia rhombifera* problem." Unpublished report to California Department of Fish and Game. 35 pp.
- California Department of Fish and Wildlife (CDFW). 2022. California Natural Diversity Database (CNDDB), Rarefind 5 Commercial Version. Accessed November 2022.
- Fitch, H.S. 1940. "A biogeographical study of the *ordinoides* artenkreis of garter snakes (genus *Thamnophis*)." *Univ. Calif. Publ. Zool.* 44:1-150.
- Hansen, R. W. 1980. "Western aquatic garter snakes in central California: an ecological and evolutionary perspective." Master of Arts thesis, California State University, Fresno, California. 78 pp.
- Hansen, G.E. 1986a. Status of the giant garter snake *Thamnophis couchi gigas* (Fitch) in the Southern San Joaquin Valley During 1986. Final report for California Department of Fish and Game Agreement No. C-1433. Unpublished. 31 pp.
- Hansen, G.E. 1986b. Status of the giant garter snake *Thamnophis couchi gigas* (Fitch) in the Southern Sacramento Valley During 1986. Final report for California Department of Fish and Game Agreement No. C-1433. Unpublished. 29 pp.
- Hansen, R. W. 1988. "Review of the status of the giant garter snake (*Thamnophis couchi gigas*) and its supporting habitat during 1986-87." Final report to California Department of Fish and Game, Contract C-2060. 31 pp.
- Hansen, R. W. and G. E. Hansen. 1990. "*Thamnophis gigas* (giant garter snake) reproduction." *Herpetological Review* 21(4): 93-94.
- Hansen, G. E. and J. M. Brode. 1980. "Status of the giant garter snake *Thamnophis couchi gigas* (Fitch)." California Department of Fish and Game, Inland Fisheries Endangered Species Program Special Publication 80-5, 14 pp.
- Hansen, E.C. 2004. "Year 2003 investigations of the giant garter snake (*Thamnophis gigas*) in the Middle American Basin: Sutter County, California." Annual report prepared for Sacramento Area Flood Control Agency. March 10, 2004. Contract No. 381. Unpublished. 40 pp.
- Hansen, E.C. 2008. "Evaluations of Giant Garter Snake (*Thamnophis gigas*) habitat and consideration of potential species impacts for the Antioch Bridge Seismic Retrofit Project, Sacramento County and Contra Costa County, California." November 12, 2008. Unpublished. 25 pp.
- Hansen, E.C., H. McQuillen, S. Sweet, S. Gala, and J. Marty. Response of the Giant Garter Snake (*Thamnophis gigas*) to Water Primrose (*Ludwigia hexapetala*) Removal at the Cosumnes River Preserve. Final Report Submitted to the Central Valley Project Conservation Program – Habitat Restoration Program. December 29, 2010. 43 pp.

- Hansen, G.E. and J.M. Brode. 1993. "Results of relocating canal habitat of the giant garter snake (*Thamnophis gigas*) during widening of State Route 99/70 in Sacramento and Sutter counties, California." Final report for Caltrans Interagency Agreement 03E325 (FG7550) (FY 87/88-91-92). Unpublished. 36 pp.
- Jayne, B.C. and A.F. Bennett. 1990. "Selection on Locomotor Performance Capacity in a Natural Population of Garter Snakes." *Evolution* Volume 44, Issue 5 (Aug., 1990), 1204-1229.
- Miles, Scott and Charles Goudey. 1997. *Ecological Subregions of California*. United States Department of Agriculture, Forest Service. Pacific Southwest Division. R5-EM-TP-005. San Francisco.
- Stitt, E., P. Balfour, T. Luckau, and T.E. Edwards. 2005. "The Southern Watersnake (*Nerodia fasciata*) in Folsom, California: History, Population Attributes, and Relation to Other Introduced Watersnakes in North America." Final Report to U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, 2800 Cottage Way, Sacramento, California under Cooperative Agreement #11420-1933-CM02 by ECORP Consulting, Inc. April 11, 2005. 72 pp. and appendices.
- U.S. Fish and Wildlife Service (USFWS). 1993. Endangered and threatened wildlife and plants; determination of threatened status for the giant garter snake. Federal Register 58:54053-54066.
- U.S. Fish and Wildlife Service (USFWS). 1997. *Programmatic Formal Consultation for the U.S. Army Corps of Engineers 404 Permitted Projects with Relatively Small Effects on the Giant Garter Snake within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter, and Yolo Counties, California*. November 13, 1997. 20 pp. and appendices.
- U.S. Fish and Wildlife Service (USFWS). 1999. *Draft Recovery Plan for the Giant Garter Snake (Thamnophis gigas)*. Portland, Oregon. 192 pp.
- U.S. Fish and Wildlife Service (USFWS). 2006. *Giant Garter Snake (Thamnophis gigas) 5-Year Review: Summary and Evaluation*. September 2006. 46 pp.
- U.S. Fish and Wildlife Service (USFWS). 2012. *Giant Garter Snake (Thamnophis gigas) 5-Year Review: Summary and Evaluation*. June 2012. 62 pp.
- U.S. Fish and Wildlife Service (USFWS). 2015. *Revised Recovery Plan for the Giant Garter Snake (Thamnophis gigas)*.
- U.S. Geological Survey. 2022. "Elk Grove, California" 7.5 minute Quadrangle Map.
- Wylie, G. D and L.L. Martin. 2004. "Survey for the Giant Garter Snakes in Solano County: 2004 Report." Prepared for US Fish and Wildlife Service. U. S. Geological Survey, Western Ecological Research Center, Dixon Field Station, Dixon, California. 20 pp.

