RESOLUTION NO. 2023-258

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF ELK GROVE ADOPTING THE INITIAL STUDY/MITIGATED NEGATIVE DECLARATION AND MITIGATION MONITORING AND REPORTING PROGRAM PREPARED FOR THE STATHOS SELF STORAGE PROJECT, PROJECT NO. PLNG21-053 LOCATED ON THE NORTH SIDE OF ELK GROVE BOULEVARD 1600 FEET WEST OF BRUCEVILLE ROAD APNs: 116-0061-042 AND 116-0061-010

WHEREAS, the Development Services Department of the City of Elk Grove (the “City”) received an application on August 4, 2021, from Ryan Smith (the “Applicant”) requesting a General Plan Amendment, Rezone, Conditional Use Permit, Major Design Review with Deviation, and Tree Removal Permit for the Stathos Self Storage Project (the “Project”); and

WHEREAS, the proposed Project is located on real property in the incorporated portions of the City more particularly described as APNs: 116-0061-042 and 116-0061-010; and

WHEREAS, the Development Services Department considered the Project request pursuant to the Elk Grove General Plan, the Elk Grove Municipal Code (EGMC) Title 23 (Zoning), Title 22 (Land Development), the Elk Grove Design Guidelines, and all other applicable state and local regulations; and

WHEREAS, the Planning Commission held a duly-noticed public hearing on October 5, 2023, as required by law to consider all of the information presented by staff, information presented by the Applicant, and public testimony presented in writing and at the meeting, and voted 3-0 to recommend approval of the Project to the City Council; and

WHEREAS, the City Council held a duly-noticed public hearing on November 8, 2023, as required by law to consider all of the information presented by staff, information presented by the Applicant, and public testimony presented in writing and at the meeting.

NOW, THEREFORE, BE IT RESOLVED, that the City Council of the City of Elk Grove hereby adopts the Initial Study/Mitigation Negative Declaration and Mitigation Monitoring and Reporting Program (provided as Exhibits A and B, respectively and incorporated herein by this reference), based upon the following finding:

CEQA

Finding: The proposal will not have any significant adverse impacts on the environment and all potentially significant effects have been adequately analyzed in a Mitigated Negative Declaration that was prepared for the Project by the City. The Mitigated Negative Declaration adequately addresses all environmental issues related to the development of the subject property. The City Council has reviewed the Initial Study and Draft Mitigated Negative Declaration (IS/MND), which indicates the Stathos Self Storage Project will not have a significant impact on the environment.

> Evidence: The City prepared an IS/MND for the Stathos Self Storage Project and mitigation measures have been developed that will reduce potential environmental impacts to less than significant levels. Preparation of a Mitigation Monitoring and Reporting Program (MMRP) is required in accordance with the City of Elk Grove regulations and state law, which is designed to ensure compliance during project implementation.

The City distributed the Notice of Intent to Adopt the MND on October 2, 2022. It was posted at the Sacramento County Clerk's office, distributed through State Clearinghouse and at the City offices, pursuant to Section 15072 of Chapter 3 of Title 14 of the California Code of Regulations (State CEQA Guidelines). A 30-day review and comment period was opened on October 7, 2022, and closed on November 7, 2022. The MND was made available to the public during this review period. The City received four written comment letters within the 30-day public review period. The comments do not alter the conclusions of the IS/MND as described in the staff report for the Project.

The IS/MND determined that the proposed Project would not result in any environmental impacts that could not be mitigated to a less than significant level. Mitigation measures addressing air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, tribal cultural resources, and mandatory findings of significance were incorporated to ensure that the Project would have a less than significant impact on the environment. A Mitigation Monitoring and Reporting Program (MMRP) has been prepared which contains mitigation measures aimed at avoiding and minimizing environmental impacts to the extent feasible. On the basis of the MND, environmental analysis, and the whole record, there is no substantial evidence that the Project will have a significant adverse impact on the environment above those addressed within the adopted MND.

PASSED AND ADOPTED by the City Council of the City of Elk Grove this 8th day of November 2023

DARREN SUEN, COUNCIL MEMBER of the CITY OF ELK GROVE

ATTEST:

JASON LINDGREN, CITY CLERK

APPROVED AS TO FORM:

JONATHAN P. HOBBS, CITY ATTORNEY

EXHIBIT A

CITY OF ELK GROVE
DEVELOPMENT SERVICES DEPARTMENT

Stathos Self Storage Project (PLNG21-053)

INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

October 2022

RANEY PLANNING & MANAGEMENT, INC.
1501 Sports Drive, Suite A, ▪ Sacramento ▪ CA ▪ 95834
Office 916.372.6100 ▪ Fax 916.419.610

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INITIAL STUDY

OCTOBER 2022

SUMMARY

1.	Project Title:	Stathos Self Storage Project
2.	Lead Agency Name and Address:	City of Elk Grove Development Services Department 8401 Laguna Palms Way Elk Grove, CA 95758
3.	Contact Person and Phone Number:	Sarah Kirchgessner Project Planner (916) 478-2245
4.	Project Location:	6901 Elk Grove Boulevard Elk Grove, CA 95758
5.	Project Sponsor's Name and Address:	Thomastown Builders, Inc. 10608 Industrial Avenue #100 Roseville, CA, 95678 (916) 633-6501
6.	Existing General Plan Designation:	Low Density Residential (LDR)
7.	Existing Zoning Designation:	Low Density Residential (RD-5)
8.	Proposed General Plan Designation:	Employment Center (EC)
9.	Proposed Zoning Designation:	Industrial-Office Park (MP)
10.	Required Approvals from Other Public Agencies:	None

11. Surrounding Land Uses and Setting:

The 7.71-acre Stathos Self Storage Project (Project) site is identified by Assessor's Parcel Numbers (APNs) 116-0061-010 and -042, is currently undeveloped, and contains 72 trees. Surrounding existing uses include the Good Shepherd Catholic Church parking lot and a single-family residence to the immediate north; single-family residences and South Lichtenberger Park further to the north, across Kilconnell Drive; Carlton Senior Living and single-family residences to the east; single-family residences to the south, across Elk Grove Boulevard; and the Good Shepherd Catholic Church, St. Elizabeth Ann Seton Catholic School, and the Laguna Creek Sports Club to the west. The City of Elk Grove General Plan designates the site as Low Density Residential (LDR) and the site is zoned Low Density Residential with a maximum of five dwelling units per acre (RD-5).

12. Project Description Summary:

The Project would include development of a 160,902-square-foot (sf) self-storage facility. The facility would be comprised of six single-story self-storage buildings ranging in size from 9,800 sf to 20,052 sf and a two-story office building. The latter structure would consist of an office on the ground-level floor; a two-bedroom, two-bathroom apartment for the onsite resident manager on the second floor; and an associated three-car garage. The Project would also include an outdoor RV storage area comprised of 70 parking stalls, which would later be converted into two 19,750 sf standard storage buildings. New utilities infrastructure to serve the office building would be extended from the existing infrastructure within Elk Grove Boulevard. All areas between the on-site buildings would be graded and paved. Primary site access would be provided by a driveway off of Elk Grove Boulevard. A security gate would be installed at the entrance of the storage facility. The necessary entitlements include a General Plan Amendment from LDR to Employment Center (EC), a corresponding Rezone from RD-5 to Industrial-Office Park (MP), a Conditional Use Permit, Major Design Review, and Tree Removal Permit.

13. Status of Native American Consultation Pursuant to Public Resources Code (PRC) Section 21080.3.1:

In compliance with Assembly Bill (AB) 52 (PRC Section 21080.3.1), on May 19, 2022, the City provided formal notification letters to the following tribes that had requested notification: the Buena Vista Rancheria of Me-Wuk Indians; Ione Band of Miwok Indians; Nashville Enterprise Miwok-Maidu-Nishinam Tribe; Shingle Springs Band of Miwok Indians; Tsi Akim Maidu; United Auburn Indian Community of the Auburn Rancheria; Wilton Rancheria; and the Chicken Ranch Rancheria of Me-Wuk Indians. Requests for consultation were received from the Wilton Rancheria on May 20, 2022. It should be noted that consultation pursuant to Senate Bill (SB) 18 has also been conducted for the proposed project, the results of which have been incorporated into this document.

SOURCES

The following documents are referenced information sources used for the purposes of this Initial Study/Mitigated Negative Declaration (IS/MND):

1. Burrell Consulting Group Inc. *Preliminary Drainage Study: Elk Grove Self-Storage.* July 2021.
2. California Department of Conservation. *California Important Farmland Finder.* Available at: https://maps.conservation.ca.gov/DLRP/CIFF/. Accessed May 2022.
3. California Department of Conservation. *Fault Activity Map of California*. Available at: https://maps.conservation.ca.gov/cgs/fam/. Accessed May 2022.
4. California Department of Forestry and Fire Protection. *Sacramento County, Very High Fire Hazard Severity Zones in LRA, As Recommended by CAL FIRE*. July 30, 2008.
5. California Department of Toxic Substances Control. *EnviroStor.* Available at: https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=6901+Elk+Grove+Boulevard . Accessed June 2022.
6. California Department of Transportation. *List of eligible and officially designated State Scenic Highways*. Available at: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Accessed May 2022.
7. California Energy Commission. *Title 24 2019 Building Energy Efficiency Standards FAQ*. November 2018.

8. California Regional Water Quality Control Board, Central Valley Region. *Order No. R5-2016-0020-01 NPDES No. CA0077682*. April 2016.
9. California Tree and Landscape Consulting, Inc. *Property Transition Arborist Report*. December 21, 2020.
10. City of Elk Grove. *Climate Action Plan: 2019 Update*. December 2019.
11. City of Elk Grove. *Elk Grove Municipal Code Chapter 16.130: Swainson's Hawk Impact Mitigation Fees.* February 2022.
12. City of Elk Grove. *General Plan*. February 2019.
13. City of Elk Grove. *General Plan Update Draft Environmental Impact Report*. February 2019.
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19. Cosumnes Fire Department. *Operations Division*. Available at: https://www.yourcsd.com/469/Operations-Division. Accessed May 2022.
20. Elk Grove Police Department. *About Us.* Available at: https://www.elkgrovepd.org/about_us. Accessed September 2022.
21. Federal Emergency Management Agency. *National Flood Hazard Layer.* Available at: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd. Accessed May 2022.
22. Fehr & Peers. *Elk Grove Self Storage – VMT.* October 5, 2022.
23. Office of Environmental Health Hazard Assessment. *Air Toxics Hot Spots Program Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments*. February 2015.
24. Sacramento Metropolitan Air Quality Management District. *Climate Action Planning in the Sacramento Metropolitan Air Quality Management District*. November 2017.
25. Sacramento Metropolitan Air Quality Management District. *Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District*. October 2020.
26. Sacramento Metropolitan Air Quality Management District. *Guide to Air Quality Assessment in Sacramento County*. May 2018.
27. Sacramento Metropolitan Air Quality Management District. *Guide to Air Quality Assessment, Chapter 4: Operational Criteria Air Pollutant and Precursor Emissions*. October 2020.
28. Spack Consulting. *ITE Trip Generation Rates – 9th Edition.* November 2012.
29. State Water Resources Control Board. *GeoTracker*. Available at: https://geotracker.waterboards.ca.gov/. Accessed May 2022.
30. Tom Origer & Associates. *Cultural Resources Study for the Stathos Self Storage Project.* July 29, 2022.
31. U.S. Environmental Protection Agency. *User's Guide for the AMS/EPA Regulatory Model (AERMOD)*. December 2016.
32. U.S. Fish and Wildlife Service. *National Wetlands Inventory.* Available at: https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/. Accessed May 2022.
33. Wallace-Kuhl & Associates. *Geotechnical Engineering Report Update: Elk Grove Self Storage*. July 2, 2021.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is "Less-Than-Significant with Mitigation Incorporated" as indicated by the checklist on the following pages.

☐	**Aesthetics**	☐	**Agriculture and Forest Resources**	✖	**Air Quality**
✖	**Biological Resources**	✖	**Cultural Resources**	☐	**Energy**
✖	**Geology and Soils**	☐	**Greenhouse Gas Emissions**	✖	**Hazards and Hazardous Materials**
✖	**Hydrology and Water Quality**	☐	**Land Use and Planning**	☐	**Mineral Resources**
✖	**Noise**	☐	**Population and Housing**	☐	**Public Services**
☐	**Recreation**	☐	**Transportation**	✖	**Tribal Cultural Resources**
☐	**Utilities and Service Systems**	☐	**Wildfire**	☐	**Mandatory Findings of Significance**

DETERMINATION

On the basis of this Initial Study:

☐ I find that the Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the applicant. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the Project, nothing further is required.

______________________________	______________________________
Signature	Date
Sarah Kirchgessner, Project Planner	City of Elk Grove
Printed Name	For

BACKGROUND AND INTRODUCTION

This IS/MND identifies and analyzes the potential environmental impacts of the Project. The information and analysis presented in this document is organized in accordance with the order of the California Environmental Quality Act (CEQA) checklist in Appendix G of the CEQA Guidelines. Where the analysis provided in this document identifies potentially significant environmental effects of the proposed Project, mitigation measures are prescribed. The mitigation measures prescribed for environmental effects described in this IS/MND would be implemented in conjunction with the Project, as required by CEQA. The mitigation measures would be incorporated into the Project through Project conditions of approval. The City would adopt findings and a Mitigation Monitoring/Reporting Program for the Project in conjunction with approval of the Project.

In February 2019, the City of Elk Grove approved a new General Plan and certified an associated Environmental Impact Report (EIR) for the updated General Plan (SCH No. 2017062058). The General Plan EIR is a program EIR, prepared pursuant to Section 15168 of the CEQA Guidelines (Title 14, California Code of Regulations [CCR], Sections 15000 *et seq*.). The General Plan EIR analyzed full implementation of the General Plan and identified measures to mitigate the significant adverse impacts associated with the General Plan. Consistent with Section 15150 of the CEQA Guidelines, applicable portions of the General Plan and General Plan EIR are incorporated by reference as part of this IS/MND. The referenced General Plan and General Plan EIR are available to the public for inspection at Elk Grove City Hall (8401 Laguna Palms Way) and online at the following web address:

http://www.elkgrovecity.org/city_hall/departments_divisions/planning/environmental_review

It should be noted that the applicant currently operates the Laguna Self Storage boat and RV storage facility on Dwight Road in the City of Elk Grove. However, the City and the San Joaquin Regional Rail Commission (SJRRC) and San Joaquin Joint Powers Authority (SJJPA) are acquiring the Laguna Self Storage facility and developing a rail transit station at that location, called the Elk Grove Station Project. The boat and RV storage are being transferred to the Project site, and new personal storage buildings would be constructed at the Project site.

PROJECT DESCRIPTION

The following provides a description of the Project site's location and current setting, as well as the Project components and the discretionary actions required for the Project.

Project Location and Setting

The 7.71-acre Project site is located at 6901 Elk Grove Boulevard in the City of Elk Grove, California (see Figure 1 and Figure 2). The Project site, identified by APNs 116-0061-010 and -042, is currently undeveloped, is regularly disked, and contains 72 trees. The site is generally flat, with the exception of an eight-foot-deep depression in the northern portion of the Project site. Scattered foundation remnants and a capped water well are also located in the northern portion of the Project site.

The City of Elk Grove General Plan designates the site as LDR and the site is zoned RD-5. Surrounding existing uses include the Good Shepherd Catholic Church parking lot and a single-family residence to the immediate north; single-family residences further to the north, across Kilconnell Drive; Carlton Senior Living and single-family residences to the east; single-family residences to the south, across Elk Grove Boulevard; the Good Shepherd Catholic Church, St. Elizabeth Ann Seton Catholic School, and the Laguna Creek Sports Club to the west; and South Lichtenberger Park to the northwest.

Figure 1
Regional Project Location

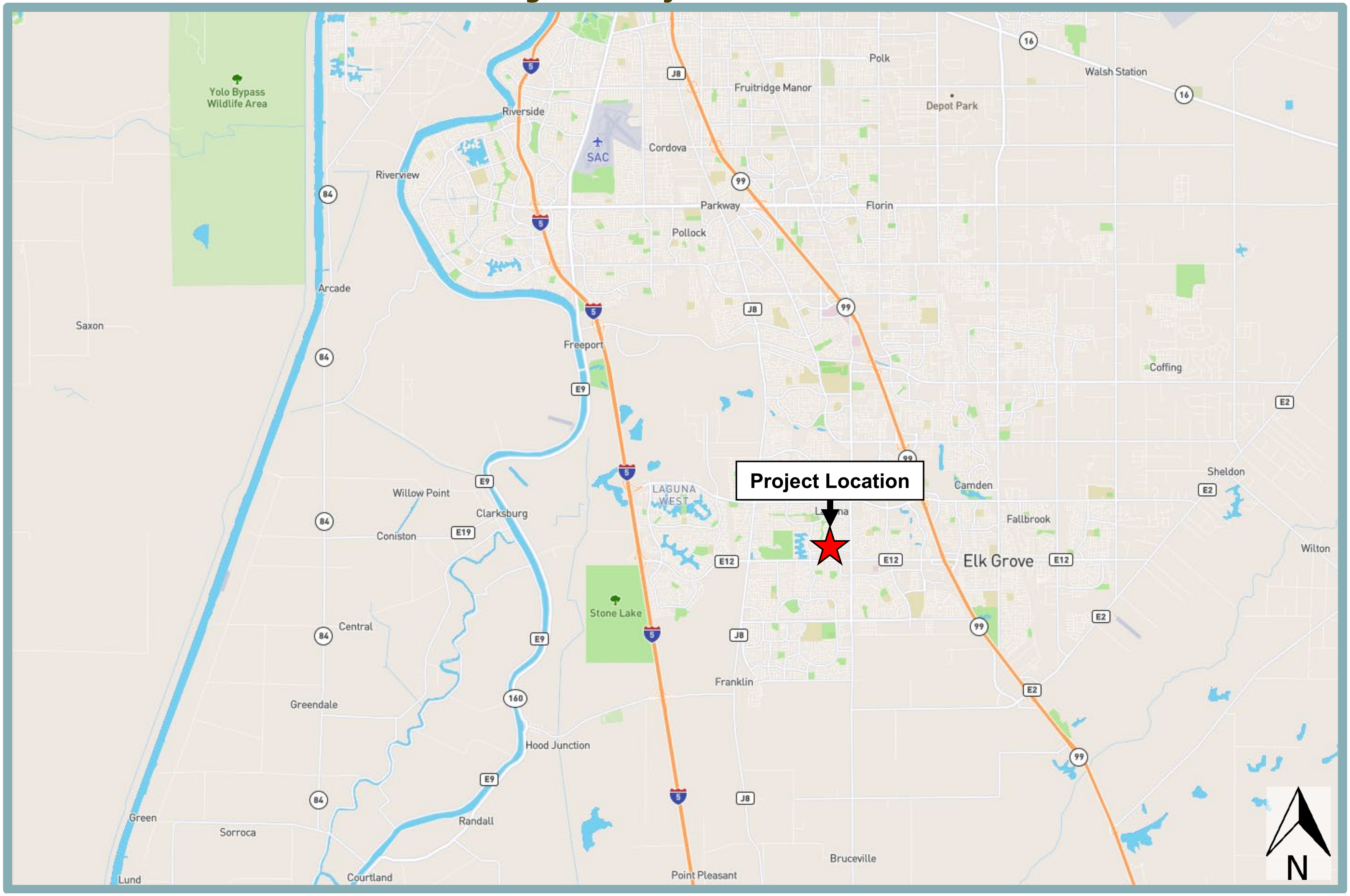


Figure 2
Project Site Boundaries

***Project site boundaries are approximate.**

Project Components

The Project would include development of a 160,902-sf self-storage facility (see Figure 3). The facility would be comprised of six single-story self-storage buildings ranging in size from 9,800 sf to 25,600 sf and a two-story office/manager residence building. The Project would require a General Plan Amendment (GPA) from LDR to EC, a corresponding Rezone from RD-5 to MP, a Conditional Use Permit (CUP), Major Design Review, and a Tree Removal Permit. The Project components and requested approvals are discussed in detail below.

Proposed Self-Storage Buildings and Office

The proposed self-storage facility would consist of six single-story self-storage buildings and a two-story office/manager residence building. In addition to the 160,902-sf self-storage facility, the Project would also include the future construction of two 19,750 sf standard storage buildings in the center of the northern portion of the site. In the interim, the location of the two future buildings would be used for RV storage.

The self-storage buildings would range in size from 9,800 sf to 25,600 sf. As shown in Figure 3, the four self-storage buildings labeled as Buildings A, B, C, and F would be generally located along the west, north, and eastern borders of the Project site. The Project would include a 25-foot landscaped setback adjacent to the existing residential uses along the eastern boundary and a portion of the northeast corner for Buildings C, B, and a portion of Building A. The two remaining self-storage buildings, labeled Buildings E and D in Figure 3, would be located in the center of the southern portion of the Project site.

Buildings E and D would include a fire room in the corner, four exits, and approximately 78 storage areas ranging in size from 100 sf to 200 sf (see Figure 4). Buildings F, B, and C would be comprised of varying numbers of storage areas, each approximately 250 sf in size. Building A, as well as the two interim RV storage areas, would consist of an overall total of 72 parking spaces, which would each be 784 sf in size.

The two-story office/manager residence building would be located in the southeastern corner of the Project site, adjacent to the entrance driveway. The building would consist of an office on the first floor and a two-bedroom, two-bathroom apartment for the onsite resident manager above the office on the second floor (see Figure 5). The first floor would be comprised of a reception area and public restroom at its southernmost end, with two offices, a break room, and an employee restroom further north, and a three-car garage located at the northernmost end. The second floor consists of two bedrooms and bathrooms, a living room, kitchen, and dining area for the onsite resident manager. In total, the two-story office building would comprise approximately 3,648 sf.

Access to the Project would be provided through a new driveway from Elk Grove Boulevard, which would be designed in accordance with the Type A-6 Commercial Driveway specifications delineated in the City standards. The driveway would lead through a parking area containing seven parking spaces, including one space that would be compliant with the Americans with Disabilities Act (ADA). To the north of the parking area, a security gate would be installed at the entrance to the storage facility; each storage unit tenant, as well as the resident manager, would have a unique code for entry. Circulation on the Project site itself would be provided through drive aisles ranging in size from 27 feet to 60 feet (see Figure 3). Emergency vehicle access would be available through Tarbert Drive and Fox Cliff Way on the northeastern border of the Project site. In addition, the Project would include a six-foot-wide meandering sidewalk that would connect to the existing sidewalk on the Project's frontage along Elk Grove Boulevard.

Figure 3
Site Plan Overview

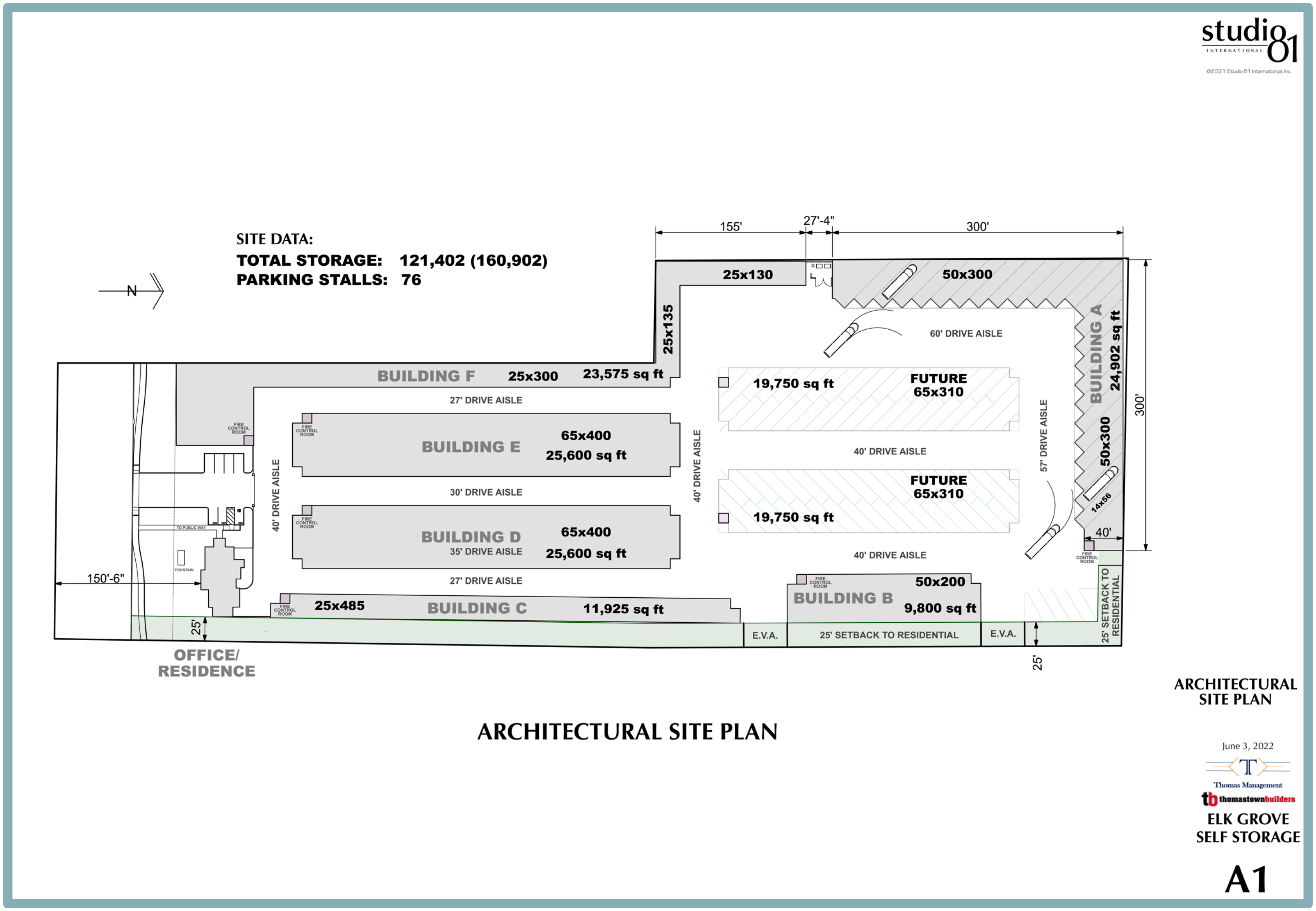


Figure 4
Typical Storage Plans and Elevations

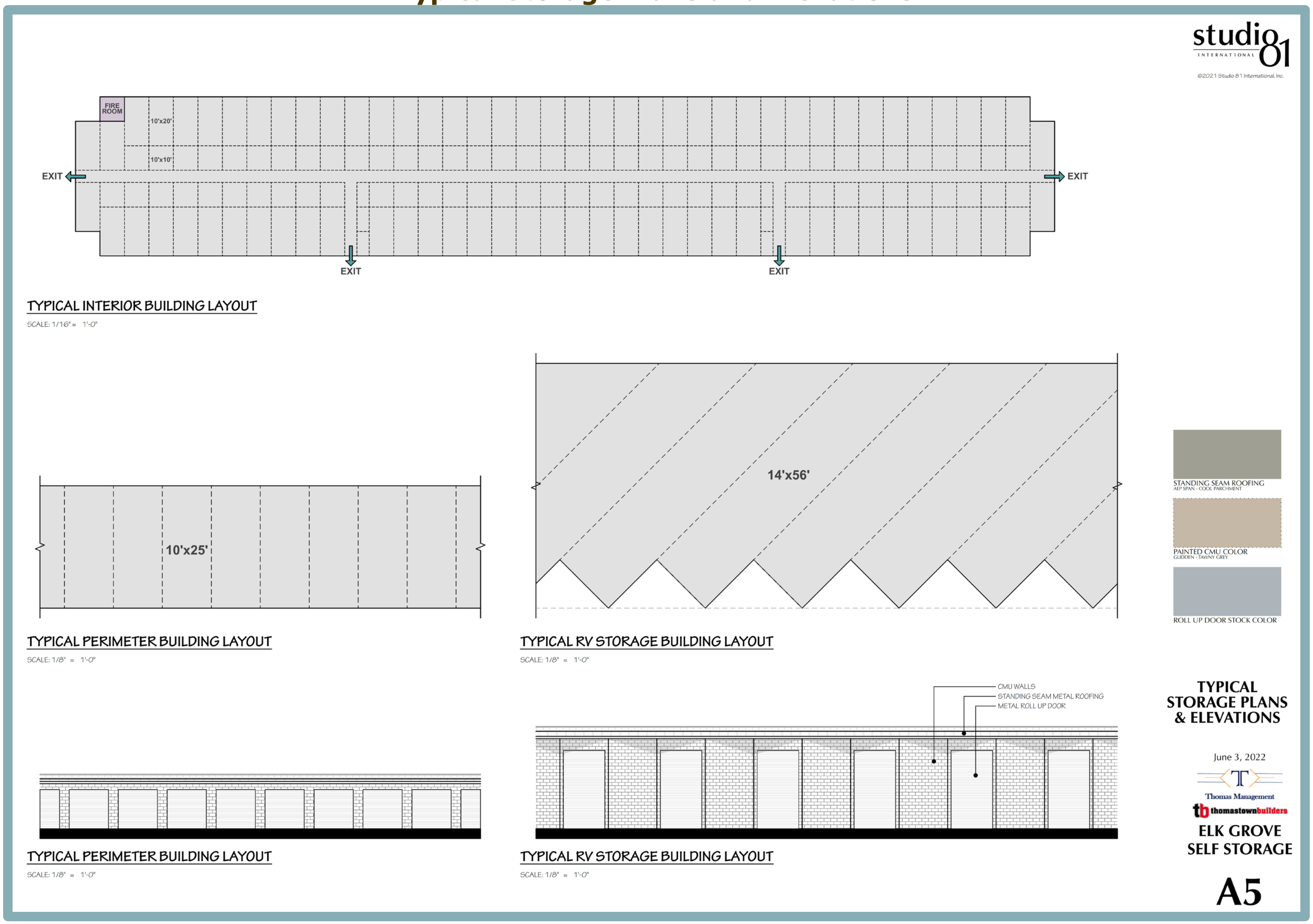
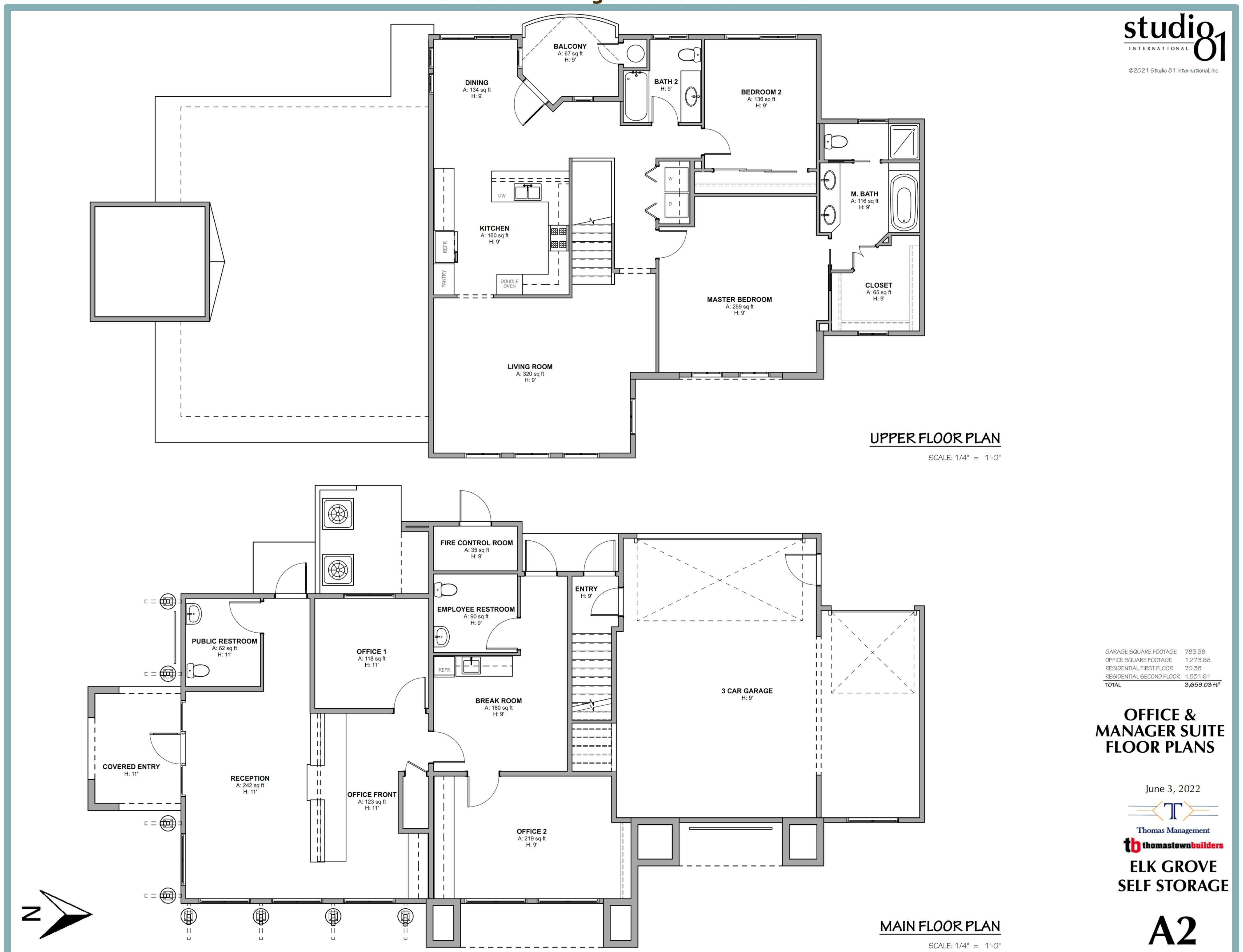


Figure 5
Office and Manger Suite Floor Plans



Consistent with Section 23.54.040 of the City's Municipal Code, landscaping would be provided throughout the site in accordance with the City's minimum landscape requirements for commercial zones. The 72 existing trees within the Project site would be removed as part of the Project, requiring the approval of a Tree Removal Permit. However, new trees would be planted within the proposed parking areas as well as along the Project frontages. The proposed trees would provide shade cover for the parking area. The proposed landscape plants would consist of low water use shrubs, groundcover, trees, and ornamental grasses that are considered low maintenance and hardy (see Figure 6).

Water supply to the proposed development would be provided by the Sacramento County Water Agency (SCWA) by way of new connections to the existing 12-inch water line located within Elk Grove Boulevard (see Figure 7). Sewer service would be provided by the Sacramento Area Sewer District (SASD) by way of new connections to the existing eight-inch sewer line located in Tarbert Avenue.

The Project site consists of eight small water sheds. Stormwater runoff would be treated by a system of Bioclean modular wetlands units, which are biofiltration systems, located among the landscaped area at the southernmost frontage of the Project site (see Figure 8). Stormwater would be directed through the Bioclean modular wetlands before being discharged through new 12-inch underground storm drains connecting to an existing eight-inch storm drain located within Tarbert Drive, and to the existing 72-inch storm drain located within Elk Grove Boulevard.

General Plan Amendment and Rezone

The Project would require a GPA to change the site's General Plan land use designation from LDR to EC. In addition, the Project would require a rezone to change the site's zoning designation from RD-5 to MP. As specified in the General Plan, EC uses are generally characterized by high-intensity office, industrial flex space, and light industrial uses generally located along major arterial roadways and/or within one-quarter mile of major intersections. As written in the Municipal Code, the MP district is intended to provide well-designed and integrated development that supports a range of clean, light industrial or high-technology office and manufacturing uses and may include research, retail, service, and storage components. The MP designation is intended for low to medium intensity uses located along freeways, thoroughfares, arterials, or collectors or near existing/planned public transit stops. Development should be pedestrian-friendly with connections between and among different uses; however, it should also accommodate automobiles.

It should be noted that pursuant to SB 330, cities are prohibited from rezoning from residential to non-residential uses unless another site is zoned to accommodate the number of potential units lost. The City is currently in the process of upzoning a 16-acre property from RD-4 to RD-7 elsewhere within the City in the Laguna Ridge Specific Plan, which will accommodate the number of potential units lost. The approval process of the proposed upzoning shall be concurrent with that of the proposed project.

Conditional Use Permit

According to Section 23.27.020 of the Elk Grove Municipal Code, a self-storage facility and auto and vehicle storage are conditionally permitted uses in a MP zone. As such, the proposed Project would require the approval of a CUP.

Figure 6
Landscape Development Plans

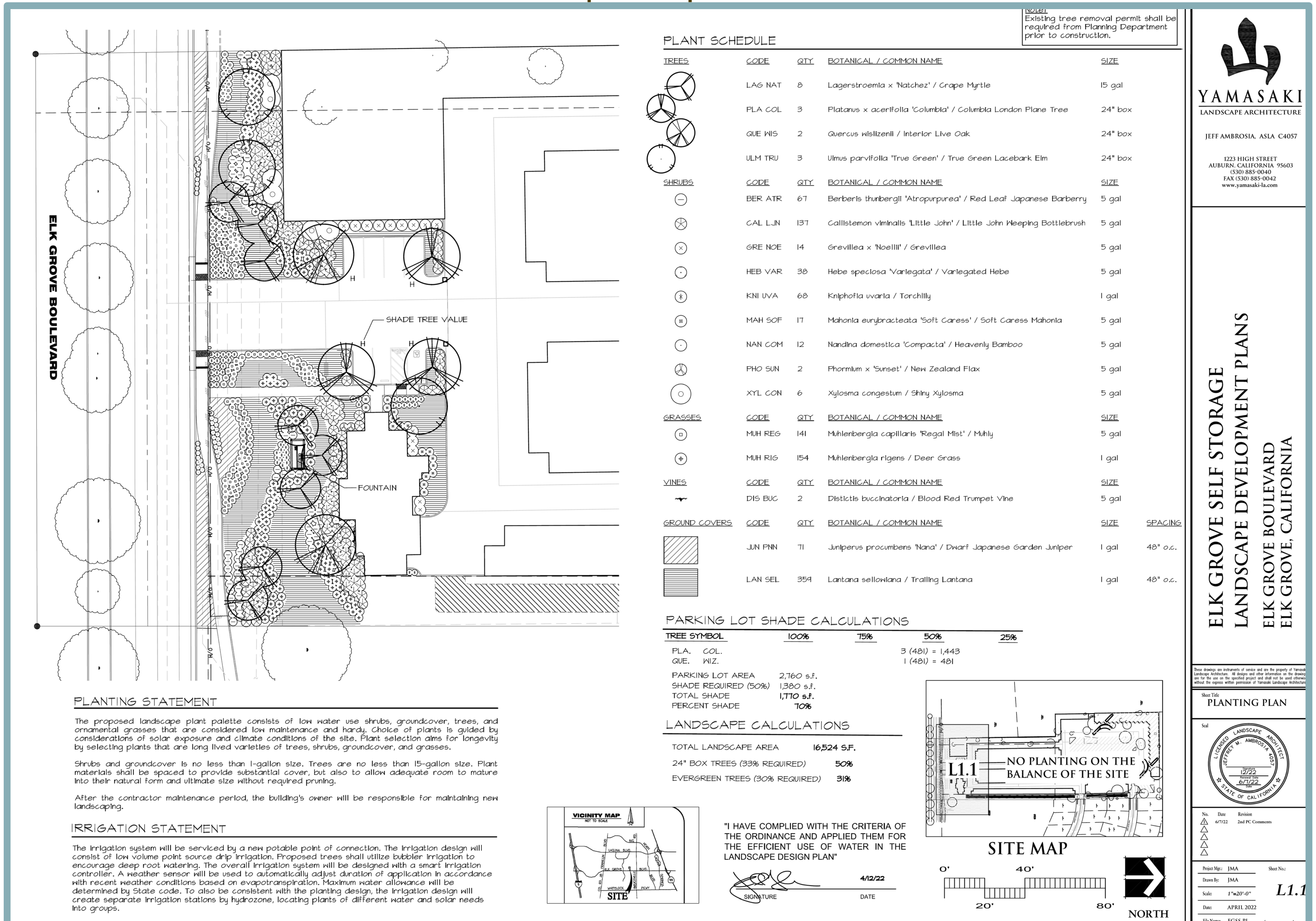


Figure 7
Preliminary Grading and Utility Plan

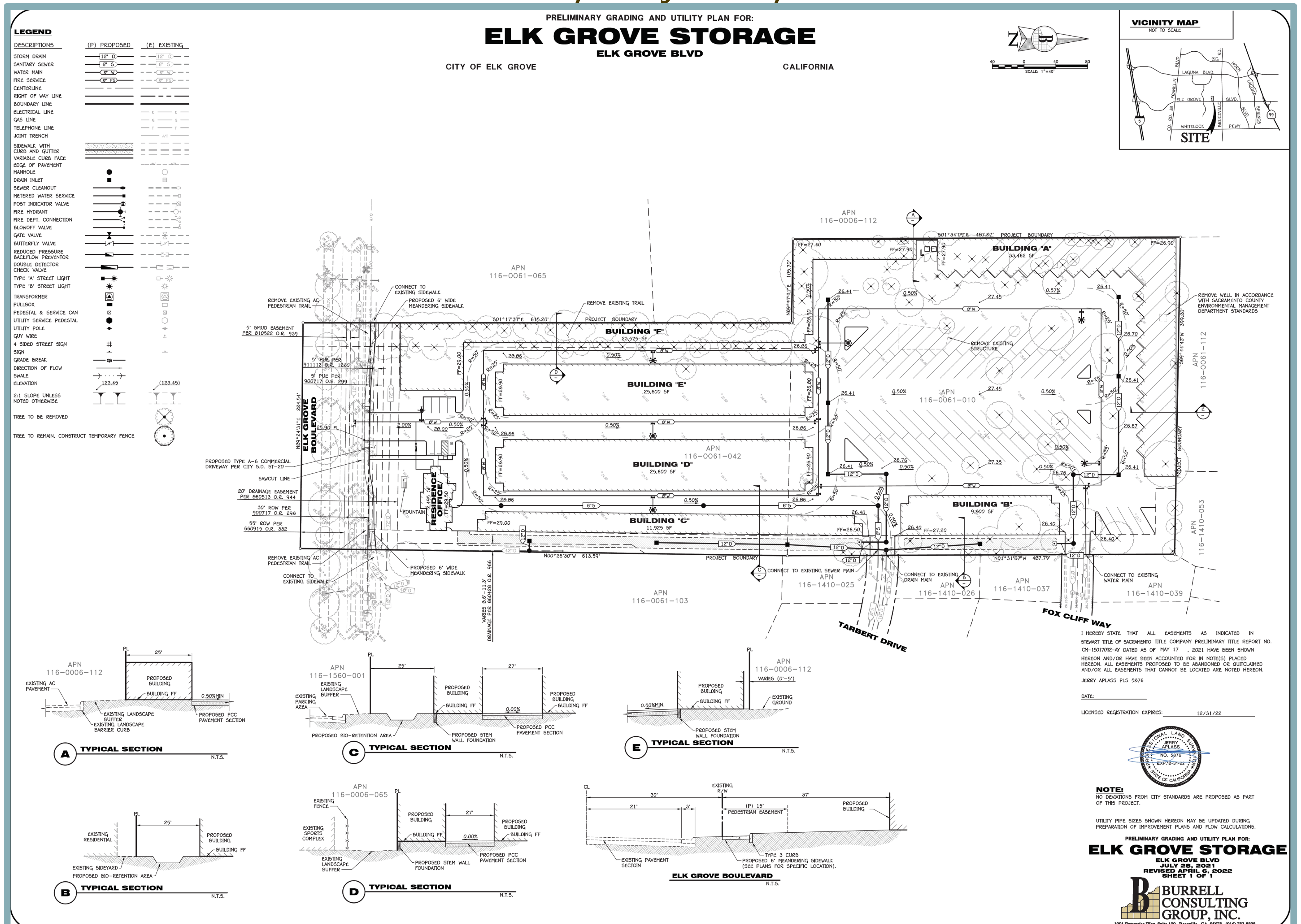
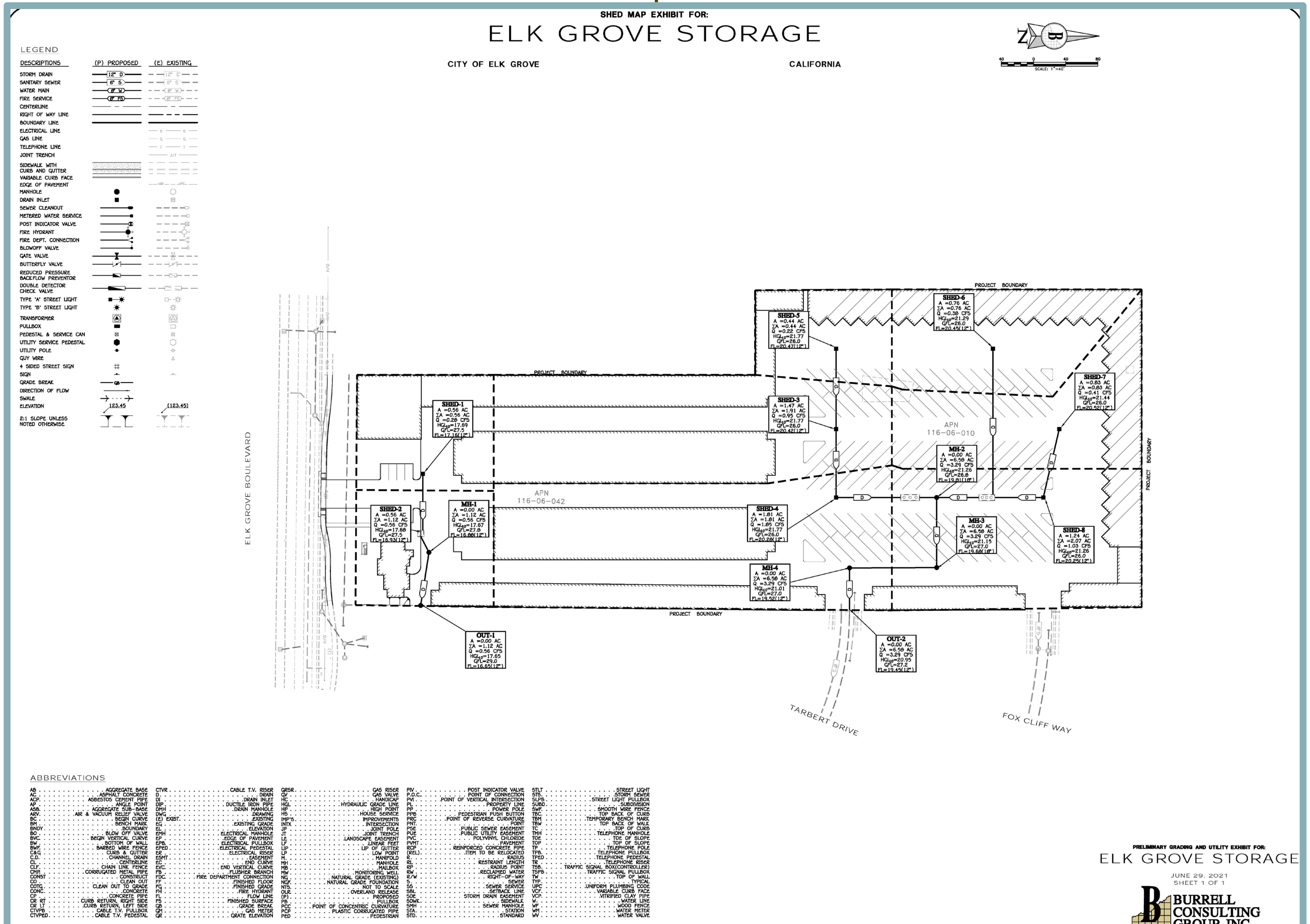


Figure 8
Shed Map Exhibit



Major Design Review

Pursuant to Section 23.16.080 of the City's Municipal Code, the Project would be subject to Major Design Review by the City. The Project would be reviewed based on the standards set forth in Section 23.16.080. Specifically, the site plan and proposed building elevations would be analyzed based on elements of design, development location, and arrangement of all structures in harmony with surrounding facilities. The purpose of the Major Design Review process is to allow the City to review all development, signs, buildings, structures, and other facilities in order to ensure physical, visual, and functional compatibility between uses and encourage development in keeping with the desired character of the City.

Project Approvals

The Project would require City approval of the following entitlements:

- IS/MND and Mitigation Monitoring Reporting Program (MMRP);
- GPA from LDR to EC;
- Rezone from RD-5 to MP;
- CUP;
- Major Design Review; and
- Tree Removal Permit.

ENVIRONMENTAL CHECKLIST

The following Checklist contains the environmental checklist form presented in Appendix G of the CEQA Guidelines. The checklist form is used to describe the impacts of the Project. A discussion follows each environmental issue identified in the checklist. Included in each discussion are Project-specific mitigation measures recommended, as appropriate, as part of the Project. For this checklist, the following designations are used:

Potentially Significant Impact: An impact that could be significant, and for which no mitigation has been identified. If any potentially significant impacts are identified, an EIR must be prepared.

Less Than Significant with Mitigation Incorporated: An impact that requires mitigation to reduce the impact to a less-than-significant level.

Less-Than-Significant Impact: Any impact that would not be considered significant under CEQA relative to existing standards.

No Impact: The Project would not have any impact.

I. AESTHETICS. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☐	✖
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	☐	☐	☐	✖
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	✖	☐
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	✖	☐

Discussion

a,b. Examples of typical scenic vistas would include mountain ranges, ridgelines, or bodies of water as viewed from a highway, public space, or other area designated for the express purpose of viewing and sightseeing. In general, a project's impact to a scenic vista would occur if development of the Project would substantially change or remove a scenic vista. The City's General Plan does not identify any scenic vistas in the Project area. Thus, the proposed residential development would not have a substantial adverse effect on a scenic vista. In addition, according to the California Scenic Highway Mapping System, the Project site is located approximately five miles east of the nearest State Scenic Highway, State Route (SR) 160.[1] The Project site is not visible from SR 160. Although the proposed Project would involve the removal of all 72 on-site trees, the trees are not located within a State scenic highway. Thus, such tree removal would not constitute an impact upon a scenic vista or a scenic resource. In addition, the General Plan EIR did not identify any significant impacts related to scenic vistas or State Scenic Highways.

Based on the above, the Project would not have a substantial adverse effect on a scenic vista and would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway. Thus, ***no impact*** would occur.

c. The Project would change the visual character and quality of the site from a vacant lot to a self-storage facility and associated improvements, which includes landscaping and utility infrastructure improvements. However, the visual character of the Project would be consistent with existing surrounding development and supplemented by landscaping improvements. All architectural elements of the Project would be designed in compliance with the applicable sections of the City's Design Guidelines and the Elk Grove Municipal Code Development Standards, and the existing landscaping trees along the Project frontage along Elk Grove Boulevard would be retained. For example, the proposed building architecture would feature a stucco façade with expansion joints and stucco trim along the roof, a partial brick veneer, a wrought-iron trellis structure, aluminum windows with bronze-colored frames, standing seam metal awnings, modern exterior lighting, and a decorative fountain (see Figure 9 and Figure 10).

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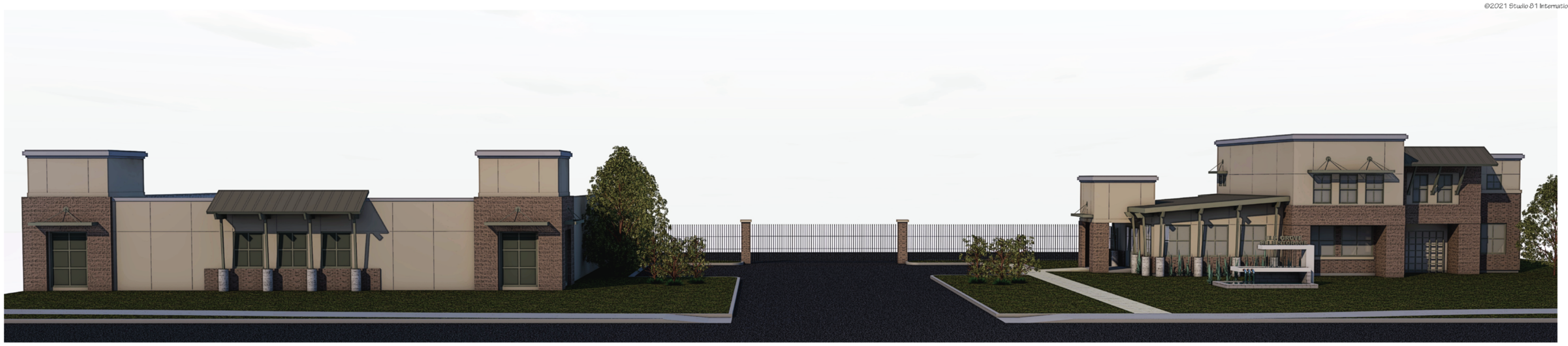
1 California Department of Transportation. *List of eligible and officially designated State Scenic Highways*. Available at: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Accessed May 2022.

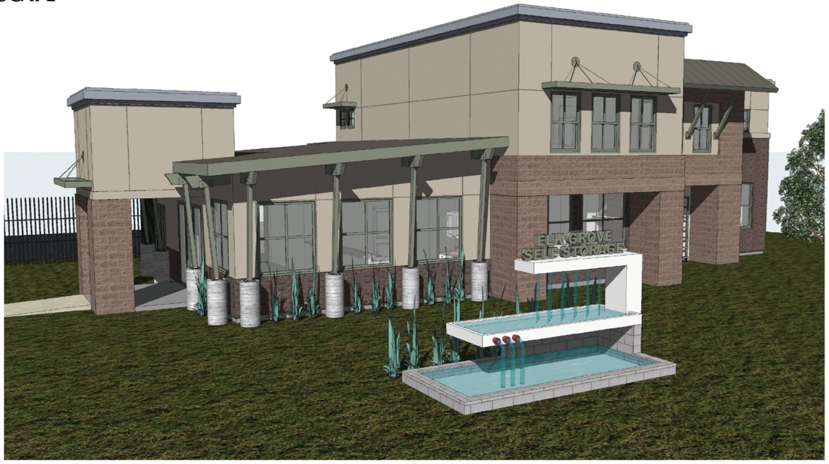
Figure 9
Office and Manager Suite Elevations

Figure 10
Elk Grove Boulevard Streetscape



ELK GROVE BLVD
STREETSCAPE

STORAGE BUILDING
PERSPECTIVE



OFFICE & MANAGER SUITE
PERSPECTIVE

June 3, 2022

Thomas Management
thomastownbuilders

ELK GROVE
SELF STORAGE

A4

As shown in Figure 6, approximately 16 trees and numerous shrubs, grasses, and vines would be planted on the Project site's frontage along Elk Grove Boulevard. Landscaping trees would shade a minimum of 70 percent of the parking area. Landscaping buffers would also include the planting of drought-tolerant shrubs and groundcover along the setback located along the eastern border of the Project site.

The Project site is located in an urbanized area; therefore, the relevant consideration under CEQA would be whether the proposed Project would conflict with applicable zoning and other regulations governing scenic quality. All components of the Project would be subject to the City's design review process pursuant to Section 23.16.080 of the City's Municipal Code, which is intended to encourage development in keeping with the desired character of the City and to ensure physical, visual, and functional compatibility between uses. Required findings for a design review permit are as follows:[2]

1. The Project is consistent with the objectives of the General Plan, complies with applicable zoning regulations, specific plan provisions, special planning area provisions, Citywide and/or other applicable design guidelines, and improvement standards adopted by the City;
2. The proposed architecture, site design, and landscape are suitable for the purposes of the building and the site and will enhance the character of the neighborhood and community;
3. The architecture, including the character, scale and quality of the design, relationship with the site and other buildings, building materials, colors, screening of exterior appurtenances, exterior lighting and signing and similar elements establishes a clear design concept and is compatible with the character of buildings on adjoining and nearby properties;
4. The Project will not create conflicts with vehicular, bicycle, or pedestrian transportation modes of circulation; and
5. For residential subdivision design review applications, the residential subdivision is well integrated with the City's street network, creates unique neighborhood environments, reflects traditional architectural styles, and establishes a pedestrian friendly environment.

The Project would require a rezone from RD-5 to MP. As such, the Project would be required to comply with the MP development standards by not containing any buildings within 100 feet of a residential zone that would exceed the maximum height of 24 feet, as well as all other applicable standards. However, as part of the design review process, the maximum heights of on-site buildings may be increased as long as the intensity of the Project is consistent with the General Plan and on-site improvements. The tallest building of the Project would be 25 feet, six inches, which exceeds the maximum height allowed in the MP zone. However, in undergoing the design review process, the City would ensure the Project's compliance with all applicable standards, as well as ensuring that degradation of the visual quality of the vicinity would not occur. In addition, architectural design and landscaping improvements would be included to improve the visual quality of the site as viewed from the surrounding roadways in the Project vicinity. The Project would retain the existing sidewalks which abut the Project site to the east and west, and would not create conflicts with vehicular, bicycle, or pedestrian transportation modes of circulation. As such, the Project would be consistent with surrounding urban development,

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[2] City of Elk Grove. *Municipal Code, Section 23.16.080.* Current through May 8, 2019.

would not conflict with applicable zoning and other regulations governing scenic quality, and would not substantially degrade the existing visual character or quality of public views of the site and its surroundings. Thus, a ***less-than-significant*** impact would occur.

d. The Project site is currently undeveloped and, thus, does not contain any existing sources of light or glare. Implementation of the Project would develop the site with a self-storage facility and associated improvements, and, thus, would introduce new sources of light and glare where none currently exists.

Potential sources of light and glare associated with the Project would include interior light spilling through windows of the resident manager's unit, exterior lighting on buildings, street lighting on the internal drive aisles and parking areas, and light reflected off windows.

While the site does not currently contain sources of light or glare, the site is bordered by existing development that currently generates light and glare in the area. Furthermore, the Project would be subject to compliance with all applicable regulations included in Chapter 23.56, Lighting, of the City's Municipal Code. In accordance with Section 23.56.030(B), the Project applicant has submitted a point-by-point photometric calculation listing the number, type, height, and level of illumination of all outdoor lighting fixtures in conjunction with the development permit application (see Figure 11). The Photometric Plan prepared for the Project demonstrates compliance with the following City standards:[3]

1. Parking lots, driveways, trash enclosures/areas, public phones, and group mailboxes shall be illuminated with a minimum maintained one (1 fc) foot-candle of light and an average not to exceed four (4 fc) foot-candles of light.
2. Pedestrian walkways shall be illuminated with a minimum maintained one-half (0.5 fc) foot-candle of light and an average not to exceed two (2 fc) foot-candles of light.
3. Exterior doors of nonresidential structures shall be illuminated during the hours of darkness with a minimum maintained one (1 fc) foot-candle of light, measured within a five (5' 0") foot radius on each side of the door at ground level.
4. In order to minimize light trespass on abutting residential, agricultural-residential, and agricultural property, illumination measured at the nearest residential structure or rear yard setback line shall not exceed the moon's potential ambient illumination of one-tenth (0.1 fc) foot-candle.

Considering that the Project proposal consists of one-story storage buildings and a two-story office/residence, and is required to comply with the maximum height restrictions for freestanding and exterior light fixtures specified by Section 23.56.030(C) of the Municipal Code, illumination from the Project is unlikely to exceed the 0.1-fc threshold for light trespassing onto abutting residential uses.

Given the Project's compliance with Chapter 23.56 of the City's Municipal Code, and the added assurance of the design review process, implementation of the Project would result in a ***less-than-significant*** impact with respect to creating a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

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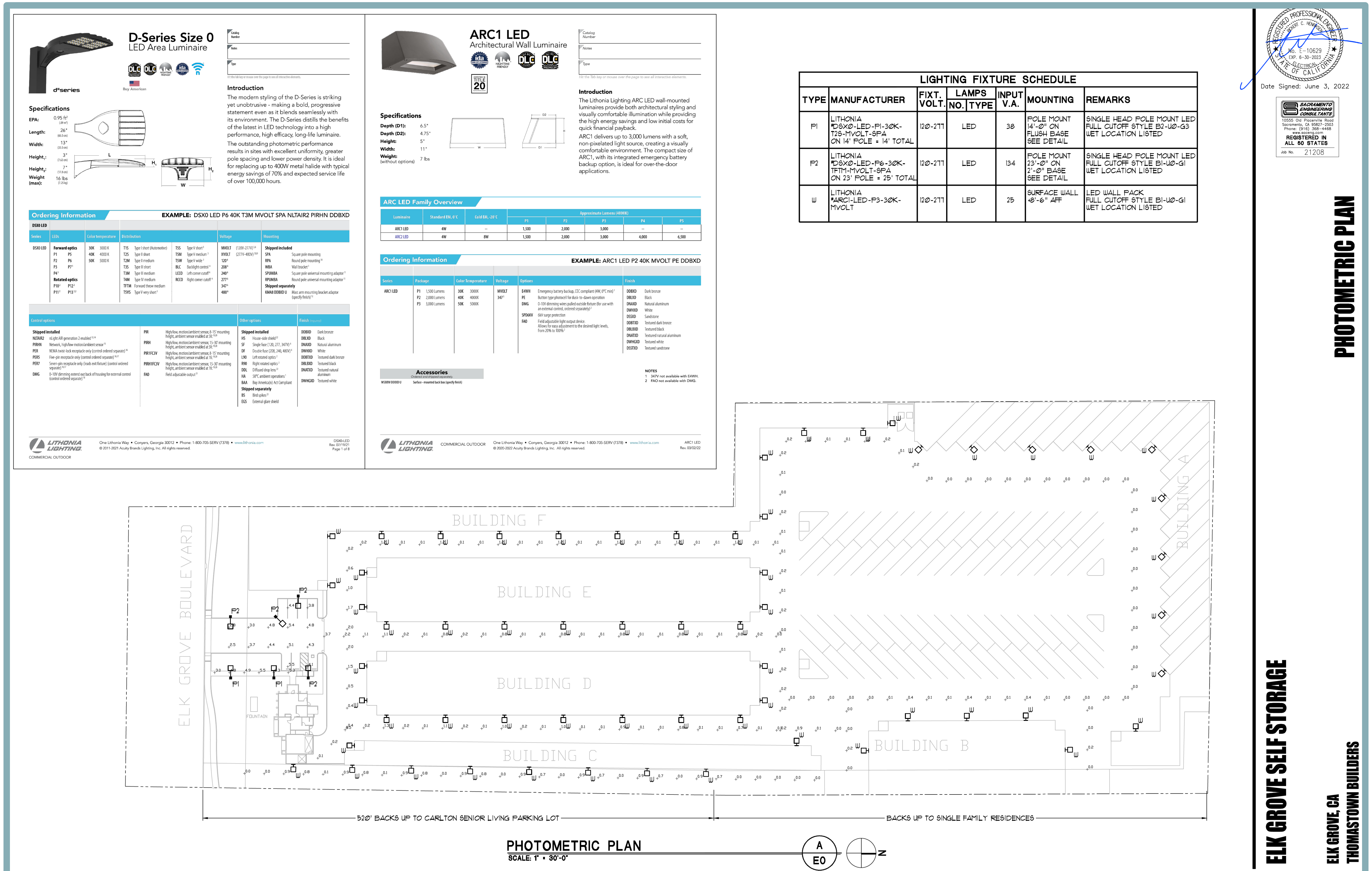
[3] City of Elk Grove. *Municipal Code, Section 23.56.030.* Current through May 8, 2019.

Figure 11
Photometric Plan



LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	FIXT. VOLT.	LAMPS NO.	LAMPS TYPE	INPUT V.A.	MOUNTING	REMARKS
P1	LITHONIA #DSX0-LED-P1-30K-T2S-MVOLT-SPA ON 14' POLE = 14' TOTAL	120-277		LED	38	POLE MOUNT 14'-0" ON FLUSH BASE SEE DETAIL	SINGLE HEAD POLE MOUNT LED FULL CUTOFF STYLE B2-U0-G3 WET LOCATION LISTED
P2	LITHONIA #DSX0-LED-P6-30K-TFTM-MVOLT-SPA ON 23' POLE = 25' TOTAL	120-277		LED	134	POLE MOUNT 23'-0" ON 2'-0" BASE SEE DETAIL	SINGLE HEAD POLE MOUNT LED FULL CUTOFF STYLE B1-U0-G1 WET LOCATION LISTED
W	LITHONIA #ARC1-LED-P3-30K-MVOLT	120-277		LED	25	SURFACE WALL +8'-6" AFF	LED WALL PACK FULL CUTOFF STYLE B1-U0-G1 WET LOCATION LISTED

II. AGRICULTURE AND FOREST RESOURCES. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	✖
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	✖
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	✖
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	✖
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	✖

Discussion

a,e. The Project site is currently vacant and undeveloped and consists primarily of ruderal grasses and 72 scattered trees. Currently, the site is designated as “Urban and Built-Up Land” per the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP).[4] The Project site does not contain, and is not located adjacent to, Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. In addition, the site is not zoned or designated in the General Plan for agriculture uses, and such uses would be incompatible with surrounding land uses in the area.

Given the FMMP designations for the site, development of the Project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use, or otherwise result in the loss of Farmland to non-agricultural use. Therefore, ***no impact*** would occur.

b. The Project site is not under a Williamson Act contract and is not designated or zoned for agricultural uses. Therefore, buildout of the Project would not conflict with existing zoning for agricultural use or a Williamson Act contract, and ***no impact*** would occur.

c,d. The Project area is not considered forest land (as defined in PRC Section 12220[g]), timberland (as defined by PRC Section 4526), and is not zoned Timberland Production (as defined by Government Code section 51104[g]). Therefore, the Project would have ***no impact*** with regard to conversion of forest land or any potential conflict with forest land, timberland, or Timberland Production zoning.

[4] California Department of Conservation. *California Important Farmland Finder.* Available at: https://maps.conservation.ca.gov/DLRP/CIFF/. Accessed May 2022.

III. AIR QUALITY. *Would the project:*	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	✖	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	✖	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	✖	☐	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	✖	☐

Discussion

a,b. The City of Elk Grove is located within Sacramento County, which is within the boundaries of the Sacramento Valley Air Basin (SVAB) and under the jurisdiction of the Sacramento Metropolitan Air Quality Management District (SMAQMD). Federal and State ambient air quality standards (AAQS) have been established for six common air pollutants, known as criteria pollutants, due to the potential for pollutants to be detrimental to human health and the environment. The criteria pollutants include particulate matter (PM), ground-level ozone, carbon monoxide (CO), sulfur oxides, nitrogen oxides (NO_X), and lead. At the federal level, Sacramento County is designated as severe nonattainment for the 8-hour ozone AAQS, nonattainment for the 24-hour $PM_{2.5}$ AAQS, and attainment or unclassified for all other criteria pollutant AAQS. At the State level, the area is designated as a serious nonattainment area for the 1-hour ozone AAQS, nonattainment for the 8-hour ozone AAQS, nonattainment for the PM_{10} and $PM_{2.5}$ AAQS, and attainment or unclassified for all other State AAQS.

Due to the nonattainment designations, SMAQMD, along with the other air districts in the SVAB region, is required to develop plans to attain the federal and State AAQS for ozone and particulate matter. The attainment plans currently in effect for the SVAB are the *2013 Revisions to the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* (2013 Ozone Attainment Plan), *$PM_{2.5}$ Implementation/Maintenance Plan and Re-designation Request for Sacramento $PM_{2.5}$ Nonattainment Area* ($PM_{2.5}$ Implementation/Maintenance Plan), and the 1991 Air Quality Attainment Plan (AQAP), including triennial reports. The air quality plans include emissions inventories to measure the sources of air pollutants, to evaluate how well different control measures have worked, and show how air pollution would be reduced. In addition, the plans include the estimated future levels of pollution to ensure that the area would meet air quality goals.

Nearly all development projects in the Sacramento region have the potential to generate air pollutants that may increase the difficultly of attaining federal and State AAQS. Therefore, evaluation of air quality impacts is required. In order to evaluate ozone and other criteria air pollutant emissions and support attainment goals for those pollutants for which the area is designated nonattainment, SMAQMD has developed the Guide to Air Quality Assessment in Sacramento County (SMAQMD Guide), which includes recommended thresholds of significance, including mass emission thresholds for construction-related and operational ozone precursors, as the area is under nonattainment for ozone.[5] The SMAQMD's recommended thresholds of significance for

5 Sacramento Metropolitan Air Quality Management District. *Guide to Air Quality Assessment in Sacramento County*. May 2018.

the ozone precursors reactive organic compounds (ROG) and NO_X, which are expressed in lbs/day and tons/yr, are presented in Table 1. As shown in the table, SMAQMD has construction and operational thresholds of significance for PM_{10} and $PM_{2.5}$ expressed in both pounds per day (lbs/day) and tons per year (tons/yr). The construction and operational thresholds for PM_{10} and $PM_{2.5}$ only apply to those projects that have implemented all applicable Best Available Control Technologies (BACTs) and Best Management Practices (BMPs).

Table 1
SMAQMD Thresholds of Significance

Pollutant	Construction Thresholds	Operational Thresholds
ROG	N/A	65 lbs/day
NO_X	85 lbs/day	65 lbs/day
PM_{10}	80 lbs/day 14.6 tons/yr	80 lbs/day 14.6 tons/yr
$PM_{2.5}$	82 lbs/day 15 tons/yr	82 lbs/day 15 tons/yr
Source: SMAQMD, CEQA Guidelines, April 2020.		

The Project's construction and operational emissions were quantified using the California Emissions Estimator Model (CalEEMod) software version 2020.4.0 – a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions, including greenhouse gas (GHG) emissions, from land use projects. The model applies inherent default values for various land uses, including construction data, trip generation rates, vehicle mix, trip length, average speed, etc. Where Project-specific information is available, such information should be applied in the model. The Project's modeling assumed the following:

- Construction would commence in April 2023 and take place over approximately 10 months;
- Trip generation data was adjusted based on project-specific traffic information provided by Fehr & Peers;
- The Project would include on- and off-site pedestrian infrastructure;
- Approximately 50 kilowatt hours (kWh) of renewable energy would be generated on-site; and
- The Project would comply with all relevant provisions of the California Building Standards Code (CBSC) and the Model Water Efficient Landscape Ordinance (MWELO).

The Project's estimated emissions associated with construction and operations and the Project's contribution to cumulative air quality conditions are provided below. All CalEEMod results are included as Appendix A to this IS/MND.

Construction Emissions

During construction of the Project, various types of equipment and vehicles would temporarily operate on the Project site. Construction exhaust emissions would be generated from construction equipment, vegetation clearing and earth movement activities, construction worker commutes, and construction material hauling for the entire construction period. The aforementioned activities would involve the use of diesel- and gasoline-powered equipment that would generate emissions of criteria pollutants. Project construction activities also represent sources of fugitive dust, which includes PM emissions. As construction of the Project would generate air pollutant emissions intermittently within the site and vicinity, until all construction has been completed, construction is a potential concern because the Project is in a non-attainment area for ozone, PM_{10}, and $PM_{2.5}$.

To apply the construction thresholds presented in Table 1, projects must implement all feasible SMAQMD BACTs and BMPs related to dust control. The control of fugitive dust during construction is required by SMAQMD Rule 403, and enforced by SMAQMD staff. The BMPs for dust control include the following:

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads;
- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered;
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited;
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph);
- All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used;
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [CCR, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site;
- Provide current certificate(s) of compliance for the California Air Resources Board's (CARB's) In-Use Off-Road Diesel-Fueled Fleets Regulation [CCR, Title 13, sections 2449 and 2449.1]. For more information contact CARB at 877-593-6677, doors@arb.ca.gov, or www.arb.ca.gov/doors/compliance_cert1.html; and
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.

Compliance with the foregoing measures is required per Rule 403, and Project construction is assumed to include compliance with the foregoing measures. Consequently, the Project PM emissions are assessed in comparison to the thresholds presented in Table 1 above.

Table 2 below presents the estimated construction-related emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ associated with the Project in comparison with the SMAQMD thresholds of significance as described above.

Table 2
Maximum Unmitigated Construction Emissions

Pollutant	Project Emissions	Construction Threshold	Exceeds Threshold?
ROG	13.32 lbs/day	-	**NO**
NO_X	27.56 lbs/day	85 lbs/day	**NO**
PM_{10}	21.06 lbs/day and 0.20 tons/yr	80 lbs/day and 14.6 tons/yr	**NO**
$PM_{2.5}$	11.30 lbs/day and 0.12 tons/yr	82 lbs/day and 15 tons/yr	**NO**

Source: CalEEMod, June 2022 (see Appendix A).

As shown in Table 2, the Project's maximum unmitigated construction-related emissions would be below the applicable thresholds of significance. Therefore, construction activities associated with development of the Project would not substantially contribute to the SVAB's non-attainment status for ozone or PM. Furthermore, the Project is required to comply with all SMAQMD rules and regulations for construction, which would further reduce construction emissions of criteria pollutants to level lower than those presented in Table 2. The applicable rules and regulations would include, but would not be limited to, the following:

- Rule 403 related to Fugitive Dust;
- Rule 404 related to Particulate Matter;
- Rule 407 related to Open Burning;
- Rule 442 related to Architectural Coatings;
- Rule 453 related to Cutback and Emulsified Asphalt Paving Materials; and
- Rule 460 related to Adhesives and Sealants.

Accordingly, construction of the Project would not violate an air quality standard or contribute to an existing or projected air quality violation, and a less-than-significant impact would occur associated with construction.

Operational Emissions

Operational emissions of ROG, NO_X, and PM would be generated by the Project from both mobile and stationary sources. Day-to-day activities, such as the future vehicle trips to and from the Project site, would make up the majority of the mobile emissions. Emissions would also occur from area sources, such as landscape maintenance equipment exhaust.

The estimated operational emissions for the Project are presented below in Table 3. It should be noted that the Project would not involve installation or operation of any pieces of equipment that would require implementation of SMAQMD's BACTs; therefore, the Project would be subject to SMAQMD's mass emissions thresholds for PM_{10} and $PM_{2.5}$.

Table 3
Maximum Unmitigated Operational Emissions

Pollutant	Project Emissions	Operational Threshold	Exceeds Threshold?
ROG	4.85 lbs/day	65 lbs/day	**NO**
NO_X	0.96 lbs/day	65 lbs/day	**NO**
PM_{10}	1.38 lbs/day and 0.24 tons/yr	80 lbs/day and 14.6 tons/yr	**NO**
$PM_{2.5}$	0.38 lbs/day and 0.07 tons/yr	82 lbs/day and 15 tons/yr	**NO**

Source: CalEEMod, June 2022 (see Appendix A).

As Table 3 indicates, the Project's maximum unmitigated operational emissions would be below the applicable thresholds of significance. Therefore, operations associated with development of the Project would not substantially contribute to the SVAB's non-attainment status for ozone or PM_{10}, and a less-than-significant impact would occur associated with operations.

Cumulative Emissions

A cumulative impact analysis considers a project over time in conjunction with other past, present, and reasonably foreseeable future projects whose impacts might compound those of the project being assessed. Due to the dispersive nature and regional sourcing of air pollutants, air pollution is already largely a cumulative impact. The non-attainment status of regional pollutants, including ozone and PM, is a result of past and present development and, thus, cumulative impacts related to these pollutants could be considered cumulatively significant.

Adopted SMAQMD rules and regulations, as well as the thresholds of significance, have been developed with the intent to ensure continued attainment of AAQS, or to work towards attainment of AAQS for which the area is currently designated non-attainment, consistent with applicable air quality plans. As future attainment of AAQS is a function of successful implementation of SMAQMD's planning efforts, according to the SMAQMD Guide, by exceeding the SMAQMD's project-level thresholds for construction or operational emissions, a project could contribute to the region's non-attainment status for ozone and PM emissions and could be considered to conflict with or obstruct implementation of the SMAQMD's air quality planning efforts.

As discussed above, the Project would result in construction and operational emissions below all applicable SMAQMD thresholds of significance for criteria pollutants. Therefore, the Project would not be considered to result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment, and impacts would be considered less than significant.

Conclusion

Because the Project would not result in construction-related or operational emissions of criteria air pollutants in excess of SMAQMD's thresholds of significance, the Project would not be considered to conflict with or obstruct the implementation of any applicable air quality plans. In addition, the Project would not result in a cumulatively considerable net increase of any criteria air pollutant for which the Project region is non-attainment under an applicable AAQS. Therefore, a ***less-than-significant*** impact would result.

c. Some land uses are considered more sensitive to air pollution than others, due to the types of population groups or activities involved. Heightened sensitivity may be caused by health problems, proximity to the emissions source, and/or duration of exposure to air pollutants. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Sensitive receptors are typically defined as facilities where sensitive receptor population groups (i.e., children, the elderly, the acutely ill, and the chronically ill) are likely to be located. Accordingly, land uses that are typically considered to be sensitive receptors include residences, schools, playgrounds, childcare centers, retirement homes, convalescent homes, hospitals, and medical clinics. In the vicinity of the Project site, the nearest existing sensitive land uses include the school to the west of the Project site and single-family residences to the east and north of the Project site. The nearest residences are located immediately adjacent to the borders of the Project site. However, a 25-foot setback would separate the on-site structures from the residences. Nonetheless, the nearest sensitive receptor to the Project site would be a single-family residence located approximately 30 feet from the Project.

The major pollutant concentrations of concern include CO emissions, toxic air contaminant (TAC) emissions, and criteria pollutant emissions, which are discussed in further detail below.

CO Emissions

Localized concentrations of CO are related to the levels of traffic and congestion along streets and at intersections. Per the SMAQMD Guide, emissions of CO are generally of less concern than other criteria pollutants, as operational activities are not likely to generate substantial quantities of CO, and the SVAB has been in attainment for CO for multiple years.[6] The Project would not contribute to high levels of traffic congestion that could result in long-term generation of CO. Additionally, Due to the continued attainment of CAAQS and NAAQS, and advances in vehicle emissions technologies, the likelihood that any single project would create a CO hotspot is minimal. The use of construction equipment at the Project site would result in limited generation of CO; however, and the construction period would be temporary, and adverse health risks would not occur. Consequently, the Project would result in a less-than-significant impact related to localized CO emissions.

TAC Emissions

Another category of environmental concern is TACs. Health risks associated with TACs are a function of both the concentration of emissions and the duration of exposure, where the higher the concentration and/or the longer the period of time that a sensitive receptor is exposed to pollutant concentrations would correlate to a higher health risk. The CARB's Air Quality and Land Use Handbook: A Community Health Perspective (Handbook) provides recommended setback distances for sensitive land uses from major sources of TACs, including, but not limited to, freeways and high traffic roads, gas stations, chrome plating operations, distribution centers, and rail yards. The CARB has identified diesel particulate matter (DPM) from diesel-fueled engines as a TAC; thus, high volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic are identified as having the highest associated health risks from DPM.

The Project would not involve any land uses or operations that would be considered major sources of TACs, including DPM. As such, the Project would not generate any substantial pollutant concentrations during operations.

However, short-term, construction-related activities could result in the generation of TACs, primarily DPM, from on-road haul trucks and off-road equipment exhaust emissions. Although DPM emissions from on-road haul trucks would be widely dispersed throughout the Project site and surrounding vicinity as haul trucks move goods and material to and from the site, exhaust from off-road equipment would primarily occur within the Project site. Sensitive receptors in the Project vicinity include a school and single-family residences, with the nearest sensitive receptor located approximately 30 feet from the Project site. Consequently, the operation of off-road equipment within the Project site, as well as the operation of heavy-duty trucks associated with off-hauling demolition materials, during Project construction could result in exposure of nearby residents to DPM.

In order to determine if construction activities associated with the Project would not result in the exposure of any sensitive receptors to substantial pollutant concentrations, the concentration of $PM_{2.5}$ at the maximally exposed sensitive receptor nearest to the site has been estimated using the American Meteorological Society/Environmental Protection Agency (AMS/EPA) Regulatory Model (AERMOD). The associated cancer risk and non-cancer hazard index were calculated using the CARB's Hotspot Analysis Reporting Program Version 2 (HARP 2) Risk Assessment Standalone Tool (RAST), which calculates

6 Sacramento Metropolitan Air Quality Management District. *Guide to Air Quality Assessment, Chapter 4: Operational Criteria Air Pollutant and Precursor Emissions*. October 2020.

the cancer and non-cancer health impacts using the risk assessment guidelines of the 2015 Office of Environmental Health Hazard Assessment (OEHHA) Guidance Manual for Preparation of Health Risk Assessments.[7] The modeling was performed in accordance with the U.S. Environmental Protection Agency's (USEPA's) User's Guide for the AMS/EPA Regulatory Model – AERMOD[8] and the 2015 OEHHA Guidance Manual. The results of the dispersion modeling are included as Figure 12. As shown in the figure, the maximally-exposed receptor, represented by a white X, is located immediately south of the Project site. Based on the foregoing methodology, and the methodology presented in response to questions 'a' and 'b' regarding the estimation of construction emissions, the cancer risk and non-cancer hazard indices were estimated for the maximally exposed receptor, are presented in Table 4.

Table 4
Maximum Unmitigated Cancer Risk and Hazard Index Associated with Project Construction DPM

	Cancer Risk (per million persons)	Acute Hazard Index	Chronic Hazard Index
Construction	13.11	0.00	0.02
Thresholds of Significance	*10*	*1.0*	*1.0*
Exceed Thresholds?	**YES**	**NO**	**NO**
Sources: AERMOD, and HARP 2 RAST, July 2022 (see Appendix A).			

As shown in Table 4, construction of the proposed Project would not result in acute or chronic hazard indices in excess of SMAQMD's standards. However, Project construction would have the potential to result in cancer risks in excess of SMAQMD's 10 cases per million threshold. It is noted that all construction equipment and operation thereof would be regulated per the In-Use Off-Road Diesel Vehicle Regulation, which is intended to help reduce emissions associated with off-road diesel vehicles and equipment, including DPM. The In-Use Off-Road Diesel Vehicle Regulation includes the following standards:

- Imposes limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles;
- Requires all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System) and labeled;
- Restricts the adding of older vehicles into fleets; and
- Requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies (i.e., exhaust retrofits).

Nonetheless, based on the results of the modeling, construction of the proposed Project could result in exposure of nearby receptors to substantial pollutant concentrations.

Criteria Pollutants

Recent rulings from the California Supreme Court (including the *Sierra Club v. County of Fresno* (2018) 6 Cal. 5th 502 case regarding the proposed Friant Ranch Project) have underscored the need for analysis of potential health impacts resulting from the emission of criteria pollutants during operations of Projects.

7 Office of Environmental Health Hazard Assessment. *Air Toxics Hot Spots Program Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments* [pg. 8-18]. February 2015.

8 U.S. Environmental Protection Agency. *User's Guide for the AMS/EPA Regulatory Model (AERMOD)*. December 2016.

Figure 12
AERMOD Results

Source: AERMOD, July 2022 (see Appendix A).

Although analysis of project-level health risks related to the emission of CO and TACs has long been practiced under CEQA, the analysis of health impacts due to individual projects resulting from emissions of criteria pollutants is a relatively new field. SMAQMD released the *Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District* (Guidance) for the analysis of criteria emissions in areas within the SMAQMD's jurisdiction.[9]

The Guidance represents SMAQMD's effort to develop a methodology that provides a consistent, reliable, and meaningful analysis in response to the Supreme Court's direction on correlating health impacts to a Project's emissions. The Guidance was prepared by conducting regional photochemical modeling, and relies on the USEPA's Benefits Mapping and Analysis Program (BenMAP) to assess health impacts from ozone and $PM_{2.5}$. SMAQMD has prepared two tools that are intended for use in analyzing health risks from criteria pollutants. Small projects with criteria pollutant emissions close to or below SMAQMD's adopted thresholds of significance may use the Minor Project Health Effect Screening Tool, while larger projects with emissions between two and six times greater than SMAQMD's adopted thresholds may use the Strategic Area Project Health Screening Tool.

Considering the Project would result in emissions lower than the SMAQMD's thresholds of significance, the Project would qualify for use of the Minor Project Health Effects Screening Tool. It is important to note, however, that the Minor Project Health Effects Screening Tool applies the assumption that all small projects result in emissions of criteria pollutants equal to the SMAQMD thresholds of significance. As shown in Table 3, the Project would result in operational emissions well below the SMAQMD thresholds of significance and, thus, the health impacts calculated for the Project using the Minor Project Health Effects Screening Tool are highly conservative. The Project's actual health impacts associated with criteria pollutant emissions would be expected to be much less than what is presented herein based on the aforementioned SMAQMD tool. Results from the Minor Project Health Effects Screening Tool are shown in Table 5.

As shown in the table, according to the Minor Project Health Effects Screening Tool, which is based on the highly conservative assumption that the Project would emit criteria pollutants at levels equal to the SMAQMD thresholds of significance, the Project could result in up to 1.6 premature deaths per year due to the Project's $PM_{2.5}$ emissions and up to 0.034 premature deaths per year due to the Project's ozone emissions. For comparison, the background incidence of premature deaths per year are 44,766 due to $PM_{2.5}$ emissions and 30,386 due to ozone emissions.

The Project's contribution represents a very small increase over the background incidence of premature deaths due to $PM_{2.5}$ and ozone concentrations (0.0035 percent and 0.0001 percent, respectively). In addition, according to the Minor Project Health Effects Screening Tool, $PM_{2.5}$ emissions from the Project could result in 0.76 asthma-related emergency room visits, and ozone emissions from the Project could result in 0.76 asthma-related emergency room visits. Such numbers represent a minute increase over the background level of asthma-related emergency room visits (0.004 percent and 0.004 percent, respectively).

9 Sacramento Metropolitan Air Quality Management District. *Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District*. October 2020.

Table 5
Health Effects from Proposed Project

Health Endpoint	Age Range[1]	Incidences Across the 5-Air-District Region Resulting from Project Emissions (per year)[2] (Mean)	Percent of Background Health Incidences Across the 5-Air-District Region[3] (%)	Total Number of Health Incidences Across the 5-Air-District Region (per year)[4]
Respiratory $PM_{2.5}$				
Emergency Room Visits, Asthma	0-99	0.76	0.0041	18,419
Hospital Admissions, Asthma	0-64	0.050	0.0027	1,846
Hospital Admissions, All Respiratory	65-99	0.24	0.0012	19,644
Cardiovascular $PM_{2.5}$				
Hospital Admissions, All Cardiovascular (less Myocardial Infarctions)	65-99	0.13	0.00055	24,037
Acute Myocardial Infarction, Nonfatal	18-24	0.000063	0.0017	4
Acute Myocardial Infarction, Nonfatal	25-44	0.0057	0.0018	308
Acute Myocardial Infarction, Nonfatal	45-54	0.015	0.0020	741
Acute Myocardial Infarction, Nonfatal	55-64	0.024	0.0019	1,239
Acute Myocardial Infarction, Nonfatal	65-99	0.085	0.0017	5,052
Mortality $PM_{2.5}$				
Mortality, All Cause	30-99	1.6	0.0035	44,766
Respiratory Ozone				
Hospital Admissions, All Respiratory	65-99	0.053	0.00027	19,644
Emergency Room Visits, Asthma	0-17	0.30	0.0051	5,859
Emergency Room Visits, Asthma	18-99	0.46	0.0037	12,560
Mortality Ozone				
Mortality, Non-Accidental	0-99	0.034	0.00011	30,386

[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 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.

Source: SMAQMD, Minor Project Health Effects Screening Tool. June 2022 (see Appendix A).

Furthermore, the SMAQMD criteria pollutant thresholds of significance were established with consideration given to the health-based air quality standards established by the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS), and are designed to aid the district in achieving attainment of the NAAQS and CAAQS. The thresholds of significance represent emissions levels that would ensure that Project-specific emissions would not inhibit attainment of regional NAAQS and CAAQS and, therefore, would not adversely affect public health. Considering that implementation of the Project would not result in emissions of criteria pollutants that would exceed the SMAQMD standards, the Project would not inhibit attainment of regional NAAQS and CAAQS and would not result in adverse health impacts related to the emission of criteria pollutants.