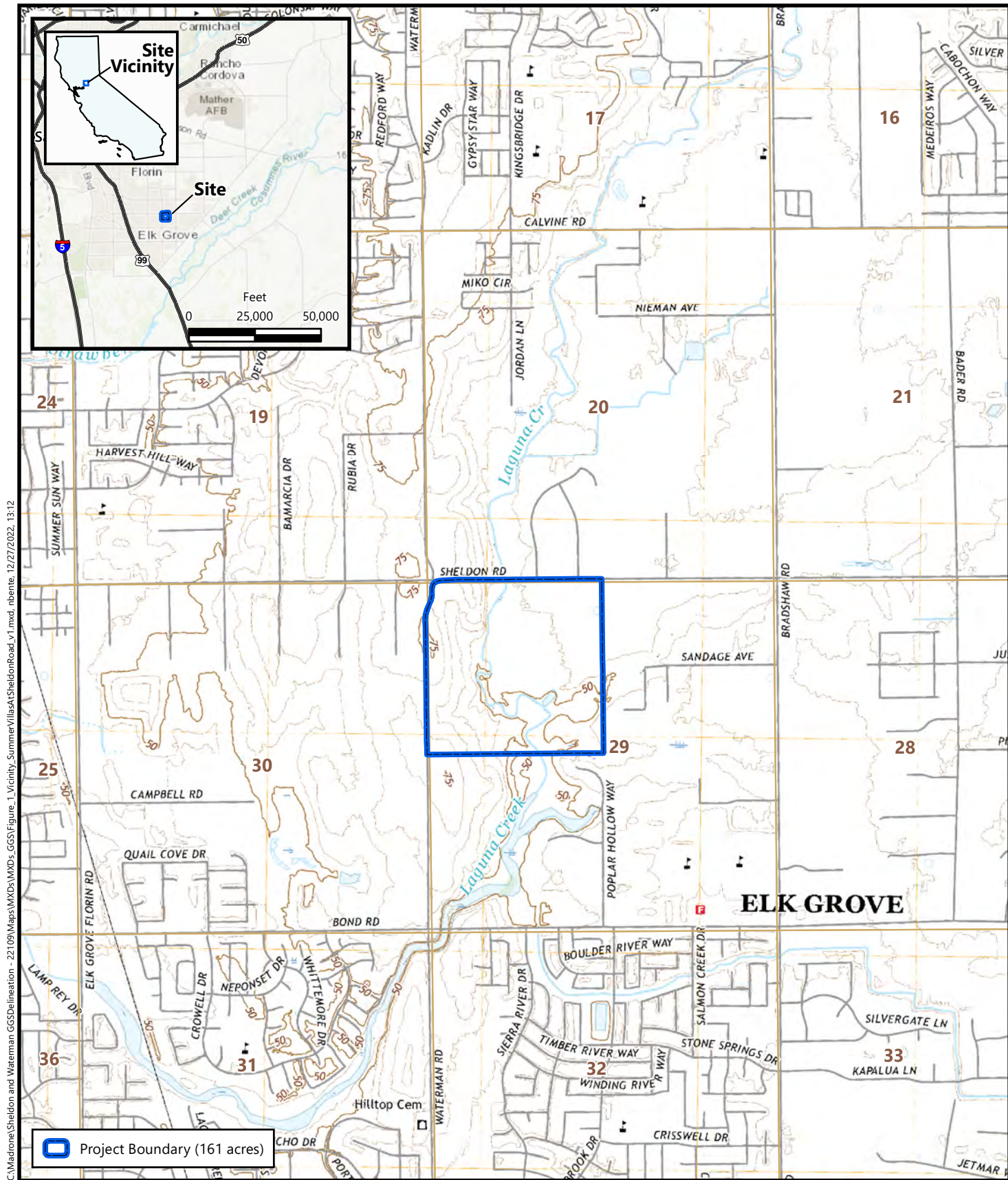
# Figures

---

Figure 1. Site Vicinity

Figure 2. Potential Giant Garter Snake Habitat

Figure 3. California Natural Diversity Database Occurrences of Giant Garter Snake



C:\Madrone\Sheldon and Waterman G6SD\lineation - 22109\Maps\WXDs\WXDs\_G6S\Figure\_1\_Vicinity\_SummerVillas\SheldonRoad\_v1.mxd, nbente, 12/27/2022, 13:12



**Figure 1**  
**Site and Vicinity**

Source: United States Geologic Survey, 2022.  
 "Elk Grove, California" 7.5-Minute Topographic Quadrangle  
 Sections 20, 29-30, Township 7 North, Range 6 East, MDB&M  
 Longitude -121.34857, Latitude 38.434485

Summer Villas at Sheldon Road  
 Sacramento County, California



C:\Madrone\Sheldon and Waterman GGS\Delimitation - 22109\Maps\WXDs\WXDs\_GGS\Figure\_2\_PotentialHabitat\_SummerVillasAtSheldonRoad\_v1.mxd, nbente, 1/5/2023, 15:29