The results of the Minor Project Health Effects Screening Tool have been presented for informational purposes only. Overall, because the Project would be relatively small compared to the regional growth and development that drives health impacts from criteria pollutants, and the anticipated air quality emissions would fall below all applicable thresholds of significance, potential health impacts related to criteria air pollutants would be less than significant.

Conclusion

Based on the above discussion, the Project would not expose any sensitive receptors to substantial concentrations of criteria pollutants during construction or operation. However, Project construction would have the potential to result in cancer risks in excess of SMAQMD's 10 cases per million threshold. Thus, construction of the proposed Project could result in exposure of nearby receptors to substantial concentrations of TACs. Consequently, the Project would result in a ***potentially significant*** impact related to the exposure of sensitive receptors to substantial pollutant concentrations.

Mitigation Measure(s)

The most effective way to reduce construction-related DPM emissions is by improving the engine tier/engine efficiency of construction equipment. Off-road diesel engines that are used in construction equipment fall into efficiency tiers, with the most efficient being the Tier 4 emission standards. Engine Tiers 3 through 1 are regressively less efficient. Based on modeling conducted, as demonstrated in Table 6, use of higher tier construction equipment for all construction activities would ensure that DPM emissions from construction equipment do not result in increased health risks to nearby receptors in excess of SMAQMD's standards. Consequently, implementation of the following mitigation measure would reduce impacts related to exposing nearby sensitive receptors to substantial pollutant concentrations to a *less-than-significant* level.

Table 6
Maximum Mitigated Cancer Risk and Hazard Index Associated with Project Construction DPM

	Cancer Risk (per million persons)	Acute Hazard Index	Chronic Hazard Index
Proposed Project	9.98	0.00	0.01
Thresholds of Significance	**10**	**1.0**	**1.0**
Exceed Thresholds?	**NO**	**NO**	**NO**

Source: AERMOD and HARP 2 RAST, July 2022 (see Appendix A).

III-1. Prior to the initiation of ground disturbance, the Project applicant shall show on the plans via notation that the contractor shall ensure that the heavy-duty off-road vehicles (50 horsepower or more) to be used in the construction project, including owned, leased, and subcontractor vehicles, shall not generate $PM_{2.5}$ emissions in excess of 0.0403 tons $PM_{2.5}$ per year. The $PM_{2.5}$ reduction shall be achieved by requiring a combination of engine Tier 3 or Tier 4 off-road construction equipment or the use of hybrid, electric, or alternatively fueled equipment.

In addition, all off-road equipment working at the construction site must be maintained in proper working condition according to manufacturer's specifications. Idling shall be limited to five minutes or less in accordance with the Off-Road Diesel Fueled Fleet Regulation as required by CARB. Portable equipment over 50 horsepower must have either a valid District Permit to Operate (PTO) or a valid statewide Portable Equipment Registration Program (PERP) placard and sticker issued by CARB.

The aforementioned requirements shall be noted on Grading Plans and submitted for review and approval by the City of Elk Grove Development Services Department.

d. Pollutants of principal concern include emissions leading to odors, emission of dust, or emissions considered to constitute air pollutants. Air pollutants have been discussed in sections "a" through "c" above. Therefore, the following discussion focuses on emissions of odors and dust.

Odors

While offensive odors rarely cause physical harm, they can be unpleasant, leading to considerable annoyance and distress among the public and can generate citizen complaints to local governments and air districts. Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, quantitatively determining the presence of a significant odor impact is difficult. Typical odor-generating land uses include, but are not limited to, wastewater treatment plants, landfills, and composting facilities. The Project would not introduce any such land uses and is not located in the vicinity of any such existing or planned land uses.

Construction activities often include diesel fueled equipment and heavy-duty trucks, which could create odors associated with diesel fumes that may be considered objectionable. However, as discussed above, construction activities would be temporary, and operation of construction equipment adjacent to existing residential uses would be restricted to the hours of 7:00 AM to 7:00 PM every day, unless unforeseen conditions occur, per Section 6.32.100 of the City's Municipal Code. Project construction would also be required to comply with all applicable SMAQMD rules and regulations, particularly associated with permitting of air pollutant sources. The aforementioned regulations would help to minimize air pollutant emissions as well as any associated odors. Accordingly, substantial objectionable odors would not be expected to occur during construction activities.

Dust

As noted previously, construction of the Project is required to comply with all applicable SMAQMD rules and regulations, including, but not limited to, Rule 403 (Fugitive Dust) and Rule 404 (Particulate Matter). Furthermore, all projects within Sacramento County are required to implement the SMAQMD's Basic Construction Emission Control Practices (BCECP). Compliance with SMAQMD rules and regulations and BCECP would help to ensure that dust is minimized during Project construction. Following Project construction, vehicles operating within the Project site would be limited to paved areas of the site, which would not have the potential to create substantial dust emissions. Thus, Project operations would not include sources of dust that could adversely affect a substantial number of people.

Conclusion

For the reasons discussed above, construction and operation of the Project would not result in emissions, such as those leading to odors and/or dust, that would adversely affect a substantial number of people, and a ***less-than-significant*** impact would occur.

IV. BIOLOGICAL RESOURCES. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	✖	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☐	☐	✖	☐
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	✖	☐
d. Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?	☐	☐	✖	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	✖	☐
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	✖

Discussion

a. Currently, the Project site is vacant and undeveloped. The site consists primarily of ruderal grasses, which are regularly disked. The Project site also contains remnants of a building, including piles of concrete rubble, a concrete basement, a few concrete building pads/foundations, and a well-pump. According to the National Wetlands Inventory, the site does not contain wetland features or waterways;[10] however, 72 existing trees are scattered throughout the Project site. The site consists primarily of relatively flat terrain approximately 30 feet above mean sea level (msl).

Special-status species include those plant and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the federal and State Endangered Species Acts. Both acts afford protection to listed and proposed species. In addition, California Department of Fish and Wildlife (CDFW) Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue, U.S. Fish and Wildlife Service (USFWS) Birds of Conservation Concern, sensitive species included in USFWS Recovery Plans, and CDFW special-status invertebrates are all considered special-status species. Although CDFW Species of Special Concern generally do not have special legal status, they are given special consideration under CEQA. In addition to regulations for special-status species, most birds in the U.S., including non-status species, are protected by the Migratory Bird Treaty Act (MBTA) of 1918. Under the MBTA, destroying active nests, eggs, and young is

[10] US Fish and Wildlife Service. *National Wetlands Inventory.* Available at: https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/. Accessed May 2022.

illegal. In addition, plant species on California Native Plant Society (CNPS) Lists 1 and 2 are considered special-status plant species and are protected under CEQA.

In May of 2022, a query was conducted for published records of special-status plant and wildlife species for the Florin USGS 7.5" quadrangle, in which the Project site occurs, using the California Natural Diversity Data Base (CNDDB) Rarefind 5 application. The intent of the database review was to identify documented occurrences of special-status species in the vicinity of the Project area, to determine their locations relative to the Project site. The results of the CNDDB search are discussed below.

Special-Status Plants

Based on the results of the CNDDB search, at total of 23 special-status plant species have been recorded within five miles of the site. Of the 23 species, all are considered absent from or unlikely to occur on the site due to a lack of suitable habitat, such as vernal pools and serpentine or alkaline soils. In addition, as noted previously, the Project site is regularly disked. As such, special-status plant species are unlikely to occur on the Project site, and development of the Project would not result in significant impacts to such species.

Special-Status Wildlife

Based on the results of the CNDDB search, a total of 25 special-status wildlife species have been recorded within five miles of the site. Of the 25 species, 21 species would be absent from or unlikely to occur on the site due to a lack of suitable habitat. For example, because the site lacks vernal pool/depressional seasonal wetland habitat, federally-listed vernal pool invertebrates do not occur on the site. In addition, because the Project site is surrounded by existing development on all sides, the Project site does not contain and is not connected to open, uncultivated groundcover which would be required for American badgers to occur on-site. However, as described in the following sections, the Project area contains suitable habitat for burrowing owl, white-tailed kite, Modesto song sparrow, Swainson's hawk, as well as migratory birds and raptors protected under the MBTA.

Burrowing Owl

The western burrowing owl is designated by CDFW as a Species of Special Concern. Burrowing owls are found in open arid and semiarid habitats with short or sparse vegetation, including grasslands, deserts, agricultural fields, ruderal areas and open, landscaped areas. The species is dependent on mammals such as the California ground squirrel that dig underground burrows, which the owls occupy. Some burrowing owls have adapted to urban landscapes, and in some instances, open lots, roadsides, and landscaped areas can provide suitable habitat. Breeding typically occurs from March to August but can begin as early as February and can last into December.

CDFW's CNDDB contains approximately 39 occurrences of western burrowing owl within five miles of the site, and the site consists of ruderal grassland that is within the range of western burrowing owl. Because the Project site is within modeled habitat for western burrowing owl, preconstruction surveys would be required to ensure that the proposed development would not result in impacts to the species.

White-tailed kite

The white-tailed kite is identified by California Fish and Game Code 3511 as a fully protected species. The CNDDB has recorded 17 occurrences of white-tailed within five miles of the site. Potential nesting habitat for the white-tailed kite occurs within various existing trees scattered throughout the Project site. The white-tailed kite may also forage within the ruderal grasses growing on the Project site. Because potential nesting trees would be removed as part of development of the site, mitigation would be required in order to ensure that construction activities associated with the Project would not adversely impact potential white-tailed kite nesting habitat.

Modesto Song Sparrow

The Modesto song sparrow is endemic to California, where the species resides only in the north-central portion of the Central Valley. Highest densities occur in the Butte Sink area of the Sacramento Valley and near the Sacramento-San Joaquin River. Song sparrows are also numerous in the delta, particularly in southwestern Sacramento County along riparian corridors, vegetated irrigation canals and levees, and among freshwater marshes. Breeding typically occurs from mid-March to early August.

The CNDDB has recorded 13 occurrences of Modesto song sparrow within five miles of the site. The Project site is located approximately five miles to the east of wetlands associated with the Sacramento River. In addition, a manmade lake lies approximately 2,000 feet to the west of the Project site. Because the Project site is within the proximity of modeled habitat for Modesto song sparrow, and because the Project site is within the vicinity of Modesto Song sparrow breeding habitat, the potential exists for Modesto song sparrow to nest within the trees on the Project site or to forage within the ruderal grasses growing on-site. Preconstruction surveys would be required to ensure that the proposed development would not result in impacts to the species.

Swainson's Hawk

Swainson's hawk is a State-listed threatened species. Historically, Swainson's hawks foraged in the agricultural lands in and around Elk Grove.[11] The Project site could therefore provide foraging habitat for Swainson's hawk; however, the surrounding mixed development land uses which surround the Project site, including single-family residential development, a school, and parks and recreation, reduce the likelihood that Swainson's hawk would use the Project site as foraging habitat. Furthermore, the grassland present on the Project site consists of a dense canopy (except during and immediately after disking) which obscures prey presence, thus making the Project site marginally valued habitat for Swainson's hawk.

In 2003, the City established and adopted Chapter 16.130 (Swainson's Hawk Impact Mitigation Fees) of the Elk Grove Municipal Code, which establishes mitigation policies tailored for projects in Elk Grove that have been determined through the CEQA process to result in a "potential significant impact" on Swainson's hawk foraging habitat. Chapter 16.130 of the Municipal Code serves as a conservation strategy that is achieved through the selection of appropriate replacement lands and through management of suitable habitat value on those lands in perpetuity.[12]

The Project would include grading of the entire Project site, thereby resulting in the removal of approximately 7.71-acres of ruderal grassland that may provide foraging

[11] City of Elk Grove. *Swainson's Hawk Program.* Available at: http://www.elkgrovecity.org/city_hall/departments_divisions/planning/resources_and_policies/swainsons_hawk_program. Accessed May 2022.

[12] City of Elk Grove. *Elk Grove Municipal Code Chapter 16.130: Swainson's Hawk Impact Mitigation Fees.* February 2022.

habitat for Swainson's hawk. The CDFW considers five or more vacant acres within ten miles of an active nest within the last five years to be significant foraging habitat for Swainson's hawk, the conversion of which to urban uses is considered a significant impact and requires mitigation. Although the Project site presents marginally suitable habitat for Swainson's hawk, the Project site is located within ten miles of an identified Swainson's hawk nest that has been active within the last five years, and would convert more than five acres of vacant land to urban uses. Therefore, mitigation for Swainson's hawk would be required.

Based on the above, Project implementation could result in permanent and temporary direct impacts to Swainson's hawk, related to habitat loss and construction disturbance, respectively.

Migratory Birds and Raptors

The potential exists for migratory birds and raptors protected under the MBTA to nest within the trees scattered on the Project site. Buildout of the Project during the nesting period for migratory birds (i.e., typically between February 1 to August 31), including initial grading activities, could pose a risk of nest abandonment and death of any eggs or young that may be present within nests that are near the Project site.

Conclusion

Based on the above, development of the Project could result in a significant impact related to special-status species, although special-status plant species are not likely to occur on-site. Implementation of the Project could result in a ***potentially significant*** impact to burrowing owls, white-tailed kite, Modesto song sparrow, Swainson's hawk, and migratory birds and raptors protected by the MBTA. However, implementation of Mitigation Measures IV-1 through IV-5 below would ensure that the Project would have a less-than-significant impact, either directly or through habitat modifications, on species identified as special-status species in local or regional plans, policies, or regulations, or by the CDFW or the USFWS.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level. For the following mitigation measures, construction activities shall be defined as heavy equipment operation associated with vegetation clearing, grading, or construction (use of cranes or draglines, new rock crushing).

Burrowing Owl

IV-1(a). *During the non-breeding season (September 1 through January 31), the Applicant shall conduct a survey for burrowing owls and burrows or debris that represent suitable nesting or refugia habitat for burrowing owls within areas of proposed ground disturbance. Should owls be present, construction activities shall avoid the refugia by 250 feet until the burrowing owl vacates the site. CDFW may provide authorization for the applicant to conduct activities (burrow exclusion, etc.) that may discourage owl use.*

If clearing and construction activities are planned to occur during the nesting period for burrowing owls (February 1–August 31), a qualified biologist shall conduct a targeted burrowing owl nest survey of all *accessible areas within 500 feet of the proposed construction area within 14 days prior to construction initiation, as described in CDFG's Staff Report on Burrowing Owl Mitigation, published March 7, 2012. Surveys shall be repeated if Project activities are suspended or delayed for more than 14 days during nesting season. The results of the surveys shall be submitted to the Development Services Department. If burrowing owls are not detected, further mitigation is not required.*

If an active burrowing owl nest burrow (is found within 250 feet of a construction area, construction shall cease within 250 feet of the nest burrow until a qualified biologist determines that the young have fledged and adult has vacated, or it is determined that the nesting attempt has failed. If the applicant desires to work within 250 feet of the nest burrow, the applicant shall consult with a qualified biologist, CDFW, and the City, to determine if the nest buffer can be reduced.

IV-1(b). *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. The mitigation provided shall be consistent with recommendations in the State of California's Department of Fish and Game Staff Report on Burrowing Owl Mitigation, dated March 7, 2012, 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.*

White-tailed Kite

IV-2. *Prior to any ground disturbance related to covered activities that occur during the nesting season (March 15 - August 31), a qualified biologist shall conduct a preconstruction survey no more than one month prior to construction to establish whether white-tailed kite is nesting in trees in or visible from the site. The findings of the survey shall be submitted to the Development Services Department. In the event active nests are found, a non-disturbance buffer of 300 feet shall be established or as otherwise prescribed by a qualified biologist. The buffer shall be demarcated with painted orange lath or via the installation of orange construction fencing. Disturbance within the buffer shall be postponed until a qualified biologist has determined that the young have attained sufficient flight skills to leave the area or that the nesting cycle has otherwise completed.*

Swainson's Hawk

IV-3(a). *Prior to the commencement of construction activities during the nesting season for Swanson's hawk (between March 1 and September 15), a qualified biologist shall conduct protocol-level preconstruction surveys within at least 2 (two) of the recommended survey periods within the nesting season that coincides with the commencement of construction activities, in accordance with the Recommended Timing and Methodology* *for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000). At least one survey shall be conducted within each survey period selected; the dates should be adjusted in consideration of early or late nesting seasons for the year in which the surveys are conducted. If the final survey is completed more than 14 days prior to initiation of construction, an additional survey shall be conducted within 14 days of the start of construction to ensure that nesting has not been initiated within the intervening time. The qualified biologist shall conduct surveys for nesting Swainson's hawk within 0.25 mile of the Project Site, where legally permitted. The qualified biologist shall use binoculars to visually determine whether Swainson's hawk nests occur within the 0.25-mile survey area, if access is denied on adjacent properties. If no active Swainson's hawk nests are identified on or within 0.25 mile of the Project site within the recommended survey periods, a letter report summarizing the survey results shall be submitted to the City of Elk Grove within 30 days following the final survey, and no further avoidance and minimization measures for nesting habitat are required.*

If active Swainson's hawk nests are found within 0.25-mile of construction activities, the qualified biologist shall contact the City of Elk Grove within one business day following the pre-construction survey to report the findings. For the purposes of this mitigation measure, construction activities are additionally defined as Project-related activities that could cause nest abandonment or forced fledging within 0.25-mile of a nest site between February 15 and August 31. Should an active nest be present within 0.25-mile of the construction area, the City of Elk Grove shall be consulted to establish take avoidance plan. Such a plan could include measures such as establishment of a construction setback, placement of high-visibility construction fencing along the setback boundaries, and monitoring of the nest during construction activities. The qualified biologist shall have the authority to stop construction activities if the hawks show signs of distress; if this occurs, construction may not resume until the City of Elk Grove is consulted and the construction setback is increased or other take-avoidance measures are modified. A letter report summarizing the survey results and describing implementation of the take avoidance measures will be submitted to the City of Elk Grove within 30 days of the final monitoring event. No further avoidance and minimization measures for nesting habitat would be required after submittal of the report.

IV-3(b). *Prior to initiation of construction activities, the Project applicant shall mitigate for the loss of Swainson's hawk foraging habitat at a 1:1 ratio. Mitigation shall be accomplished through acquisition of a conservation easement(s) or other instrument suitable to preserve foraging habitat for the Swainson's hawk in accordance with either Section 16.130.040 or 16.130.110 of the Elk Grove Municipal Code.*

Modesto Song Sparrow and Other Migratory Raptors

IV-4(a). *If vegetation clearing, grading and/or construction activities are planned to occur during the migratory bird nesting season (February 15 to August 30), a preconstruction survey to identify active migratory bird nests shall be* *conducted by a qualified biologist within three days prior to construction initiation. The survey shall be performed by a qualified biologist for the purposes of determining presence/absence of active nest sites within a 500-foot radius of proposed construction areas, where access is available. If a break in construction activity of more than two weeks occurs, then subsequent surveys shall be conducted.*

If active Modesto Song Sparrow or raptor nests, not including Swainson's hawk, are found, construction activities shall not take place within 500 feet of the nest/s until the young have fledged. If active songbird nests are found, a 100-foot no disturbance buffer shall be established. The no-disturbance buffers may be reduced if a smaller buffer is proposed by the qualified biologist and approved by the City (and CDFW if the species is a tricolored blackbird nesting colony) after taking into consideration the natural history of the species of bird nesting, the proposed activity level adjacent to the nest, habituation to existing or ongoing activity, and nest concealment (are there visual or acoustic barriers between the proposed activity and the nest). The qualified biologist shall visit the nest as needed to determine when the young have fledged the nest and are independent of the site, or the nest may be left undisturbed until the end of the nesting season.

IV-4(b). *Should construction activities cause a nesting bird to do any of the following in a way that would be considered a result of construction activities: vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest, then the exclusionary buffer shall be increased such that activities are far enough from the nest to stop the agitated behavior, or as otherwise required through consultation with CDFW and the City. The exclusionary buffer shall remain in place until the chicks have fledged or as otherwise determined by a qualified biologist in consultation with CDFW and the City. Construction activities may only resume within the buffer zone after a follow-up survey by the qualified biologist has been conducted and a report has been prepared indicating that the nest(s) are no longer active, and that new nests have not been identified.*

b,c. According to the U.S. Fish and Wildlife Service National Wetlands Inventory, the Project site does not contain any existing wetlands or other waters of the U.S. or State, or any riparian habitat or sensitive natural communities.[13] The site consists primarily of scattered trees and ruderal grasses that are regularly disked. Therefore, impacts related to having a substantial adverse effect on a riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS would be less than significant. In addition, the Project would not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. Thus, a ***less-than-significant*** impact would occur.

[13] U.S. Fish and Wildlife Service. *National Wetlands Inventory.* Available at: https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/. Accessed May 2022.

d. The Project site is bordered by Elk Grove Boulevard to the south and existing development on all sides. The site is located with an urbanized area of the City of Elk Grove. The existing setting of the surrounding area limits the potential for use of the Project site as a wildlife movement corridor. In addition, the Project site does not contain streams or other waterways that could be used by migratory fish or as a wildlife corridor for other wildlife species. Therefore, the Project would not interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites. Thus, a ***less-than-significant*** impact would occur.

e. Section 19.12 of the City of Elk Grove Municipal Code contains the City's Tree Preservation and Protection Ordinance. The ordinance provides protections for landmark trees, trees of local importance, and secured trees. According to the Property Transition Arborist Report prepared by California Tree and Landscape Consulting, Inc. (Appendix B), the Project site currently contains 72 trees, 65 of which are protected under Chapter 19.12 of the City's Municipal Code.[14] The proposed Project would include the removal of all 72 on-site trees. As such, in compliance with Chapter 19.12, Article 3 of the Elk Grove Municipal Code, the Project would require approval of a Tree Removal Permit. As established in Section 19.12.160 of the Municipal Code, the Project would be required to mitigate for the loss of protected trees through either the payment an in-lieu fee for the tree removal, or replacement of all removed trees either on- or off-site. Because all on-site trees are planned to be removed, any tree replacement would occur off-site. Therefore, through compliance with Section 19.12.160 of the City of Elk Grove Municipal Code, the Project would not conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, and a ***less-than-significant*** impact would occur.

f. Sacramento County, the City of Rancho Cordova, the City of Galt, and other local partners have adopted the South Sacramento Habitat Conservation Plan (SSHCP). However, the City of Elk Grove is not a participating city. Furthermore, as noted above, this IS/MND includes mitigation measures to address potential impacts to species which are covered by the SSHCP, including burrowing owl and Swainson's hawk. The mitigation measures included herein generally do not conflict with the avoidance and minimization measures included in Chapter 5 of the SSHCP. Therefore, the Project site is not located in an area with an approved HCP/NCCP, or local, regional, or State habitat conservation plan. As a result, ***no impact*** would occur regarding a conflict with the provisions of such a plan.

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[14] California Tree and Landscape Consulting, Inc. *Property Transition Arborist Report*. December 21, 2020.

V. CULTURAL RESOURCES. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	✖	☐	☐
b. Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?	☐	✖	☐	☐
c. Disturb any human remains, including those interred outside of dedicated cemeteries.	☐	✖	☐	☐

Discussion

a-c. Historical resources are features that are associated with the lives of historically important persons and/or historically significant events, that embody the distinctive characteristics of a type, period, region or method of construction, or that have yielded, or may be likely to yield, information important to the pre-history or history of the local area, California, or the nation. Examples of typical historical resources include, but are not limited to, buildings, farmsteads, rail lines, bridges, and trash scatters containing objects such as colored glass and ceramics.

Based on a Cultural Resources Study performed for the Project site, which included a record search of the California Historic Resources Information System (CHRIS) at the North Central Information Center (NCIC), a previous cultural resources study has covered a portion of the Project site.[15] The Project site contains one recorded historic-period cultural resource, P-34-4533, identified as the nineteenth-century "Widow Foulk's House." When documented, the Foulks Ranch consisted of eleven buildings and structures, including two residence outbuildings, a concrete swimming pool, and a cistern. All structures were removed from the site in 2005 including the Foulks House, which was relocated to Elk Grove Regional Park. During a field survey conducted on July 7, 2022, it was confirmed that all of the buildings had been removed and the only remnants of the resource were some piles of concrete rubble, a concrete basement, a few concrete building pads/foundations, and a well-pump. While such remnants were once part of a historic-period cultural resource, the concrete rubble, foundations, and well-pump do not constitute cultural resources themselves. Therefore, any alteration to such remnants would not constitute disturbance of a cultural resource. Overall, evidence of features associated with the resource are still present, and there is moderate potential for locating historic-period cultural resources in the immediate vicinity of the Project site.

Archaeologists often locate prehistoric-period habitation sites on elevated landforms near streams in this part of Sacramento County. The Project region is known as the ethnographic-period territory of the Plains Miwok, a tribe which inhabited the lower reaches of the Mokelumne and Cosumnes River and both banks of the Sacramento River from Rio Vista to Freeport. The Project area is situated in the Sacramento Valley approximately 1.4 miles northeast of intermittent streams. Given the extent of known cultural resources and the environmental setting, the potential exists for locating prehistoric-period cultural resources in the immediate vicinity of the Project area.

Although impacts to known prehistoric and historic period cultural resources are not anticipated, the CHRIS results indicate that the potential exists for the Project to cause a

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15 Tom Origer & Associates. *Cultural Resources Study for the Stathos Self Storage Project.* July 29, 2022.

substantial adverse change in the significance of unknown unique subsurface archaeological resources, including human remains. Such resources may exist in the Project area and may have been obscured by regular disking, resulting in an absence of surficial evidence. Such resources may have the potential to be uncovered during ground-disturbing activities at the Project site.

Based on the above, a moderate potential exists for the Project to cause a substantial adverse change to a historical resource or unique archaeological resource pursuant to Section 15064.5, including human remains, and a ***potentially significant*** impact may occur. Implementation of Mitigation Measures V-1 through V-3 would ensure that if previously unknown resources are encountered during construction activities, the Project would not cause a substantial adverse change in the significance of a unique archaeological resource pursuant to CEQA Guidelines Section 15064.5 and/or disturb human remains, including those interred outside of dedicated cemeteries, during construction. Therefore, impacts would be considered less than significant with mitigation incorporated.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

V-1. *In the event of the accidental discovery or recognition of any human remains, the Development Services Department shall be notified, and further excavation or disturbance of the find or any nearby area reasonably suspected to overlie adjacent human remains shall not occur until compliance with the provisions of CEQA Guidelines Section 15064.5(e)(1) and (2) has occurred. The Guidelines specify that in the event of the discovery of human remains other than in a dedicated cemetery, no further excavation at the site or any nearby area suspected to contain human remains shall occur and the County Coroner shall be notified to determine if an investigation into the cause of death is required. If the coroner determines that the remains are Native American, then, within 24 hours, the Coroner must notify the Native American Heritage Commission, which in turn will notify the most likely descendants who may recommend treatment of the remains and any grave goods. If the Native American Heritage Commission is unable to identify a most likely descendant or most likely descendant fails to make a recommendation within 48 hours after notification by the Native American Heritage Commission, or the landowner or his authorized agent rejects the recommendation by the most likely descendant and mediation by the Native American Heritage Commission fails to provide a measure acceptable to the landowner, then the landowner or his authorized representative shall rebury the human remains and grave goods with appropriate dignity at a location on the property not subject to further disturbances. Should human remains be encountered, a copy of the resulting County Coroner report noting any written consultation with the Native American Heritage Commission shall be submitted as proof of compliance to the Development Services Department. Work on the Project site cannot commence until after the human remains are removed from the area or, if reburial is determined to be the appropriate course of action, reburied at a location on the property not subject to further disturbance.*

V-2. *In the event that cultural resources or tribal cultural resources are discovered during grading or construction activities during development of the Project, work shall halt immediately within 100 feet of the discovery, the Development Services Director shall be immediately notified. The Applicant's on-site Construction Supervisor, the City of Elk Grove, an archaeologist meeting the Secretary of the Interior's Standards in Archaeology, and any applicable Native American tribes shall assess the discovery to determine if it qualifies as a tribal cultural resource. The appropriate treatment of the discovery, including any applicable avoidance or mitigation strategies, shall be determined in consultation with the City and the applicable tribes. Construction activities within 100 feet of the discovery shall not commence until the appropriate treatment has been determined by the City of Elk Grove and any applicable mitigation has been completed to the satisfaction to the City of Elk Grove Development Services Department. Mitigation shall follow the recommendations detailed in Public Resources Code Sections 21084.3(a) and (b), and CEQA Guidelines section 15370. Work may continue on other parts of the Project site while historical or unique archaeological resource mitigation takes place (Public Resources Code Section 21083.2).*

V-3. *The applicant shall retain the services of a qualified professional cultural resources trainer and/or environmental trainer to conduct a worker environmental training session for the construction crew that will be conducting grading and excavation at the Project site. The worker environmental training shall include archaeological and Tribal Cultural Resource awareness. The training shall be developed in coordination with the applicable tribes and approved by the City. The training shall identify the appropriate point of contact in the case of tribal cultural resource discovery and shall include relevant information regarding tribal cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating State laws and regulations. The training shall also underscore the requirement for confidentiality and culturally-appropriate treatment of tribal cultural resources.*

VI. ENERGY. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	✖	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	✖	☐

Discussion

a,b. The main forms of available energy supply are electricity, natural gas, and oil. A description of the 2019 California Green Building Standards Code and the Building Energy Efficiency Standards, with which the Project would be required to comply, as well as discussions regarding the Project's potential effects related to energy demand during construction and operations are provided below.

California Green Building Standards Code

The 2019 California Green Building Standards Code, otherwise known as the CAL Green Code (CCR Title 24, Part 11), is a portion of the CBSC, which became effective with the rest of the CBSC on January 1, 2020. The purpose of the CAL Green Code is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices. The CAL Green standards regulate the method of use, properties, performance, types of materials used in construction, alteration repair, improvement and rehabilitation of a structure or improvement to property. The provisions of the code apply to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure throughout California. Requirements of the CAL Green Code include, but are not limited to, the following measures:

- Compliance with relevant regulations related to future installation of Electric Vehicle charging infrastructure in residential and non-residential structures;
- Indoor water use consumption is reduced through the establishment of maximum fixture water use rates;
- Outdoor landscaping must comply with the California Department of Water Resources' MWELO, or a local ordinance, whichever is more stringent, to reduce outdoor water use;
- Diversion of 65 percent of construction and demolition waste from landfills; and
- Mandatory use of low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring, and particle board.

Building Energy Efficiency Standards

The 2019 Building Energy Efficiency Standards is a portion of the CBSC, which expands upon energy-efficiency measures from the 2016 Building Energy Efficiency Standards. The 2019 Building Energy Efficiency Standards went into effect on January 1, 2020. The 2019 standards provide for additional efficiency improvements beyond the 2016 standards. Non-residential buildings built in compliance with the 2019 standards are anticipated to use approximately 30 percent less energy compared to the 2016 standards, primarily due to lighting upgrades.[16]

Construction Energy Use

Construction of the Project would involve on-site energy demand and consumption related to use of oil in the form of gasoline and diesel fuel for construction worker vehicle trips, hauling and materials delivery truck trips, and operation of off-road construction equipment. In addition, diesel-fueled portable generators may be necessary to provide additional electricity demands for temporary on-site lighting, welding, and for supplying energy to areas of the sites where energy supply cannot be met via a hookup to the existing electricity grid.

Even during the most intense period of construction, due to the different types of construction activities (e.g., site preparation, grading, building construction), only portions of the Project site and off-site improvement areas would be disturbed at a time, with operation of construction equipment occurring at different locations on the Project site, rather than a single location. In addition, all construction equipment and operation thereof would be regulated per the CARB In-Use Off-Road Diesel Vehicle Regulation. The In-Use Off-Road Diesel Vehicle Regulation is intended to reduce emissions from in-use, off-road, heavy-duty diesel vehicles in California by imposing limits on idling, requiring all vehicles to be reported to CARB, restricting the addition of older vehicles into fleets, and requiring fleets to reduce emissions by retiring, replacing, or repowering older engines, or installing exhaust retrofits. The In-Use Off-Road Diesel Vehicle Regulation would subsequently help to improve fuel efficiency and reduce GHG emissions. Technological innovations and more stringent standards are being researched, such as multi-function equipment, hybrid equipment, or other design changes, which could help to reduce demand on oil and emissions associated with construction.

The CARB has prepared the 2017 Climate Change Scoping Plan Update (2017 Scoping Plan), which builds upon previous efforts to reduce GHG emissions and is designed to continue to shift the California economy away from dependence on fossil fuels. Appendix B of the 2017 Scoping Plan includes examples of local actions (municipal code changes, zoning changes, policy directions, and mitigation measures) that would support the State's climate goals. The examples provided include, but are not limited to, enforcing idling time restrictions for construction vehicles, utilizing existing grid power for electric energy rather than operating temporary gasoline/diesel-powered generators, and increasing use of electric and renewable fuel-powered construction equipment. The CARB Diesel Vehicle Regulation described above, with which the Project must comply, would be consistent with the intention of the 2017 Scoping Plan and the recommended actions included in Appendix B of the 2017 Scoping Plan.

Based on the above, the temporary increase in energy use occurring during construction of the Project would not result in a significant increase in peak or base demands or require additional capacity from local or regional energy supplies. In addition, construction activities would be required to comply with all applicable regulations related to energy conservation and fuel efficiency, which would help to reduce the temporary increase in demand.

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[16] California Energy Commission. *Title 24 2019 Building Energy Efficiency Standards FAQ*. November 2018.

Operational Energy Use

Following implementation of the Project, PG&E would provide natural gas to the Project site. Electricity would be provided by SMUD. Energy use associated with operation of the Project would typically require electricity and natural gas for interior and exterior building lighting, heating, ventilation, and air conditioning (HVAC), electronic equipment, machinery, refrigeration, appliances, security systems, and more. Maintenance activities during operations, such as landscape maintenance, would involve the use of electric or gas-powered equipment. In addition to on-site energy use, the Project would result in transportation energy use associated with vehicle trips generated by the proposed development.

The Project would be subject to all relevant provisions of the most recent update of the CBSC, including the Building Energy Efficiency Standards. Adherence to the most recent CALGreen Code and the Building Energy Efficiency Standards, including the more stringent Tier 1 standards required per the City's Climate Action Plan (CAP), would ensure that the proposed structures would consume energy efficiently through the incorporation of such features as efficient water heating systems, high performance attics and walls, and high efficacy lighting. Required compliance with the CBSC would ensure that the building energy use associated with the Project would not be wasteful, inefficient, or unnecessary. In addition, electricity supplied to the Project by SMUD would comply with both the State's RPS, which requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 60 percent by 2030, as well as the SMUD's internal RPS goals. For 2024, the first full year that this IS/MND assumes the Project would be operational, SMUD's renewable portfolio standard is anticipated to be approximately 41.1 percent. Thus, a portion of the energy consumed during Project operations would originate from renewable sources.

With regard to transportation energy use, the Project would comply with all applicable regulations associated with vehicle efficiency and fuel economy. According to Elk Grove Municipal Code Section 23.58.120, 2.5 percent of total Project parking spaces would be required to be EV-ready upon Project development. An additional 2.5 percent of the total number of parking spaces would be required to be dedicated for the future installation of additional EV-ready parking options as the demand for on-site EV charging increases. In addition, as discussed in Section XVII, Transportation, of this IS/MND, the cumulative vehicle miles traveled (VMT) associated with development of the Project and other existing and planned development within the City of Elk Grove would be below the established city-wide VMT threshold.

Conclusion

Based on the above, construction and operation of the Project would not result in wasteful, inefficient, or unnecessary consumption of energy resources or conflict with or obstruct a State or local plan for renewable energy or energy efficiency. Thus, a ***less-than-significant*** impact would occur.

VII. GEOLOGY AND SOILS. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	✖	☐
ii. Strong seismic ground shaking?	☐	☐	✖	☐
iii. Seismic-related ground failure, including liquefaction?	☐	✖	☐	☐
iv. Landslides?	☐	✖	☐	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	✖	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	✖	☐	☐
d. Be located on expansive soil, as defined in Table 18-1B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	✖	☐	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	✖
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	✖	☐	☐

Discussion

The following discussion is based on a Geotechnical Engineering Report (GER) Update prepared by Wallace-Kuhl & Associates in July 2021 (Appendix C).[17] The July 2021 GER Update was prepared for the purpose of updating a previous GER for the Project site conducted by Wallace-Kuhl & Associates in February 2016 to conform with the 2019 CBSC provisions.

ai-ii. As noted in the General Plan EIR, Sacramento County is less affected by seismic events and geologic hazards than other portions of the state.[18] The California Geological Survey's (CGS) map of seismic shaking hazards in California shows that most of Sacramento County, including the City of Elk Grove, is located in a relatively low-intensity ground shaking zone. The City does not contain any active or potentially active faults, and is not located within an Alquist-Priolo Earthquake Fault Zone. The nearest mapped fault is the Midland Fault, located approximately 18 miles to the southwest of the Project site.[19] Thus, the potential for surface rupture due to faulting occurring beneath the Project site during the design life of the proposed development would be low.

Although the potential is low for the proposed self-storage buildings to be subject to seismic ground shaking, the proposed buildings would be properly engineered in

17 Wallace-Kuhl & Associates. *Geotechnical Engineering Report Update: Elk Grove Self Storage*. July 2, 2021.
18 City of Elk Grove. *General Plan Update Draft Environmental Impact Report* [pg. 5.6-1]. February 2019.
19 California Department of Conservation. *Fault Activity Map of California*. Available at: https://maps.conservation.ca.gov/cgs/fam/. Accessed May 2022.

accordance with the California Building Code (CBC), which includes engineering standards appropriate for the seismic area in which the Project site is located. The GER Update prepared for the Project includes updated seismic parameters for structural design based on the 2019 edition of the CBC. In addition, the most recent edition of the CBC is adopted as Section 16.04.010 of the City's Municipal Code. Conformance with the design standards is enforced through building plan review and approval by the City of Elk Grove Division of Building prior to the issuance of building permits. Proper engineering of the Project would ensure that seismic-related effects would not cause adverse impacts. Therefore, a ***less-than-significant*** impact would occur related to seismic surface rupture and strong seismic ground shaking.

aiii,aiv,
c,d. The Project's potential effects related to liquefaction, subsidence, landslides, lateral spreading, and expansive soils are discussed in detail below.

Liquefaction/Settlement

When subsurface earth materials move, the movement can cause the gradual settling or sudden sinking of ground. The phenomenon of settling or sinking ground is referred to as subsidence, or settlement. Liquefaction is the sudden loss of soil shear strength and the sudden increase in porewater pressure caused by shear strains, similar to what could result from an earthquake. Research has shown that saturated, loose to medium-dense sands with a silt content less than 25 percent and located within the top 40 feet are most susceptible to liquefaction.

During site reconnaissance of the Project site on January 25, 2016, fourteen exploratory test pits were excavated across the property to explore the subsurface conditions of the Project site. The test pits indicate a near-surface soil profile generally consisting of about one to 4.5 feet of sandy silts and silty fine sands overlying a layer of sandy to silty clay ranging from about 0.5-foot to 3.5 feet in thickness. Variably cemented sandy silts (locally known as "hardpan") were encountered below the clays to the explored depth of approximately 10 feet below existing site grade within the test pits. Three test pits encountered undocumented fill, which consisted of sandy silt with organics, and was observed to extend to depths of six, 5.5, and nine feet below existing site grades. The soils below a depth of 20 feet consist of variably cemented clayey silts to 25 feet underlain by silty sand to the explored depth of 31.5 feet. Therefore, the Project area is considered to have a relatively shallow depth to cemented soils. Total settlement is anticipated to be less than one inch.

Based the conditions observed, in addition to the relatively low seismicity of the area, the potential for seismically induced damage due to liquefaction and settlement is negligible.

Landslides

Seismically-induced landslides are triggered by earthquake ground shaking. The risk of landslide hazard is greatest in areas with steep, unstable slopes. The Project site does not contain, and is not adjacent to, any steep slopes. Thus, landslides are not likely to occur on- or off-site as a result of the Project.

Lateral Spreading

Lateral spreading is horizontal/lateral ground movement of relatively flat-lying soil deposits towards a free face such as an excavation, channel, or open body of water; typically, lateral spreading is associated with liquefaction of one or more subsurface layers near the bottom of the exposed slope. The Project site does not contain open faces within a distance that would be considered susceptible to lateral spreading. Therefore, the potential for lateral spreading to affect the site is low.

Expansive Soils

Expansive soils are soils which undergo significant volume change with changes in moisture content. Specifically, such soils shrink and harden when dried and expand and soften when wetted, potentially resulting in damage to building foundations. Laboratory test results on on-site near-surface clays indicate a high expansion potential. Based on such results, the GER concludes that the near-surface clays are capable of exerting significant expansion pressures on building foundations, interior floor slabs, and exterior flatwork. Therefore, recommendations have been provided in the GER to reduce the potential for damage from unstable soil conditions, including expansive soils, and associated risks to the proposed development would not occur.

Conclusion

Based on the above discussion, the Project would not result in potential hazards or risks related to liquefaction, landslides, lateral spreading, or subsidence. Therefore, the Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving liquefaction or landslides, and would not be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse. However, without adherence to all structural and design recommendations provided in the July 2021 GER Update, ***potentially significant*** impacts to life and property related to being located on expansive soils may occur, and adverse impacts may occur. Compliance with Mitigation Measure VII-1 would ensure that the proposed Project would comply with structural and design recommendations in the GER Update to reduce potential impacts to less-than-significant levels.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

VII-1. *Prior to approval of any grading permits, the Project Civil Engineer shall show on the Project plans that the Project design would adhere to all engineering recommendations provided in the site-specific Geotechnical Engineering Report Update prepared by Wallace-Kuhl & Associates, including without limitation the import of at least 12 inches of imported, compactable, and very low-expansive granular soils for all interior and exterior concrete slabs-on-grade. Project plans shall be subject to review and approval by the City Development Services Engineering Division.*

b. During grading activities associated with development of the Project, and prior to overlaying of the ground with impervious surfaces and landscaping elements, topsoil would temporarily be exposed. Thus, the potential exists for wind and water to erode portions of the exposed topsoil during construction, which could adversely affect downstream storm drainage facilities. However, as noted in the General Plan EIR, Chapter 16.44, Land Grading and Erosion Control, of the City's Municipal Code establishes administrative procedures, minimum standards of review, and implementation and enforcement procedures for controlling erosion caused by land clearing, grubbing, grading, filling, and land excavation activities. Section 16.44.050 includes the following requirement:

> Except as provided by EGMC Section 16.44.060, 16.44.065 or 16.44.070, a grading and erosion control permit shall be required to: A) grade, fill, excavate, store or dispose of three hundred fifty (350 yd^3) cubic yards or more of soil or earthy material, or B) clear and grub one (1) acre or greater of land within the City. A separate permit is required for work on each site unless sites are contiguous, have the same ownership, and are included in the approved plan. Any determination by the Director as to whether a permit is required may be appealed pursuant to the provisions of EGMC Section 16.44.300.

Furthermore, per Section 16.44.090, plans submitted to the City must include the location, implementation schedule, and maintenance schedule of all erosion control measures and sediment control measures to be implemented or constructed prior to, during or after the proposed activity, along with a description of measures designed to control dust and stabilize the construction site road and entrance. Per Section 16.44.150, grading and erosion control permit applications and improvement plans may only be issued or approved by the City if the Public Works Director finds that the Project would not adversely affect surrounding properties and public rights-of-way, the water quality of watercourses, or existing drainage.