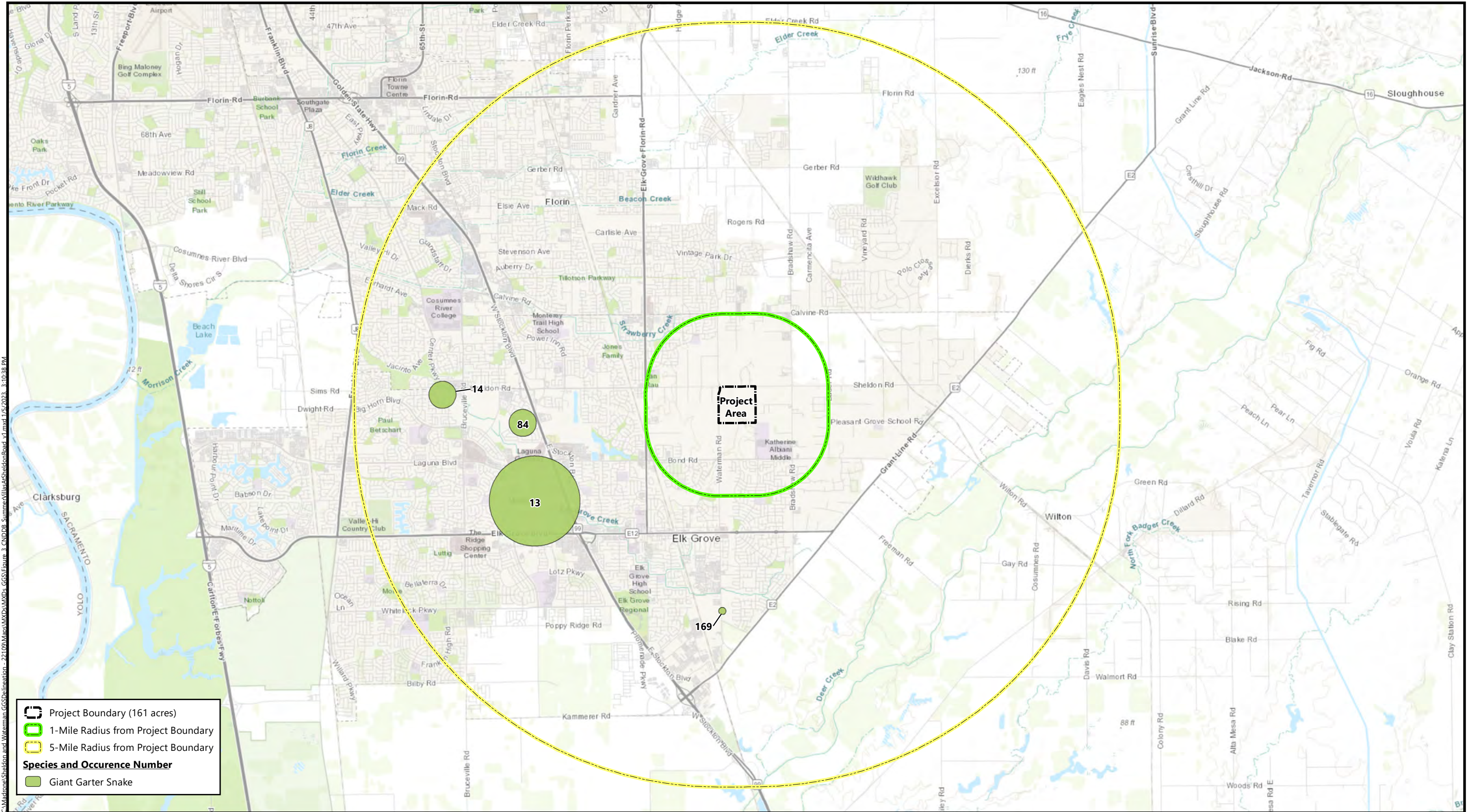


**Figure 2**  
**Potential Giant Garter Snake Habitat**

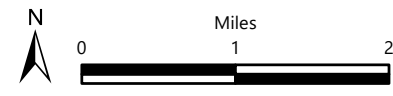
Summer Villas at Sheldon Road  
Sacramento County, California



Aerial Source: Maxar, 26 April 2022



C:\Madrona\Sheldon and Wareman\GIS\Delimitation\_221051\Map\MapDocs\G65\Figure\_3\_CNDDB\_SummerVillasSheldonRoad\_v1.mxd 1/2/2023 3:10:38 PM



**Figure 3**  
**California Natural Diversity Database**  
**Occurrences of Giant Garter Snake**

Source: California Department of Fish and Wildlife, November 2022.  
 Basemap Source: National Geographic and ESRI

Summer Villas at Sheldon Road  
 Sacramento County, California



# Attachments

---

Attachment A: Site Photographs

Attachment B: Habitat Evaluation and Scoring Form

Attachment C: Instructions for Completing the Habitat Evaluation and Scoring Form

Attachment D: CNDDDB Occurrence Reports

# Attachment A

---

## **Site Photographs**



**Photograph 1.** Laguna Creek – Facing north (upstream) from the center of the Project.



**Photograph 2.** Laguna Creek – Facing northwest (upstream) toward the onsite structures.



**Photograph 3.** Tributary to Laguna Creek – Facing west (downstream) in the eastern portion of the Project.



**Photograph 4.** Tributary to Laguna Creek – Facing east (upstream) in the eastern portion of the Project.



**Photograph 5.** Facing north at the outpouching of Laguna Creek. There is a defunct pump and intake pipe that used to be used to irrigate pastureland to the north.