Based on the above, the Project would be required to comply with all applicable standards established in Chapter 16.44, including issuance of a grading and erosion control permit as required by Section 16.44.050. Given compliance with Chapter 16.44 and other applicable City regulations related to erosion control, the Project would result in a less-than-significant impact related to substantial soil erosion or loss of topsoil during construction. The General Plan EIR concluded that buildout of the City, including the Project site, would result in a ***less-than-significant*** impact related to related to soil erosion, given compliance with existing State and local regulations and standards.

e. The Project would connect to the existing SASD sanitary sewer service. The construction or operation of septic tanks or other alternative wastewater disposal systems is not included as part of the Project. Therefore, ***no impact*** regarding the capability of soil to adequately support the use of septic tanks or alternative wastewater disposal systems would occur.

f. As noted in the General Plan EIR, impacts to paleontological resources can occur when excavation activities encounter fossiliferous geological deposits and cause physical destruction of fossil remains. The potential for impacts on fossils depends on the sensitivity of the geologic unit and the amount and depth of grading and excavation. Much of the City's Planning Area is considered highly sensitive for paleontological resources. Therefore, ground-disturbing activities associated with the Project could result in a ***potentially significant*** impact related to the uncovering of paleontological resources. However, Implementation of Mitigation Measure VII-2, as adopted from Mitigation Measure 5.6.5 of the General Plan EIR, would ensure that the Project would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. Thus, a less-than-significant impact would occur with implementation of mitigation.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

VII-2. *Before the start of any earthmoving activities, the Project applicant shall retain a qualified scientist (e.g., geologist, biologist, paleontologist) to train all construction personnel involved with earthmoving activities, including the site superintendent, regarding the possibility of encountering fossils, the appearance and types of fossils likely to be seen during construction, and proper notification procedures should fossils be encountered. Training on paleontological resources shall also be provided to all other construction workers but may use videotape of the initial training and/or written materials rather than in-person training.*

If any paleontological resources (fossils) are discovered during grading or construction activities within the Project area, work shall be halted immediately within 50 feet of the discovery, and the City Planning Division shall be immediately notified. The Project applicant shall retain a qualified paleontologist to evaluate the resource and prepare a recovery plan in accordance with Society of Vertebrate Paleontology guidelines (SVP 2010). The recovery plan may include, but is not limited to, a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings. Recommendations in the recovery plan that are determined by the City to be necessary and feasible shall be implemented by the applicant before construction activities resume in the area where the paleontological resources were discovered.

VIII. GREENHOUSE GAS EMISSIONS. *Would the project:*	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	✖	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gasses?	☐	☐	✖	☐

Discussion

a,b. Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on earth. An individual project's GHG emissions are at a micro-scale level relative to global emissions and effects to global climate change; however, an individual project could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact. As such, impacts related to emissions of GHG are inherently considered cumulative impacts.

Implementation of the Project would cumulatively contribute to increases of GHG emissions. Estimated GHG emissions attributable to future development would be primarily associated with increases of carbon dioxide (CO_2) and, to a lesser extent, other GHG pollutants, such as methane (CH_4) and nitrous oxide (N_2O) associated with area sources, mobile sources or vehicles, utilities (electricity), water usage, wastewater generation, and the generation of solid waste. The primary source of GHG emissions for the Project would be mobile source emissions. The common unit of measurement for GHG is expressed in terms of annual metric tons of CO_2 equivalents ($MTCO_2e$/yr).

Regulatory Context

In September 2006, AB 32 was enacted, which requires that statewide GHG emissions be reduced to 1990 levels by the year 2020. AB 32 delegated the authority for implementation to the CARB and directs the CARB to enforce the statewide cap. In accordance with AB 32, CARB prepared the Climate Change Scoping Plan (Scoping Plan) for California, which was approved in 2008 and subsequently revised in 2014 and 2017. The 2017 revision to the Scoping Plan updated the plan in compliance with SB 32. SB 32 codified emissions reduction targets for the year 2030, which had previously been established by Executive Order B-30-15.

Per SMAQMD and Section 15183.5 of the CEQA Guidelines, a project may satisfy applicable GHG analysis requirements under CEQA by demonstrating compliance with a qualified CAP.[20] Specifically, Section 15183.5 states the following:

> Lead agencies may analyze and mitigate the significant effects of greenhouse gas emissions at a programmatic level, such as in a general plan, a long range development plan, or a separate plan to reduce greenhouse gas emissions. Later Project-specific environmental documents may tier from and/or incorporate by reference that existing programmatic review. Project-specific environmental

[20] Sacramento Metropolitan Air Quality Management District. *Climate Action Planning in the Sacramento Metropolitan Air Quality Management District*. November 2017.

documents may rely on an EIR containing a programmatic analysis of greenhouse gas emissions as provided in section 15152 (tiering), 15167 (staged EIRs) 15168 (program EIRs), 15175-15179.5 (Master EIRs), 15182 (EIRs Prepared for Specific Plans), and 15183 (EIRs Prepared for General Plans, Community Plans, or Zoning).

On February 27, 2019, the City of Elk Grove adopted an updated CAP that includes City-wide goals and strategies for the reduction of GHG emissions. In order to meet the City's GHG emissions targets, the CAP sets forth a number of GHG emission reduction implementation measures. Individual projects that are consistent with the implementation measures of the CAP would be considered to meet the City's emissions targets and, thereby, would not conflict with implementation of the CAP or the statewide emission reduction targets of AB 32 or SB 32.

For informational purposes, GHG emissions resulting from construction and operations of the Project were modeled using the CalEEMod emissions model under the same assumptions as discussed in Section III, Air Quality, of this IS/MND. The CO_2 intensity factor within CalEEMod was adjusted to reflect SMUD's progress towards achieving the State's RPS goals.[21] Construction and operations of the Project and the associated GHG emissions are discussed below, and all modeling outputs are included in Appendix A to this IS/MND.

Construction GHG Emissions

Construction-related GHG emissions constitute a temporary release and are, therefore, not typically expected to generate a significant contribution to global climate change, as global climate change is inherently a cumulative effect that occurs over a long period of time and is quantified on a yearly basis. Nonetheless, total construction-related GHG emissions were estimated to be 339.76 $MTCO_2e$. Such emissions would be released over the course of the approximately 10-month construction period. As noted above, because the overall impact conclusion is based solely on project consistency with the City's CAP, the emissions estimates presented herein are for disclosure purposes only and do not affect the conclusions of this analysis.

Operational GHG Emissions

The emissions of GHGs resulting from operations of the Project were estimated using CalEEMod, and are presented in Table 7.

Table 7
Maximum Unmitigated Operational GHG Emissions

Operational Emission Source	Annual GHG Emissions ($MTCO_2e$/yr)
Area	0.02
Energy	96.78
Mobile	222.66
Solid Waste	79.16
Water	54.97
Total Annual Operational GHG Emissions[1]	**453.58**

1 Rounding may result in small differences in summation.

Source: CalEEMod, June 2022 (see Appendix A).

21 The model was not adjusted to reflect SMUD compliance with SMUD's internal RPS goals.

As shown in the table, the anticipated GHG emission rate for the first operational year (2024) would be 453.58 $MTCO_2e$/yr. The results are presented for informational purposes only, because, as discussed above, the determination of significance for operational emissions is based on consistency with the City's CAP.

Elk Grove CAP

The Elk Grove CAP is considered a qualified plan for determining consistency with AB 32 and SB 32 and, thus, determining the significance of Project-related GHG emissions. The General Plan EIR concluded that, with implementation of the CAP, buildout of the City's Planning Area would not conflict with any applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs, and a less-than-significant impact would occur. As such, projects that are consistent with the CAP and implement all applicable CAP measures would result in less-than-significant impacts related to GHG emissions.

One of the questions included in the CAP Consistency Checklist is whether the proposed project would be consistent with the General Plan land use or zoning designations for the site. As noted previously, the Project would include a General Plan Amendment from LDR to EC and a Rezone from RD-5 to MP. However, buildout of the site under the proposed EC designation and MP zoning district would be less GHG emissions intensive than buildout of the site under the existing residential land use and zoning designations. For example, one of the primary contributors to a project's GHG emissions is mobile emissions from vehicles travelling to and from the site. Residents are expected to leave and return home several times per day, whereas customers are expected to visit their storage unit very irregularly. Additionally, operations of the Project would require less electricity and natural gas for lighting and heating/air conditioning because the Project would not include any residential structures, with the exception of the proposed resident manager's apartment. Furthermore, emissions from consumer products and the use of kitchen appliances would not occur under operations of the Project. Overall, the proposed land use and zoning designations for the project site would be less GHG intensive than the existing land use and zoning designations.

Table 8, below, presents a consistency discussion for each of the CAP measures that are required for analysis in CEQA documents.

Table 8
Elk Grove CAP Consistency Review Checklist Summary

CAP Implementation Measure	Project Consistency
BE-4. Building Stock: Encourage or Require Green Building Practices in New Construction Encourage new construction Projects to comply with CALGreen Tier 1 standards, including a 15 percent improvement over minimum Title 24 Part 6 Building Energy Efficiency Standards.	The Project applicant has committed to comply with CALGreen Tier 1 standards.
BE-5. Building Stock: Phase in Zero Net Energy Standards in New Construction	The Project is anticipated to be fully operational by 2024. Per CAP measure BE-5, the standards for ZNE for non-residential projects do not apply until

Table 8
Elk Grove CAP Consistency Review Checklist Summary

CAP Implementation Measure	Project Consistency
Phase in zero net energy (ZNE) standards for new construction, beginning in 2020 for residential Projects and 2030 for commercial Projects. Specific phase-in requirements and ZNE compliance standards will be supported by updates in the triennial building code updates, beginning with the 2019 update.	the year 2030. Therefore, this measure is not applicable to the Project.
BE-6. Building Stock: Electrification in New and Existing Residential Development Encourage and incentivize new residential developments to include all-electrical appliances and HVAC systems in the design of new Projects. Support local utilities in implementing residential retrofit programs to help homeowners convert to all electrical appliances and HVAC systems. Explore the feasibility of phasing in minimum standards for all-electric developments.	Because the Project includes one single-family residential unit, the Project is subject to measure BE-6 and is therefore required to be all-electric. Thus, the Project would comply with this measure.
BE-7. Building Stock: Solar Photovoltaics in New and Existing Residential and Commercial Development Encourage and require installation of on-site solar photovoltaic (PV) in new single-family and low-rise multi-family developments. Promote installation of on-site PV systems in existing residential and commercial development.	Under the 2019 CalGreen Code, the proposed single-family residential unit would be required to include rooftop solar PV panels. Additionally, the Project applicant has committed to providing the estimated annual electricity use (kWh) of the proposed Project and estimated PV system size (kW) needed to supply 15 percent of the Projects annual electricity demand.
TACM-3. Intracity Transportation Demand Management The City shall continue to implement strategies and policies that reduce the demand for personal motor vehicle travel for intracity (local) trips.	Based on the description included in the City's CAP, this measure is primarily intended for implementation at the City-wide level. However, as noted in Section XVII, Transportation, of this IS/MND, the Project would be consistent with the City's required 15 percent VMT reduction from the EC land use designation's baseline of 55.41 VMT per service population. In addition, the Project would achieve the CAP's required 20 percent VMT reduction, as a 20 percent reduction from 55.41 is 44.32 VMT per service population, and the Project was determined to generate 39.0 VMT per service population. As such, the Project would comply with this measure.
TACM-6. Limit Vehicle Miles Traveled Achieve a 15 percent reduction in daily VMT compared to existing conditions (2015) for all new development in the City, consistent with state-mandated VMT	As discussed in the traffic analysis prepared for the Project, the Project is located within a pre-screened area that has been determined to result in 15 percent or below the average service population VMT established for that land use designation if built to the specifications of the Land Use Plan. However,

Table 8 Elk Grove CAP Consistency Review Checklist Summary	
CAP Implementation Measure	**Project Consistency**
reduction targets for land use and transportation projects.	because a General Plan Amendment is required for the Project, additional analysis was necessary. Nonetheless, as noted in Section XVII, Transportation, of this IS/MND, the Project would be consistent with the required VMT reduction.
TACM-8. Tier 4 Final Construction Equipment Require all construction equipment used in Elk Grove to achieve EPA-rated Tier 4 Final diesel engine standards by 2030 and encourage the use of electrified equipment where feasible.	The Project applicant has committed to requiring that 25 percent construction equipment be EPA-rated Tier 4 Final. Additionally, Mitigation Measure III-1 would ensure that a portion of the construction equipment uses Tier 4 engines. However, considering construction would occur during 2023 and 2024 and would be completed prior to 2030, the Project would not be required to use entirely Tier 4 Final construction equipment. Therefore, the Project would generally comply with this measure.
TACM-9. EV Charging Requirements Adopt an electric vehicle (EV) charging station ordinance that establishes minimum EV charging standards for all new residential and commercial development. Increase the number of EV charging stations at municipal facilities throughout the City.	Consistent with measure TACM-9, the City of Elk Grove adopted Section 23.58.120 of its Municipal Code related to electric vehicle charging. However, the Project is not included in the list of land uses required to comply with measure TACM-9. As such, measure TACM-9 is not applicable to the Project. Nonetheless, under the 2019 CalGreen Code, the single-family residential unit is required to be wired for EV charging.
Source: City of Elk Grove. Climate Action Plan: 2019 Update. December 2019.	

As shown above, the Project would comply with all applicable measures presented within the CAP.

Conclusion

As noted previously, the City's CAP was established to ensure the City's compliance with the statewide GHG reduction goals required by AB 32 and SB 32. As demonstrated in the table above, the Project would be consistent with all applicable measures within the City's CAP. As such, the Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and a ***less-than-significant*** impact would occur.

IX. HAZARDS AND HAZARDOUS MATERIALS. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	✖	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?	☐	✖	☐	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	✖	☐
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	✖
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	✖
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	✖	☐
g. Expose people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires?	☐	☐	✖	☐

Discussion

a. Operations associated with the Project would be typical of other self-storage facilities in the City, and would be governed by the uses permitted for the site per the City's Municipal Code and General Plan.

It is noted that the future tenants of the proposed facility are unknown at this time. While not currently anticipated, in the event that future tenant activities associated with the Project would involve the routine use, transport, or disposal of hazardous materials, such materials would be safely managed in accordance with the applicable regulations. For example, the Project would be required to comply with the regulations set forth by 22 CCR Section 66263, Standards Applicable to Transporters of Hazardous Waste, which requires transporters of hazardous materials to ensure that releases of hazardous wastes into the environment would not occur, including the discharge of hazardous wastes into soils, drainage systems, and surface and ground water systems. In addition, 22 CCR Section 66263.31 requires transporters of hazardous materials to clean up any hazardous waste discharge that occurs during transportation to the extent that hazardous waste discharge no longer presents a hazard to human health or the environment. Compliance with such measures would ensure that, if hazardous materials are used on-site, such materials would not present a significant hazard.

Based on the above, the Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, and a ***less-than-significant*** impact would occur.

b. According to the California Department of Toxic Substances Control Envirostor Database, hazardous material sites do not exist at the Project site or in the Project vicinity.[22] The Project site is vacant and consists primarily of ruderal vegetation with scattered trees. However, the Project site contains remnants of a building, including piles of concrete rubble, a concrete basement, a few concrete building pads/foundations, and a well-pump. It is unknown if the presence of the well-pump indicates the presence of an on-site well. In addition, the presence of the concrete remains of former structures represent the potential for lead to be found in on-site soil. Because such hazards cannot be determined to be absent from the Project site, a potentially significant impact could occur.

Construction activities associated with the Project would involve the use of heavy equipment, which would contain fuels and oils, and various other products such as concrete, paints, and adhesives. Small quantities of potentially toxic substances (e.g., petroleum and other chemicals used to operate and maintain construction equipment) would be used at the Project site and transported to and from the site during construction. However, the Project contractor would be required to comply with all California Health and Safety Codes and local City ordinances regulating the handling, storage, and transportation of hazardous and toxic materials. Thus, construction of the Project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment.

As described above, future tenants of the proposed facility are unknown at this time. However, compliance with State and City policies would ensure that, if hazardous materials are used on-site, such materials would not present a significant hazard.

Although the construction phase of the Project would involve regulated use of hazardous materials, the contractor would be required to adhere to all relevant guidelines and ordinances regulating the handling, storage, and transportation of hazardous materials. However, due to the potential for the Project site to contain a well and for lead-impacted soil, the Project could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment, and a ***potentially significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

IX-1. Prior to issuance of grading permits, the contractor shall confirm that the on-site well has been abandoned, pursuant to County Municipal Code Section 6.28.404(B). If the on-site well has not been abandoned, the existing domestic/irrigation wells shall be removed/abandoned in accordance with County and State regulations.

IX-2. Prior to approval of grading permits, a surficial soil sample laboratory analysis shall be conducted in areas around existing structures on the project site. Once the soils are collected, the soils shall be tested for lead.

22 California Department of Toxic Substances Control. *EnviroStor.* Available at: https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=6901+Elk+Grove+Boulevard. Accessed June 2022.

If soil contaminates are not found, further action is not required; however, if lead is found to be higher than the allowable thresholds, the assessment shall include the appropriate mitigation including, but not limited to, soil remediation to an acceptable total threshold limit concentration (TTLC) level per applicable State and federal regulations by excavation of the contaminated soil, and subsequent transportation and disposal off-site at an appropriate Class I or Class II facility permitted by DTSC; or by properly capping the contaminated soil, in compliance with DTSC regulations. All recommended mitigation measures shall be implemented by the project applicant, subject to review and approval by the City Engineer.

c. The nearest school relative to the Project site is the St. Ann Seton Catholic School, located less than 100 feet west of the Project site. Therefore, the Project site is located less than 0.25-mile from an existing school. As discussed under question 'b' above, construction of the Project could include the use of small quantities of potentially toxic substances (e.g., petroleum and other chemicals used to operate and maintain construction equipment); however, the Project contractor would be required to comply with all State and local City ordinances regulating the use of such products. In addition, Project operations are not anticipated to involve the transportation or handling of hazardous materials. Therefore, the proposed Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school and a ***less-than-significant*** impact would occur.

d. According to the California State Water Resources Control Board (SWRCB) GeoTracker data management system, the Project site is not located on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.[23] Therefore, the Project would not create a significant hazard to the public or the environment associated with such, and ***no impact*** would occur.

e. The nearest airport to the site is the domestic Franklin Field Airport, located approximately 7.3 miles south of the site. As such, the Project site is not located within two miles of any public airports or private airstrips, and does not fall within an airport land use plan area. Therefore, ***no impact*** related to a safety hazard for people residing or working in the Project area related to such would occur.

f. As noted in the City's General Plan EIR, Elk Grove participates in the multijurisdictional Sacramento County Local Hazard Mitigation Plan (LHMP), last updated in 2021.[24,25] The purpose of the LHMP is to guide hazard mitigation planning to better protect the people and property of the County from the effects of hazard events. The Sacramento LHMP includes policies and programs for participating jurisdictions to implement that reduce the risk of hazards and protect public health, safety, and welfare. In addition to participating in the County's LHMP, the City of Elk Grove maintains an Emergency Operations Plan (EOP) that provides a strategy for the City to coordinate and conduct emergency response. The intent of the EOP is to provide direction on how to respond to an emergency from the initial onset, through an extended response, and into the recovery process.

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23 State Water Resources Control Board. *GeoTracker*. Available at: https://geotracker.waterboards.ca.gov/. Accessed May 2022.
24 City of Elk Grove. *General Plan Update Draft Environmental Impact Report* [pg. 5.8-13]. February 2019.
25 City Council of the City of Elk Grove. *Resolution No. 2022-049*. February 23, 2022.

The Project would not alter the existing roadway configuration in the Project vicinity. Thus, the Project would not physically interfere with the LHMP or the EOP, particularly with identified emergency routes. Therefore, the Project would not interfere with an emergency evacuation or response plan, and a ***less-than-significant*** impact would occur.

g. According to the City of Elk Grove General Plan EIR, the City does not contain any areas that are designated as moderate, high, or very high Fire Hazard Severity Zones (FHSZs).[26] In addition, the Project site is surrounded by existing development and is located within an urban area within the City. Thus, the potential for wildland fires to reach the Project site would be relatively limited. Furthermore, all new development within the Project site would be required per the California Fire Code to incorporate ignition resistant construction standards such as ignition-resistant materials and design to resist the intrusion of flame or embers projected by a vegetation fire (wildfire exposure). Therefore, the Project would not expose people or structures to the risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands, and a ***less-than-significant*** impact would occur.

[26] City of Elk Grove. *General Plan Update Draft Environmental Impact Report* [pg. 5.11-1]. February 2019.

X. HYDROLOGY AND WATER QUALITY. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	✖	☐	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	✖	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☐	✖	☐
i. Result in substantial erosion or siltation on- or off-site;	☐	☐	✖	☐
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	✖	☐
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	✖	☐
iv. Impede or redirect flood flows?	☐	☐	☐	✖
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	✖
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	✖	☐

Discussion

a. The following discussion provides a summary of the Project's potential to violate water quality standards/waste discharge requirements or otherwise degrade water quality during construction and operation.

Construction

During the early stages of Project construction activities, topsoil would be exposed due to grading, trenching for utilities, and other standard ground-disturbing activities. After grading and prior to overlaying the ground surface with impervious surfaces and structures, the potential exists for wind and water erosion to discharge sediment and/or urban pollutants into stormwater runoff, which could adversely affect water quality downstream.

The SWRCB regulates stormwater discharges associated with construction activities where clearing, grading, or excavation results in a land disturbance of one or more acres. The City's National Pollutant Discharge Elimination System (NPDES) permit requires applicants to show proof of coverage under the State's General Construction Permit prior to receipt of any construction permits. The State's General Construction Permit requires that subject projects must file a Notice of Intent with the SWRCB and develop a site-specific Storm Water Pollution Prevention Plan (SWPPP). A SWPPP describes BMPs to control or minimize pollutants from entering stormwater and must address both grading/erosion impacts and non-point source pollution impacts of the development Project. BMPs include, but are not limited to, tracking controls, perimeter sediment controls, drain inlet protection, wind erosion/dust controls, and waste management control. Because the Project would disturb greater than one acre of land, the Project would be subject to the requirements of the State's General Construction Permit.

Operation

The proposed self-storage uses would not involve operations typically associated with the generation or discharge of polluted water. Thus, typical operations on the Project site would not violate any water quality standards or waste discharge requirements, nor degrade water quality. However, addition of the impervious surfaces on the site would result in the generation of urban runoff, which could contain pollutants if the runoff comes into contact with vehicle fluids on parking surfaces and/or landscape fertilizers and herbicides.

The NPDES discharge requirements address waste discharge, such as stormwater, from municipal separate storm sewer systems (MS4s).[27] The City jointly participates as an MS4 permittee, together with Citrus Heights, Folsom, Galt, Rancho Cordova, Sacramento, and the County of Sacramento. NPDES permit terms are five years. The current region-wide permit (Order No. R5- 2016-0040) adopted by the Central Valley Regional Water Quality Control Board (RWQCB) in June 2016 allows each permittee to discharge urban runoff from MS4s in its respective municipal jurisdiction, and requires Phase I MS4 permittees to enroll under the region-wide permit as their current individual permits expire. Regional MS4 permit activities are managed jointly by the Sacramento Stormwater Quality Partnership, which consists of the seven jurisdictions covered by the permit. Under the permit, each permittee is also responsible for ensuring that stormwater quality management plans are developed and implemented that meet the discharge requirements of the permit. Under the 2016 permit, measures should be included in the stormwater quality management plans that demonstrate how new development would incorporate low-impact development (LID) design in projects. The City's Department of Public Works is responsible for ensuring its specific MS4 permit (Order No. R5-2016-0040-005) requirements are implemented. Compliance with the MS4 permit, as regulated through Chapter 15.12 of the City's Municipal Code, would ensure that impacts to water quality standards or waste discharge requirements would not occur during operation of the Project.

The Project would be required to comply with all City stormwater requirements related to water quality. As shown in the Preliminary Drainage Study prepared by Burrell Consulting Group Inc., stormwater within the Project site would be captured and treated by a network of Bioclean modular wetlands units (Appendix D).[28] One Bioclean unit would be located at the southern portion of the Project site, and two others would be located within the center of the northern portion of the site, allowing stormwater to enter a system of storm drains through drain inlets. The Bioclean units would treat stormwater first with hydrodynamic separation, followed by the use of prefilter cartridges to separate out tiny impurities, and finally by directing flows horizontally through the main biofiltration chamber, which is composed of plants and soil. Following treatment within the Bioclean units, stormwater would be discharged into the City's storm drain system by way of new 12-inch storm drains.

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27 City of Elk Grove. *General Plan Update Draft Environmental Impact Report* [pg. 5.9-22]. February 2019.

28 Burrell Consulting Group Inc. *Preliminary Drainage Study: Elk Grove Self-Storage*. July 2021.

Based on the above, the Project would comply with the water quality requirements established by Chapter 15.12 of the City's Municipal Code, the SWRCB, and the RWQCB. Therefore, during operation, the Project would comply with all relevant water quality standards and waste discharge requirements, and would not degrade water quality.

Conclusion

The Project would comply with all applicable regulations during operation, does not involve uses associated with the generation or discharge of polluted water, and would be designed to adequately treat stormwater runoff from the site prior to discharge. However, a SWPPP has not yet been prepared for the Project. Without preparation of a SWPPP, proper implementation of BMPs cannot be ensured at this time, and the Project's construction activities and operations could result in an increase in erosion, and consequently affect water quality. Therefore, a ***potentially significant*** impact related to water quality and waste discharge requirements could occur. With implementation of Mitigation Measures X-1 and X-2, which would ensure that adequate BMPs are incorporated during construction and operation in accordance with SWRCB regulations, the Project would result in a less-than-significant impact with regard to violation of water quality standards and degradation of water quality.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

X-1. *Prior to issuance of grading permits, the contractor shall prepare a Storm Water Pollution Prevention Plan (SWPPP) for review and approval by the RWRCB. The developer shall file the Notice of Intent (NOI) and associated fee to the SWRCB. The SWPPP shall serve as the framework for identification, assignment, and implementation of BMPs. The contractor shall implement BMPs to reduce pollutants in stormwater discharges to the maximum extent practicable, as determined by Director of Public Works. Construction (temporary) BMPs for the Project may include, but are not limited to: fiber rolls, straw bale barrier, straw wattles, storm drain inlet protection, velocity dissipation devices, silt fences, wind erosion control, stabilized construction entrance, hydroseeding, revegetation techniques, and dust control measures. The SWPPP shall be submitted to the Director of Public Works/City Engineer for review and approval and shall remain on the Project site during all phases of construction. Following implementation of the SWPPP, the contractor shall subsequently demonstrate the SWPPP's effectiveness and provide for necessary and appropriate revisions, modifications, and improvements to reduce pollutants in stormwater discharges to the maximum extent practicable, as determined by the Director of Public Works.*

X-2. *Prior to approval of improvement plans, the Project improvement plans shall demonstrate, to the satisfaction of the City Engineer, that the Project design is compliant with the City of Elk Grove MS4 permit (Order No. R5-2016-0040-005), consistent with Chapter 15.12 of the City's Municipal Code.*

b,e. Water for the Project site would be supplied by the SWCA. The SCWA pumps groundwater from the South American Sub-basin, as defined by the California Department of Water Resources (DWR) Bulletin 118. The Sacramento Central Groundwater Authority (SCGA) manages groundwater in the Central Basin portion of the South American Subbasin within which the Project site is located. Currently, SCGA is undergoing discussions with other groundwater basin users of the South American Subbasin to evaluate options for formation of a Groundwater Sustainability Agency and development of a Groundwater Sustainability Plan (GSP), consistent with the requirements of the Sustainable Groundwater Management Act (SGMA). However, DWR has not approved a GSP for the Subbasin at this time.

Given that the Project site represents a relatively small area compared to the size of the groundwater basin, the site does not currently represent a substantial source of groundwater recharge. In addition, the proposed landscaped areas within the Project site would continue to allow stormwater runoff to percolate into underlying soils, thereby contributing to groundwater recharge. Although the Project would require a GPA to amend the site's current General Plan land use designation from LDR to EC, the Project site has been previously designated for urban development and the loss of groundwater infiltration at the site due to development has been previously anticipated in the General Plan EIR. Overall, the Project would result in a ***less-than-significant*** impact with respect to substantially decreasing groundwater supplies or interfering substantially with groundwater recharge such that the Project would impede sustainable groundwater management of the basin.

ci-iii. According to the City of Elk Grove's 2011 Storm Drainage Master Plan (SDMP), the Project site is located within the Laguna Creek watershed.[29] Runoff in the watershed flows generally to the southwest until the creek reaches Waterman Road. There, the creek bends, flowing to the northwest, towards its confluence with Morrison Creek. The total watershed area, at the confluence of Morrison Creek, is approximately 48 square miles. Laguna Creek is the most southern stream of the larger Morrison Creek stream group. The headwaters of Laguna Creek begin in the City of Rancho Cordova to the northeast. Laguna Creek flows into the City at Calvine Road, picking up Whitehouse Creek and Elk Grove Creek before leaving the City boundaries near Sheldon Road. The creek then picks up flows from Jacinto Creek within the City of Sacramento limits and joins Morrison Creek just east of Interstate 5. For all storm events, including the two-year, 10-year, and 100-year storm event, the drainage systems within the watershed are anticipated to exceed performance criteria; flooding of building pads is not anticipated to occur, and the few locations projected to experience street flooding would not experience flooding above the top of the curb. Overall, the existing major drainage facilities serving the Project area are anticipated to provide adequate capacity for stormwater drainage at full buildout, and drainage improvements were not recommended for the Laguna Creek Watershed by the 2011 SDMP.

The Project site is currently undeveloped and consists of ruderal grasses that are regularly disked and 72 scattered trees. Implementation of the Project would involve development of a self-storage facility and an associated parking lot. Development of the Project would result in an increase in impervious surfaces on the Project site, which would alter the existing drainage pattern of the site. As noted in the General Plan EIR, Chapter 16.44 of the City's Municipal Code requires projects that would increase drainage flows and have the potential to exceed the capacity of existing drainage facilities to identify, on Project plans, the improvements needed to accommodate the increased flows. As noted previously, such improvements must comply with the performance standards set forth in

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[29] City of Elk Grove. *Storm Drainage Master Plan Volume II* [pg. 4-1]. June 2011.

the regional NPDES MS4 permit. As required by Mitigation Measure X-2, consistent with Chapter 16.44 of the Municipal Code, the Project would include appropriate site design measures, source controls, and hydraulically-sized stormwater treatment measures to limit the rate and amount of stormwater runoff leaving the site.

Stormwater runoff would be treated by a system of Bioclean modular wetlands units located in the southern and northern portions of the Project site, allowing for removal of pollutants prior to discharging into existing city infrastructure. New trees on the Project site would also act as "interceptor trees," which would intercept rain water on their leaves and branches, allowing rain water to evaporate or run down the branches and trunk of the tree where it readily infiltrates into the soil.

The Preliminary Drainage Study prepared for the Project by Burrell Consulting Group Inc. analyzed the Project parcel shed area using the Commercial Sites: LID Credits and Treatment BMP Sizing Calculations Worksheet (Appendix D).[30] Per the LID calculations, the total effective shed area managed by BMPs would be approximately 7.68 acres. Burrell Consulting Group Inc. determined that the proposed stormwater infrastructure would be sufficient to treat stormwater generated by new impervious surfaces at the Project site and would be LID compliant; therefore, the entire Project site meets stormwater quality requirements.

Following on-site treatment, stormwater from the southernmost watersheds, designated Shed-1 and Shed-2, would be collected and outfall into the existing 12-inch drainage main within Elk Grove Boulevard. Stormwater from the northernmost watersheds, Shed-3 through Shed-8, would be collected and outfall in the existing 18-inch drainage main within Tarbert Drive. It should be noted that the existing drainage infrastructure within the Laguna Creek watershed has been determined to have sufficient capacity to provide adequate flood protection and treatment of stormwater runoff generated by the Project site.

The Project's compliance with the City's regional NPDES MS4 permit and the City of Elk Grove's Stormwater Management Program would ensure that the Project would not substantially alter the existing drainage pattern of the site or area in a manner which would result in substantial erosion or siltation on- or off-site, substantially increasing the rate or amount of surface runoff in a manner which would result in flooding on- or offsite, or creating or contributing runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Therefore, a ***less-than-significant*** impact would occur.

civ. Pursuant to the General Plan EIR, in the event of dam failure, Folsom Dam and Sly Park Dam have the potential to cause flooding in the Planning Area. The Project site is located outside of both the Sly Park Dam and Folsom Dam inundation zones.[31]

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map number 06067C0316H, the Project site is located within Zone X.[32] FEMA defines Zone X as an area located outside of the 100-year year floodplain. Therefore, the Project would not include any development within a Special Flood Hazard Area, and would not be

30 Burrell Consulting Group Inc. *Preliminary Drainage Study: Elk Grove Self-Storage.* July 2021.

31 City of Elk Grove. *General Plan Update Draft Environmental Impact Report* [Figure 5.9-5]. February 2019.

32 Federal Emergency Management Agency. *National Flood Hazard Layer.* Available at: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd. Accessed May 2022.

subject to the flood damage regulations included in Chapter 16.50 of the City's Municipal Code. In addition, the Project would be consistent with General Plan Policy ER-2-2, which requires that new projects not result in new or increased flooding impacts on adjoining parcels or on upstream and downstream areas. Therefore, the Project would not impede or redirect flood flows, and ***no impact*** would result.

d. Tsunamis are defined as sea waves created by undersea fault movement, whereas a seiche is a long-wavelength, large-scale wave action set up in a closed body of water such as a lake or reservoir. The Project site is not located within the vicinity of an ocean or a large closed body of water. Thus, the Project site would not be exposed to flooding risks associated with tsunamis or seiches. In addition, as noted above, the Project site is not located within a flood hazard zone. Therefore, ***no impact*** would occur with development of the Project.

XI. LAND USE AND PLANNING. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Physically divide an established community?	☐	☐	✖	☐
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	✖	☐

Discussion

a. A project risks dividing an established community if the project would introduce infrastructure or alter land use so as to change the land use conditions in the surrounding community, or isolate an existing land use. The Project site does not contain existing housing or other development. The Project would not alter the existing general development trends in the area or isolate an existing land use. Therefore, the Project would not physically divide an established community and a ***less-than-significant*** impact would occur.

b. The Project site is currently designated LDR per the City of Elk Grove General Plan and is zoned RD-5. The Project would include a rezone from RD-5 to MP for the Project site. While the Project would require a GPA to develop a self-storage facility on the Project site, rather than residential uses as anticipated in the General Plan, the Project would adhere to the General Plan goals, policies, and objectives regarding land use and planning, including, but not limited to, Policy LU-1-6 and Policy LU-2-3. Policy LU-1-6 the development of neighborhood-serving commercial uses adjacent to residential areas that provide convenient and community-serving retail choices in a manner that does not impact neighborhood character. In addition, Policy LU-2-3 prioritizes and incentivizes development in infill areas. The Project would comply with the aforementioned policies by providing a useful service, self-storage, in an infill area that is largely surrounded by residential uses.

The Project would be consistent with a EC land use designation, as the Project would be located along an arterial roadway. In addition, as discussed throughout this IS/MND, the Project would not conflict with any City policies and regulations adopted for the purpose of avoiding or mitigating an environmental effect; for example, as discussed in Section XIII, Noise, the Project would comply with the City of Elk Grove General Plan Noise Element. Additionally, as discussed in Section IV, Biological Resources, the Project would comply with Elk Grove Municipal Code Chapter 19.12, Tree Preservation and Protection, and Chapter 16.130, Swainson's Hawk Impact Mitigation Fees, of the Elk Grove Municipal Code. Therefore, the Project would not conflict with applicable land use plans, policies, regulations adopted for the purpose of avoiding or mitigating an environmental effect and a ***less-than-significant*** impact would occur.

XII. MINERAL RESOURCES. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	✖
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	✖

Discussion

a,b. According to the City's General Plan, mineral deposits or mineral extraction activities are not located within the City's Planning Area.[33] Therefore, the Project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State or result in the loss of availability of a locally-important mineral resource recovery site delineated in the City's General Plan. Therefore, ***no impact*** to mineral resources would occur as a result of development of the Project.

[33] City of Elk Grove. *General Plan* [pg. 7-25]. February 2019.

XIII. NOISE. *Would the project result in:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	✖	☐	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	✖	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	✖

Discussion

a. The following sections present information regarding existing sensitive noise receptors in proximity to the project site, the existing noise environment, and the potential for the proposed project to result in impacts during project construction and operation. The following terms are referenced in the sections below:

- Decibel (dB): A unit of sound energy intensity. An A-weighted decibel (dBA) is a decibel corrected for the variation in frequency response to the typical human ear at commonly encountered noise levels. All references to dB in this discussion will be A-weighted unless noted otherwise.
- Day-Night Average Sound Level (L_{dn}): The average noise over a 24-hour period.
- Equivalent Sound Level (L_{eq}): The average sound level over a period of time.

The City of Elk Grove General Plan Noise Element establishes noise level criteria for both transportation noise sources, and for non-transportation (stationary) noise sources. For transportation noise sources, the Noise Element establishes an exterior noise level standard of 60 dB L_{dn} and an interior noise level standard of 45 dB L_{dn} for residences. The exterior noise level standard is applied at outdoor activity areas to provide an acceptable noise environment for outdoor activities. The interior noise level standard is intended to provide a suitable environment for indoor communication and sleep. For stationary noise sources, the Noise Element establishes noise level performance standards of 55 dB L_{eq} during daytime hours (7:00 AM to 10:00 PM) and 45 dB L_{eq} during nighttime hours (10:00 PM to 7:00 AM) for typical stationary noise sources. The Noise Element includes trucking operations, shopping centers, car washes, loading docks, and HVAC systems as typical stationary noise sources.

The significance of Project-related noise impacts is also determined by comparison of Project-related noise levels to existing no-Project noise levels, as required by CEQA. An increase in similar noise levels of less than 3 dB is generally not perceptible. An increase of at least 3 dB in similar noise sources is usually required before most people will perceive a change in noise levels, and an increase of 5 dB is required before the change will be clearly noticeable. For this Project, an increase of more than 3 dB due to the Project would be considered a significant increase in noise.

Some land uses are considered more sensitive to noise than others, and, thus, are referred to as sensitive noise receptors. Land uses often associated with sensitive noise receptors generally include residences, schools, libraries, hospitals, and passive recreational areas. Noise sensitive land uses are typically given special attention in order to achieve protection from excessive noise. In the vicinity of the Project site, the nearest existing noise sensitive land uses include the school to the west of the Project site, the Carlton Senior Living Facility to the east, and single-family residences to the east and north of the Project site. The nearest residences are located approximately 30 feet from the Project site.

Construction Noise

During the construction of the Project, heavy equipment would be used for grading, excavation, paving, and building construction, which could result in temporary noise level increases at nearby sensitive receptors. Noise levels would vary depending on the type of equipment used, how the equipment is operated, and how well the equipment is maintained. In addition, noise exposure at any single point outside the Project site would vary depending on the proximity of construction activities to that point. Standard construction equipment noise levels are presented in Table 9 below.

Table 9
Construction Equipment Noise

Type of Equipment	Maximum Level, dBA at 50 feet
Backhoe	78
Compacter	83
Compressor (air)	78
Concrete Saw	90
Dozer	82
Dump Truck	76
Excavator	81
Generator	81
Jackhammer	89
Pneumatic Tools	85

Source: Roadway Construction Noise Model User's Guide. Federal Highway Administration. FHWA-HEP-05-054. January 2006.

As shown in the table, construction activities would generate maximum noise levels ranging from 78 to 90 dBA at a distance of 50 feet. As noted previously, the nearest existing sensitive receptors are the single-family residences located approximately 30 feet away from the Project site and, thus, could be subjected to noise levels slightly above those presented in the table, and potentially in excess of City standards.

However, per Section 6.32.100(E) of the City's Municipal Code, noise sources associated with construction are exempt from the City's noise standards, provided such activities only occur between the hours of 7:00 AM and 7:00 PM when located adjacent to residential uses.[34] Section 6.32.100(E) of the Municipal Code is reproduced below as follows:

[34] City of Elk Grove. *Municipal Code, Section 6.32.100.* Current through May 8, 2019.

> Noise sources associated with construction, repair, remodeling, demolition, paving or grading of any real property, provided said activities only occur between the hours of 7:00 a.m. and 7:00 p.m. when located in close proximity to residential uses. Noise associated with these activities not located in close proximity to residential uses may occur between the hours of 6:00 a.m. and 8:00 p.m. However, when an unforeseen or unavoidable condition occurs during a construction Project and the nature of the Project necessitates that work in progress be continued until a specific phase is completed, the contractor or owner shall be allowed to continue work after 7:00 p.m. and to operate machinery and equipment necessary until completion of the specific work in progress can be brought to conclusion under conditions which will not jeopardize inspection acceptance or create undue financial hardships for the contractor or owner;

Implementation of Mitigation Measure XIII-1 below specifies standards to reduce noise from construction activities consistent with Section 6.32.100 of the City's Municipal Code. In addition, noise associated with construction activities would be temporary in nature. Pursuant to the General Plan EIR, with application of Section 6.32.100(E) of the City's Municipal Code and General Plan Policy N-1-7 related to construction of City infrastructure, construction noise associated with buildout of the General Plan was determined to be less than significant.

Although construction activities are temporary in nature and would occur during normal daytime working hours, construction-related noise could result in potential impacts if construction activities were to occur outside the normal daytime hours. Therefore, impacts resulting from noise levels temporarily exceeding the threshold of significance due to construction would be considered potentially significant.

Operational Noise

The existing noise environment in the Project area is primarily defined by traffic on Elk Grove Boulevard. The primary source of operational noise associated with implementation of the proposed Project would be traffic noise generated by future patrons of the self-storage facility.

According to the General Plan EIR, under existing conditions, the nearest sensitive receptors for be exposed to noise levels ranging from 65 to 70 dB from traffic along Elk Grove Boulevard. The General Plan EIR determined that, under buildout of the General Plan, including development of the Project site, traffic noise levels from Elk Grove Boulevard at the nearest sensitive receptors would still range from 65 to 70 dB.[35] Therefore, buildout of the General Plan would not result in an increase in traffic noise that exceeds the applicable 3 dB substantial increase criteria.

Under the current zoning designation of RD-5, buildout of the 7.71-acre Project site could accommodate approximately 38.6 single-family dwelling units (7.71 acres x 5 dwelling units per acre [du/a] = 38.6 dwelling units). However, following the rezone to MP, the Project would develop approximately 125,550 sf of storage space. The 9th Edition Trip Generation Handbook was used to calculate the trip generation rates for the existing and the proposed land uses.[36] As such, buildout under the existing zoning designation would result in 367 daily generated trips, with 29 in the AM hours and 39 in the PM hours. Buildout of the Project under the proposed zoning designation would generate an estimated 314 daily trips, with 18 in the AM hours and 33 in the PM hours. As such, the

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35 City of Elk Grove. *General Plan Update Draft Environmental Impact Report* [pg. 5.10-14]. February 2019.

36 Spack Consulting. *ITE Trip Generation Rates – 9th Edition.* November 2012.

proposed Project would result in an approximate 53 fewer daily trips than what was previously anticipated and evaluated in the General Plan EIR. The reduction in vehicle trips would correlate to a reduced level of traffic noise. Considering the General Plan EIR determined that a less-than-significant increase in traffic noise would occur upon buildout of the General Plan, and the Project would generate fewer trips than what was considered in the General Plan EIR, a less-than-significant impact would occur.

Conclusion

Based on the above, operations of the Project would not cause a significant impact related to traffic noise upon sensitive receptors. However, noise generated by construction activities could result in potential impacts if construction activities were to occur outside the normal daytime hours. Therefore, impacts on nearby sensitive receptors resulting from noise levels temporarily exceeding the threshold of significance due to construction would be considered ***potentially significant.***

Mitigation Measure(s)

Implementation of the following mitigation measure would ensure that the Project would conform to the City's allowed construction hours, and would thus reduce the above potential impact to a *less-than-significant* level.

XIII-1. *The following measures shall be followed throughout all phases of construction to reduce noise from construction activities and shall be the responsibility of the construction contractor and Project applicant:*

- *Construction should be limited between the hours of 7:00 AM to 7:00 PM when located in close proximity to residential uses. Noise associated with these activities not located in close proximity to residential uses may occur between the hours of 6:00 PM and 8:00 PM;*
- *Construction equipment should be well maintained and used judiciously to be as quiet as practical. Staging areas should be located in areas as far as possible from adjacent uses;*
- *Equip all internal combustion engine-driven equipment with mufflers, which are in good condition and appropriate for the equipment;*
- *Utilize "quiet" models of air compressors and other stationary noise sources where technology exists. Select hydraulically or electric-powered equipment and avoid pneumatically powered equipment where feasible;*
- *Locate stationary noise-generating equipment as far as possible from sensitive receptors. Construct temporary noise barriers or partial enclosures to acoustically shield such equipment where feasible. Muffle or shield all intake and exhaust ports on power construction equipment;*
- *Where barriers are used to shield equipment, when feasible, as determined by the City of Elk Grove, they should block line-of-sight between the equipment and adjacent buildings. Barriers should have a minimum density of 3 pounds per square foot;*
- *Prohibit unnecessary idling of internal combustion engines;*
- *Ensure that no pieces of equipment (tractors, trucks, generators, radios, etc.) are started or idled prior to 7:00 AM;*

- *Ensure that delivery vehicles arrive to the Project site after 7:00 AM; and*
- *Construction-related deliveries of materials and equipment should avoid residential neighborhoods to the extent possible.*

b. Vibration can be measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration measures in terms of peak particle velocities (PPV) in inches per second (in/sec). Standards pertaining to perception, as well as damage to structures, have been developed for vibration levels defined in terms of PPV. Table 10 presents the effects of vibration on people and buildings.

Table 10
Effects of Vibration on People and Buildings

Peak Particle Velocity			
mm/second	**in/second**	**Human Reaction**	**Effect on Buildings**
0.15-0.30	0.006-0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
2.0	0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
2.5	0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of “architectural” damage to normal buildings
5.0	0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relative short periods of vibrations)	Threshold at which there is a risk of “architectural” damage to normal dwelling - houses with plastered walls and ceilings. Special types of finish such as lining of walls, flexible ceiling treatment, etc., would minimize “architectural” damage
10-15	0.4-0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause “architectural” damage and possibly minor structural damage

Source: Transportation Related Earthborne Vibrations. Caltrans. TAV-02-01-R9601. February 20, 2002.

As shown in the table, and as noted in the City of Elk Grove General Plan Noise Element Policy N-1-9, the threshold of significance for architectural damage to structures is 0.20 in/sec ppv.

During Project construction, heavy equipment would be used for grading, excavation, paving, and building construction, which would generate localized vibration in the immediate vicinity of construction. The range of vibration source levels for typical construction equipment are shown in Table 11.

Table 11
Vibration Levels for Various Construction Equipment

Type of Equipment	Peak Particle Velocity at 25 feet (inches/second)	Peak Particle Velocity at 50 feet (inches/second)
Hoe Ram	0.089	0.032
Large Bulldozer	0.089	0.032
Casson Drilling	0.089	0.032
Loaded Trucks	0.076	0.027
Small Bulldozer	0.003	0.011
Jackhammer	0.035	0.012

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, 2018.

The nearest existing sensitive receptors are the single-family residences located approximately 30 feet away from the site at the closest point. Based on the typical vibration levels shown in the table above, construction activities associated with the Project would not exceed 0.20 PPV at over 25 feet away. Therefore, the Project would not result in the exposure of persons to or generation of excessive groundborne vibration levels at the Project site. Additionally, construction activities would be temporary in nature and would be limited to between 7:00 AM and 7:00 PM per Chapter 6.32 of the City's Municipal Code.[37] Therefore, a ***less-than-significant*** impact would occur related to exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

c. The nearest airport to the Project site is the domestic Franklin Airport, located approximately seven miles south of the site. Given the substantial distance between the airport and the Project site, noise levels resulting from aircraft at the nearest airport would be negligible at the site. Therefore, ***no impact*** would occur related to exposing people residing or working in the Project area to excessive airport-related noise levels.

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[37] Elk Grove Municipal Code Section 6.32.100 states that noise sources associated with the construction, repair, remodeling, demolition, paving or grading of any real property shall be exempted from the provisions of Chapter 6.32, provided said activities only occur between the hours of 7:00 AM and 7:00 PM when located in close proximity to residential uses. However, when an unforeseen or unavoidable condition occurs during a construction project and the nature of the project necessitates that work in progress be continued until a specific phase is completed, the contractor or owner shall be allowed to continue work after 7:00 PM and to operate machinery and equipment necessary until completion of the specific work in progress can be brought to conclusion under conditions which will not jeopardize inspection acceptance or create undue financial hardships for the contractor or owner."

XIV. POPULATION AND HOUSING. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure)?	☐	☐	✖	☐
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	✖

Discussion

a. The Project would include the development of a self-storage facility and an associated two-bedroom, 2-bathroom apartment for the on-site manager. Per the General Plan EIR, the average household size for the City in 2017 was 3.29 persons per household.[38] As such, approximately four persons is the anticipated increase in population resulting from Project buildout. Thus, the Project would not be considered to result in substantial unplanned population growth.

Population growth itself does not constitute an environmental impact; rather, increased demands on the physical environment resulting from increases in population are considered environmental impacts. For example, increased demands on City services could require system upgrades, the construction of which could have environmental impacts. Physical environmental effects associated with development of the proposed Project are evaluated throughout this IS/MND. As discussed in Section XV, Public Services, of this IS/MND, the Project site is located in an urban area and is surrounded by existing development. Therefore, construction of new or expanded public services facilities would not be necessary to serve the Project. Per Section XIX, Utilities and Service Systems, the Project would not include construction of substantial new off-site utility infrastructure or expansion of existing utilities. In addition, buildout of the site under the proposed zoning designation would result in significantly less population growth than would otherwise occur under the existing RD-5 zoning designation.

While the Project would result in population growth, such growth could be accommodated by existing public services and infrastructure and would not result in significant adverse environmental effects. Thus, a ***less-than-significant*** impact would occur related to inducing substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure).

b. The Project site is currently vacant and does not contain existing housing or other habitable structures. It should be noted that pursuant to SB 330, cities are prohibited from rezoning from residential to non-residential uses unless another site is zoned to accommodate the number of potential units lost. The City is currently in the process of upzoning a 16-acre property from RD-4 to RD-7, which will accommodate the number of potential units lost. The upzoning is separate from the proposed Project, and shall be subject to a separate CEQA review. As such, the Project would not displace a substantial

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38 City of Elk Grove. *General Plan Update Draft Environmental Impact Report* [pg. 3.0-2]. February 2019.

number of existing housing or people and would not necessitate the construction of replacement housing elsewhere, resulting in ***no impact.***

XV. PUBLIC SERVICES.

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Fire protection?	☐	☐	✖	☐
b. Police protection?	☐	☐	✖	☐
c. Schools?	☐	☐	✖	☐
d. Parks?	☐	☐	✖	☐
e. Other Public Facilities?	☐	☐	✖	☐

Discussion

a. Fire protection services in the City of Elk Grove are provided by the Cosumnes Fire Department (CFD), which is part of the Cosumnes Community Services District (CCSD).[39] Services include fire suppression, emergency medical services, technical rescue, and arson and explosion investigations in a 157-square-mile service area covering Elk Grove, Galt, and a portion of unincorporated southern Sacramento County. The CCSD has 175 personnel in its Operations Division and operates out of eight fire stations with nine advanced life support engine companies, one aerial ladder truck company, and eight paramedic ambulances, as well as other specialized apparatus for specialized emergency circumstances.[40] In 2018, the CCSD responded to 19,790 incidents, an increase from the prior four years.[41] The nearest fire station to the Project site is Fire Station 74, located at 6501 Laguna Park Drive, to the northwest of the site.

Upon completion, the CFD would provide fire protection services to the proposed development. The General Plan EIR concluded that while buildout of the Planning Area, including the Project site, would result in an increased demand for fire protection and emergency medical services, compliance with applicable regulations and General Plan policies would ensure that new fire station siting and resources are available, and that required environmental review under CEQA would be conducted as specific fire protection facilities are proposed. As noted in the General Plan EIR, three new fire stations are currently planned within the City's Planning Area: Station 77, to be located within the Laguna Ridge Specific Plan Area near Whitelock Parkway; Station 78, to be located within the South Pointe Land Use Policy Area near Kammerer Road; and Station 79, to be located within the Eastern Elk Grove Community Plan Area near Grant Line Road. Therefore, demand for fire protection facilities associated with the Project could either be met by the existing Fire Station 74 or by future fire station facilities planned by the City.

The Project would be subject to payment of a fire impact fee in accordance with Chapter 16.85 of the City's Municipal Code, which is used to pay for costs associated with development of new fire stations. Furthermore, the proposed buildings would be constructed in accordance with the fire protection requirements of the most recent California Fire Code. The CCSD would review the Project building plans to ensure

39 City of Elk Grove. *General Plan Update Draft Environmental Impact Report* [pg. 5.11-1]. February 2019.
40 Cosumnes Fire Department. *Operations Division*. Available at: https://www.yourcsd.com/469/Operations-Division. Accessed May 2022.
41 Cosumnes Fire Department. *2018 Annual Report*. 2020.

compliance with all code requirements. Based on the above the Project would have a ***less-than-significant*** impact related to the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts.

b. Police protection services within the City of Elk Grove are provided by the City of Elk Grove Police Department (EGPD). As noted in the General Plan EIR, the EGPD operates primarily out of two facilities located in the City Hall complex at 8380 and 8400 Laguna Palms Way. The service area is split into five police beats that are regularly patrolled. The EGPD has an authorized strength of 146 sworn officers and 108 civilian personnel and responds to an average of 52,000 calls for service per year.[42] In addition to the EGPD, the California Highway Patrol (CHP) provides traffic regulation enforcement, emergency accident management, and service and assistance on State roadways, as well as traffic regulation enforcement throughout the State (including in the City), from its station located at 6 Massie Court, near the interchange of Mack Road and State Route 99.

The General Plan EIR concluded that while buildout of the Planning Area, including the Project site designated as residential, would result in an increased demand for law enforcement services, resulting in new patrols, identified growth areas within the City will be adequately served by the EGPD's existing facilities, and construction of new facilities is not likely to be required. In addition, any upgrades to law enforcement facilities and/or equipment to provide adequate law enforcement services to new development would be funded by the City's Capital Facilities Fee levied on new development, as well as ongoing payments of property taxes, which are typically used to hire additional law enforcement staff if necessary.

Given required payment of the City's Capital Facilities Fee consistent with Chapter 16.95 of the City's Municipal Code, the Project would have a ***less-than-significant*** impact related to the need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts.

c. School services in the City are provided by the Elk Grove Unified School District (EGUSD). As noted in the General Plan EIR, the EGUSD provides education to over 62,000 students and operates 66 schools: 42 elementary schools, nine middle schools, nine high schools, one alternative education school, four continuation schools, and one special education school. Enrollment at the EGUSD has remained relatively constant since the 2011/12 school year.

The Project would include the development of only residential unit and, thus, would not significantly increase demand for school facilities and services. As such, the Project would result in a ***less-than-significant*** impact regarding an increase in demand for schools.

d,e. Parks and recreation services within the City are provided by the CCSD through the CCSD's Parks and Recreation Department. The CCSD plans and designs new parks, owns, operates, and maintains parks and community centers, manages rentals of community centers, picnic sites, and sports fields, and offers recreation programs; recreational opportunities offered by the CCSD include, but are not limited to, 97 parks, 21 miles of trails, 36 multipurpose sports fields, two aquatic centers, and eight recreation

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[42] Elk Grove Police Department. *About Us*. Available at: https://www.elkgrovepd.org/about_us. Accessed September 2022.

buildings as of 2018.[43] The Project site is located approximately 200 feet south of the South Lichtenberger Park, which is an approximately 15-acre park consisting of a multi-purpose soccer field, horseshoe pits, play equipment, and a jogging and bike trail.[44] Other parks within a one-mile vicinity of the Project site include North Lichtenberger Park, Kloss Park, Kramer Park, Keema Park, Willard Park, Constellation Park, and Luttig Park. The Project would result in a minimal increase in population, and thus the subsequent demand on recreational facilities would not warrant the development of new recreational infrastructure.

As discussed in Section XIV, Population and Housing, of this IS/MND, the Project would house up to an estimated four future residents. Because of the size and number of existing parks in the immediate vicinity of the Project site, new residents would not be expected to require the need for new or physically altered parks or other public facilities, the construction of which could cause significant environmental impacts, because of the scope and availability of surrounding parks in the immediate vicinity of the Project site. Therefore, a ***less-than-significant*** impact would occur.

43 City of Elk Grove. *General Plan* [pg. 5.11-15]. February 2019.
44 Consumnes Community Services District. *Lichtenberger North & South Park.* Available at: https://www.yourcsd.com/627/Lichtenberger-North-South-Park. Accessed May 2022.

XVI. RECREATION. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	✖	☐
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	✖	☐

Discussion

a,b. Projects that result in an increase in use of existing recreational facilities typically increase the population in the area, and thus are generally residential in nature. Development of the Project would involve the creation of a self-storage facility, with one apartment included for the manager. As such, the increase in population associated with the Project would be negligible, and would not be expected to result in substantial physical deterioration of any existing neighborhood or regional parks or other recreational facilities, and would not result in adverse physical effects related to the construction or expansion of new facilities. Thus, a ***less-than-significant*** impact would occur.

XVII. TRANSPORTATION. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☐	✖	☐
b. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	✖	☐
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	✖	☐
d. Result in inadequate emergency access?	☐	☐	✖	☐

Discussion

The following discussion is based primarily on a VMT Memorandum prepared for the Project by Fehr & Peers (Appendix E).[45] The VMT Memorandum evaluates the consistency of the Project with the City's policies and the impacts of the Project in accordance with the standards set forth by the City.

a. This section discusses any potential conflict between the Project and any applicable programs, plans, ordinances, or policy addressing the circulation system. This includes all modes of transportation, including roadway, bicycle, pedestrian, and transit facilities.

Roadways

The City of Elk Grove's General Plan Policy MOB-1-4 includes performance targets for intersections and roadways, with the objective to balance the effectiveness of design requirements to achieve the targets with the character of the surrounding area, cost, and maintenance. Within the City's General Plan Transportation Network Diagram, Elk Grove Boulevard is planned as a six-lane arterial within the Project vicinity, and is built as such.

Table 12 compares the daily, AM peak hour, and PM peak hour trip generations with the existing (LDR) and proposed land use designation (EC). As shown, the proposed Project would generate fewer daily, AM peak hour, and PM peak hour trips. Therefore, because the Project would not increase traffic on Elk Grove Boulevard, the classification of Elk Grove Boulevard needed to accommodate buildout of the General Plan would not need to be changed.

Table 12
Trip Generation Comparison

Land Use		Units	Quantity	Trip Generation		
				Daily	Peak Hour AM	Peak Hour PM
Existing	Single Family Residential	Dwelling Units	38	358	27	36
Proposed	Storage	1,000 sf	160.902	233	15	25
Difference				-125	-12	-11

Source: Fehr & Peers, 2022.

45 Fehr & Peers. *Elk Grove Self Storage – VMT.* October 5, 2022.

Pedestrian and Bicycle Facilities

Although multiple streets with sidewalks surround the Project site to the north and east, the only street with pedestrian or vehicle access to the site is Elk Grove Boulevard to the south. A tool to evaluate pedestrian and bicycle level of traffic stress called Streetscore+ was developed by Fehr & Peers, and includes recommended parameters for the pedestrian environment provided by the National Association of City Transportation Officials Urban Streets Design Guide (NACTO USDG). Pedestrian facilities on Elk Grove Boulevard include sidewalks that are adjacent to the roadway with some segments on improved frontages that are buffered from the roadway by landscaping. Using Streetscore+ criteria, the existing pedestrian facilities were determined to have a score of three, which denotes that walking is uncomfortable but possible, and that minimal sidewalk facilities may be present, but barriers are also present that make the walking experience and uncomfortable. Fehr & Peers determined that the addition of the Project would not negatively alter the existing pedestrian facilities.

Fehr & Peers also used Streetscore+ to evaluate the level of traffic stress for bicyclists on Elk Grove Boulevard. Class II bike lanes (on-street with signage and striping) are present in both directions on Elk Grove Boulevard. Because the Project does not include any activities that would change or disrupt the existing bicycle facilities in the Project vicinity, Fehr & Peers determined that the addition of the Project would not degrade the bicycle level of traffic stress. In addition, given the self-storage nature of the proposed Project, it can be reasonably assumed that the Project would not generate pedestrian and bicycle traffic substantial enough to exceed the capacity of existing pedestrian and bicycle facilities.

Transit Service and Facilities

Transit services in the City of Elk Grove are provided by E-tran, which is operated by Sacramento Regional Transit (SacRT). Multiple bus stops are located near the Project site, including sheltered bus stops on Bruceville Road, north of Elk Grove Boulevard, and eastbound on Elk Grove Boulevard, located east of the Project site, as well as an unsheltered bus stop located on Elk Grove Boulevard west of the Project site. Bus routes that serve the area include Commuter Route 12 and Local Routes 112 and 116. Commuter Route 12 operates Monday through Friday and provides two inbound buses in the morning, and two outbound buses in the evening. Local Route 112 operates Monday through Friday between approximately 6:00 AM and 8:00 PM with hourly headways in each direction. Local Route 116 operates Monday through Saturday between approximately 6:00 AM and 8:00 PM with hourly headways in each direction. Therefore, existing transit services and facilities contain sufficient capacity to accommodate potential transit users at the proposed Project.

Conclusion

Based on the above, the Project would not increase vehicle traffic such that the capacity of surrounding roadways or intersections would be exceeded, nor would the Project generate significant traffic so as to exceed the capacity of existing pedestrian, bicycle, or transit facilities. Therefore, the Project would not conflict with a program, plan, ordinance or policy addressing the circulation system, taking into account all modes of transportation, including transit, roadway, bicycle, and pedestrian facilities. Thus, a ***less-than-significant*** impact would occur.

b. Pursuant to General Plan Policy MOB-1-1, new development projects are required to demonstrate a 15 percent reduction in VMT from 2015 conditions. To demonstrate this reduction, conformance with following land use and cumulative VMT limits is required:

1. Development projects shall demonstrate that the VMT produced by the project at buildout is equal to or less than the VMT limit of the project's General Plan land use designation, as shown in Table 6-1 of the General Plan, which incorporates the 15 percent reduction from 2015 conditions; and
2. Development projects located within the existing City limits shall demonstrate that cumulative VMT within the City, including the project, would be equal to or less than the established Citywide limit of 6,367,833 VMT (total daily VMT).

As part of the VMT Memorandum prepared for the Project, Fehr & Peers developed origin-destination/tour-based transportation analysis VMT forecasts using the modified version of the Sacramento Area Council of Governments (SACOG) SACSIM regional travel demand forecasting model, developed for the City of Elk Grove General Plan Update and subsequently updated for the City's transportation impact fee program. The City of Elk Grove uses VMT per service population and daily VMT as the basis for VMT analysis. VMT per service population includes the sum of all vehicle miles travelled produced by individual land uses in a Project, divided by the sum of total residents living in the Project. The VMT per service population metric is used to assess a Project against specific land use VMT limits. Total daily VMT includes the sum of all vehicle miles travelled produced by all uses within the applicable study area. Because the Project is located within the city limits of Elk Grove, Fehr & Peers used the citywide cumulative VMT limit that is outlined in Policy MOB-1-1(a)(ii) to assess the Project.

As mentioned previously, the VMT produced by the Project at buildout must be equal to or less than the VMT limit of the underlying land use designation. The Project is located within a pre-screened area that has been determined to result in 15 percent or below the average service population VMT established for that land use designation if built to the specifications of the Elk Grove Land Use Plan. Typically, no further analysis would be required, but because the Project is proposing a GPA from LDR to EC, additional analysis is required for the proposed Project to confirm VMT performance for the proposed EC land use designation. Using a modified version of SACOG's SACSIM regional travel demand forecasting model, Fehr & Peers calculated the VMT per service population for the Project. The Project's VMT per service population would be 39.0, which is 17 percent lower than 47.1, the City's VMT limit for the EC land use designation. In addition, the City's total VMT limit with buildout of the proposed Project was calculated to be 6,367,676, which does not exceed the City's limit of 6,367,833. Therefore, the Project would not cause VMT levels to exceed the limits for the EC land use designation or the established citywide limit.

Based on the above, the Project would not cause a new exceedance of the citywide limit or conflict with the VMT limits established by General Plan Policy MOB-1-1. Therefore, the Project would not conflict with CEQA Guidelines section 15064.3, subdivision (b) and a ***less-than-significant*** impact would occur.

c,d. The Project would not alter the existing transportation network nor increase hazards due to a geometrical design feature. The proposed buildings are sufficiently set back from Elk Grove Boulevard such that visibility for motorists would not be hindered. During Project construction, public roads in the vicinity would remain open and available for use by emergency vehicles and other traffic. In addition, the internal roadway would be designed to be adequate for emergency vehicle access.

As noted in the General Plan EIR, buildout of the General Plan would result in less-than-significant impacts related to hazards and emergency access (see Impacts 5.13.5 and 5.13.6). Although the Project would not be consistent with the General Plan land use designation for the site, the General Plan EIR noted that any new transportation facility improvements required as part of General Plan buildout would be constructed based on industry design standards consistent with Policy MOB-3-10, which stresses that the safety of the most vulnerable user is a priority.

Based on the above, the Project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment), and would not result in inadequate emergency access. Therefore, a ***less-than-significant*** impact would occur.

XVIII. TRIBAL CULTURAL RESOURCES. *Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k).	☐	✖	☐	☐
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	✖	☐	☐

Discussion

a,b. As discussed in Section V, Cultural Resources, of this IS/MND, the Project site is located in the ethnographic-period territory of the Plains Miwok, a tribe which inhabited the lower reaches of the Mokelumne and Cosumnes River and both banks of the Sacramento River from Rio Vista to Freeport. The Project area is situated in the Sacramento Valley approximately 1.4 miles northeast of intermittent streams.

As discussed in Section V, Cultural Resources, of this IS/MND, a search of the CHRIS database concluded that one recorded historic resource has been identified on the Project site, and one recorded cultural resource has been identified within a 0.25-mile radius of the Project site. Potential impacts upon such resources have been previously discussed in Section V, Cultural Resources, of this IS/MND. However, the CHRIS search found that the Project site does not contain any recorded tribal cultural resources. In addition, a search of the Sacred Lands File conducted through the Native American Heritage Commission returned negative results for the potential for known tribal cultural resources to exist on the Project site. Therefore, while the potential exists for locating tribal cultural resources, including tribal cultural resources, in the immediate vicinity of the Project area, impacts to such resources are not anticipated.

In compliance with AB 52 (PRC Section 21080.3.1), on May 19, 2022, the City provided formal notification letters to the following tribes that had requested notification: the Buena Vista Rancheria of Me-Wuk Indians; Ione Band of Miwok Indians; Nashville Enterprise Miwok-Maidu-Nishinam Tribe; Shingle Springs Band of Miwok Indians; Tsi Akim Maidu; United Auburn Indian Community of the Auburn Rancheria; Wilton Rancheria; and the Chicken Ranch Rancheria of Me-Wuk Indians. Requests for consultation were received from the Wilton Rancheria on May 20, 2022. Consultation with the Wilton Rancheria led to the inclusion of Mitigation Measure XVIII-2 in this IS/MND, and consultation was concluded on August 16, 2022. It should be noted that consultation pursuant to SB 18 was provided on May 19, 2022.

Given the extent of known cultural resources and the environmental setting, the NCIC determined that a low potential exists for locating known prehistoric-period cultural resources in the immediate vicinity of the Project area; however, the potential exists for the proposed Project to cause a substantial adverse change in the significance of unknown subsurface tribal cultural resources, and a ***potentially significant*** impact may occur. Implementation of Mitigation Measure XVIII-1 would ensure that if previously unknown tribal cultural resources are encountered during construction activities, the Project would not cause a substantial adverse change in the significance of the tribal cultural resource during construction. Therefore, impacts would be considered less than significant with mitigation incorporated.

Mitigation Measure(s)

Implementation of the following mitigation measure, which refers to the mitigation measures presented previously in Section V of this IS/MND, would reduce the above impact to a *less-than-significant* level.

XVIII-1. *Implement Mitigation Measures V-1, V-2, and V-3.*

XVIII-2 *Prior to ground disturbing activities, the Applicant shall provide the City with a construction schedule that will be provided to the Wilton Rancheria (the "Tribe") to ensure the Tribe is afforded the opportunity to monitor the Project during ground disturbing activities. Should the Tribe desire a Tribal Monitor, the Applicant shall enter into an agreement with the Wilton Rancheria to compensate the Tribal Monitor at the Tribe's current adopted rate. Proof of compliance with this measure shall be submitted to the City of Elk Grove Development Services Department.*

XIX. UTILITIES AND SERVICE SYSTEMS. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	✖	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	✖	☐
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	✖	☐
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	✖	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	✖	☐

Discussion

a-c. The sections below describe the wastewater and water supply infrastructure necessary to serve the Project.

Wastewater Infrastructure

Sewer service for the Project would be provided by the SASD by way of a new eight-inch sewer line that would connect to an existing sewer line within Tarbert Drive. The SASD is a contributing agency to the Sacramento Regional County Sanitation District (Regional San).

The SASD owns, operates, and maintains a network of 107 pump stations and approximately 80 miles of pressurized force main pipes.[46] SASD trunk sewer pipes function as conveyance facilities to transport the collected wastewater flows to the Regional San interceptor system. The existing City trunk line extends southeast from the Sacramento Regional Wastewater Treatment Plant (SRWTP) influent diversion structure to Laguna Boulevard, then parallel to SR 99 along East Stockton Boulevard, extending close to the southern boundary of the City of Elk Grove.

According to the General Plan EIR, the SRWTP treats an average of 181 million gallons of wastewater per day (mgd). Wastewater is treated by accelerated physical and natural biological processes before discharge to the Sacramento River. The SRWTP's reliable capacity is currently limited, based on hydraulic considerations, to an equivalent 207 mgd average dry weather flow (ADWF). This existing capacity falls short of the 218 mgd ADWF projected for 2020 per the Sacramento Regional Wastewater Treatment Plant 2020

[46] City of Elk Grove. *General Plan Update Draft Environmental Impact Report* [pg. 5.12-26]. February 2019.

Master Plan. Therefore, the SRWTP has been master planned to accommodate 350 mgd ADWF. In addition, Regional San has prepared a long-range master plan for the large-diameter interceptors that transport wastewater to the SRWTP. The master plan includes interceptor upgrades/expansions to accommodate anticipated growth through 2035.[47]

The Project would require a GPA from LDR to EC. Using the General Plan EIR's assumption of 310 gallons of wastewater per day per residential dwelling unit, operation of the Project would contribute a total of approximately 310 gallons of wastewater per day, with a minimal increase from the public restrooms included in the Project. The Project would contribute less wastewater than what would be anticipated with residential uses, and thus the estimated wastewater generation from the Project would not be anticipated to exceed the capacity of existing city wastewater infrastructure in consideration of the aforementioned proposed infrastructural improvements identified by the SRWTP Master Plan and General Plan EIR. Furthermore, the Project applicant would be required to pay sewer impact fees to the sewer district, which would contribute towards the cost of future upgrades of the SRWTP. Required payment of sewer impact fees would ensure that the SRWTP receives adequate funding for necessary future improvements. It should also be noted that, per the SRWTP's NPDES Permit (No. CA0077682), adopted in April of 2016, the ADWF at that time was approximately 120 mgd.[48] As such, the SRWTP was operating at approximately 63 percent of permitted capacity. Therefore, adequate capacity exists to treat the additional 310 gallons of wastewater that would be generated by the proposed Project, and a less-than-significant impact would occur related to construction of new or expanded wastewater facilities.

Water Supply Infrastructure

The City of Elk Grove is served by three water service providers: the SCWA; the Elk Grove Water District; and the Omochumne-Hartnell Water District. As noted above, the Project would be served by the SCWA. The SCWA uses purchased water, surface water, groundwater, and recycled water as sources of water supply. The site is located within the SCWA's 40/41 service area and within the 2030 Water Supply Master Plan (WSMP) study area.

Since approval of the WSMP, the SCWA has produced amendments to the WSMP for the following areas: Cordova Hills (approved 2011), Jackson Township (pending approval), New Bridge (pending approval), and West Jackson (pending approval). In 2016, SCWA also developed the Water System Infrastructure Plan (WSIP). The WSIP is a staff-level document that describes the projected water supply infrastructure needs to meet the projected built-out water demands in Zone 40, including the demands associated with buildout of the Project site. Subsequently, the 2015 Urban Water Management Plan (UWMP) was developed using the same water demand and supply information analyzed in the WSIP. Thus, the 2015 UWMP demand projections include the estimated demands associated with buildout of the Project site.

The City of Elk Grove's General Plan EIR estimated that LDR land uses would be expected to generate 2.13 acre-feet (AF) of water per acre per year. The Project site consists of approximately 7.71 acres; therefore, the existing land use designated for the Project site would be anticipated to generate demand for approximately 16.42 AF of water per year

47 City of Elk Grove. *General Plan Update Draft Environmental Impact Report* [pg. 5.12-27]. February 2019.

48 California Regional Water Quality Control Board, Central Valley Region. *Order No. R5-2016-0020-01 NPDES No. CA0077682* [pg I-7]. April 2016.

(AFY). The Project would require a GPA from LDR to EC. EC land uses are estimated to generate demand for approximately 2.02 AF of water per acre per year, bringing the total estimated water demand for the Project to 15.57 AFY for a 7.71-acre Project.[49] Thus, the difference in water demand between the existing and proposed land uses is approximately 0.85 AF, or 276,973 gallons of water per year. The Project would therefore represent a decrease in water demand than what has been accounted for in the City's General Plan. In addition, SWCA has a projected 35,659 AF water surplus for 2020 and an 18,853 AF water surplus by 2040. Furthermore, SWCA anticipates that the retail supply of water would slightly increase between 2020 and 2040 due to increases in groundwater pumping. Therefore, SCWA's water supplies would be sufficient to satisfy water demands associated with the Project while still meeting the current and projected water demands of existing customers within the SCWA service area.

Water supply to the proposed development would be provided by the SCWA by way of new network of 12-inch water lines extending throughout the Project site. The new water lines would connect to the existing 12-inch water line within Elk Grove Boulevard. Given that the Project would connect to existing water supply lines located in the Project vicinity, construction of substantial off-site water supply infrastructure would not be required. Although the Project would require a GPA to change the site's land use designation from LDR to EC and a Rezone from RD-5 to MP, construction of on-site water supply improvements associated with urban development has been previously anticipated by the City and analyzed in the General Plan EIR.

The General Plan EIR concluded that buildout of the General Plan, including the Project site, would result in a significant and unavoidable impact related to water supplies. However, based on the above, sufficient water supplies would be available to serve the Project and reasonably foreseeable future development. In addition, the construction of new or expanded water supply facilities would not be required to supply water to the proposed Project. Consequently, a ***less-than-significant*** impact would occur.

Stormwater Infrastructure

The Project site is currently undeveloped vacant land with 72 scattered trees and ruderal vegetation. Completion of the Project would increase site runoff due to the introduction of impervious surfaces to the site. As discussed in further detail in Section X, Hydrology and Water Quality, of this IS/MND, the SWPPP for the Project would conform with the most recent Sacramento County Stormwater Quality Design Manual and comply with all City stormwater requirements. In compliance with the C.3 Guidebook, stormwater within the Project site would be treated by a system of Bioclean modular wetlands units located among the landscaped area at the southernmost frontage of the Project site. Following treatment within the Bioclean modular wetlands units, stormwater would be discharged into the City's storm drain system by way of a new network of 12-inch underground storm drains connecting to an existing eight-inch storm drain located within Tarbert Drive, and to the existing 72-inch storm drain located within Elk Grove Boulevard. Because the proposed Bioclean modular wetlands units would be designed with adequate capacity to capture and treat runoff from proposed impervious surfaces, the Project would not generate runoff in excess of the City's existing stormwater system's capacity. Therefore, the Project would have a less-than-significant impact with respect to requiring or resulting in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

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[49] City of Elk Grove. *General Plan Update Draft Environmental Impact Report* [pg. 5.12-22]. February 2019.

Electricity, Natural Gas, and Telecommunications Facilities

The Project site is located within a developed area of the City of Elk Grove and is situated within close proximity to existing electric power, natural gas, and telecommunications facilities. Thus, substantial expansion of such off-site utilities would not be required to serve the proposed development, and associated environmental effects would not occur.

Conclusion

Based on the above, sufficient water supplies would be available to serve the Project, and sufficient infrastructural capacity exists to accommodate the water, wastewater, stormwater, and dry utilities demands associated with the proposed Project. Therefore, a ***less-than-significant*** impact would occur related to requiring or resulting in the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects, or resulting in a determination by the wastewater treatment provider which serves the Project that it has adequate capacity to service the Project's projected demand in addition to the provider's existing commitments.

d,e. Republic Services provides solid waste collection, disposal, recycling, and yard waste services to residential development within the City of Elk Grove. Solid waste generated by commercial and multifamily residential developments is served by registered commercial haulers or county-authorized recyclers. As noted in the General Plan EIR, the City is served by a total of ten landfills, the majority of which have over 60 percent available remaining capacity.[50] The Project would require a GPA from LDR to EC, which would be anticipated to generate less solid waste than the current land use designation. Using the General Plan EIR's annual estimate of 1.08 tons of solid waste per resident, the Project would be anticipated to generate a maximum of four tons of solid waste per year. Due to the substantial amount of available capacity remaining at the landfills serving the City, the increase in solid waste generation would not be anticipated to exceed landfill capacity. As noted in the General Plan EIR, the City of Elk Grove generates less solid waste per capita than the State's diversion requirement, with solid waste generation estimated to be as low as 241,733 tons per year. Therefore, the Project would not be anticipated to generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.

In addition, the Project would be required to comply with all applicable solid waste regulations, including Title 30, Solid Waste Management, of the City's Municipal Code, as well as Chapter 30.90, the City's Space Allocation and Enclosure Design Guidelines for Trash and Recycling. Section 30.10.140 requires all residents within the City of Elk Grove to transport and deliver all solid waste only at sites or facilities that are allowed to accept that solid waste under solid waste law, such as permitted transfer stations, landfills, materials recovery facilities, composting facilities, and recyclables buy-back centers. Chapter 30.90 also requires applicants to develop and submit an integrated waste management plan as part of the land use permit process. The plan shall demonstrate steps the applicant would take to meet the State mandate to reduce or divert 65 percent of the waste generated by all residences and businesses in the City. Therefore, the Project would comply with applicable federal, state, and local management and reduction statutes and regulations related to solid waste.

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50 City of Elk Grove. *General Plan Update Draft Environmental Impact Report* [pg. 5.12-32]. February 2019.

Based on the above, a ***less-than-significant*** impact related to solid waste would occur as a result of the Project.

XX. WILDFIRE. *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	✖
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	✖
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	✖
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	✖

Discussion

a-d. According to the California Department of Forestry and Fire Protection (CAL FIRE) Fire and Resource Assessment Program, the Project site is not located within or near a High or Very High FHSZ or State Responsibility Area.[51] As such, ***no impact*** would occur.

[51] California Department of Forestry and Fire Protection. *Sacramento County, Very High Fire Hazard Severity Zones in LRA, As Recommended by CAL FIRE*. July 30, 2008.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE.	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	✖	☐	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	✖	☐	☐
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	✖	☐	☐

Discussion

a. As discussed in Section IV, Biological Resources, of this IS/MND, implementation of the Project would have the potential to result in adverse effects to burrowing owl, white-tailed kite, Modesto song sparrow, Swainson's hawk, and migratory birds and raptors protected by the MBTA. In addition, while unlikely, the Project could result in impacts related to eliminating important examples of major periods of California history or prehistory associated with undiscovered archeological and/or paleontological resources during Project construction. However, the Project would be required to comply with applicable General Plan policies and Municipal Code regulations related to biological and cultural resources, including Chapter 7.00, Historic Preservation, of the Municipal Code. In addition, this IS/MND includes mitigation measures that would reduce any potential impacts to less-than-significant levels.

With implementation of the mitigation measures required by this IS/MND, as well as compliance with General Plan policies and all applicable sections of the Municipal Code, development of the Project would reduce any potential impacts associated with the following: 1) degrade the quality of the environment; 2) substantially reduce or impact the habitat of fish or wildlife species; 3) cause fish or wildlife populations to drop below self-sustaining levels; 4) threaten to eliminate a plant or animal community; 5) reduce the number or restrict the range of a rare or endangered plant or animal; or 6) eliminate important examples of the major periods of California history or prehistory. Therefore, with implementation of the mitigation measures included in this IS/MND, a ***less-than-significant*** impact would occur.

b. The Project in conjunction with other development within the City of Elk Grove could incrementally contribute to cumulative impacts in the area. However, as demonstrated in this IS/MND, all potential environmental impacts that could occur as a result of Project implementation would be reduced to a less-than-significant level with implementation of project-specific mitigation measures and compliance with applicable General Plan policies. As discussed in Section XVII of this IS/MND, while the Project would include generation of vehicle trips on area roadways, the cumulative VMT associated with development of the Project and other existing and planned development within the City of Elk Grove would be below the established city-wide VMT threshold. As noted in Section VIII-1, Mitigation Measure VIII-1 would ensure Project consistency with the City's CAP, thereby resulting in a less-than-significant impact related to cumulative GHG emissions. As noted in Section XIII of this IS/MND, Mitigation Measure XIII-1 includes requirements that would ensure construction of the Project would not violate the City's noise level thresholds.

When viewed in conjunction with other closely related past, present, or reasonably foreseeable future projects, development of the Project would not result in a cumulatively considerable contribution to cumulative impacts in the City of Elk Grove, and the Project's cumulative impact would be ***less than significant***.

c. As described in this IS/MND, the Project would comply with all applicable General Plan policies, Municipal Code standards, other applicable local and State regulations, and mitigation measures included herein. In addition, as discussed in the Air Quality, Geology and Soils, Hazards and Hazardous Materials, Greenhouse Gas Emissions, and Noise sections of this IS/MND, the Project would not cause substantial effects to human beings, which cannot be mitigated to less-than-significant levels, including effects related to exposure to air pollutants, geologic hazards, GHG emissions, hazardous materials, and excessive noise. As such, the Project would not result in direct or indirect impacts to human beings and, thus, the Project's impact would be ***less than significant***.

APPENDIX A

AIR QUALITY AND GHG MODELING RESULTS

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Stathos Self Storage Project

Sacramento Metropolitan AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1.26	1000sqft	0.00	1,263.11	0
Unrefrigerated Warehouse-No Rail	165.05	1000sqft	6.79	165,050.00	0
Parking Lot	7.00	Space	0.06	2,800.00	0
Single Family Housing	1.00	Dwelling Unit	0.32	2,385.37	3

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2024
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	357.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot acreage adjusted to represent total site area. Square feet adjusted based on site plan prepared for the proposed project.

Construction Phase - Construction Phasing adjusted based on applicant provided AQ Questionnaire. Architectural coating assumed to start two weeks after building construction, and last for the same duration.

Grading -

Mobile Land Use Mitigation - Based on applicant provided AQ Questionnaire.

Energy Mitigation - Based on applicant provided AQ Questionnaire.

Water Mitigation - Compliant with MWELO.