**Photograph 6.** Facing north at Laguna Creek within the southern portion of the Project.



**Photograph 7.** Facing north (upstream) at the Sheldon Road bridge over Laguna Creek



**Photograph 8.** Facing south at the portion of the Project that was historically irrigated pasture that is now annual grassland with yellow star thistle.

Date & Time: Wed, Nov 16, 2022, 15:33:38 PST  
Position: +038.433524° / -121.349138° (±32.8ft)  
Altitude: 34ft (±62.3ft)  
Datum: WGS-84  
Azimuth/Bearing: 177° S03E 3147mils True (±15°)  
Elevation Angle: -08.9°  
Horizon Angle: -02.3°  
Zoom: 0.5X



**Photograph 9.** Facing south at a large seasonal wetland within the center portion of the Project.



**Photograph 10.** Location of CNDDDB Occurrence Number 169 located along Waterman Road 2.6 miles to the south. Facing south.



**Photograph 11.** Location of CNDDDB Occurrence Number 169 located along Waterman Road 2.6 miles to the south. Facing north.

# Attachment B

---

## **Habitat Evaluation and Scoring Form**

# HABITAT EVALUATION AND SCORING FORM

## Giant Garter Snake (*Thamnophis gigas*)

Project Name: <u>Summer Villas at Sheldon Road</u>	
Water Body Name: <u>Laguna Creek</u>	
General Characteristic: <u>Perennial Stream</u>	Permanent/Seasonal <sup>1</sup>
USGS 7.5' Topo Quad: <u>Elk Grove, CA</u>	Township <u>7 N</u> Range <u>6 E</u>
Surveyor/Affiliation: <u>Dustin Brown, Madrone Ecological Consulting</u>	Date: <u>11/17/2022</u> <small>11/16/2022</small>

Scores: 0=absent/none    1=present/low (0-25%)    2=moderate (25-75%)    3=high (75-100%)

Factor	Score
1. Still or slow-flowing water over silt substrate	+ (✓) <sup>2</sup>
2. Flowing water over sand, gravel, rock or cement substrate	- ( ) <sup>2</sup>
3. Water available <sup>3</sup>	
a) Winter only (runoff) or sporadic availability	+ ( ) <sup>2</sup>
b) April through October only (e.g. irrigation)	+ ( ) <sup>2</sup>
c) All year (e.g. perennial marsh or channel)	+ (✓) <sup>2</sup>
4. Banks are sunny	+ (2)
5. Banks shaded by overstory vegetation	- (1)
6. Aquatic or emergent vegetation present	+ (0)
7. Terrestrial vegetation present	
a) On banks	+ (1)
b) In adjacent uplands	+ (2)
8. Subterranean retreats present <sup>3</sup>	
a) In banks	+ (1) <sup>2</sup>
b) In adjacent uplands	+ ( ) <sup>2</sup>
9. Prey fish present	+ (✓) <sup>2</sup>
10. Introduced gamefish present	- (✓) <sup>2</sup>
11. Prey amphibians present	+ ( ) <sup>2</sup>
12. Site subject to severe seasonal or tidal flooding	- (✓) <sup>2</sup>
13. Adjacent land use <sup>3</sup>	
a) Rice, marsh, or wetland	+ ( ) <sup>2</sup>
b) Upland	+ (✓) <sup>2</sup>
c) Row Crop or horticultural	- ( ) <sup>2</sup>
d) Urban or developed public area	- ( ) <sup>2</sup>
14. Disturbance due to human recreational or maintenance activities/Cattle Trampling	- (✓) <sup>2</sup>
15. Connectivity to known populations of GGS	+ ( ) <sup>3</sup>

- Dam on creek 0.65 mi. D/S has created an in-stream reservoir for irrigation purposes

- Banks of Laguna creek are earthen and are cut by cattle trampling.

Clear, not murky water (low quality)

over 10 miles from extant GGS population

<sup>1</sup> seasonal habitat designation results in a total adjusted score of 0 points  
<sup>2</sup> indicates presence/absence only  
<sup>3</sup> factors within these fields are scored cumulatively

- Site is moderately grazed by cattle.

- Grassland contains moderate amounts of yellow star thistle due to past disturbance or irrigation.

- Laguna Creek was inundated (ponded) at the time of the survey but not flowing. Substrate is earthen/mud.

- Creek is generally shallow and the bed is fairly level. Depth averaged 6" with several deeper areas in attached irrigation pump intake area.

- Mosquitofish are present and pre-billed grebe was foraging in deeper areas.

- No aquatic or emergent vegetation is present in creek channel. Bank are moderately vegetated by grass and contain small patches of Armenian Blackberry.