Vehicle Trips - Trip generation rates adjusted to be consistent with the Traffic Report prepared for the proposed project by Fehr & Peers.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	20.00	10.00
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	NumDays	230.00	140.00
tblConstructionPhase	NumDays	20.00	140.00
tblLandUse	LandUseSquareFeet	1,260.00	1,263.11
tblLandUse	LandUseSquareFeet	1,800.00	2,385.37
tblLandUse	LotAcreage	0.03	0.00
tblLandUse	LotAcreage	3.79	6.79
tblVehicleTrips	ST_TR	2.21	0.00
tblVehicleTrips	ST_TR	9.54	0.00
tblVehicleTrips	ST_TR	1.74	1.45
tblVehicleTrips	SU_TR	0.70	0.00
tblVehicleTrips	SU_TR	8.55	0.00
tblVehicleTrips	SU_TR	1.74	1.45
tblVehicleTrips	WD_TR	9.74	0.00
tblVehicleTrips	WD_TR	9.44	0.00
tblVehicleTrips	WD_TR	1.74	1.45

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	13.3194	27.5533	20.7752	0.0412	19.7939	1.2667	21.0607	10.1388	1.1654	11.3042	0.0000	4,013.877 8	4,013.877 8	1.1961	0.0988	4,059.689 1
2024	13.1868	16.0559	20.5183	0.0409	0.8153	0.6845	1.4998	0.2201	0.6476	0.8676	0.0000	3,988.213 7	3,988.213 7	0.6489	0.0963	4,033.135 1
Maximum	**13.3194**	**27.5533**	**20.7752**	**0.0412**	**19.7939**	**1.2667**	**21.0607**	**10.1388**	**1.1654**	**11.3042**	**0.0000**	**4,013.877 8**	**4,013.877 8**	**1.1961**	**0.0988**	**4,059.689 1**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	13.3194	27.5533	20.7752	0.0412	19.7939	1.2667	21.0607	10.1388	1.1654	11.3042	0.0000	4,013.877 8	4,013.877 8	1.1961	0.0988	4,059.689 1
2024	13.1868	16.0559	20.5183	0.0409	0.8153	0.6845	1.4998	0.2201	0.6476	0.8676	0.0000	3,988.213 7	3,988.213 7	0.6489	0.0963	4,033.135 1
Maximum	**13.3194**	**27.5533**	**20.7752**	**0.0412**	**19.7939**	**1.2667**	**21.0607**	**10.1388**	**1.1654**	**11.3042**	**0.0000**	**4,013.877 8**	**4,013.877 8**	**1.1961**	**0.0988**	**4,059.689 1**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.0460	1.1100e-003	0.1001	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004	0.0000	0.1865	0.1865	2.4000e-004	0.0000	0.1925
Energy	3.5700e-003	0.0321	0.0245	1.9000e-004		2.4700e-003	2.4700e-003		2.4700e-003	2.4700e-003		38.9778	38.9778	7.5000e-004	7.1000e-004	39.2094
Mobile	0.8244	0.8468	7.0414	0.0148	1.4677	0.0109	1.4786	0.3913	0.0102	0.4015		1,528.6689	1,528.6689	0.0897	0.0661	1,550.6020
Total	**4.8740**	**0.8800**	**7.1661**	**0.0150**	**1.4677**	**0.0139**	**1.4816**	**0.3913**	**0.0132**	**0.4045**	**0.0000**	**1,567.8332**	**1,567.8332**	**0.0907**	**0.0668**	**1,590.0039**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.0460	1.1100e-003	0.1001	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004	0.0000	0.1865	0.1865	2.4000e-004	0.0000	0.1925
Energy	3.5700e-003	0.0321	0.0245	1.9000e-004		2.4700e-003	2.4700e-003		2.4700e-003	2.4700e-003		38.9778	38.9778	7.5000e-004	7.1000e-004	39.2094
Mobile	0.8029	0.8006	6.6342	0.0138	1.3665	0.0102	1.3766	0.3643	9.5200e-003	0.3738		1,425.7523	1,425.7523	0.0853	0.0625	1,446.5095
Total	**4.8525**	**0.8338**	**6.7589**	**0.0140**	**1.3665**	**0.0132**	**1.3796**	**0.3643**	**0.0125**	**0.3768**	**0.0000**	**1,464.9165**	**1,464.9165**	**0.0863**	**0.0632**	**1,485.9114**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.44	5.25	5.68	6.62	6.90	4.91	6.88	6.90	4.87	6.83	0.00	6.56	6.56	4.82	5.36	6.55

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/1/2023	4/7/2023	5	5	
2	Grading	Grading	4/8/2023	4/21/2023	5	10	
3	Paving	Paving	4/22/2023	7/14/2023	5	60	
4	Building Construction	Building Construction	7/15/2023	1/26/2024	5	140	
5	Architectural Coating	Architectural Coating	7/29/2023	2/9/2024	5	140	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 10

Acres of Paving: 0.06

Residential Indoor: 4,830; Residential Outdoor: 1,610; Non-Residential Indoor: 249,470; Non-Residential Outdoor: 83,157; Striped Parking Area: 168 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37

Building Construction	Cranes		1	7.00	231	0.29
Building Construction	Forklifts		3	8.00	89	0.20
Building Construction	Generator Sets		1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes		3	7.00	97	0.37
Building Construction	Welders		1	8.00	46	0.45
Paving	Pavers		2	8.00	130	0.42
Paving	Paving Equipment		2	8.00	132	0.36
Paving	Rollers		2	8.00	80	0.38
Architectural Coating	Air Compressors		1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	71.00	28.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	14.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647		3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**19.6570**	**1.2660**	**20.9230**	**10.1025**	**1.1647**	**11.2672**		**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0607	0.0291	0.4906	1.2500e-003	0.1369	7.1000e-004	0.1376	0.0363	6.5000e-004	0.0370		128.1058	128.1058	3.5200e-003	3.1500e-003	129.1312
Total	**0.0607**	**0.0291**	**0.4906**	**1.2500e-003**	**0.1369**	**7.1000e-004**	**0.1376**	**0.0363**	**6.5000e-004**	**0.0370**		**128.1058**	**128.1058**	**3.5200e-003**	**3.1500e-003**	**129.1312**

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647	0.0000	3,687.308 1	3,687.308 1	1.1926		3,717.121 9
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**19.6570**	**1.2660**	**20.9230**	**10.1025**	**1.1647**	**11.2672**	**0.0000**	**3,687.308 1**	**3,687.308 1**	**1.1926**		**3,717.121 9**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0607	0.0291	0.4906	1.2500e-003	0.1369	7.1000e-004	0.1376	0.0363	6.5000e-004	0.0370		128.1058	128.1058	3.5200e-003	3.1500e-003	129.1312
Total	**0.0607**	**0.0291**	**0.4906**	**1.2500e-003**	**0.1369**	**7.1000e-004**	**0.1376**	**0.0363**	**6.5000e-004**	**0.0370**		**128.1058**	**128.1058**	**3.5200e-003**	**3.1500e-003**	**129.1312**

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.7109	17.9359	14.7507	0.0297		0.7749	0.7749		0.7129	0.7129		2,872.6910	2,872.6910	0.9291		2,895.9182
Total	**1.7109**	**17.9359**	**14.7507**	**0.0297**	**7.0826**	**0.7749**	**7.8575**	**3.4247**	**0.7129**	**4.1377**		**2,872.6910**	**2,872.6910**	**0.9291**		**2,895.9182**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0505	0.0243	0.4088	1.0400e-003	0.1141	5.9000e-004	0.1147	0.0303	5.4000e-004	0.0308		106.7548	106.7548	2.9300e-003	2.6200e-003	107.6093
Total	**0.0505**	**0.0243**	**0.4088**	**1.0400e-003**	**0.1141**	**5.9000e-004**	**0.1147**	**0.0303**	**5.4000e-004**	**0.0308**		**106.7548**	**106.7548**	**2.9300e-003**	**2.6200e-003**	**107.6093**

3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.7109	17.9359	14.7507	0.0297		0.7749	0.7749		0.7129	0.7129	0.0000	2,872.6910	2,872.6910	0.9291		2,895.9182
Total	**1.7109**	**17.9359**	**14.7507**	**0.0297**	**7.0826**	**0.7749**	**7.8575**	**3.4247**	**0.7129**	**4.1377**	**0.0000**	**2,872.6910**	**2,872.6910**	**0.9291**		**2,895.9182**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0505	0.0243	0.4088	1.0400e-003	0.1141	5.9000e-004	0.1147	0.0303	5.4000e-004	0.0308		106.7548	106.7548	2.9300e-003	2.6200e-003	107.6093
Total	**0.0505**	**0.0243**	**0.4088**	**1.0400e-003**	**0.1141**	**5.9000e-004**	**0.1147**	**0.0303**	**5.4000e-004**	**0.0308**		**106.7548**	**106.7548**	**2.9300e-003**	**2.6200e-003**	**107.6093**

3.4 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	2.6200e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0354**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0505	0.0243	0.4088	1.0400e-003	0.1141	5.9000e-004	0.1147	0.0303	5.4000e-004	0.0308		106.7548	106.7548	2.9300e-003	2.6200e-003	107.6093
Total	**0.0505**	**0.0243**	**0.4088**	**1.0400e-003**	**0.1141**	**5.9000e-004**	**0.1147**	**0.0303**	**5.4000e-004**	**0.0308**		**106.7548**	**106.7548**	**2.9300e-003**	**2.6200e-003**	**107.6093**

3.4 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	2.6200e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0354**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0505	0.0243	0.4088	1.0400e-003	0.1141	5.9000e-004	0.1147	0.0303	5.4000e-004	0.0308		106.7548	106.7548	2.9300e-003	2.6200e-003	107.6093
Total	**0.0505**	**0.0243**	**0.4088**	**1.0400e-003**	**0.1141**	**5.9000e-004**	**0.1147**	**0.0303**	**5.4000e-004**	**0.0308**		**106.7548**	**106.7548**	**2.9300e-003**	**2.6200e-003**	**107.6093**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0375	1.2965	0.4036	5.3300e-003	0.1687	7.2400e-003	0.1759	0.0486	6.9200e-003	0.0555		572.2758	572.2758	0.0141	0.0839	597.6279
Worker	0.2393	0.1150	1.9350	4.9400e-003	0.5401	2.7800e-003	0.5429	0.1433	2.5600e-003	0.1458		505.3062	505.3062	0.0139	0.0124	509.3508
Total	**0.2767**	**1.4115**	**2.3386**	**0.0103**	**0.7088**	**0.0100**	**0.7188**	**0.1918**	**9.4800e-003**	**0.2013**		**1,077.5820**	**1,077.5820**	**0.0280**	**0.0963**	**1,106.9787**

3.5 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0375	1.2965	0.4036	5.3300e-003	0.1687	7.2400e-003	0.1759	0.0486	6.9200e-003	0.0555		572.2758	572.2758	0.0141	0.0839	597.6279
Worker	0.2393	0.1150	1.9350	4.9400e-003	0.5401	2.7800e-003	0.5429	0.1433	2.5600e-003	0.1458		505.3062	505.3062	0.0139	0.0124	509.3508
Total	**0.2767**	**1.4115**	**2.3386**	**0.0103**	**0.7088**	**0.0100**	**0.7188**	**0.1918**	**9.4800e-003**	**0.2013**		**1,077.5820**	**1,077.5820**	**0.0280**	**0.0963**	**1,106.9787**

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0358	1.2708	0.3910	5.2300e-003	0.1687	7.1300e-003	0.1758	0.0486	6.8200e-003	0.0554		561.3769	561.3769	0.0138	0.0825	586.3000
Worker	0.2235	0.1024	1.7962	4.7700e-003	0.5401	2.6500e-003	0.5428	0.1433	2.4400e-003	0.1457		492.5645	492.5645	0.0125	0.0115	496.3177
Total	**0.2593**	**1.3732**	**2.1872**	**0.0100**	**0.7088**	**9.7800e-003**	**0.7186**	**0.1918**	**9.2600e-003**	**0.2011**		**1,053.9414**	**1,053.9414**	**0.0263**	**0.0940**	**1,082.6177**

3.5 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0358	1.2708	0.3910	5.2300e-003	0.1687	7.1300e-003	0.1758	0.0486	6.8200e-003	0.0554		561.3769	561.3769	0.0138	0.0825	586.3000
Worker	0.2235	0.1024	1.7962	4.7700e-003	0.5401	2.6500e-003	0.5428	0.1433	2.4400e-003	0.1457		492.5645	492.5645	0.0125	0.0115	496.3177
Total	**0.2593**	**1.3732**	**2.1872**	**0.0100**	**0.7088**	**9.7800e-003**	**0.7186**	**0.1918**	**9.2600e-003**	**0.2011**		**1,053.9414**	**1,053.9414**	**0.0263**	**0.0940**	**1,082.6177**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	11.2311					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**11.4228**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0472	0.0227	0.3815	9.7000e-004	0.1065	5.5000e-004	0.1071	0.0283	5.1000e-004	0.0288		99.6378	99.6378	2.7300e-003	2.4500e-003	100.4354
Total	**0.0472**	**0.0227**	**0.3815**	**9.7000e-004**	**0.1065**	**5.5000e-004**	**0.1071**	**0.0283**	**5.1000e-004**	**0.0288**		**99.6378**	**99.6378**	**2.7300e-003**	**2.4500e-003**	**100.4354**

3.6 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	11.2311					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**11.4228**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0472	0.0227	0.3815	9.7000e-004	0.1065	5.5000e-004	0.1071	0.0283	5.1000e-004	0.0288		99.6378	99.6378	2.7300e-003	2.4500e-003	100.4354
Total	**0.0472**	**0.0227**	**0.3815**	**9.7000e-004**	**0.1065**	**5.5000e-004**	**0.1071**	**0.0283**	**5.1000e-004**	**0.0288**		**99.6378**	**99.6378**	**2.7300e-003**	**2.4500e-003**	**100.4354**

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	11.2311					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**11.4119**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0441	0.0202	0.3542	9.4000e-004	0.1065	5.2000e-004	0.1070	0.0283	4.8000e-004	0.0287		97.1254	97.1254	2.4700e-003	2.2800e-003	97.8655
Total	**0.0441**	**0.0202**	**0.3542**	**9.4000e-004**	**0.1065**	**5.2000e-004**	**0.1070**	**0.0283**	**4.8000e-004**	**0.0287**		**97.1254**	**97.1254**	**2.4700e-003**	**2.2800e-003**	**97.8655**

3.6 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	11.2311					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**11.4119**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0441	0.0202	0.3542	9.4000e-004	0.1065	5.2000e-004	0.1070	0.0283	4.8000e-004	0.0287		97.1254	97.1254	2.4700e-003	2.2800e-003	97.8655
Total	**0.0441**	**0.0202**	**0.3542**	**9.4000e-004**	**0.1065**	**5.2000e-004**	**0.1070**	**0.0283**	**4.8000e-004**	**0.0287**		**97.1254**	**97.1254**	**2.4700e-003**	**2.2800e-003**	**97.8655**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.8029	0.8006	6.6342	0.0138	1.3665	0.0102	1.3766	0.3643	9.5200e-003	0.3738		1,425.7523	1,425.7523	0.0853	0.0625	1,446.5095
Unmitigated	0.8244	0.8468	7.0414	0.0148	1.4677	0.0109	1.4786	0.3913	0.0102	0.4015		1,528.6689	1,528.6689	0.0897	0.0661	1,550.6020

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Single Family Housing	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	239.32	239.32	239.32	696,024	647,998
Total	239.32	239.32	239.32	696,024	647,998

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	10.00	5.00	6.50	33.00	48.00	19.00	77	19	4

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Unrefrigerated Warehouse-No Rail	10.00	5.00	6.50	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.542485	0.056811	0.183752	0.130945	0.025591	0.005989	0.013266	0.009393	0.000917	0.000565	0.025954	0.000983	0.003351
Parking Lot	0.542485	0.056811	0.183752	0.130945	0.025591	0.005989	0.013266	0.009393	0.000917	0.000565	0.025954	0.000983	0.003351
Single Family Housing	0.542485	0.056811	0.183752	0.130945	0.025591	0.005989	0.013266	0.009393	0.000917	0.000565	0.025954	0.000983	0.003351
Unrefrigerated Warehouse-No Rail	0.542485	0.056811	0.183752	0.130945	0.025591	0.005989	0.013266	0.009393	0.000917	0.000565	0.025954	0.000983	0.003351

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	3.5700e-003	0.0321	0.0245	1.9000e-004		2.4700e-003	2.4700e-003		2.4700e-003	2.4700e-003		38.9778	38.9778	7.5000e-004	7.1000e-004	39.2094
NaturalGas Unmitigated	3.5700e-003	0.0321	0.0245	1.9000e-004		2.4700e-003	2.4700e-003		2.4700e-003	2.4700e-003		38.9778	38.9778	7.5000e-004	7.1000e-004	39.2094

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	44.9183	4.8000e-004	4.4000e-003	3.7000e-003	3.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		5.2845	5.2845	1.0000e-004	1.0000e-004	5.3159
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	64.8187	7.0000e-004	5.9700e-003	2.5400e-003	4.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004		7.6257	7.6257	1.5000e-004	1.4000e-004	7.6710
Unrefrigerated Warehouse-No Rail	221.574	2.3900e-003	0.0217	0.0183	1.3000e-004		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		26.0675	26.0675	5.0000e-004	4.8000e-004	26.2224
Total		**3.5700e-003**	**0.0321**	**0.0245**	**2.0000e-004**		**2.4600e-003**	**2.4600e-003**		**2.4600e-003**	**2.4600e-003**		**38.9778**	**38.9778**	**7.5000e-004**	**7.2000e-004**	**39.2094**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	0.0449183	4.8000e-004	4.4000e-003	3.7000e-003	3.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		5.2845	5.2845	1.0000e-004	1.0000e-004	5.3159
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.0648187	7.0000e-004	5.9700e-003	2.5400e-003	4.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004		7.6257	7.6257	1.5000e-004	1.4000e-004	7.6710
Unrefrigerated Warehouse-No Rail	0.221574	2.3900e-003	0.0217	0.0183	1.3000e-004		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		26.0675	26.0675	5.0000e-004	4.8000e-004	26.2224
Total		**3.5700e-003**	**0.0321**	**0.0245**	**2.0000e-004**		**2.4600e-003**	**2.4600e-003**		**2.4600e-003**	**2.4600e-003**		**38.9778**	**38.9778**	**7.5000e-004**	**7.2000e-004**	**39.2094**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.0460	1.1100e-003	0.1001	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004	0.0000	0.1865	0.1865	2.4000e-004	0.0000	0.1925
Unmitigated	4.0460	1.1100e-003	0.1001	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004	0.0000	0.1865	0.1865	2.4000e-004	0.0000	0.1925

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4308					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.6111					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.1100e-003	1.1100e-003	0.1001	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.1865	0.1865	2.4000e-004		0.1925
Total	**4.0460**	**1.1100e-003**	**0.1001**	**1.0000e-005**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**	**0.0000**	**0.1865**	**0.1865**	**2.4000e-004**	**0.0000**	**0.1925**

Stathos Self Storage Project - Sacramento Metropolitan AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4308					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.6111					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.1100e-003	1.1100e-003	0.1001	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.1865	0.1865	2.4000e-004		0.1925
Total	**4.0460**	**1.1100e-003**	**0.1001**	**1.0000e-005**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**	**0.0000**	**0.1865**	**0.1865**	**2.4000e-004**	**0.0000**	**0.1925**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Stathos Self Storage Project

Sacramento Metropolitan AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1.26	1000sqft	0.00	1,263.11	0
Unrefrigerated Warehouse-No Rail	165.05	1000sqft	6.79	165,050.00	0
Parking Lot	7.00	Space	0.06	2,800.00	0
Single Family Housing	1.00	Dwelling Unit	0.32	2,385.37	3

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2024
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	357.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot acreage adjusted to represent total site area. Square feet adjusted based on site plan prepared for the proposed project.

Construction Phase - Construction Phasing adjusted based on applicant provided AQ Questionnaire. Architectural coating assumed to start two weeks after building construction, and last for the same duration.

Grading -

Mobile Land Use Mitigation - Based on applicant provided AQ Questionnaire.

Energy Mitigation - Based on applicant provided AQ Questionnaire.

Water Mitigation - Compliant with MWELO.

Vehicle Trips - Trip generation rates adjusted to be consistent with the Traffic Report prepared for the proposed project by Fehr & Peers.

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	20.00	10.00
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	NumDays	230.00	140.00
tblConstructionPhase	NumDays	20.00	140.00
tblLandUse	LandUseSquareFeet	1,260.00	1,263.11
tblLandUse	LandUseSquareFeet	1,800.00	2,385.37
tblLandUse	LotAcreage	0.03	0.00
tblLandUse	LotAcreage	3.79	6.79
tblVehicleTrips	ST_TR	2.21	0.00
tblVehicleTrips	ST_TR	9.54	0.00
tblVehicleTrips	ST_TR	1.74	1.45
tblVehicleTrips	SU_TR	0.70	0.00
tblVehicleTrips	SU_TR	8.55	0.00
tblVehicleTrips	SU_TR	1.74	1.45
tblVehicleTrips	WD_TR	9.74	0.00
tblVehicleTrips	WD_TR	9.44	0.00
tblVehicleTrips	WD_TR	1.74	1.45

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	13.2854	27.5599	20.4947	0.0405	19.7939	1.2667	21.0607	10.1388	1.1654	11.3042	0.0000	3,947.4603	3,947.4603	1.1966	0.1011	3,994.0434
2024	13.1555	16.1791	20.2677	0.0403	0.8153	0.6846	1.4999	0.2201	0.6476	0.8677	0.0000	3,923.7170	3,923.7170	0.6512	0.0985	3,969.3560
Maximum	**13.2854**	**27.5599**	**20.4947**	**0.0405**	**19.7939**	**1.2667**	**21.0607**	**10.1388**	**1.1654**	**11.3042**	**0.0000**	**3,947.4603**	**3,947.4603**	**1.1966**	**0.1011**	**3,994.0434**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	13.2854	27.5599	20.4947	0.0405	19.7939	1.2667	21.0607	10.1388	1.1654	11.3042	0.0000	3,947.4603	3,947.4603	1.1966	0.1011	3,994.0433
2024	13.1555	16.1791	20.2677	0.0403	0.8153	0.6846	1.4999	0.2201	0.6476	0.8677	0.0000	3,923.7170	3,923.7170	0.6512	0.0985	3,969.3560
Maximum	**13.2854**	**27.5599**	**20.4947**	**0.0405**	**19.7939**	**1.2667**	**21.0607**	**10.1388**	**1.1654**	**11.3042**	**0.0000**	**3,947.4603**	**3,947.4603**	**1.1966**	**0.1011**	**3,994.0433**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.0460	1.1100e-003	0.1001	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004	0.0000	0.1865	0.1865	2.4000e-004	0.0000	0.1925
Energy	3.5700e-003	0.0321	0.0245	1.9000e-004		2.4700e-003	2.4700e-003		2.4700e-003	2.4700e-003		38.9778	38.9778	7.5000e-004	7.1000e-004	39.2094
Mobile	0.6575	0.9806	6.8775	0.0135	1.4677	0.0109	1.4786	0.3913	0.0102	0.4015		1,397.2364	1,397.2364	0.1003	0.0721	1,421.2419
Total	**4.7071**	**1.0138**	**7.0021**	**0.0137**	**1.4677**	**0.0139**	**1.4816**	**0.3913**	**0.0132**	**0.4045**	**0.0000**	**1,436.4007**	**1,436.4007**	**0.1013**	**0.0729**	**1,460.6438**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.0460	1.1100e-003	0.1001	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004	0.0000	0.1865	0.1865	2.4000e-004	0.0000	0.1925
Energy	3.5700e-003	0.0321	0.0245	1.9000e-004		2.4700e-003	2.4700e-003		2.4700e-003	2.4700e-003		38.9778	38.9778	7.5000e-004	7.1000e-004	39.2094
Mobile	0.6350	0.9268	6.5194	0.0126	1.3665	0.0102	1.3767	0.3643	9.5300e-003	0.3738		1,303.4670	1,303.4670	0.0959	0.0683	1,326.2091
Total	**4.6846**	**0.9601**	**6.6441**	**0.0128**	**1.3665**	**0.0132**	**1.3796**	**0.3643**	**0.0125**	**0.3768**	**0.0000**	**1,342.6313**	**1,342.6313**	**0.0969**	**0.0690**	**1,365.6110**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.48	5.30	5.11	6.65	6.90	4.90	6.88	6.90	4.86	6.83	0.00	6.53	6.53	4.31	5.31	6.51

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/1/2023	4/7/2023	5	5	
2	Grading	Grading	4/8/2023	4/21/2023	5	10	
3	Paving	Paving	4/22/2023	7/14/2023	5	60	
4	Building Construction	Building Construction	7/15/2023	1/26/2024	5	140	
5	Architectural Coating	Architectural Coating	7/29/2023	2/9/2024	5	140	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 10

Acres of Paving: 0.06

Residential Indoor: 4,830; Residential Outdoor: 1,610; Non-Residential Indoor: 249,470; Non-Residential Outdoor: 83,157; Striped Parking Area: 168 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	71.00	28.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	14.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647		3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**19.6570**	**1.2660**	**20.9230**	**10.1025**	**1.1647**	**11.2672**		**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0537	0.0358	0.4272	1.1100e-003	0.1369	7.1000e-004	0.1376	0.0363	6.5000e-004	0.0370		113.9541	113.9541	4.0500e-003	3.6100e-003	115.1305
Total	**0.0537**	**0.0358**	**0.4272**	**1.1100e-003**	**0.1369**	**7.1000e-004**	**0.1376**	**0.0363**	**6.5000e-004**	**0.0370**		**113.9541**	**113.9541**	**4.0500e-003**	**3.6100e-003**	**115.1305**

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647	0.0000	3,687.308 1	3,687.308 1	1.1926		3,717.121 9
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**19.6570**	**1.2660**	**20.9230**	**10.1025**	**1.1647**	**11.2672**	**0.0000**	**3,687.308 1**	**3,687.308 1**	**1.1926**		**3,717.121 9**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0537	0.0358	0.4272	1.1100e-003	0.1369	7.1000e-004	0.1376	0.0363	6.5000e-004	0.0370		113.9541	113.9541	4.0500e-003	3.6100e-003	115.1305
Total	**0.0537**	**0.0358**	**0.4272**	**1.1100e-003**	**0.1369**	**7.1000e-004**	**0.1376**	**0.0363**	**6.5000e-004**	**0.0370**		**113.9541**	**113.9541**	**4.0500e-003**	**3.6100e-003**	**115.1305**

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.7109	17.9359	14.7507	0.0297		0.7749	0.7749		0.7129	0.7129		2,872.6910	2,872.6910	0.9291		2,895.9182
Total	**1.7109**	**17.9359**	**14.7507**	**0.0297**	**7.0826**	**0.7749**	**7.8575**	**3.4247**	**0.7129**	**4.1377**		**2,872.6910**	**2,872.6910**	**0.9291**		**2,895.9182**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0448	0.0298	0.3560	9.3000e-004	0.1141	5.9000e-004	0.1147	0.0303	5.4000e-004	0.0308		94.9617	94.9617	3.3700e-003	3.0100e-003	95.9421
Total	**0.0448**	**0.0298**	**0.3560**	**9.3000e-004**	**0.1141**	**5.9000e-004**	**0.1147**	**0.0303**	**5.4000e-004**	**0.0308**		**94.9617**	**94.9617**	**3.3700e-003**	**3.0100e-003**	**95.9421**

3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.7109	17.9359	14.7507	0.0297		0.7749	0.7749		0.7129	0.7129	0.0000	2,872.6910	2,872.6910	0.9291		2,895.9182
Total	**1.7109**	**17.9359**	**14.7507**	**0.0297**	**7.0826**	**0.7749**	**7.8575**	**3.4247**	**0.7129**	**4.1377**	**0.0000**	**2,872.6910**	**2,872.6910**	**0.9291**		**2,895.9182**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0448	0.0298	0.3560	9.3000e-004	0.1141	5.9000e-004	0.1147	0.0303	5.4000e-004	0.0308		94.9617	94.9617	3.3700e-003	3.0100e-003	95.9421
Total	**0.0448**	**0.0298**	**0.3560**	**9.3000e-004**	**0.1141**	**5.9000e-004**	**0.1147**	**0.0303**	**5.4000e-004**	**0.0308**		**94.9617**	**94.9617**	**3.3700e-003**	**3.0100e-003**	**95.9421**

3.4 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	2.6200e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0354**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0448	0.0298	0.3560	9.3000e-004	0.1141	5.9000e-004	0.1147	0.0303	5.4000e-004	0.0308		94.9617	94.9617	3.3700e-003	3.0100e-003	95.9421
Total	**0.0448**	**0.0298**	**0.3560**	**9.3000e-004**	**0.1141**	**5.9000e-004**	**0.1147**	**0.0303**	**5.4000e-004**	**0.0308**		**94.9617**	**94.9617**	**3.3700e-003**	**3.0100e-003**	**95.9421**

3.4 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	2.6200e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0354**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0448	0.0298	0.3560	9.3000e-004	0.1141	5.9000e-004	0.1147	0.0303	5.4000e-004	0.0308		94.9617	94.9617	3.3700e-003	3.0100e-003	95.9421
Total	**0.0448**	**0.0298**	**0.3560**	**9.3000e-004**	**0.1141**	**5.9000e-004**	**0.1147**	**0.0303**	**5.4000e-004**	**0.0308**		**94.9617**	**94.9617**	**3.3700e-003**	**3.0100e-003**	**95.9421**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0362	1.3935	0.4220	5.3400e-003	0.1687	7.3200e-003	0.1760	0.0486	7.0000e-003	0.0556		572.6860	572.6860	0.0141	0.0841	598.0963
Worker	0.2119	0.1410	1.6852	4.3900e-003	0.5401	2.7800e-003	0.5429	0.1433	2.5600e-003	0.1458		449.4855	449.4855	0.0160	0.0142	454.1260
Total	**0.2481**	**1.5345**	**2.1072**	**9.7300e-003**	**0.7088**	**0.0101**	**0.7189**	**0.1918**	**9.5600e-003**	**0.2014**		**1,022.1714**	**1,022.1714**	**0.0301**	**0.0983**	**1,052.2223**

3.5 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0362	1.3935	0.4220	5.3400e-003	0.1687	7.3200e-003	0.1760	0.0486	7.0000e-003	0.0556		572.6860	572.6860	0.0141	0.0841	598.0963
Worker	0.2119	0.1410	1.6852	4.3900e-003	0.5401	2.7800e-003	0.5429	0.1433	2.5600e-003	0.1458		449.4855	449.4855	0.0160	0.0142	454.1260
Total	**0.2481**	**1.5345**	**2.1072**	**9.7300e-003**	**0.7088**	**0.0101**	**0.7189**	**0.1918**	**9.5600e-003**	**0.2014**		**1,022.1714**	**1,022.1714**	**0.0301**	**0.0983**	**1,052.2223**

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0346	1.3662	0.4090	5.2400e-003	0.1687	7.2100e-003	0.1759	0.0486	6.9000e-003	0.0554		561.8505	561.8505	0.0137	0.0827	586.8298
Worker	0.1983	0.1256	1.5718	4.2500e-003	0.5401	2.6500e-003	0.5428	0.1433	2.4400e-003	0.1457		438.2952	438.2952	0.0145	0.0132	442.6009
Total	**0.2329**	**1.4918**	**1.9808**	**9.4900e-003**	**0.7088**	**9.8600e-003**	**0.7186**	**0.1918**	**9.3400e-003**	**0.2012**		**1,000.1457**	**1,000.1457**	**0.0282**	**0.0959**	**1,029.4307**

3.5 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0346	1.3662	0.4090	5.2400e-003	0.1687	7.2100e-003	0.1759	0.0486	6.9000e-003	0.0554		561.8505	561.8505	0.0137	0.0827	586.8298
Worker	0.1983	0.1256	1.5718	4.2500e-003	0.5401	2.6500e-003	0.5428	0.1433	2.4400e-003	0.1457		438.2952	438.2952	0.0145	0.0132	442.6009
Total	**0.2329**	**1.4918**	**1.9808**	**9.4900e-003**	**0.7088**	**9.8600e-003**	**0.7186**	**0.1918**	**9.3400e-003**	**0.2012**		**1,000.1457**	**1,000.1457**	**0.0282**	**0.0959**	**1,029.4307**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	11.2311					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**11.4228**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0418	0.0278	0.3323	8.7000e-004	0.1065	5.5000e-004	0.1071	0.0283	5.1000e-004	0.0288		88.6309	88.6309	3.1500e-003	2.8100e-003	89.5460
Total	**0.0418**	**0.0278**	**0.3323**	**8.7000e-004**	**0.1065**	**5.5000e-004**	**0.1071**	**0.0283**	**5.1000e-004**	**0.0288**		**88.6309**	**88.6309**	**3.1500e-003**	**2.8100e-003**	**89.5460**

3.6 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	11.2311					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**11.4228**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0418	0.0278	0.3323	8.7000e-004	0.1065	5.5000e-004	0.1071	0.0283	5.1000e-004	0.0288		88.6309	88.6309	3.1500e-003	2.8100e-003	89.5460
Total	**0.0418**	**0.0278**	**0.3323**	**8.7000e-004**	**0.1065**	**5.5000e-004**	**0.1071**	**0.0283**	**5.1000e-004**	**0.0288**		**88.6309**	**88.6309**	**3.1500e-003**	**2.8100e-003**	**89.5460**

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	11.2311					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**11.4119**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0391	0.0248	0.3099	8.4000e-004	0.1065	5.2000e-004	0.1070	0.0283	4.8000e-004	0.0287		86.4244	86.4244	2.8600e-003	2.6100e-003	87.2734
Total	**0.0391**	**0.0248**	**0.3099**	**8.4000e-004**	**0.1065**	**5.2000e-004**	**0.1070**	**0.0283**	**4.8000e-004**	**0.0287**		**86.4244**	**86.4244**	**2.8600e-003**	**2.6100e-003**	**87.2734**

3.6 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	11.2311					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**11.4119**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0391	0.0248	0.3099	8.4000e-004	0.1065	5.2000e-004	0.1070	0.0283	4.8000e-004	0.0287		86.4244	86.4244	2.8600e-003	2.6100e-003	87.2734
Total	**0.0391**	**0.0248**	**0.3099**	**8.4000e-004**	**0.1065**	**5.2000e-004**	**0.1070**	**0.0283**	**4.8000e-004**	**0.0287**		**86.4244**	**86.4244**	**2.8600e-003**	**2.6100e-003**	**87.2734**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6350	0.9268	6.5194	0.0126	1.3665	0.0102	1.3767	0.3643	9.5300e-003	0.3738		1,303.4670	1,303.4670	0.0959	0.0683	1,326.2091
Unmitigated	0.6575	0.9806	6.8775	0.0135	1.4677	0.0109	1.4786	0.3913	0.0102	0.4015		1,397.2364	1,397.2364	0.1003	0.0721	1,421.2419

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Single Family Housing	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	239.32	239.32	239.32	696,024	647,998
Total	239.32	239.32	239.32	696,024	647,998

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	10.00	5.00	6.50	33.00	48.00	19.00	77	19	4

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Unrefrigerated Warehouse-No Rail	10.00	5.00	6.50	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.542485	0.056811	0.183752	0.130945	0.025591	0.005989	0.013266	0.009393	0.000917	0.000565	0.025954	0.000983	0.003351
Parking Lot	0.542485	0.056811	0.183752	0.130945	0.025591	0.005989	0.013266	0.009393	0.000917	0.000565	0.025954	0.000983	0.003351
Single Family Housing	0.542485	0.056811	0.183752	0.130945	0.025591	0.005989	0.013266	0.009393	0.000917	0.000565	0.025954	0.000983	0.003351
Unrefrigerated Warehouse-No Rail	0.542485	0.056811	0.183752	0.130945	0.025591	0.005989	0.013266	0.009393	0.000917	0.000565	0.025954	0.000983	0.003351

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	3.5700e-003	0.0321	0.0245	1.9000e-004		2.4700e-003	2.4700e-003		2.4700e-003	2.4700e-003		38.9778	38.9778	7.5000e-004	7.1000e-004	39.2094
NaturalGas Unmitigated	3.5700e-003	0.0321	0.0245	1.9000e-004		2.4700e-003	2.4700e-003		2.4700e-003	2.4700e-003		38.9778	38.9778	7.5000e-004	7.1000e-004	39.2094

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	44.9183	4.8000e-004	4.4000e-003	3.7000e-003	3.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		5.2845	5.2845	1.0000e-004	1.0000e-004	5.3159
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	64.8187	7.0000e-004	5.9700e-003	2.5400e-003	4.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004		7.6257	7.6257	1.5000e-004	1.4000e-004	7.6710
Unrefrigerated Warehouse-No Rail	221.574	2.3900e-003	0.0217	0.0183	1.3000e-004		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		26.0675	26.0675	5.0000e-004	4.8000e-004	26.2224
Total		**3.5700e-003**	**0.0321**	**0.0245**	**2.0000e-004**		**2.4600e-003**	**2.4600e-003**		**2.4600e-003**	**2.4600e-003**		**38.9778**	**38.9778**	**7.5000e-004**	**7.2000e-004**	**39.2094**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	0.0449183	4.8000e-004	4.4000e-003	3.7000e-003	3.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		5.2845	5.2845	1.0000e-004	1.0000e-004	5.3159
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.0648187	7.0000e-004	5.9700e-003	2.5400e-003	4.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004		7.6257	7.6257	1.5000e-004	1.4000e-004	7.6710
Unrefrigerated Warehouse-No Rail	0.221574	2.3900e-003	0.0217	0.0183	1.3000e-004		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		26.0675	26.0675	5.0000e-004	4.8000e-004	26.2224
Total		**3.5700e-003**	**0.0321**	**0.0245**	**2.0000e-004**		**2.4600e-003**	**2.4600e-003**		**2.4600e-003**	**2.4600e-003**		**38.9778**	**38.9778**	**7.5000e-004**	**7.2000e-004**	**39.2094**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.0460	1.1100e-003	0.1001	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004	0.0000	0.1865	0.1865	2.4000e-004	0.0000	0.1925
Unmitigated	4.0460	1.1100e-003	0.1001	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004	0.0000	0.1865	0.1865	2.4000e-004	0.0000	0.1925

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4308					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.6111					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.1100e-003	1.1100e-003	0.1001	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.1865	0.1865	2.4000e-004		0.1925
Total	**4.0460**	**1.1100e-003**	**0.1001**	**1.0000e-005**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**	**0.0000**	**0.1865**	**0.1865**	**2.4000e-004**	**0.0000**	**0.1925**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4308					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.6111					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.1100e-003	1.1100e-003	0.1001	1.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004		0.1865	0.1865	2.4000e-004		0.1925
Total	**4.0460**	**1.1100e-003**	**0.1001**	**1.0000e-005**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**	**0.0000**	**0.1865**	**0.1865**	**2.4000e-004**	**0.0000**	**0.1925**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Stathos Self Storage Project

Sacramento Metropolitan AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1.26	1000sqft	0.00	1,263.11	0
Unrefrigerated Warehouse-No Rail	165.05	1000sqft	6.79	165,050.00	0
Parking Lot	7.00	Space	0.06	2,800.00	0
Single Family Housing	1.00	Dwelling Unit	0.32	2,385.37	3

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2024
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	357.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot acreage adjusted to represent total site area. Square feet adjusted based on site plan prepared for the proposed project.

Construction Phase - Construction Phasing adjusted based on applicant provided AQ Questionnaire. Architectural coating assumed to start two weeks after building construction, and last for the same duration.

Grading -

Mobile Land Use Mitigation - Based on applicant provided AQ Questionnaire.

Energy Mitigation - Based on applicant provided AQ Questionnaire.

Water Mitigation - Compliant with MWELO.

Vehicle Trips - Trip generation rates adjusted to be consistent with the Traffic Report prepared for the proposed project by Fehr & Peers.

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	20.00	10.00
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	NumDays	230.00	140.00
tblConstructionPhase	NumDays	20.00	140.00
tblLandUse	LandUseSquareFeet	1,260.00	1,263.11
tblLandUse	LandUseSquareFeet	1,800.00	2,385.37
tblLandUse	LotAcreage	0.03	0.00
tblLandUse	LotAcreage	3.79	6.79
tblVehicleTrips	ST_TR	2.21	0.00
tblVehicleTrips	ST_TR	9.54	0.00
tblVehicleTrips	ST_TR	1.74	1.45
tblVehicleTrips	SU_TR	0.70	0.00
tblVehicleTrips	SU_TR	8.55	0.00
tblVehicleTrips	SU_TR	1.74	1.45
tblVehicleTrips	WD_TR	9.74	0.00
tblVehicleTrips	WD_TR	9.44	0.00
tblVehicleTrips	WD_TR	1.74	1.45

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.7871	1.4908	1.7864	3.3800e-003	0.1355	0.0689	0.2044	0.0562	0.0646	0.1207	0.0000	298.7523	298.7523	0.0621	5.5100e-003	301.9480
2024	0.1887	0.1676	0.2128	4.2000e-004	8.4000e-003	7.1500e-003	0.0156	2.2700e-003	6.7800e-003	9.0500e-003	0.0000	37.3945	37.3945	5.9800e-003	8.9000e-004	37.8101
Maximum	**0.7871**	**1.4908**	**1.7864**	**3.3800e-003**	**0.1355**	**0.0689**	**0.2044**	**0.0562**	**0.0646**	**0.1207**	**0.0000**	**298.7523**	**298.7523**	**0.0621**	**5.5100e-003**	**301.9480**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.7871	1.4908	1.7864	3.3800e-003	0.1355	0.0689	0.2044	0.0562	0.0646	0.1207	0.0000	298.7520	298.7520	0.0621	5.5100e-003	301.9477
2024	0.1887	0.1676	0.2128	4.2000e-004	8.4000e-003	7.1500e-003	0.0156	2.2700e-003	6.7800e-003	9.0500e-003	0.0000	37.3944	37.3944	5.9800e-003	8.9000e-004	37.8101
Maximum	**0.7871**	**1.4908**	**1.7864**	**3.3800e-003**	**0.1355**	**0.0689**	**0.2044**	**0.0562**	**0.0646**	**0.1207**	**0.0000**	**298.7520**	**298.7520**	**0.0621**	**5.5100e-003**	**301.9477**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	4-1-2023	6-30-2023	0.4568	0.4568
2	7-1-2023	9-30-2023	0.8405	0.8405
3	10-1-2023	12-31-2023	1.0033	1.0033
4	1-1-2024	3-31-2024	0.3359	0.3359
		Highest	1.0033	1.0033

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7382	1.4000e-004	0.0125	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0212	0.0212	3.0000e-005	0.0000	0.0218
Energy	6.5000e-004	5.8600e-003	4.4700e-003	4.0000e-005		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	96.2402	96.2402	8.4000e-003	1.1200e-003	96.7845
Mobile	0.1234	0.1675	1.1790	2.5000e-003	0.2580	1.9800e-003	0.2600	0.0690	1.8500e-003	0.0708	0.0000	234.8624	234.8624	0.0155	0.0114	238.6362
Waste						0.0000	0.0000		0.0000	0.0000	31.9508	0.0000	31.9508	1.8882	0.0000	79.1567
Water						0.0000	0.0000		0.0000	0.0000	13.6061	31.2153	44.8214	0.0497	0.0299	54.9855
Total	**0.8622**	**0.1735**	**1.1960**	**2.5400e-003**	**0.2580**	**2.4900e-003**	**0.2605**	**0.0690**	**2.3600e-003**	**0.0713**	**45.5569**	**362.3390**	**407.8959**	**1.9618**	**0.0424**	**469.5848**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7382	1.4000e-004	0.0125	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0212	0.0212	3.0000e-005	0.0000	0.0218
Energy	6.5000e-004	5.8600e-003	4.4700e-003	4.0000e-005		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	96.2321	96.2321	8.4000e-003	1.1200e-003	96.7763
Mobile	0.1194	0.1583	1.1148	2.3300e-003	0.2402	1.8500e-003	0.2420	0.0642	1.7300e-003	0.0660	0.0000	219.0847	219.0847	0.0147	0.0108	222.6574
Waste						0.0000	0.0000		0.0000	0.0000	31.9508	0.0000	31.9508	1.8882	0.0000	79.1567
Water						0.0000	0.0000		0.0000	0.0000	13.6061	31.1950	44.8011	0.0497	0.0299	54.9651
Total	**0.8582**	**0.1643**	**1.1318**	**2.3700e-003**	**0.2402**	**2.3600e-003**	**0.2426**	**0.0642**	**2.2400e-003**	**0.0665**	**45.5569**	**346.5330**	**392.0899**	**1.9611**	**0.0418**	**453.5773**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.46**	**5.31**	**5.37**	**6.69**	**6.90**	**5.22**	**6.88**	**6.89**	**5.08**	**6.83**	**0.00**	**4.36**	**3.88**	**0.04**	**1.46**	**3.41**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/1/2023	4/7/2023	5	5	
2	Grading	Grading	4/8/2023	4/21/2023	5	10	
3	Paving	Paving	4/22/2023	7/14/2023	5	60	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4	Building Construction	Building Construction	7/15/2023	1/26/2024		5	140	
5	Architectural Coating	Architectural Coating	7/29/2023	2/9/2024		5	140	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 10

Acres of Paving: 0.06

Residential Indoor: 4,830; Residential Outdoor: 1,610; Non-Residential Indoor: 249,470; Non-Residential Outdoor: 83,157; Striped Parking Area: 168 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	71.00	28.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	14.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0491	0.0000	0.0491	0.0253	0.0000	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6500e-003	0.0688	0.0456	1.0000e-004		3.1700e-003	3.1700e-003		2.9100e-003	2.9100e-003	0.0000	8.3627	8.3627	2.7000e-003	0.0000	8.4303
Total	**6.6500e-003**	**0.0688**	**0.0456**	**1.0000e-004**	**0.0491**	**3.1700e-003**	**0.0523**	**0.0253**	**2.9100e-003**	**0.0282**	**0.0000**	**8.3627**	**8.3627**	**2.7000e-003**	**0.0000**	**8.4303**

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	8.0000e-005	1.0500e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2651	0.2651	1.0000e-005	1.0000e-005	0.2676
Total	**1.3000e-004**	**8.0000e-005**	**1.0500e-003**	**0.0000**	**3.3000e-004**	**0.0000**	**3.3000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.2651**	**0.2651**	**1.0000e-005**	**1.0000e-005**	**0.2676**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0491	0.0000	0.0491	0.0253	0.0000	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6500e-003	0.0688	0.0456	1.0000e-004		3.1700e-003	3.1700e-003		2.9100e-003	2.9100e-003	0.0000	8.3627	8.3627	2.7000e-003	0.0000	8.4303
Total	**6.6500e-003**	**0.0688**	**0.0456**	**1.0000e-004**	**0.0491**	**3.1700e-003**	**0.0523**	**0.0253**	**2.9100e-003**	**0.0282**	**0.0000**	**8.3627**	**8.3627**	**2.7000e-003**	**0.0000**	**8.4303**

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	8.0000e-005	1.0500e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2651	0.2651	1.0000e-005	1.0000e-005	0.2676
Total	**1.3000e-004**	**8.0000e-005**	**1.0500e-003**	**0.0000**	**3.3000e-004**	**0.0000**	**3.3000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.2651**	**0.2651**	**1.0000e-005**	**1.0000e-005**	**0.2676**

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0354	0.0000	0.0354	0.0171	0.0000	0.0171	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.5500e-003	0.0897	0.0738	1.5000e-004		3.8700e-003	3.8700e-003		3.5600e-003	3.5600e-003	0.0000	13.0303	13.0303	4.2100e-003	0.0000	13.1357
Total	**8.5500e-003**	**0.0897**	**0.0738**	**1.5000e-004**	**0.0354**	**3.8700e-003**	**0.0393**	**0.0171**	**3.5600e-003**	**0.0207**	**0.0000**	**13.0303**	**13.0303**	**4.2100e-003**	**0.0000**	**13.1357**

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.3000e-004	1.7500e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4419	0.4419	1.0000e-005	1.0000e-005	0.4460
Total	**2.2000e-004**	**1.3000e-004**	**1.7500e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4419**	**0.4419**	**1.0000e-005**	**1.0000e-005**	**0.4460**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0354	0.0000	0.0354	0.0171	0.0000	0.0171	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.5500e-003	0.0897	0.0738	1.5000e-004		3.8700e-003	3.8700e-003		3.5600e-003	3.5600e-003	0.0000	13.0303	13.0303	4.2100e-003	0.0000	13.1357
Total	**8.5500e-003**	**0.0897**	**0.0738**	**1.5000e-004**	**0.0354**	**3.8700e-003**	**0.0393**	**0.0171**	**3.5600e-003**	**0.0207**	**0.0000**	**13.0303**	**13.0303**	**4.2100e-003**	**0.0000**	**13.1357**

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.3000e-004	1.7500e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4419	0.4419	1.0000e-005	1.0000e-005	0.4460
Total	**2.2000e-004**	**1.3000e-004**	**1.7500e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4419**	**0.4419**	**1.0000e-005**	**1.0000e-005**	**0.4460**

3.4 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0310	0.3058	0.4375	6.8000e-004		0.0153	0.0153		0.0141	0.0141	0.0000	60.0806	60.0806	0.0194	0.0000	60.5664
Paving	8.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0311**	**0.3058**	**0.4375**	**6.8000e-004**		**0.0153**	**0.0153**		**0.0141**	**0.0141**	**0.0000**	**60.0806**	**60.0806**	**0.0194**	**0.0000**	**60.5664**

3.4 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2900e-003	8.0000e-004	0.0105	3.0000e-005	3.3000e-003	2.0000e-005	3.3200e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	2.6513	2.6513	8.0000e-005	8.0000e-005	2.6760
Total	**1.2900e-003**	**8.0000e-004**	**0.0105**	**3.0000e-005**	**3.3000e-003**	**2.0000e-005**	**3.3200e-003**	**8.8000e-004**	**2.0000e-005**	**9.0000e-004**	**0.0000**	**2.6513**	**2.6513**	**8.0000e-005**	**8.0000e-005**	**2.6760**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0310	0.3058	0.4375	6.8000e-004		0.0153	0.0153		0.0141	0.0141	0.0000	60.0805	60.0805	0.0194	0.0000	60.5663
Paving	8.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0311**	**0.3058**	**0.4375**	**6.8000e-004**		**0.0153**	**0.0153**		**0.0141**	**0.0141**	**0.0000**	**60.0805**	**60.0805**	**0.0194**	**0.0000**	**60.5663**

3.4 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2900e-003	8.0000e-004	0.0105	3.0000e-005	3.3000e-003	2.0000e-005	3.3200e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	2.6513	2.6513	8.0000e-005	8.0000e-005	2.6760
Total	**1.2900e-003**	**8.0000e-004**	**0.0105**	**3.0000e-005**	**3.3000e-003**	**2.0000e-005**	**3.3200e-003**	**8.8000e-004**	**2.0000e-005**	**9.0000e-004**	**0.0000**	**2.6513**	**2.6513**	**8.0000e-005**	**8.0000e-005**	**2.6760**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0944	0.8631	0.9746	1.6200e-003		0.0420	0.0420		0.0395	0.0395	0.0000	139.0829	139.0829	0.0331	0.0000	139.9100
Total	**0.0944**	**0.8631**	**0.9746**	**1.6200e-003**		**0.0420**	**0.0420**		**0.0395**	**0.0395**	**0.0000**	**139.0829**	**139.0829**	**0.0331**	**0.0000**	**139.9100**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.1900e-003	0.0819	0.0247	3.2000e-004	9.8300e-003	4.4000e-004	0.0103	2.8400e-003	4.2000e-004	3.2600e-003	0.0000	31.1588	31.1588	7.7000e-004	4.5700e-003	32.5405
Worker	0.0122	7.5600e-003	0.0993	2.7000e-004	0.0313	1.7000e-004	0.0315	8.3200e-003	1.5000e-004	8.4800e-003	0.0000	25.0991	25.0991	7.9000e-004	7.2000e-004	25.3327
Total	**0.0144**	**0.0895**	**0.1240**	**5.9000e-004**	**0.0411**	**6.1000e-004**	**0.0417**	**0.0112**	**5.7000e-004**	**0.0117**	**0.0000**	**56.2580**	**56.2580**	**1.5600e-003**	**5.2900e-003**	**57.8732**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0944	0.8631	0.9746	1.6200e-003		0.0420	0.0420		0.0395	0.0395	0.0000	139.0827	139.0827	0.0331	0.0000	139.9098
Total	**0.0944**	**0.8631**	**0.9746**	**1.6200e-003**		**0.0420**	**0.0420**		**0.0395**	**0.0395**	**0.0000**	**139.0827**	**139.0827**	**0.0331**	**0.0000**	**139.9098**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.1900e-003	0.0819	0.0247	3.2000e-004	9.8300e-003	4.4000e-004	0.0103	2.8400e-003	4.2000e-004	3.2600e-003	0.0000	31.1588	31.1588	7.7000e-004	4.5700e-003	32.5405
Worker	0.0122	7.5600e-003	0.0993	2.7000e-004	0.0313	1.7000e-004	0.0315	8.3200e-003	1.5000e-004	8.4800e-003	0.0000	25.0991	25.0991	7.9000e-004	7.2000e-004	25.3327
Total	**0.0144**	**0.0895**	**0.1240**	**5.9000e-004**	**0.0411**	**6.1000e-004**	**0.0417**	**0.0112**	**5.7000e-004**	**0.0117**	**0.0000**	**56.2580**	**56.2580**	**1.5600e-003**	**5.2900e-003**	**57.8732**

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0147	0.1344	0.1617	2.7000e-004		6.1300e-003	6.1300e-003		5.7700e-003	5.7700e-003	0.0000	23.1849	23.1849	5.4800e-003	0.0000	23.3220
Total	**0.0147**	**0.1344**	**0.1617**	**2.7000e-004**		**6.1300e-003**	**6.1300e-003**		**5.7700e-003**	**5.7700e-003**	**0.0000**	**23.1849**	**23.1849**	**5.4800e-003**	**0.0000**	**23.3220**

3.5 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.5000e-004	0.0134	3.9900e-003	5.0000e-005	1.6400e-003	7.0000e-005	1.7100e-003	4.7000e-004	7.0000e-005	5.4000e-004	0.0000	5.0945	5.0945	1.2000e-004	7.5000e-004	5.3209
Worker	1.9000e-003	1.1200e-003	0.0154	4.0000e-005	5.2100e-003	3.0000e-005	5.2400e-003	1.3900e-003	2.0000e-005	1.4100e-003	0.0000	4.0788	4.0788	1.2000e-004	1.1000e-004	4.1149
Total	**2.2500e-003**	**0.0145**	**0.0194**	**9.0000e-005**	**6.8500e-003**	**1.0000e-004**	**6.9500e-003**	**1.8600e-003**	**9.0000e-005**	**1.9500e-003**	**0.0000**	**9.1733**	**9.1733**	**2.4000e-004**	**8.6000e-004**	**9.4358**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0147	0.1344	0.1617	2.7000e-004		6.1300e-003	6.1300e-003		5.7700e-003	5.7700e-003	0.0000	23.1849	23.1849	5.4800e-003	0.0000	23.3220
Total	**0.0147**	**0.1344**	**0.1617**	**2.7000e-004**		**6.1300e-003**	**6.1300e-003**		**5.7700e-003**	**5.7700e-003**	**0.0000**	**23.1849**	**23.1849**	**5.4800e-003**	**0.0000**	**23.3220**

3.5 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.5000e-004	0.0134	3.9900e-003	5.0000e-005	1.6400e-003	7.0000e-005	1.7100e-003	4.7000e-004	7.0000e-005	5.4000e-004	0.0000	5.0945	5.0945	1.2000e-004	7.5000e-004	5.3209
Worker	1.9000e-003	1.1200e-003	0.0154	4.0000e-005	5.2100e-003	3.0000e-005	5.2400e-003	1.3900e-003	2.0000e-005	1.4100e-003	0.0000	4.0788	4.0788	1.2000e-004	1.1000e-004	4.1149
Total	**2.2500e-003**	**0.0145**	**0.0194**	**9.0000e-005**	**6.8500e-003**	**1.0000e-004**	**6.9500e-003**	**1.8600e-003**	**9.0000e-005**	**1.9500e-003**	**0.0000**	**9.1733**	**9.1733**	**2.4000e-004**	**8.6000e-004**	**9.4358**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6177					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0105	0.0717	0.0996	1.6000e-004		3.9000e-003	3.9000e-003		3.9000e-003	3.9000e-003	0.0000	14.0429	14.0429	8.4000e-004	0.0000	14.0639
Total	**0.6283**	**0.0717**	**0.0996**	**1.6000e-004**		**3.9000e-003**	**3.9000e-003**		**3.9000e-003**	**3.9000e-003**	**0.0000**	**14.0429**	**14.0429**	**8.4000e-004**	**0.0000**	**14.0639**

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2100e-003	1.3700e-003	0.0180	5.0000e-005	5.6600e-003	3.0000e-005	5.6900e-003	1.5000e-003	3.0000e-005	1.5300e-003	0.0000	4.5367	4.5367	1.4000e-004	1.3000e-004	4.5789
Total	**2.2100e-003**	**1.3700e-003**	**0.0180**	**5.0000e-005**	**5.6600e-003**	**3.0000e-005**	**5.6900e-003**	**1.5000e-003**	**3.0000e-005**	**1.5300e-003**	**0.0000**	**4.5367**	**4.5367**	**1.4000e-004**	**1.3000e-004**	**4.5789**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6177					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0105	0.0717	0.0996	1.6000e-004		3.9000e-003	3.9000e-003		3.9000e-003	3.9000e-003	0.0000	14.0429	14.0429	8.4000e-004	0.0000	14.0639
Total	**0.6283**	**0.0717**	**0.0996**	**1.6000e-004**		**3.9000e-003**	**3.9000e-003**		**3.9000e-003**	**3.9000e-003**	**0.0000**	**14.0429**	**14.0429**	**8.4000e-004**	**0.0000**	**14.0639**

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2100e-003	1.3700e-003	0.0180	5.0000e-005	5.6600e-003	3.0000e-005	5.6900e-003	1.5000e-003	3.0000e-005	1.5300e-003	0.0000	4.5367	4.5367	1.4000e-004	1.3000e-004	4.5789
Total	**2.2100e-003**	**1.3700e-003**	**0.0180**	**5.0000e-005**	**5.6600e-003**	**3.0000e-005**	**5.6900e-003**	**1.5000e-003**	**3.0000e-005**	**1.5300e-003**	**0.0000**	**4.5367**	**4.5367**	**1.4000e-004**	**1.3000e-004**	**4.5789**

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1685					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7100e-003	0.0183	0.0272	4.0000e-005		9.1000e-004	9.1000e-004		9.1000e-004	9.1000e-004	0.0000	3.8299	3.8299	2.2000e-004	0.0000	3.8353
Total	**0.1712**	**0.0183**	**0.0272**	**4.0000e-005**		**9.1000e-004**	**9.1000e-004**		**9.1000e-004**	**9.1000e-004**	**0.0000**	**3.8299**	**3.8299**	**2.2000e-004**	**0.0000**	**3.8353**

3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6000e-004	3.3000e-004	4.5600e-003	1.0000e-005	1.5400e-003	1.0000e-005	1.5500e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.2064	1.2064	4.0000e-005	3.0000e-005	1.2171
Total	**5.6000e-004**	**3.3000e-004**	**4.5600e-003**	**1.0000e-005**	**1.5400e-003**	**1.0000e-005**	**1.5500e-003**	**4.1000e-004**	**1.0000e-005**	**4.2000e-004**	**0.0000**	**1.2064**	**1.2064**	**4.0000e-005**	**3.0000e-005**	**1.2171**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1685					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7100e-003	0.0183	0.0272	4.0000e-005		9.1000e-004	9.1000e-004		9.1000e-004	9.1000e-004	0.0000	3.8299	3.8299	2.2000e-004	0.0000	3.8353
Total	**0.1712**	**0.0183**	**0.0272**	**4.0000e-005**		**9.1000e-004**	**9.1000e-004**		**9.1000e-004**	**9.1000e-004**	**0.0000**	**3.8299**	**3.8299**	**2.2000e-004**	**0.0000**	**3.8353**

3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6000e-004	3.3000e-004	4.5600e-003	1.0000e-005	1.5400e-003	1.0000e-005	1.5500e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.2064	1.2064	4.0000e-005	3.0000e-005	1.2171
Total	**5.6000e-004**	**3.3000e-004**	**4.5600e-003**	**1.0000e-005**	**1.5400e-003**	**1.0000e-005**	**1.5500e-003**	**4.1000e-004**	**1.0000e-005**	**4.2000e-004**	**0.0000**	**1.2064**	**1.2064**	**4.0000e-005**	**3.0000e-005**	**1.2171**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1194	0.1583	1.1148	2.3300e-003	0.2402	1.8500e-003	0.2420	0.0642	1.7300e-003	0.0660	0.0000	219.0847	219.0847	0.0147	0.0108	222.6574
Unmitigated	0.1234	0.1675	1.1790	2.5000e-003	0.2580	1.9800e-003	0.2600	0.0690	1.8500e-003	0.0708	0.0000	234.8624	234.8624	0.0155	0.0114	238.6362

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Single Family Housing	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	239.32	239.32	239.32	696,024	647,998
Total	239.32	239.32	239.32	696,024	647,998

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	10.00	5.00	6.50	33.00	48.00	19.00	77	19	4
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3
Unrefrigerated Warehouse-No Rail	10.00	5.00	6.50	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.542485	0.056811	0.183752	0.130945	0.025591	0.005989	0.013266	0.009393	0.000917	0.000565	0.025954	0.000983	0.003351
Parking Lot	0.542485	0.056811	0.183752	0.130945	0.025591	0.005989	0.013266	0.009393	0.000917	0.000565	0.025954	0.000983	0.003351
Single Family Housing	0.542485	0.056811	0.183752	0.130945	0.025591	0.005989	0.013266	0.009393	0.000917	0.000565	0.025954	0.000983	0.003351
Unrefrigerated Warehouse-No Rail	0.542485	0.056811	0.183752	0.130945	0.025591	0.005989	0.013266	0.009393	0.000917	0.000565	0.025954	0.000983	0.003351

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	89.7789	89.7789	8.2800e-003	1.0000e-003	90.2848
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	89.7870	89.7870	8.2800e-003	1.0000e-003	90.2929
NaturalGas Mitigated	6.5000e-004	5.8600e-003	4.4700e-003	4.0000e-005		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	6.4532	6.4532	1.2000e-004	1.2000e-004	6.4916
NaturalGas Unmitigated	6.5000e-004	5.8600e-003	4.4700e-003	4.0000e-005		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	6.4532	6.4532	1.2000e-004	1.2000e-004	6.4916

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	16395.2	9.0000e-005	8.0000e-004	6.8000e-004	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.8749	0.8749	2.0000e-005	2.0000e-005	0.8801
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	23658.8	1.3000e-004	1.0900e-003	4.6000e-004	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	1.2625	1.2625	2.0000e-005	2.0000e-005	1.2700
Unrefrigerated Warehouse-No Rail	80874.5	4.4000e-004	3.9600e-003	3.3300e-003	2.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	4.3158	4.3158	8.0000e-005	8.0000e-005	4.3414
Total		**6.6000e-004**	**5.8500e-003**	**4.4700e-003**	**3.0000e-005**		**4.5000e-004**	**4.5000e-004**		**4.5000e-004**	**4.5000e-004**	**0.0000**	**6.4532**	**6.4532**	**1.2000e-004**	**1.2000e-004**	**6.4916**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	16395.2	9.0000e-005	8.0000e-004	6.8000e-004	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.8749	0.8749	2.0000e-005	2.0000e-005	0.8801
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	23658.8	1.3000e-004	1.0900e-003	4.6000e-004	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	1.2625	1.2625	2.0000e-005	2.0000e-005	1.2700
Unrefrigerated Warehouse-No Rail	80874.5	4.4000e-004	3.9600e-003	3.3300e-003	2.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	4.3158	4.3158	8.0000e-005	8.0000e-005	4.3414
Total		**6.6000e-004**	**5.8500e-003**	**4.4700e-003**	**3.0000e-005**		**4.5000e-004**	**4.5000e-004**		**4.5000e-004**	**4.5000e-004**	**0.0000**	**6.4532**	**6.4532**	**1.2000e-004**	**1.2000e-004**	**6.4916**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	17557.2	2.8509	2.6000e-004	3.0000e-005	2.8670
Parking Lot	980	0.1591	1.0000e-005	0.0000	0.1600
Single Family Housing	7907.39	1.2840	1.2000e-004	1.0000e-005	1.2912
Unrefrigerated Warehouse-No Rail	526510	85.4930	7.8800e-003	9.6000e-004	85.9747
Total		**89.7870**	**8.2700e-003**	**1.0000e-003**	**90.2929**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	17544.7	2.8489	2.6000e-004	3.0000e-005	2.8649
Parking Lot	967.5	0.1571	1.0000e-005	0.0000	0.1580
Single Family Housing	7894.89	1.2820	1.2000e-004	1.0000e-005	1.2892
Unrefrigerated Warehouse-No Rail	526497	85.4910	7.8800e-003	9.6000e-004	85.9727
Total		**89.7789**	**8.2700e-003**	**1.0000e-003**	**90.2848**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7382	1.4000e-004	0.0125	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0212	0.0212	3.0000e-005	0.0000	0.0218
Unmitigated	0.7382	1.4000e-004	0.0125	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0212	0.0212	3.0000e-005	0.0000	0.0218

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0786					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6590					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.1000e-004	1.4000e-004	0.0125	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0212	0.0212	3.0000e-005	0.0000	0.0218
Total	**0.7382**	**1.4000e-004**	**0.0125**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0212**	**0.0212**	**3.0000e-005**	**0.0000**	**0.0218**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0786					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6590					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.1000e-004	1.4000e-004	0.0125	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0212	0.0212	3.0000e-005	0.0000	0.0218
Total	**0.7382**	**1.4000e-004**	**0.0125**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0212**	**0.0212**	**3.0000e-005**	**0.0000**	**0.0218**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	44.8011	0.0497	0.0299	54.9651
Unmitigated	44.8214	0.0497	0.0299	54.9855

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	0.223945 / 0.137256	0.3384	3.0000e-004	1.8000e-004	0.3981
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.065154 / 0.0410754	0.0991	9.0000e-005	5.0000e-005	0.1165
Unrefrigerated Warehouse-No Rail	38.1678 / 0	44.3839	0.0493	0.0297	54.4710
Total		**44.8214**	**0.0497**	**0.0299**	**54.9855**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	0.223945 / 0.109805	0.3228	3.0000e-004	1.8000e-004	0.3824
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.065154 / 0.0328603	0.0944	9.0000e-005	5.0000e-005	0.1118
Unrefrigerated Warehouse-No Rail	38.1678 / 0	44.3839	0.0493	0.0297	54.4710
Total		**44.8011**	**0.0497**	**0.0299**	**54.9651**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	31.9508	1.8882	0.0000	79.1567
Unmitigated	31.9508	1.8882	0.0000	79.1567

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	1.17	0.2375	0.0140	0.0000	0.5884
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.08	0.2192	0.0130	0.0000	0.5431
Unrefrigerated Warehouse-No Rail	155.15	31.4941	1.8612	0.0000	78.0252
Total		**31.9508**	**1.8882**	**0.0000**	**79.1567**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	1.17	0.2375	0.0140	0.0000	0.5884
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.08	0.2192	0.0130	0.0000	0.5431
Unrefrigerated Warehouse-No Rail	155.15	31.4941	1.8612	0.0000	78.0252
Total		**31.9508**	**1.8882**	**0.0000**	**79.1567**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX B

PROPERTY TRANSITION ARBORIST REPORT

December 21, 2020

Frank Stathos
Metro Properties
7919 Folsom Blvd., Suite 340
Sacramento, California 95826

Via Email: fstathos@aol.com and rthomas@surewest.net

PROPERTY TRANSITION ARBORIST REPORT

RE: Arborist Report and Tree Inventory for Stathos Cove
APN 116-0061-010 and 116-0061-042, City of Elk Grove, California

Executive Summary:

Metro Properties contacted California Tree and Landscape Consulting, Inc. to document the trees on the property for a better understanding of the existing resource and any potential improvement obstacles that may arise. Metro Properties requested an arborist report and tree inventory suitable for submittal to the City of Elk Grove, California. This is a Preliminary Arborist Report and Tree Inventory for the initial filing of plans to develop the property.

Cathie Bown, ISA Certified Arborist #WE-13086A, visited the property on December 9, 2020, to provide species identification, measurements of DBH and canopy, field condition notes, recommended actions, ratings, and approximate locations for the trees. A total of 72 trees were evaluated on this property, of which 65 are protected trees according to the City of Elk Grove, California.

The City of Elk Grove Tree Preservation and Protection Ordinance (Elk Grove Municipal Code Chapter 19.12) regulates both the removal of “trees of local importance” and “secured trees,” and the encroachment of construction activities within their critical root zone area. The City of Elk Grove Tree Preservation and Protection Ordinance currently defines a “tree of local importance” as the following species of trees with a diameter at breast height of 6 inches or greater, or multi-trunked trees with a combined diameter at breast height of 6 inches or greater: Coast Live Oak *(Quercus agrifolia)*; Valley Oak *(Quercus lobata)*; Blue Oak *(Quercus douglasii)*; Interior Live Oak *(Quercus wislizenii)*; Oracle Oak *(Quercus morehus)*; California Sycamore *(Platanus racemosa)*; and California Black Walnut *(Juglans hindsii)*. The DBH for multi-stem trees is the diameter of the largest trunk plus one-half the cumulative diameter of the remaining trunks measured at 4'6" above natural grade.

The vegetation found on site includes remnant ornamental landscape trees and shrubs left over from the previous development, in addition to the trees of local importance included in the inventory. The previous development on this property was abandoned about 20 years ago. Many of the native trees had become dependent on the irrigation provided to the property and have suffered significantly since the site was abandoned.

TABLE 1

Tree Species	Trees on this Site	Protected Trees on the Site	Proposed for Removal for Development	Total Proposed for Retention
California Black Walnut	13	13	7	6
Cork Oak	6	0	2	4
Pear	1	0	1	0
Valley Oak	52	52	22	30
TOTAL	**72**	**65**	**32**	**40**

ASSIGNMENT

Perform an examination of the site to document the presence and condition of trees protected by the City of Elk Grove, California. The study area for this effort includes the entire deeded parcel which is surrounded by existing development and Elk Grove Blvd. (All trees protected by the City are included in the inventory.) Prepare a report of findings.

METHODS

Appendix 2 and Tables 1 and 2 in this report are the detailed inventory and recommendations for the trees. The following terms and Table A – Ratings Descriptions will further explain our findings.

Species of trees is listed by our local common name and botanical name by genus and species.

DBH (diameter breast high) is normally measured at 4’6” (54” above the average ground, height but if that varies then the location where it is measured is noted here. A steel diameter tape was used to measure the trees.

Canopy radius is measured in feet. It is the farthest extent of the crown composed of leaves and small twigs measured by a Stanley digital distance meter. This measurement often defines the Critical Root Zone (CRZ) or Protection Zone (PZ), which is a circular area around a tree with a radius equal to this measurement.

Actions listed are recommendations to improve health or structure of the tree. Trees in public spaces require maintenance. If a tree is to remain and be preserved, then the tree may need some form of work to reduce the likelihood of failure and increase the longevity of the tree. Preservation requirements and actions based on a proposed development plan are not included here.

Arborist Rating is subjective to condition and is based on both the health and structure of the tree. All of the trees were rated for condition, per the recognized national standard as set up by the Council of Tree and Landscape Appraisers and the International Society of Arboriculture (ISA) on a numeric scale of 5 (being the highest) to 0 (the worst condition, dead). The rating was done in the field at the time of the measuring and inspection.

Table A – Ratings Descriptions

No problem(s)	5	excellent
No apparent problem(s)	4	good
Minor problem(s)	3	fair
Major problem(s)	2	poor
Extreme problem(s)	1	hazardous, non-correctable
Dead	0	dead

Rating #0: This indicates a tree that has no significant sign of life.

Rating #1: The problems are extreme. This rating is assigned to a tree that has structural and/or health problems that no amount of work or effort can change. The issues may or may not be considered a dangerous situation.

Rating #2: The tree has major problems. If the option is taken to preserve the tree, its condition could be improved with correct arboricultural work including, but not limited to: pruning, cabling, bracing, bolting, guying, spraying, mistletoe removal, vertical mulching, fertilization, etc. If the recommended actions are completed correctly, hazard can be reduced and the rating can be elevated to a 3. If no action is taken the tree is considered a liability and should be removed.

Rating #3: The tree is in fair condition. There are some minor structural or health problems that pose no immediate danger. When the recommended actions in an arborist report are completed correctly the defect(s) can be minimized or eliminated.

Rating #4: The tree is in good condition and there are no apparent problems that a Certified Arborist can see from a visual ground inspection. If potential structural or health problems are tended to at this stage future hazard can be reduced and more serious health problems can be averted.

Rating #5: No problems found from a visual ground inspection. Structurally, these trees have properly spaced branches and near perfect characteristics for the species. Highly rated trees are not common in natural or developed landscapes. No tree is ever perfect especially with the unpredictability of nature, but with this highest rating, the condition should be considered excellent.

Notes indicate the health, structure and environment of the tree and explain why the tree should be removed or preserved. Additional notes may indicate if problems are minor, extreme or correctible.

Remove is the recommendation that the tree be removed. The recommendation will normally be based either on poor structure or poor health and is indicated as follows:

Yes H – Tree is unhealthy
Yes S – Tree is structurally unsound

OBSERVATIONS AND CONCLUSIONS

The site is a vacant, previously developed parcel. 3 sides of the site have existing improvements and the 4th side is bounded by Elk Grove Bl. The trees on the site are in various states of decline or stress due to lack of maintenance. Several of the trees are dead or declining and should be removed.

RECOMMENDED REMOVALS

At this time, 32 trees have been recommended for removal from the proposed project area due to the nature and extent of defects, compromised health, and/or structural instability noted at the time of field inventory efforts. If these trees were retained within the proposed project area, it is our opinion that they may be hazardous depending upon their proximity to planned development activities. For reference, the trees which have been recommended for removal due to the severity of noted defects, compromised health, and/or structural instability are highlighted in green within the accompanying Tree Inventory Summary and are briefly summarized as follows:

TABLE 2

Tag#	Old Tag#	Protected By Code	Common Name	Botanical Name	Multi-Stems	DBH	Measured At	Canopy Radius	Arborist Rating
4427		No	Pear	*Pyrus sp.*		0	54	0	0 Dead
4428		Yes	Valley Oak	*Quercus lobata*	3,3,4,8	13	54	10	2 Major Structure or Health Problems
4431	86	Yes	Valley Oak	*Quercus lobata*		38	54	31	1 Extreme Structure or Health Problems

Tag#	Old Tag#	Protected By Code	Common Name	Botanical Name	Multi-Stems	DBH	Measured At	Canopy Radius	Arborist Rating
4433		Yes	California Black Walnut	*Juglans hindsii*		12	54	15	1 Extreme Structure or Health Problems
4434	82	Yes	Valley Oak	*Quercus lobata*		26	54	10	0 Dead
4439	75	Yes	Valley Oak	*Quercus lobata*		18	54	15	1 Extreme Structure or Health Problems
4443	75	Yes	Valley Oak	*Quercus lobata*		15	54	0	0 Dead
4448		Yes	Valley Oak	*Quercus lobata*		31	54	28	1 Extreme Structure or Health Problems
4449	51	Yes	California Black Walnut	*Juglans hindsii*		24	54	22	1 Extreme Structure or Health Problems
4451		Yes	Valley Oak	*Quercus lobata*		32	54	15	0 Dead
4452		Yes	Valley Oak	*Quercus lobata*		43	54	0	0 Dead
4453	58	Yes	Valley Oak	*Quercus lobata*		37	54	40	2 Major Structure or Health Problems
4454	55	Yes	Valley Oak	*Quercus lobata*		40	54	40	2 Major Structure or Health Problems
4463		No	Cork Oak	*Quercus suber*		15	54	10	1 Extreme Structure or Health Problems
4465	80	Yes	Valley Oak	*Quercus lobata*		20	21	19	2 Major Structure or Health Problems
4466	81	Yes	Valley Oak	*Quercus lobata*		19	54	16	2 Major Structure or Health Problems
4467		No	Cork Oak	*Quercus suber*		21	54	30	2 Major Structure or Health Problems
4468	36	Yes	Valley Oak	*Quercus lobata*		30	54	0	0 Dead
4469	35	Yes	Valley Oak	*Quercus lobata*		32	54	30	2 Major Structure or Health Problems
4471	92	Yes	Valley Oak	*Quercus lobata*		50	54	26	2 Major Structure or Health Problems
4473	32	Yes	Valley Oak	*Quercus lobata*		44	54	0	0 Dead
4475	31	Yes	Valley Oak	*Quercus lobata*		52	54	47	2 Major Structure or Health Problems
4476	30	Yes	Valley Oak	*Quercus lobata*		40	54	0	0 Dead
4477	29	Yes	Valley Oak	*Quercus lobata*		40	54	0	0 Dead
4478	28	Yes	California Black Walnut	*Juglans hindsii*		20	54	11	1 Extreme Structure or Health Problems
4479	I	Yes	California Black Walnut	*Juglans hindsii*		16	24	12	1 Extreme Structure or Health Problems
4480		Yes	California Black Walnut	*Juglans hindsii*		17	54	0	0 Dead
4481	J	Yes	California Black Walnut	*Juglans hindsii*		20	54	20	0 Dead
4482		Yes	California Black Walnut	*Juglans hindsii*		10	54	0	0 Dead
4483	24	Yes	Valley Oak	*Quercus lobata*		41	54	30	1 Extreme Structure or Health Problems
4484	22	Yes	Valley Oak	*Quercus lobata*		19	54	20	2 Major Structure or Health Problems

Tag#	Old Tag#	Protected By Code	Common Name	Botanical Name	Multi-Stems	DBH	Measured At	Canopy Radius	Arborist Rating
4490		Yes	Valley Oak	*Quercus lobata*		9	54	10	2 Major Structure or Health Problems

DISCUSSION

Trees need to be protected from normal construction practices if they are to remain healthy and viable on the site. Our recommendations are based on experience, and County ordinance requirements, so as to enhance tree longevity. This requires their root zones remain intact and viable, despite heavy equipment being on site, and the need to install foundations, driveways, underground utilities, and landscape irrigation systems. Simply walking and driving on soil has serious consequences for tree health.

Following is a summary of Impacts to trees during construction and Tree Protection measures that should be incorporated into the site plans in order to protect the trees. Once the plans are approved, they become the document that all contractors will follow. ***The plans become the contract between the owner and the contractor, so that only items spelled out in the plans can be expected to be followed. Hence, all protection measures, such as fence locations, mulch requirements and root pruning specifications must be shown on the plans.***

RECOMMENDATIONS: SUMMARY OF TREE PROTECTION MEASURES

Hire a Project Arborist to help ensure protection measures are incorporated into the site plans and followed. The Project Arborist should, in cooperation with the Engineers and/or Architects:

- Identify the Root Protection Zones on the final construction drawings, prior to bidding the project.
- Show the placement of tree protection fences, as well as areas to be irrigated, fertilized and mulched on the final construction drawings.
- Clearly show trees for removal on the plans and mark them clearly on site. A Contractor who is a Certified Arborist should perform tree and stump removal. All stumps within the root zone of trees to be preserved shall be ground out using a stump router or left in place. **No trunk within the root zone of other trees shall be removed using a backhoe or other piece of grading equipment**.
- Prior to any grading, or other work on the site that will come within 50' of any tree to be preserved:
    1. Irrigate (if needed) and place a 3" layer of chip mulch over the protected root zone of all trees that will be impacted.
    2. Erect Tree Protection Fences. Place boards against trees located within 3' of construction zones, even if fenced off.
    3. Remove lower foliage that may interfere with equipment PRIOR to having grading or other equipment on site. The Project Arborist should approve the extent of foliage elevation, and oversee the pruning, performed by a contractor who is an ISA Certified Arborist.
- For grade cuts, expose roots by hand digging, potholing or using an air spade and then cut roots cleanly prior to further grading outside the tree protection zones.
- For fills, if a cut is required first, follow as for cuts.
- Where possible, specify geotextile fabric and/or thickened paving, re-enforced paving and structural soil in lieu of compacting, and avoid root cutting as much as possible, prior to placing fills on the soil surface. Any proposed retaining wall or fill soil shall be discussed with the engineer and arborist in order to reduce impacts to trees to be preserved.

- Clearly designate an area on the site outside the drip line of all trees where construction materials may be stored, and parking can take place. No materials or parking shall take place within the root zones of protected trees.
- Design utility and irrigation trenches to minimize disturbance to tree roots. Where possible, dig trenches with hydro-vac equipment or air spade, placing pipes underneath the roots, or bore the deeper trenches underneath the roots.
- Include on the plans an Arborist inspection schedule to monitor the site during (and after) construction to ensure protection measures are followed and make recommendations for care of the trees on site, as needed.

General Tree protection measures are included as Appendix 3. These measures need to be included on the Site, Grading, Utility and Landscape Plans. A final report of recommendations specific to the plan can be completed as part of, and in conjunction with, the actual plans. This will require the arborist working directly with the engineer and architect for the project. If the above recommendations are followed, the amount of time required by the arborist for the final report should be minimal.

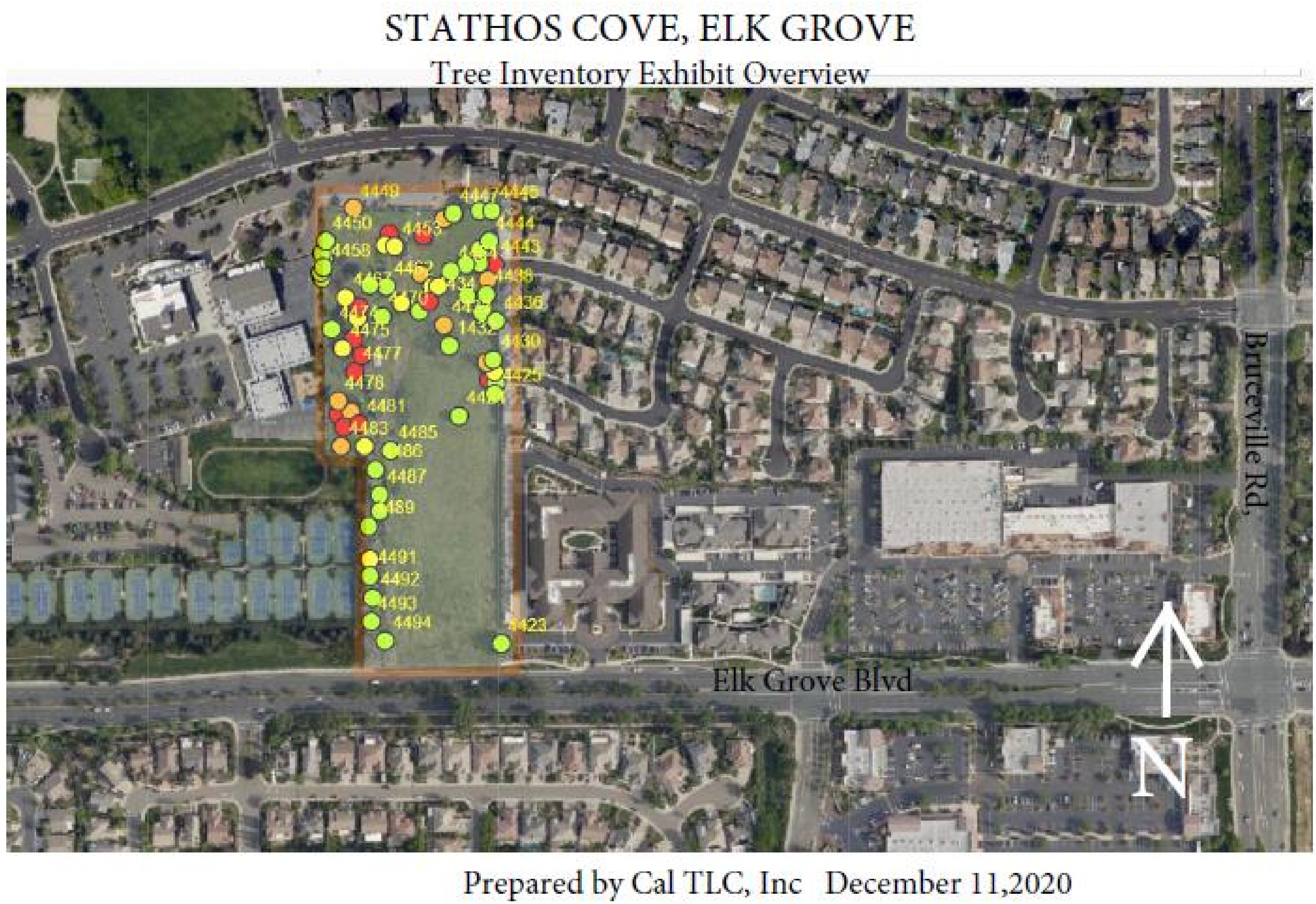
Report Prepared by:

Edwin E. Stirtz

Edwin E. Stirtz, Consulting Arborist
International Society of Arboriculture
Certified Arborist WE-0510A
ISA Tree Risk Assessment Qualified
Member, American Society of Consulting Arborists

Enc.: Appendix 1 – Maps of The Property Showing Tree Locations
Appendix 2 – Tree Information Collected
Appendix 3 – General Practices for Tree Protection
Appendix 4 – Photographs

APPENDIX 1 – MAPS OF THE PROPERTY SHOWING TREE LOCATIONS



STATHOS COVE TREE EXHIBIT

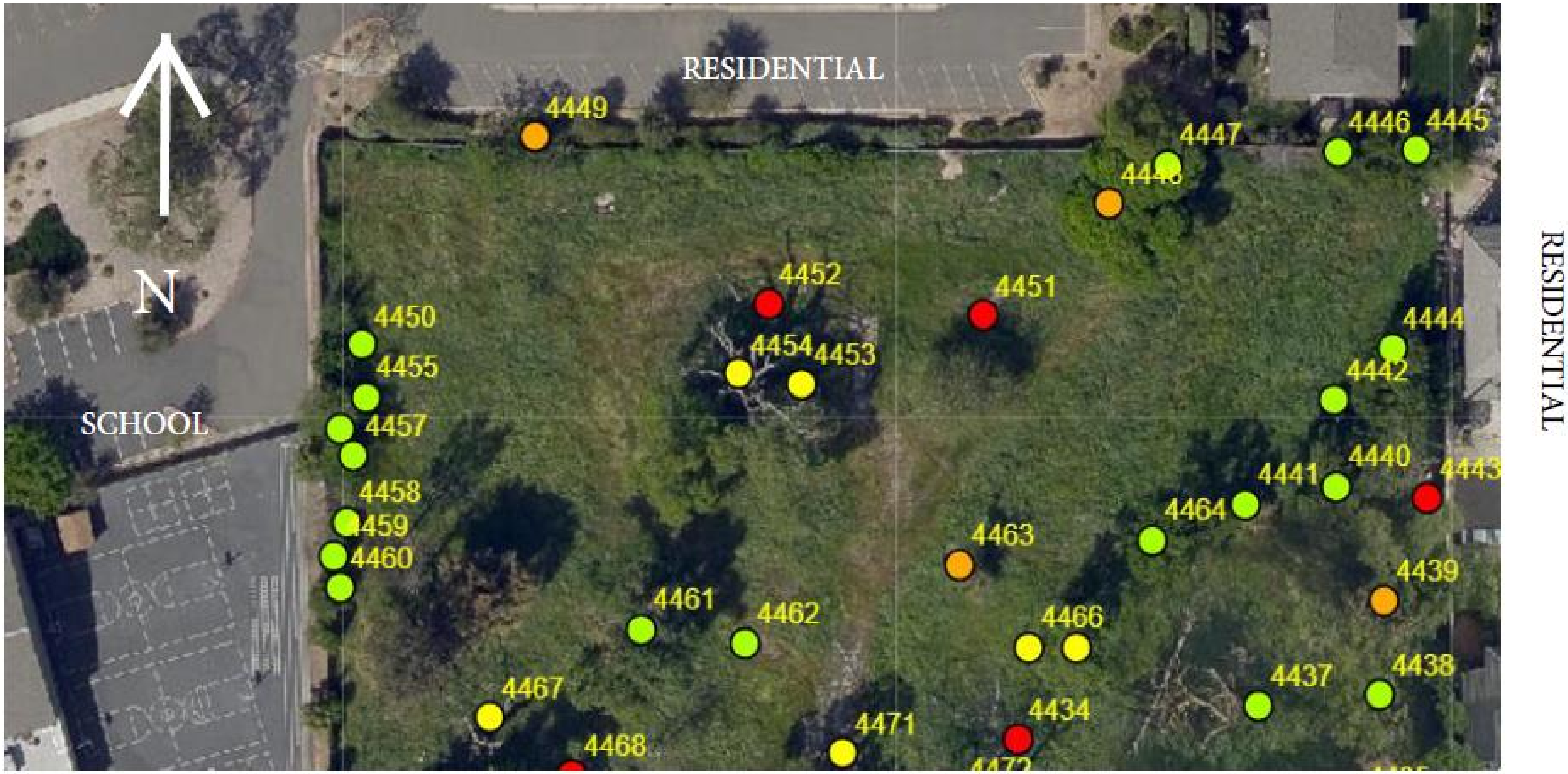
STATHOS COVE TREE EXHIBIT

SOUTH END OF PROPERTY

Created by Cal TLC, INC December 14,2020

STATHOS COVE TREE EXHIBIT

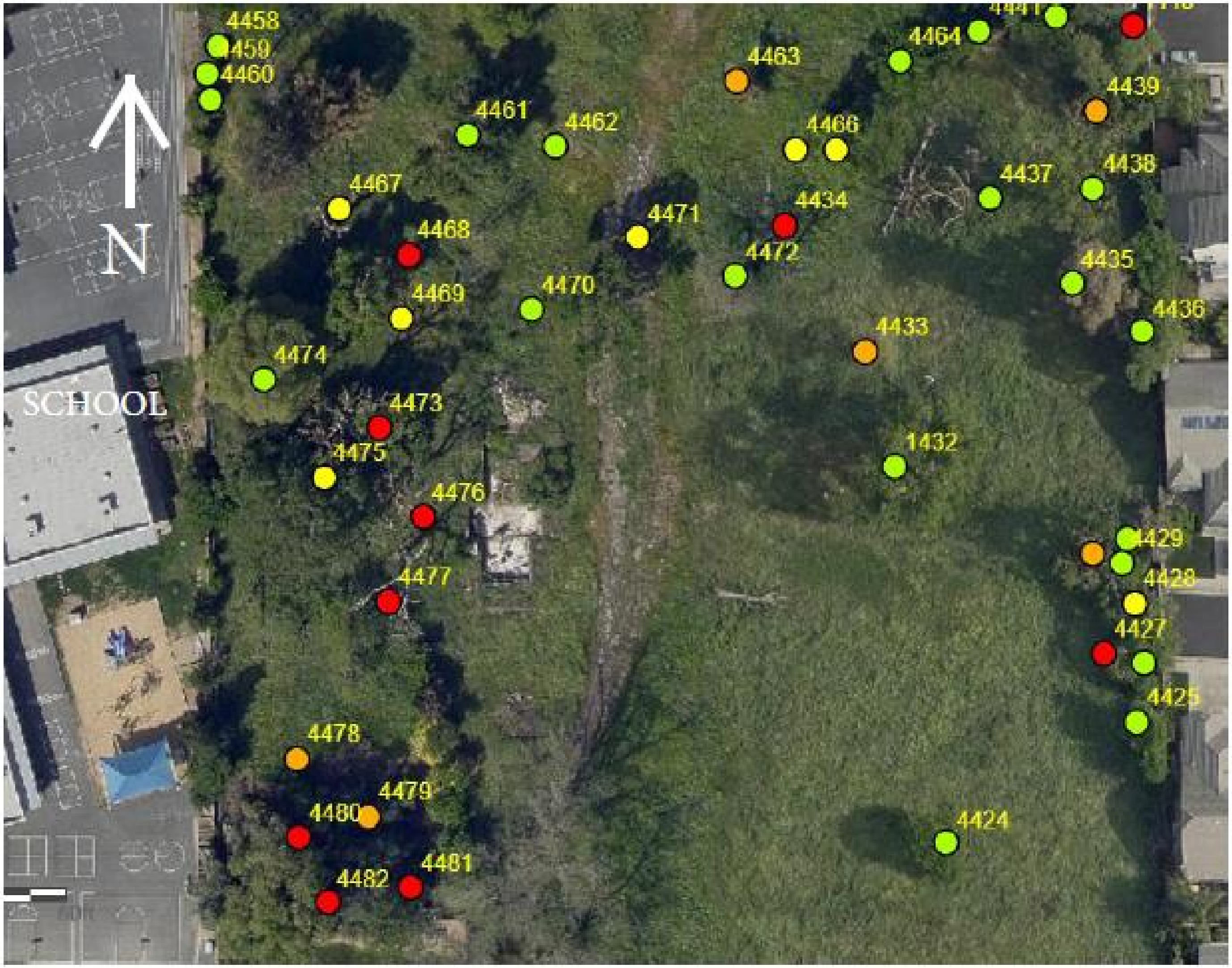
NORTH END OF PROPERTY



Created by Cal TLC, INC December 14,2020

STATHOS COVE TREE EXHIBIT

CENTER OF PROPERTY



RESIDENTIAL

Created by CalTLC, INC December 14,2020

Appendix 2 – Tree Information Collected

Tag#	Old Tag#	Protected By Code	Common Name	Botanical Name	Multi-Stems	DBH	Measured At	Canopy Radius	Arborist Rating	Field Notes	Recommendations
4423	12,8	Yes	Valley Oak	*Quercus lobata*		34	24	27	3 Fair - Minor Problems	Codominant at 2.5 feet with included bark to grade. Epicormic growth. Multiple codominant branches with inclusions. Above average deadwood. 4-inch branch failure at 20 feet,	None at this time.
4424	979	Yes	Valley Oak	*Quercus lobata*	9,12	16	54	18	3 Fair - Minor Problems	Splits at 1 foot with severe inclusion. Third branch had been removed. Epicormic growth. Multiple codominant branches with inclusions. Above average deadwood.	None at this time.
4425		Yes	Valley Oak	*Quercus lobata*	3,4,6	9	54	10	3 Fair - Minor Problems	Splits at 1 foot with inclusion and epicormic growth. 3 additional branches at 3, 4 & 4 inches. Pruning cuts off smaller branches on east side toward residential home.	None at this time.
4426		Yes	Valley Oak	*Quercus lobata*		11	54	14	3 Fair - Minor Problems	Cavity on north side. Weak 6-inch attachment southwest side. Could not access completely around tree due to fallen tree and brush. Could not explore cavity.	None at this time.
4427		No	Pear	*Pyrus sp.*		0	54	0	0 Dead	Split at crotch and fell in multiple directions on ground.	***Remove due to noted defects.***
4428		Yes	Valley Oak	*Quercus lobata*	3,3,4,8	13	54	10	2 Major Structure or Health Problems	Splits at 1 foot with weak attachments. 5 limbs at 3-4 inches. Dead branch in center. Topping cuts on smaller branches with epicormic growth. Canopy leans northwest.	***Remove due to noted defects.***
4429		Yes	Valley Oak	*Quercus lobata*		7	54	6	3 Fair - Minor Problems	Canopy leans southeast. Suppressed by neighboring tree. Epicormic growth.	None at this time.
4430		Yes	Valley Oak	*Quercus lobata*		13	54	9	3 Fair - Minor Problems	Leans north with correction, then strong lean south. Suppressed by neighboring trees. Epicormic growth.	None at this time.
4431	86	Yes	Valley Oak	*Quercus lobata*		38	54	31	1 Extreme Structure or Health Problems	Leans southeast. Weak crotch at 10 feet with large inclusion. Large branch failure on north side. Multiple branch failures on remaining limbs.	***Remove due to noted defects.***