Total: 6

Adjusted Total<sup>1</sup>: 6

# Attachment C

---

## **Instructions for Completing the Habitat Evaluation and Scoring Form**

**INSTRUCTIONS FOR COMPLETING THE HABITAT EVALUATION AND SCORING FORM  
(Hansen 2008)**

**Giant Garter Snake  
(*Thamnophis gigas*)**

**1. Still or slow-flowing water over silt substrate**

This category is checked if bank habitat adjacent to water is composed of soil, silt, or mud in flows no greater than 3 mph. Water in this category will often be dark or murky rather than clear, of the type observed in marshes, sloughs, or irrigation canals. This category is determined by presence or absence only and receives a positive score.

**2. Flowing water over sand, gravel, rock or cement substrate**

This category is checked if channel or bank habitat is composed of an impermeable substrate of the type listed above defining this category, and includes the presence of bank side cinders or fine concrete riprap placed for erosion control. Water in this category will often be clear, associated with flows exceeding 3 mph, of the type typically observed in flowing streams or rivers where silt or sediment will not persist. This category is determined by presence or absence only and receives a negative score.

**3. Water available:**

- a) Winter only (runoff) or sporadic availability**
- b) April through October only (e.g. irrigation)**
- c) All year (e.g. perennial marsh or channel)**

Factors in this category are based upon the persistence of all water within 200 feet of observed habitat. Factors in this category are cumulative, are determined by presence or absence only, and receive positive scores.

**4. Banks are sunny**

This category is checked if bank habitat adjacent to water receives direct sunlight. Availability of sunlight is determined by the ability of GGS to access sun for basking, and does not include areas where vegetation or topography prevents such access. This category receives positive scores determined by percentage of sunlight present. Percentage classes and corresponding point values are included on the Habitat Evaluation and Scoring Form.

**5. Banks shaded by overstory vegetation**

This category is checked if bank habitat adjacent to water receives shade obstructing direct sunlight. This category is designed to complement and weight category 4, and receives negative scores determined by percentage of shade present. Percentage classes and corresponding point values are included on the Habitat Evaluation and Scoring Form.

## **6. Aquatic or emergent vegetation present**

This category is checked if bank side aquatic habitat is characterized by aquatic vegetation which persists above the water level (e.g. cattails, bulrushes, primrose or hyacinth). This category receives positive scores determined by the percentage of aquatic vegetation present. Percentage classes and corresponding point values are included on the Habitat Evaluation and Scoring Form.

## **7. Terrestrial vegetation present**

**a) On banks**

**b) In adjacent uplands**

This category is checked if bank habitat or adjacent uplands within 200 feet of aquatic habitat are characterized by vegetation (e.g. grasses, brush, low shrubs or Himalayan blackberry). This category receives positive scores determined by the percentage of terrestrial vegetation present. Percentage classes and corresponding point values are included on the Habitat Evaluation and Scoring Form.

## **8. Subterranean retreats present**

**a) In banks**

**b) In adjacent uplands**

This category is checked if bank habitat or adjacent uplands within 200 feet of aquatic habitat are characterized by burrows, holes, or cracks either in the soil or under debris. Factors within this category are cumulative, are determined by presence or absence only, and receive positive scores.

## **9. Prey fish present**

This category is checked if small aquatic prey fish (e.g. carp, mosquitofish, or blackfish) are present within aquatic habitat. This category is determined by presence or absence only and receives a positive score.

## **10. Introduced gamefish present**

This category is checked if large, predatory gamefish (e.g. black bass, striped bass, channel catfish) are present within aquatic habitat. This category is determined by presence or absence only and receives a negative score.

## **11. Prey amphibians present**

This category is checked if amphibians (e.g. bullfrog, treefrog, red-legged frog) are present within or near aquatic habitat. Note that toads do not constitute preferred prey for the giant garter snake and are not included when scoring this category. This category is determined by presence or absence only and receives a positive score.

### **12. Site subject to severe seasonal or tidal flooding**

This category is checked if habitat is subject to prolonged inundation of upland terrestrial habitat by seasonal floodwaters or persistent tidal flows. This category is determined by presence or absence only and receives a negative score.

### **13. Adjacent land use**

- a) Rice, marsh, or wetland**
- b) Upland**
- c) Row Crop or horticultural**
- d) Urban or developed public area**

Factors in this category are based upon dominant land use within 200 feet of observed habitat. Factors in this category are cumulative, are determined by presence or absence only and receive positive or negative scores indicated on the Habitat Evaluation and Scoring Form.

# Attachment D

---

## **CNDDDB Occurrence Reports**



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



<b>Map Index Number:</b> 11466	<b>EO Index:</b> 13783
<b>Key Quad:</b> Florin (3812144)	<b>Element Code:</b> ARADB36150
<b>Occurrence Number:</b> 13	<b>Occurrence Last Updated:</b> 2014-12-01

<b>Scientific Name:</b> <i>Thamnophis gigas</i>	<b>Common Name:</b> giant gartersnake
<b>Listing Status:</b>	<b>Rare Plant Rank:</b>
<b>Federal:</b> Threatened	
<b>State:</b> Threatened	<b>Other Lists:</b> IUCN_VU-Vulnerable
<b>CNDDB Element Ranks:</b>	
<b>Global:</b> G2	
<b>State:</b> S2	

<b>General Habitat:</b> PREFERS FRESHWATER MARSH AND LOW GRADIENT STREAMS. HAS ADAPTED TO DRAINAGE CANALS AND IRRIGATION DITCHES.	<b>Micro Habitat:</b> THIS IS THE MOST AQUATIC OF THE GARTERSNAKES IN CALIFORNIA.
--	--

<b>Last Date Observed:</b> 1982-07-26	<b>Occurrence Type:</b> Natural/Native occurrence
<b>Last Survey Date:</b> 1987-XX-XX	<b>Occurrence Rank:</b> None
<b>Owner/Manager:</b> PVT	<b>Trend:</b> Unknown
<b>Presence:</b> Extirpated	

**Location:**  
VICINITY OF ELK GROVE CREEK, JUST NW OF ELK GROVE AND HWY 99 INTERSECTION, ABOUT 1.2 MILES WNW OF ELK GROVE POST OFFICE.

**Detailed Location:**  
MAPPED GENERALLY TO PROVIDED LOCATION DESCRIPTIONS; 1929: TEN MILES SOUTH OF SACRAMENTO. 1976: 0.1 MI N ELK GROVE BLVD, W OF HWY 99. 1982: ELK GROVE CR, 0.4 MI W US 99, 0.5 MI N ELK GROVE BLVD.

**Ecological:**  
THE MARSH AT THIS LOCATION WAS FILLED AND LEVELED FOR INDUSTRIAL PARK DEVELOPMENT AS OF MAY 1984.

**Threats:**  
DEVELOPMENT.

**General:**  
1 COLLECTED IN MAY 1929 BY W. WILSON (CAS# 178600). AT LEAST 1 DETECTED ON 1 JUL 1976; G. HANSEN FIELD NOTES #268. 2 JUVENILES OBSERVED BASKING ON 26 JUL 1982. NO SNAKES OBSERVED DURING 1986-87 STUDY BY G. HANSEN; LEVEL OF EFFORT UNKNOWN.

<b>PLSS:</b> T07N, R05E, Sec. 35 (M)	<b>Accuracy:</b> 3/5 mile	<b>Area (acres):</b> 0
<b>UTM:</b> Zone-10 N4253140 E639692	<b>Latitude/Longitude:</b> 38.41559 / -121.39989	<b>Elevation (feet):</b> 45

<b>County Summary:</b> Sacramento	<b>Quad Summary:</b> Florin (3812144)
--------------------------------------	--

**Sources:**

BRO80U0001 BRODE, J. (CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE) - GEOGRAPHIC REFERENCE CARD CATALOG OF SPECIMENS AND FIELD NOTE RECORDS COMPILED BY JOHN BRODE (DFG) 1980-XX-XX

CAS40S0001 CALIFORNIA ACADEMY OF SCIENCES - 1900-1940 CAS HERPETOLOGY HOLDINGS (INCLUDES STANFORD UNIVERSITY COLLECTIONS) FOR THAMNOPHIS GIGAS 1940-XX-XX

HAN82R0001 HANSEN, G.E. - "STATUS OF THE GIANT GARTER SNAKE (THAMNOPHIS COUCHII GIGAS), ALONG PORTIONS OF LAGUNA AND ELK GROVE CREEKS, SACRAMENTO COUNTY, CA." 1982-XX-XX

HAN88R0001 HANSEN, G. - DRAFT FOR REVIEW OF THE STATUS OF THE GIANT GARTER SNAKE (THAMNOPHIS COUCHII GIGAS) AND ITS SUPPORTING HABITAT DURING 1986-1987. 1988-XX-XX

HOL85U0003 HOLLAND, R.F. - PERSONAL COMMUNICATION REGARDING THAMNOPHIS (COUCHII) GIGAS. 1985-08-23



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



<b>Map Index Number:</b> 11413	<b>EO Index:</b> 27599	
<b>Key Quad:</b> Florin (3812144)	<b>Element Code:</b> ARADB36150	
<b>Occurrence Number:</b> 14	<b>Occurrence Last Updated:</b> 2014-12-04	

<b>Scientific Name:</b> <i>Thamnophis gigas</i>	<b>Common Name:</b> giant gartersnake
<b>Listing Status:</b>	<b>Rare Plant Rank:</b>
<b>Federal:</b> Threatened	
<b>State:</b> Threatened	<b>Other Lists:</b> IUCN_VU-Vulnerable
<b>CNDDDB Element Ranks:</b>	
<b>Global:</b> G2	
<b>State:</b> S2	

<b>General Habitat:</b> PREFERS FRESHWATER MARSH AND LOW GRADIENT STREAMS. HAS ADAPTED TO DRAINAGE CANALS AND IRRIGATION DITCHES.	<b>Micro Habitat:</b> THIS IS THE MOST AQUATIC OF THE GARTERSNAKES IN CALIFORNIA.
--	--

<b>Last Date Observed:</b> 1976-08-03	<b>Occurrence Type:</b> Natural/Native occurrence
<b>Last Survey Date:</b> 1987-XX-XX	<b>Occurrence Rank:</b> None
<b>Owner/Manager:</b> PVT	<b>Trend:</b> Unknown
<b>Presence:</b> Possibly Extirpated	

**Location:**  
LAGUNA CREEK, JUST SOUTH OF SHELDON RD, ABOUT 0.3 MI W OF BRUCEVILLE RD, ELK GROVE.

**Detailed Location:**  
MAPPED ACCORDING TO PROVIDED LOCATION DESCRIPTION OF "SHELDON RD AT CREEK CROSSING, 0.3 MI W OF BRUCEVILLE RD" AND "200 FT S SHELDON RD AT LAGUNA CREEK." 1999-2014 AERIAL PHOTOS SHOW HEAVY DEVELOPMENT SURROUNDING LAGUNA CREEK.

**Ecological:**  
1982 DESCRIPTION: MARSH AREA SURROUNDED BY CULTIVATED FIELDS & HEAVILY GRAZED GRASSLANDS. GRAZED AREAS CHARACTERIZED BY COMPACTED SOIL, FEW RODENT BURROWS, & SPARSE VEGETATION, THEREBY PROVIDING LITTLE COVER FOR SNAKES DURING FLOODS.

**Threats:**  
AGRICULTURE & GRAZING, AREA BECAME HEAVILY RESIDENTIAL BY 2002 (AERIALS).

**General:**  
AT LEAST 1 SNAKE DETECTED ON 3 AUG 1976 BY G. HANSEN (FIELD NOTES #301). NO SNAKES DETECTED DURING JUL-AUG 1982 & 1986-87 STUDY BY G. HANSEN; LEVEL OF EFFORT UNKNOWN.

<b>PLSS:</b> T07N, R05E, Sec. 27, NW (M)	<b>Accuracy:</b> 1/5 mile	<b>Area (acres):</b> 0
<b>UTM:</b> Zone-10 N4255470 E637628	<b>Latitude/Longitude:</b> 38.43691 / -121.42307	<b>Elevation (feet):</b> 25

<b>County Summary:</b> Sacramento	<b>Quad Summary:</b> Florin (3812144)
--------------------------------------	--

**Sources:**

BRO80U0001	BRODE, J. (CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE) - GEOGRAPHIC REFERENCE CARD CATALOG OF SPECIMENS AND FIELD NOTE RECORDS COMPILED BY JOHN BRODE (DFG) 1980-XX-XX
HAN80R0002	HANSEN, G. & J. BRODE - STATUS OF THE GIANT GARTER SNAKE THAMNOPHIS COUCHII GIGAS (FITCH). DEPARTMENT OF FISH AND GAME INLAND FISHERIES ENDANGERED SPECIES PROGRAM SPECIAL PUBLICATION 80-5. 1980-09-XX
HAN82R0001	HANSEN, G.E. - "STATUS OF THE GIANT GARTER SNAKE (THAMNOPHIS COUCHII GIGAS), ALONG PORTIONS OF LAGUNA AND ELK GROVE CREEKS, SACRAMENTO COUNTY, CA." 1982-XX-XX
HAN88R0001	HANSEN, G. - DRAFT FOR REVIEW OF THE STATUS OF THE GIANT GARTER SNAKE (THAMNOPHIS COUCHII GIGAS) AND ITS SUPPORTING HABITAT DURING 1986-1987. 1988-XX-XX



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



<b>Map Index Number:</b> 11449	<b>EO Index:</b> 27544
<b>Key Quad:</b> Florin (3812144)	<b>Element Code:</b> ARADB36150
<b>Occurrence Number:</b> 84	<b>Occurrence Last Updated:</b> 2014-12-24

<b>Scientific Name:</b> <i>Thamnophis gigas</i>	<b>Common Name:</b> giant gartersnake
<b>Listing Status:</b>	<b>Rare Plant Rank:</b>
<b>Federal:</b> Threatened	
<b>State:</b> Threatened	<b>Other Lists:</b> IUCN_VU-Vulnerable
<b>CNDDB Element Ranks:</b>	
<b>Global:</b> G2	
<b>State:</b> S2	

<b>General Habitat:</b> PREFERS FRESHWATER MARSH AND LOW GRADIENT STREAMS. HAS ADAPTED TO DRAINAGE CANALS AND IRRIGATION DITCHES.	<b>Micro Habitat:</b> THIS IS THE MOST AQUATIC OF THE GARTERSNAKES IN CALIFORNIA.
--	--

<b>Last Date Observed:</b> 1982-08-03	<b>Occurrence Type:</b> Natural/Native occurrence
<b>Last Survey Date:</b> 1987-XX-XX	<b>Occurrence Rank:</b> None
<b>Owner/Manager:</b> PVT	<b>Trend:</b> Unknown
<b>Presence:</b> Possibly Extirpated	

**Location:**  
LAGUNA CREEK, JUST W OF HWY 99 OVERPASS, ABOUT 0.8 MI SE OF JCT OF BRUCEVILLE RD & SHELDON RD, ELK GROVE.

**Detailed Location:**  
MAPPED TO PROVIDED LOCATION OF "0.2 MILES W US 99, 0.5 MILES S SHELDON RD" (1982). 1976 DETECTION LOCATION GIVEN AS "LAGUNA CRK, W OF HWY 99 AT ARNO RD OVERCROSSING." ARNO RD RUNS ABOUT 8 MI TO THE SE; ATTRIBUTED TO LAGUNA CK W OF HWY 99.

**Ecological:**  
1982: SNAKE FOUND SWIMMING AMONG CATTAILS & TULE; AREA ALSO KNOWN AS "CONFLUENCE MARSH" (JCT OF LAGUNA CR & ELK GROVE CR). POTENTIAL PREY SPECIES INCLUDE CARP, BULLHEAD, MOSQUITOFISH, & BULLFROG.

**Threats:**  
1982: MARSH SURROUNDED BY IRRIGATED PASTURE & GRAZED GRASSLAND. 2009: CONSTRUCTED WETLAND IN HEAVILY DEVELOPED AREA.

**General:**  
UNKNOWN NUMBER OF SNAKES DETECTED ON 1 JUL 1976 BY G. HANSEN (FIELD #270). 1 ADULT OBSERVED SWIMMING ON 3 AUG 1982. NONE OBSERVED DURING 1986-87 STUDY BY G. HANSEN DUE TO HEAVY FLOOD EVENT.

<b>PLSS:</b> T07N, R05E, Sec. 26, NW (M)	<b>Accuracy:</b> 1/5 mile	<b>Area (acres):</b> 0
<b>UTM:</b> Zone-10 N4254866 E639409	<b>Latitude/Longitude:</b> 38.43119 / -121.40279	<b>Elevation (feet):</b> 20

<b>County Summary:</b> Sacramento	<b>Quad Summary:</b> Florin (3812144)
--------------------------------------	--

**Sources:**

BRO80U0001	BRODE, J. (CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE) - GEOGRAPHIC REFERENCE CARD CATALOG OF SPECIMENS AND FIELD NOTE RECORDS COMPILED BY JOHN BRODE (DFG) 1980-XX-XX
HAN82R0001	HANSEN, G.E. - "STATUS OF THE GIANT GARTER SNAKE (THAMNOPHIS COUCHII GIGAS), ALONG PORTIONS OF LAGUNA AND ELK GROVE CREEKS, SACRAMENTO COUNTY, CA." 1982-XX-XX
HAN88R0001	HANSEN, G. - DRAFT FOR REVIEW OF THE STATUS OF THE GIANT GARTER SNAKE (THAMNOPHIS COUCHII GIGAS) AND ITS SUPPORTING HABITAT DURING 1986-1987. 1988-XX-XX



# Occurrence Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



<b>Map Index Number:</b> 47639	<b>EO Index:</b> 47639
<b>Key Quad:</b> Elk Grove (3812143)	<b>Element Code:</b> ARADB36150
<b>Occurrence Number:</b> 169	<b>Occurrence Last Updated:</b> 2002-04-11

<b>Scientific Name:</b> <i>Thamnophis gigas</i>	<b>Common Name:</b> giant gartersnake
<b>Listing Status:</b>	<b>Rare Plant Rank:</b>
<b>Federal:</b> Threatened	
<b>State:</b> Threatened	<b>Other Lists:</b> IUCN_VU-Vulnerable
<b>CNDDDB Element Ranks:</b>	
<b>Global:</b> G2	
<b>State:</b> S2	

<b>General Habitat:</b> PREFERS FRESHWATER MARSH AND LOW GRADIENT STREAMS. HAS ADAPTED TO DRAINAGE CANALS AND IRRIGATION DITCHES.	<b>Micro Habitat:</b> THIS IS THE MOST AQUATIC OF THE GARTERSNAKES IN CALIFORNIA.
--	--

<b>Last Date Observed:</b> 2002-03-27	<b>Occurrence Type:</b> Natural/Native occurrence
<b>Last Survey Date:</b> 2002-03-27	<b>Occurrence Rank:</b> Fair
<b>Owner/Manager:</b> PVT	<b>Trend:</b> Unknown
<b>Presence:</b> Presumed Extant	

**Location:**  
EAST SIDE OF WATERMAN ROAD, 0.8 MILE NORTH OF GRANT LINE ROAD, SE OF ELK GROVE.

**Detailed Location:**  
SNAKE OBSERVED AT THE CONFLUENCE OF A WETLAND SWALE AND THE DITCH.

**Ecological:**  
HABITAT CONSISTS OF A ROADSIDE DITCH ALONG WATERMAN ROAD; VEGETATION CONSISTS OF PASPALUM DILATATUM, TYPHA LATIFOLIA, AND CYPERUS ERAGRASTIS.

**Threats:**  
THREATENED BY TRAFFIC AND DITCH MAINTENANCE.

**General:**  
1 ADULT OBSERVED ON 27 MAR 2002.

<b>PLSS:</b> T06N, R06E, Sec. 08, NW (M)	<b>Accuracy:</b> 80 meters	<b>Area (acres):</b> 0
<b>UTM:</b> Zone-10 N4250752 E643861	<b>Latitude/Longitude:</b> 38.39342 / -121.35265	<b>Elevation (feet):</b> 50

<b>County Summary:</b> Sacramento	<b>Quad Summary:</b> Elk Grove (3812143)
--------------------------------------	---

**Sources:**  
HEN02F0002 HENKE, J. (MOORE BIOLOGICAL CONSULTANTS) - FIELD SURVEY FORM FOR THAMNOPHIS GIGAS 2002-03-27