Tag#	Old Tag#	Protected By Code	Common Name	Botanical Name	Multi-Stems	DBH	Measured At	Canopy Radius	Arborist Rating	Field Notes	Recommendations
4432	87	Yes	Valley Oak	*Quercus lobata*		35	24	29	3 Fair - Minor Problems	Splits at 2.5 feet with included bark. 2 limbs at 20 inches. Epicormic growth. Buttress roots exposed. Trunk is 2 feet from concrete pad on northeast side.	None at this time.
4433		Yes	California Black Walnut	*Juglans hindsii*		12	54	15	1 Extreme Structure or Health Problems	Cavity at root flare. Multiple branch failures. Surrounded by uneven soil. Tree appears dead.	***Remove due to noted defects.***
4434	82	Yes	Valley Oak	*Quercus lobata*		26	54	10	0 Dead		***Remove due to noted defects.***
4435	84	No	Cork Oak	*Quercus suber*		30	54	27	3 Fair - Minor Problems	Weak 6-inch branch attachment at 10 feet. Weak 10-inch branch attachment at 20 feet with suppressed growth.	None at this time.
4436	85	Yes	Valley Oak	*Quercus lobata*		18	54	15	3 Fair - Minor Problems	Codominant at 6 feet with included bark. Limb removal off south side. Additional codominance with inclusion at 10 feet. Leaning northeast. Remaining canopy leans south. Epicormic growth. Appears to be a basal cavity. Buried.	None at this time.
4437	83	Yes	Valley Oak	*Quercus lobata*		27	54	20	3 Fair - Minor Problems	Leans northeast. Epicormic growth. Trunk damage on east side. Limb dieback.	None at this time.
4438	B	Yes	Valley Oak	*Quercus lobata*		7	54	6	3 Fair - Minor Problems	Codominant at 10 feet with included bark. Epicormic growth. Canopy leans east over a residential home.	None at this time.
4439	75	Yes	Valley Oak	*Quercus lobata*		18	54	15	1 Extreme Structure or Health Problems	Leans east with 6 feet above grade. Trunk cavity. Multiple pruning cuts east side. Suppressed by neighboring tree.	***Remove due to noted defects.***
4440	74	Yes	Valley Oak	*Quercus lobata*		20	54	31	3 Fair - Minor Problems	One-sided southeast. Weak primary crotch with inclusion. Above average deadwood.	None at this time.
4441		No	Cork Oak	*Quercus suber*		16	54	20	3 Fair - Minor Problems	Codominant at 6 & 10 feet with included bark. Epicormic growth.	None at this time.
4442	71	Yes	Valley Oak	*Quercus lobata*		28	54	35	3 Fair - Minor Problems	Splits at 15 feet with included bark. Multiple codominant branches with inclusions. Above average deadwood. 6-inch branch failures in canopy.	None at this time.

Tag#	Old Tag#	Protected By Code	Common Name	Botanical Name	Multi-Stems	DBH	Measured At	Canopy Radius	Arborist Rating	Field Notes	Recommendations
4443	75	Yes	Valley Oak	*Quercus lobata*		15	54	0	0 Dead	On ground.	***Remove due to noted defects.***
4444	70	Yes	Valley Oak	*Quercus lobata*		27	54	30	3 Fair - Minor Problems	Leans southeast. Splits at 10 feet with weak attachments. Multiple codominant branches with inclusions. Epicormic growth.	None at this time.
4445		Yes	Valley Oak	*Quercus lobata*		14	54	15	3 Fair - Minor Problems	Splits at 5 feet. One-sided north over residential home.	None at this time.
4446		Yes	Valley Oak	*Quercus lobata*		9	54	20	3 Fair - Minor Problems	Splits at 6 feet. 6-inch branch growing north into residential landscape shrubs. Root flare abuts fence.	None at this time.
4447		Yes	California Black Walnut	*Juglans hindsii*		7	54	14	3 Fair - Minor Problems	Dormant.	None at this time.
4448		Yes	Valley Oak	*Quercus lobata*		31	54	28	1 Extreme Structure or Health Problems	Major trunk damage and open cavity on north side. Leans southeast. Multiple callusing pruning cuts. Epicormic growth.	***Remove due to noted defects.***
4449	51	Yes	California Black Walnut	*Juglans hindsii*		24	54	22	1 Extreme Structure or Health Problems	Basal cavity at grade to 2 feet. Lateral branch growing east with pruning cuts. Multiple bark defects and branch failures.	***Remove due to noted defects.***
4450		Yes	Valley Oak	*Quercus lobata*		9	54	15	3 Fair - Minor Problems	Splits at grade. 2nd branch at 4 inches. Main branch splits at 5 feet with included bark. Epicormic growth.	None at this time.
4451		Yes	Valley Oak	*Quercus lobata*		32	54	15	0 Dead		***Remove due to noted defects.***
4452		Yes	Valley Oak	*Quercus lobata*		43	54	0	0 Dead		***Remove due to noted defects.***
4453	58	Yes	Valley Oak	*Quercus lobata*		37	54	40	2 Major Structure or Health Problems	Trunk wounds with interior decay. Leans south. Several branch failures in upper canopy.	***Remove due to noted defects.***
4454	55	Yes	Valley Oak	*Quercus lobata*		40	54	40	2 Major Structure or Health Problems	Unbalanced canopy. One-sided northwest. Large branch failures high in canopy. Above average deadwood. Epicormic growth.	***Remove due to noted defects.***
4455		Yes	Valley Oak	*Quercus lobata*		6	54	10	3 Fair - Minor Problems	Split at grade. 2nd branch at 4 inches.	None at this time.

Tag#	Old Tag#	Protected By Code	Common Name	Botanical Name	Multi-Stems	DBH	Measured At	Canopy Radius	Arborist Rating	Field Notes	Recommendations
4456	G	Yes	Valley Oak	*Quercus lobata*		10	54	15	3 Fair - Minor Problems	Abuts fence. Codominant at 1 foot. 2nd branch at 4 inches. Girdled by small branch at 4 feet. Leans northeast.	None at this time.
4457	H	Yes	Valley Oak	*Quercus lobata*		8	54	15	3 Fair - Minor Problems	Codominant at 2 feet. 2nd branch at 6 inches. Epicormic growth. Above average deadwood.	None at this time.
4458		Yes	Valley Oak	*Quercus lobata*		6	54	5	3 Fair - Minor Problems	Suppressed by neighboring trees.	None at this time.
4459		Yes	California Black Walnut	*Juglans hindsii*		6	54	5	3 Fair - Minor Problems	One-sided west. Suppressed by neighboring trees. Dormant.	None at this time.
4460		Yes	California Black Walnut	*Juglans hindsii*		9	54	12	3 Fair - Minor Problems	Dormant.	None at this time.
4461	38	No	Cork Oak	*Quercus suber*		32	54	20	3 Fair - Minor Problems	Codominant at 15 feet with included bark. Epicormic growth. Average deadwood.	None at this time.
4462	39	Yes	Valley Oak	*Quercus lobata*		38	54	40	3 Fair - Minor Problems	Weak crotch at 10 feet. Tip dieback. Large branch failures in canopy. Above average deadwood, hose holder and lights adhered to tree.	None at this time.
4463		No	Cork Oak	*Quercus suber*		15	54	10	1 Extreme Structure or Health Problems	Tree mostly dead. Significant basal decay. Leans north with branch failures. Epicormic growth only.	***Remove due to noted defects.***
4464	78	Yes	Valley Oak	*Quercus lobata*		24	54	21	3 Fair - Minor Problems	Unbalanced canopy. Tip dieback. Epicormic growth. Excessive deadwood.	None at this time.
4465	80	Yes	Valley Oak	*Quercus lobata*		20	21	19	2 Major Structure or Health Problems	Splits at grade to 2 feet with inclusion. Large branch failures. Mostly epicormic growth.	***Remove due to noted defects.***
4466	81	Yes	Valley Oak	*Quercus lobata*		19	54	16	2 Major Structure or Health Problems	Twig dieback. Small branch failures. Bark damage at grade. Potential internal decay.	***Remove due to noted defects.***
4467		No	Cork Oak	*Quercus suber*		21	54	30	2 Major Structure or Health Problems	Codominant failure. Remaining limb strongly leans northwest.	***Remove due to noted defects.***

Tag#	Old Tag#	Protected By Code	Common Name	Botanical Name	Multi-Stems	DBH	Measured At	Canopy Radius	Arborist Rating	Field Notes	Recommendations
4468	36	Yes	Valley Oak	*Quercus lobata*		30	54	0	0 Dead		***Remove due to noted defects.***
4469	35	Yes	Valley Oak	*Quercus lobata*		32	54	30	2 Major Structure or Health Problems	Codominant at 12 feet. Basal decay. Limb dieback. Mostly epicormic growth.	***Remove due to noted defects.***
4470		Yes	California Black Walnut	*Juglans hindsii*		9	54	10	3 Fair - Minor Problems	Dormant.	None at this time.
4471	92	Yes	Valley Oak	*Quercus lobata*		50	54	26	2 Major Structure or Health Problems	Basal decay. Poor structure. Limb dieback.	***Remove due to noted defects.***
4472	91	Yes	California Black Walnut	*Juglans hindsii*		24	54	26	3 Fair - Minor Problems	Weak branch attachment at 8 feet with twig dieback. Multiple branch failures in canopy.	None at this time.
4473	32	Yes	Valley Oak	*Quercus lobata*		44	54	0	0 Dead		***Remove due to noted defects.***
4474		No	Cork Oak	*Quercus suber*		17	54	20	3 Fair - Minor Problems	One-sided west. Tag on west side. Weak branch attachments.	None at this time.
4475	31	Yes	Valley Oak	*Quercus lobata*		52	54	47	2 Major Structure or Health Problems	Weak main crotch. Large limb failures. Twig dieback.	***Remove due to noted defects.***
4476	30	Yes	Valley Oak	*Quercus lobata*		40	54	0	0 Dead	DBH approximate; too much brush around tree. Large branch failure on ground.	***Remove due to noted defects.***
4477	29	Yes	Valley Oak	*Quercus lobata*		40	54	0	0 Dead	DBH approximate; too much fencing and debris around tree.	***Remove due to noted defects.***
4478	28	Yes	California Black Walnut	*Juglans hindsii*		20	54	11	1 Extreme Structure or Health Problems	Trunk decay. Large dead limbs. 2nd branch at appx. 14 inches.	***Remove due to noted defects.***
4479	I	Yes	California Black Walnut	*Juglans hindsii*		16	24	12	1 Extreme Structure or Health Problems	Splits at 1 foot. Multiple bark defects. Large twig dieback.	***Remove due to noted defects.***
4480		Yes	California Black Walnut	*Juglans hindsii*		17	54	0	0 Dead		***Remove due to noted defects.***

Tag#	Old Tag#	Protected By Code	Common Name	Botanical Name	Multi-Stems	DBH	Measured At	Canopy Radius	Arborist Rating	Field Notes	Recommendations
4481	J	Yes	California Black Walnut	*Juglans hindsii*		20	54	20	0 Dead	Multi 4-6-inch branches.	***Remove due to noted defects.***
4482		Yes	California Black Walnut	*Juglans hindsii*		10	54	0	0 Dead		***Remove due to noted defects.***
4483	24	Yes	Valley Oak	*Quercus lobata*		41	54	30	1 Extreme Structure or Health Problems	Trunk leans west with large branch failures. Large branches next to schoolyard.	***Remove due to noted defects.***
4484	22	Yes	Valley Oak	*Quercus lobata*		19	54	20	2 Major Structure or Health Problems	Trunk leans north, then corrects. Poor canopy ratio. Suppressed by neighboring trees.	***Remove due to noted defects.***
4485	3	Yes	Valley Oak	*Quercus lobata*		6	54	12	3 Fair - Minor Problems	Splits at 10 feet with included bark.	None at this time.
4486	2	Yes	California Black Walnut	*Juglans hindsii*		28	54	30	3 Fair - Minor Problems	Codominant at 10 feet with included bark. Epicormic growth.	None at this time.
4487	N	Yes	Valley Oak	*Quercus lobata*		9	54	12	3 Fair - Minor Problems	Leans northeast. Weak crotch at 15 feet.	None at this time.
4488	19	Yes	Valley Oak	*Quercus lobata*		12	54	15	3 Fair - Minor Problems	Leans north. Codominant branch failure at 6 feet. Possible basal decay.	None at this time.
4489		Yes	Valley Oak	*Quercus lobata*	6,10,12	20	54	19	3 Fair - Minor Problems	Splits at 1 foot with included bark. Multi 6,10-inch branches. Multiple codominant branches with inclusions. Epicormic growth. Above average deadwood.	None at this time.
4490		Yes	Valley Oak	*Quercus lobata*		9	54	10	2 Major Structure or Health Problems	Twig and limb dieback. Potential internal decay.	***Remove due to noted defects.***
4491		Yes	Valley Oak	*Quercus lobata*		7	54	6	3 Fair - Minor Problems	Canopy leans slightly west. Suppressed by neighboring tree. Codominant at 5 feet with included bark. Small branch failure off codominant branch.	None at this time.
4492		Yes	Valley Oak	*Quercus lobata*		8	54	10	3 Fair - Minor Problems	Slight lean west. Closing trunk wound on north side.	None at this time.

Tag#	Old Tag#	Protected By Code	Common Name	Botanical Name	Multi-Stems	DBH	Measured At	Canopy Radius	Arborist Rating	Field Notes	Recommendations
4493	S	Yes	Valley Oak	*Quercus lobata*		9	54	10	3 Fair - Minor Problems	Girdled by barbed wire fence. Codominant trunk. Leans east. Above average deadwood.	None at this time.
4494	T	Yes	Valley Oak	*Quercus lobata*		11	36	11	3 Fair - Minor Problems	Codominant at 3.5 feet with included bark. Epicormic growth.	None at this time.

TOTAL INVENTORIED TREES = 72 trees (1,480 aggregate circumference inches)
TOTAL RECOMMENDED REMOVALS = 32 trees (844 aggregate circumference inches)
Rating (0-5, where 0 is dead) = 0=12 trees; 1=9 trees; 2=11 trees; 3=40 trees
Total Non-Protected Trees = 7 trees (131 aggregate circumference inches)
TOTAL PROTECTED TREES = 65 trees (1,349 aggregate circumference inches)

*DBH for multi-stems is diameter of largest trunk plus 1/2 cumulative diameter of remaining trunks at 4' 6" above natural grade.

APPENDIX 3 – GENERAL PRACTICES FOR TREE PROTECTION

Definitions:

Root zone: The roots of trees grow fairly close to the surface of the soil, and spread out in a radial direction from the trunk of tree. A general rule of thumb is that they spread 2 to 3 times the radius of the canopy, or 1 to 1 ½ times the height of the tree. It is generally accepted that disturbance to root zones should be kept as far as possible from the trunk of a tree.

Inner Bark: The bark on large valley oaks and coast live oaks is quite thick, usually 1" to 2". If the bark is knocked off a tree, the inner bark, or cambial region, is exposed or removed. The cambial zone is the area of tissue responsible for adding new layers to the tree each year, so by removing it, the tree can only grow new tissue from the edges of the wound. In addition, the wood of the tree is exposed to decay fungi, so the trunk present at the time of the injury becomes susceptible to decay. Tree protection measures require that no activities occur which can knock the bark off the trees.

Methods Used in Tree Protection:

No matter how detailed Tree Protection Measures are in the initial Arborist Report, they will not accomplish their stated purpose unless they are applied to individual trees and a Project Arborist is hired to oversee the construction. The Project Arborist should have the ability to enforce the Protection Measures. The Project Arborist should be hired as soon as possible to assist in design and to become familiar with the project. He must be able to read and understand the project drawings and interpret the specifications. He should also have the ability to cooperate with the contractor, incorporating the contractor's ideas on how to accomplish the protection measures, wherever possible. It is advisable for the Project Arborist to be present at the Pre-Bid tour of the site, to answer questions the contractors may have about Tree Protection Measures. This also lets the contractors know how important tree preservation is to the developer.

Root Protection Zone (RPZ): Since in most construction projects it is not possible to protect the entire root zone of a tree, a Root Protection Zone is established for each tree to be preserved. The minimum Root Protection Zone is the area underneath the tree's canopy (out to the dripline, or edge of the canopy), plus 10'. The Project Arborist must approve work within the RPZ.

Irrigate, Fertilize, Mulch: Prior to grading on the site near any tree, the area within the Tree Protection fence should be fertilized with 4 pounds of nitrogen per 1000 square feet, and the fertilizer irrigated in. The irrigation should percolate at least 24 inches into the soil. This should be done no less than 2 weeks prior to grading or other root disturbing activities. After irrigating, cover the RPZ with at least 12" of leaf and twig mulch. Such mulch can be obtained from chipping or grinding the limbs of any trees removed on the site. Acceptable mulches can be obtained from nurseries or other commercial sources. Fibrous or shredded redwood or cedar bark mulch shall not be used anywhere on site.

Fence: Fence around the Root Protection Zone and restrict activity therein to prevent soil compaction by vehicles, foot traffic or material storage. The fenced area shall be off limits to all construction equipment, unless there is express written notification provided by the Project Arborist, and impacts are discussed and mitigated prior to work commencing.

> No storage or cleaning of equipment or materials, or parking of any equipment can take place within the fenced off area, known as the RPZ.

The fence should be highly visible, and stout enough to keep vehicles and other equipment out. I recommend the fence be made of orange plastic protective fencing, kept in place by t-posts set no farther apart than 6’.

In areas of intense impact, a 6’ chain link fence is preferred.

In areas with many trees, the RPZ can be fenced as one unit, rather than separately for each tree.

Where tree trunks are within 3’ of the construction area, place 2” by 4” boards vertically against the tree trunks, even if fenced off. Hold the boards in place with wire. Do not nail them directly to the tree. The purpose of the boards is to protect the trunk, should any equipment stray into the RPZ.

Elevate Foliage: Where indicated, remove lower foliage from a tree to prevent limb breakage by equipment. Low foliage can usually be removed without harming the tree, unless more than 25% of the foliage is removed. Branches need to be removed at the anatomically correct location in order to prevent decay organisms from entering the trunk. For this reason, a contractor who is an ISA Certified Arborist should perform all pruning on protected trees.[1]

Expose and Cut Roots: Breaking roots with a backhoe, or crushing them with a grader, causes significant injury, which may subject the roots to decay. Ripping roots may cause them to splinter toward the base of the tree, creating much more injury than a clean cut would make. At any location where the root zone of a tree will be impacted by a trench or a cut (including a cut required for a fill and compaction), the roots shall be exposed with either a backhoe digging radially to the trunk, by hand digging, or by a hydraulic air spade, and then cut cleanly with a sharp instrument, such as chainsaw with a carbide chain. Once the roots are severed, the area behind the cut should be moistened and mulched. A root protection fence should also be erected to protect the remaining roots, if it is not already in place. Further grading or backhoe work required outside the established RPZ can then continue without further protection measures.

Protect Roots in Deeper Trenches: The location of utilities on the site can be very detrimental to trees. Design the project to use as few trenches as possible, and to keep them away from the major trees to be protected. Wherever possible, in areas where trenches will be very deep, consider boring under the roots of the trees, rather than digging the trench through the roots. This technique can be quite useful for utility trenches and pipelines.

Protect Roots in Small Trenches: After all construction is complete on a site, it is not unusual for the landscape contractor to come in and sever a large number of “preserved” roots during the installation of irrigation systems. The Project Arborist must therefore approve the landscape and irrigation plans. The irrigation system needs to be designed so the main lines are located outside the root zone of major trees, and the secondary lines are either laid on the surface (drip systems), or carefully dug with a hydraulic or air spade, and the flexible pipe fed underneath the major roots.

Design the irrigation system so it can slowly apply water (no more than ¼” to ½” of water per hour) over a longer period of time. This allows deep soaking of root zones. The system also needs to accommodate infrequent irrigation settings of once or twice a month, rather than several times a week.

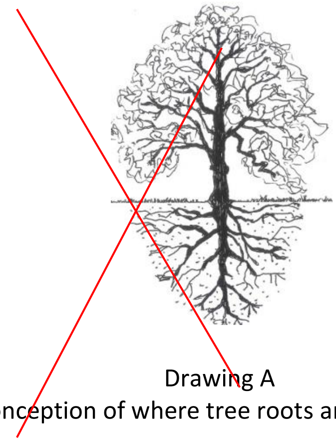
Monitoring Tree Health During and After Construction: The Project Arborist should visit the site at least twice a month during construction to be certain the tree protection measures are being followed, to monitor the health of impacted trees, and make recommendations as to irrigation or other needs. After construction is

[1] International Society of Arboriculture (ISA), maintains a program of Certifying individuals. Each Certified Arborist has a number and must maintain continuing education credits to remain Certified.

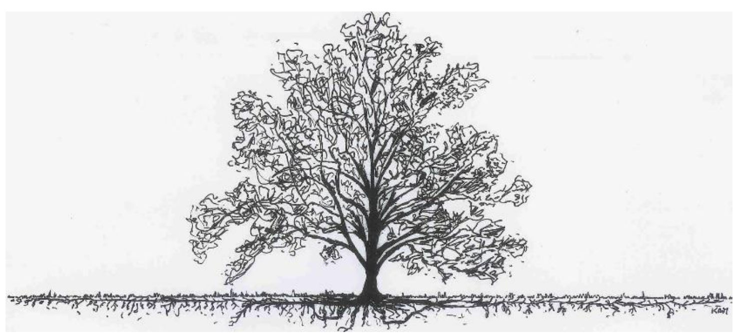
complete, the arborist should monitor the site monthly for one year and make recommendations for care where needed. If longer term monitoring is required, the arborist should report this to the developer and the planning agency overseeing the project.

Root Structure

The majority of a tree's roots are contained in a radius from the main trunk outward approximately two to three times the canopy of the tree. These roots are located in the top 6" to 3' of soil. It is a common misconception that a tree underground resembles the canopy (see Drawing A below). The correct root structure of a tree is in Drawing B. All plants' roots need both water and air for survival. Surface roots are a common phenomenon with trees grown in compacted soil. Poor canopy development or canopy decline in mature trees is often the result of inadequate root space and/or soil compaction.



Drawing A
Common misconception of where tree roots are assumed to be located



Drawing B
The reality of where roots are generally located

Structural Issues

Limited space for canopy development produces poor structure in trees. The largest tree in a given area, which is 'shading' the other trees is considered Dominant. The 'shaded' trees are considered Suppressed. The following picture illustrates this point. Suppressed trees are more likely to become a potential hazard due to their poor structure.

Co-dominant leaders are another common structural problem in trees.

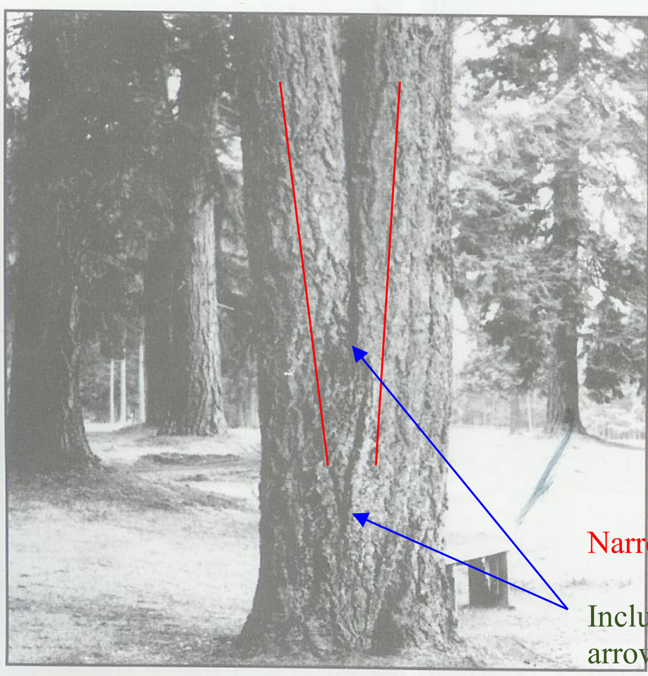


Figure 6. Codominant stems are inherently weak because the stems are of similar diameter.

The tree in this picture has a co-dominant leader at about 3' and included bark up to 7 or 8'. Included bark occurs when two or more limbs have a narrow angle of attachment resulting in bark between the stems – instead of cell to cell structure. This is considered a critical defect in trees and is the cause of many failures.

Photo from Evaluation of Hazard Trees in Urban Areas by Nelda P. Matheny and James R. Clark, 1994 International Society of Arboriculture

Pruning Mature Trees for Risk Reduction

There are few good reasons to prune mature trees. Removal of deadwood, directional pruning, removal of decayed or damaged wood, and end-weight reduction as a method of mitigation for structural faults are the only reasons a mature tree should be pruned. Live wood over 3” should not be pruned unless absolutely necessary. Pruning cuts should be clean and correctly placed. Pruning should be done in accordance with the American National Standards Institute (ANSI) A300 standards. It is far better to use more small cuts than a few large cuts as small pruning wounds reduce risk while large wounds increase risk.

Pruning causes an open wound in the tree. Trees do not “heal” they compartmentalize. Any wound made today will always remain, but a healthy tree, in the absence of decay in the wound, will ‘cover it’ with callus tissue. Large, old pruning wounds with advanced decay are a likely failure point. Mature trees with large wounds are a high failure risk.

Overweight limbs are a common structural fault in suppressed trees. There are two remedial actions for overweight limbs (1) prune the limb to reduce the extension of the canopy, or (2) cable the limb to reduce movement. Cables do not hold weight they only stabilize the limb and require annual inspection.

Photo of another tree – not at this site.

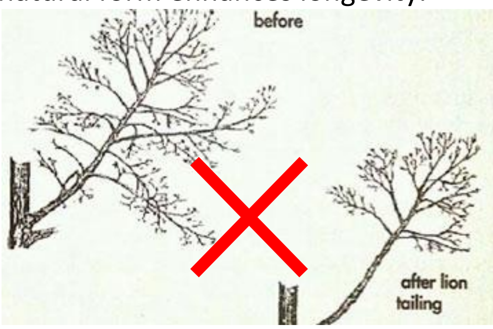
Normal limb structure

Over weight, reaching limb with main stem diameter small compared with amount of foliage present

Photo of another tree – not at this site

Lion's – Tailing is the pruning practice of removal of "an excessive number of inner and/or lower lateral branches from parent branches. Lion's tailing is not an acceptable pruning practice" ANSI A300 (part 1) 4.23. It increases the risk of failure.

Pruning – Cutting back trees changes their natural structure, while leaving trees in their natural form enhances longevity.



Arborist Classifications

There are different types of Arborists:

Tree Removal and/or Pruning Companies. These companies may be licensed by the State of California to do business, but they do not necessarily know anything about trees;

Arborists. Arborist is a broad term. It is intended to mean someone with specialized knowledge of trees but is often used to imply knowledge that is not there.

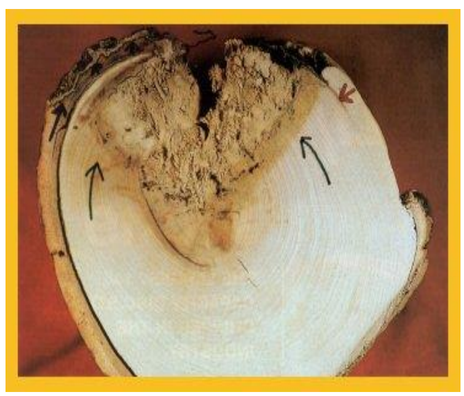
ISA Certified Arborist: An International Society of Arboriculture Certified Arborist is someone who has been trained and tested to have specialized knowledge of trees. You can look up certified arborists at the International Society of Arboriculture website: isa-arbor.org.

Consulting Arborist: An American Society of Consulting Arborists Registered Consulting Arborist is someone who has been trained and tested to have specialized knowledge of trees and trained and tested to provide high quality reports and documentation. You can look up registered consulting arborists at the American Society of Consulting Arborists website: https://www.asca-consultants.org/

Decay in Trees

Decay (in General): Fungi cause all decay of living trees. Decay is considered a disease because cell walls are altered, wood strength is affected, and living sapwood cells may be killed. Fungi decay wood by secreting enzymes. Different types of fungi cause different types of decay through the secretion of different chemical enzymes. Some decays, such as white rot, cause less wood strength loss than others because they first attack the lignin (causes cell walls to thicken and reduces susceptibility to decay and pest damage) secondarily the cellulose (another structural component in a cell walls). Others, such as soft rot, attack the cellulose chain and cause substantial losses in wood strength even in the initial stages of decay. Brown rot causes wood to become brittle and fractures easily with tension. Identification of internal decay in a tree is difficult because visible evidence may not be present.

According to Evaluation of Hazard Trees in Urban Areas (Matheny, 1994) decay is a critical factor in the stability of the tree. As decay progresses in the trunk, the stem becomes a hollow tube or cylinder rather than a solid rod. This change is not readily apparent to the casual observer. Trees require only a small amount of bark and wood to transport water, minerals and sugars. Interior heartwood can be eliminated (or degraded) to a great degree without compromising the transport process. Therefore, trees can contain significant amounts of decay without showing decline symptoms in the crown.



Compartmentalization of decay in trees is a biological process in which the cellular tissue around wounds is changed to inhibit fungal growth and provide a barrier against the spread of decay agents into additional cells. The weakest of the barrier zones is the formation of the vertical wall. Accordingly, while a tree may be able to limit decay progression inward at large pruning cuts, in the event that there are more than one pruning cut located vertically along the main trunk of the tree, the likelihood of decay progression and the associated structural loss of integrity of the internal wood is high.

Oak Tree Impacts

Our native oak trees are easily damaged or killed by having the soil within the Critical Root Zone (CRZ) disturbed or compacted. All of the work initially performed around protected trees that will be saved should be done by people rather than by wheeled or track type tractors. Oaks are fragile giants that can take little change in soil grade, compaction, or warm season watering. Don't be fooled into believing that warm season watering has no adverse effects on native oaks. Decline and eventual death can take as long as 5-20 years with poor care and inappropriate watering. Oaks can live hundreds of years if treated properly during construction, as well as later with proper pruning, and the appropriate landscape/irrigation design.

APPENDIX 4 – PHOTOGRAPHS

Standing on northeast corner of property on Elk Grove Blvd. Tree on right is Tree #4423.

Standing on northeast corner of property on Elk Grove Blvd. looking west.

Looking west of property showing row of Pecan trees; many are dead or in severe decline.

Standing in middle of property looking north, trees in center are Trees # 4452-4454.

Looking west at trees of concern that are in proximity to school yard playground next door.

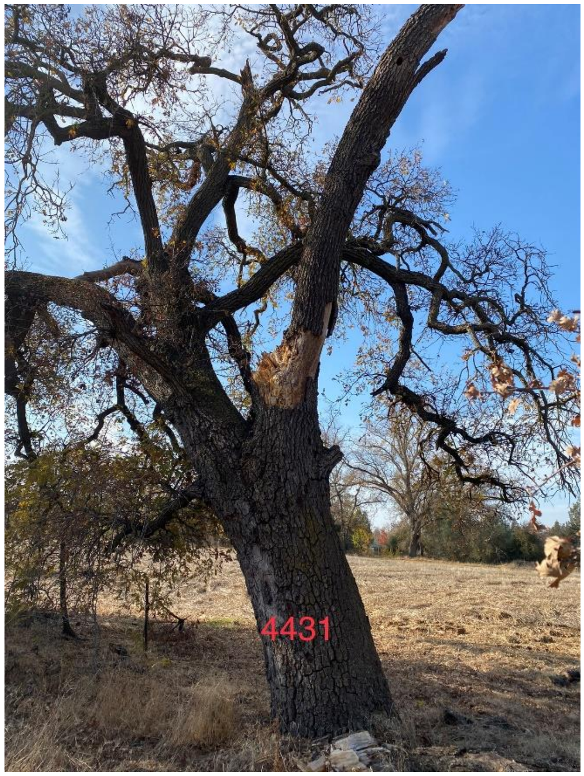
Showing canopy proximity of trees close to school yard playground.

Looking east at proximity of tree canopies to residential neighborhood.

Tree #4423 showing codominance with severe inclusion.

Tree #4426 showing proximity to fence, cavity on north side and weak branch attachment.

Tree #4428 showing weak branch attachments and dead center branch.



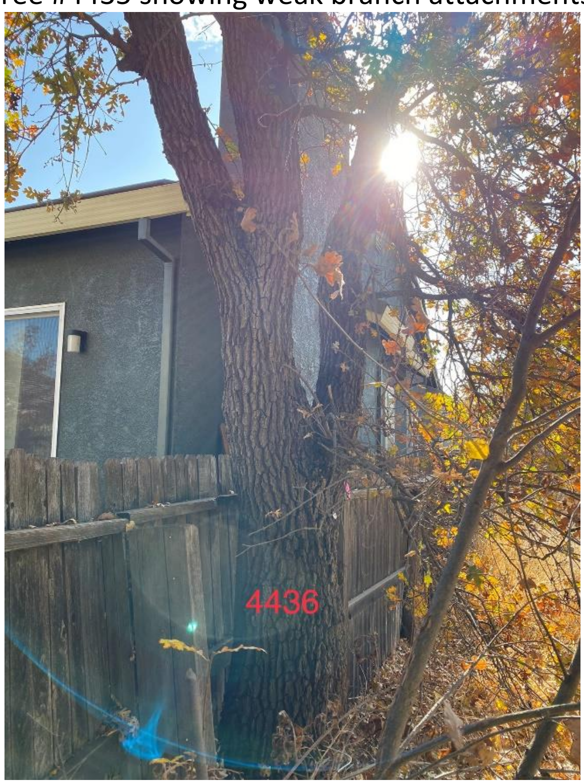
Tree #4431 showing weak crotch with severe inclusion and large branch failures.

Close up of Tree #4431.

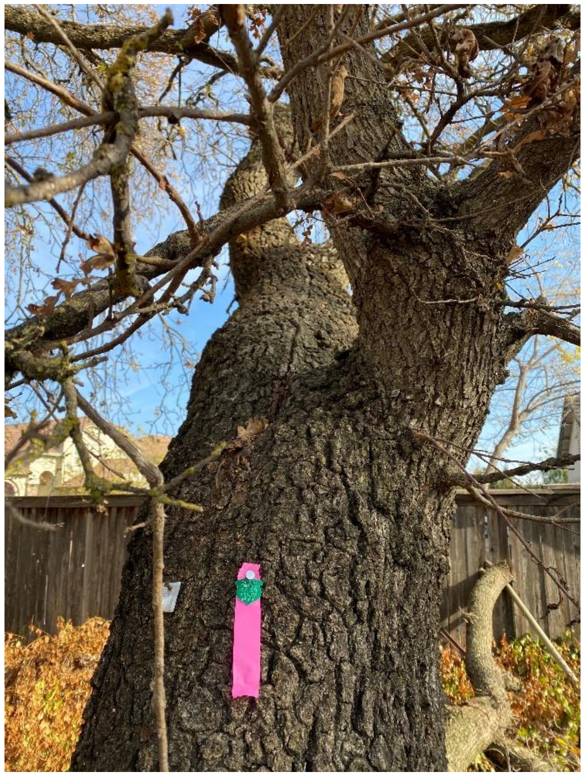
Tree #1432 showing uneven soil grade, buttressing roots and codominance with severe inclusion.

Tree #4433 showing exposed and damaged root flare.

Tree #4435 showing weak branch attachments.

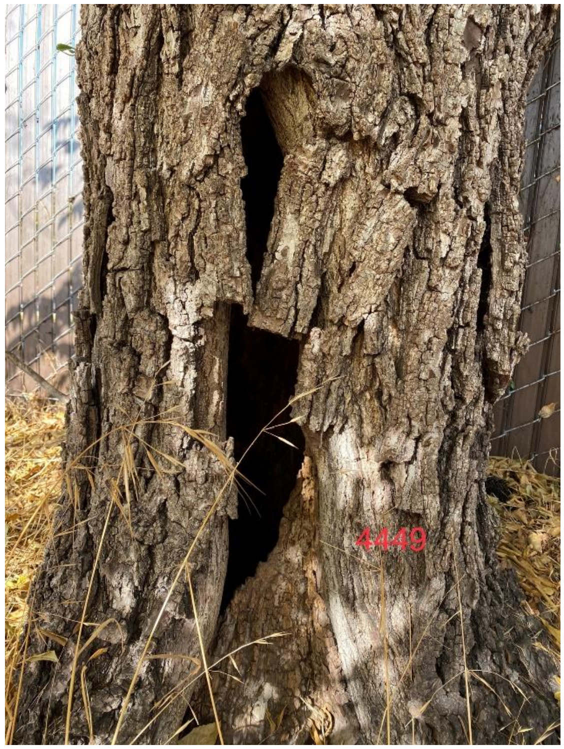


Tree #4436 showing proximity to fence and residential home; severe inclusion and possible basal decay.



Tree #4439 showing severe lean and weak branch attachment.

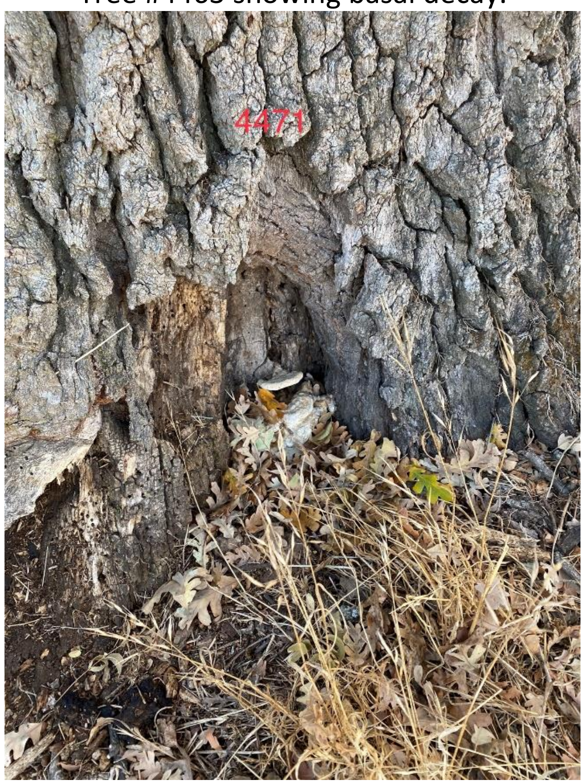
Tree #4448 showing major trunk damage.



Tree #4449 showing open cavity.

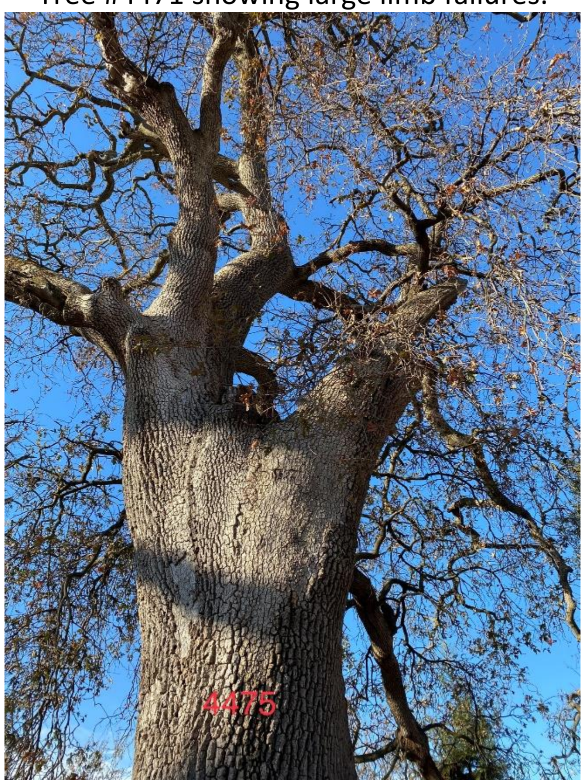
Tree #4553 showing severe lean and branch failures.

Tree #4463 showing basal decay.



Tree #4471 showing basal decay.

Tree #4471 showing large limb failures.



Tree #4475 showing weak crotch and poor structure.

APPENDIX C

GEOTECHNICAL ENGINEERING REPORT UPDATE

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A Universal Engineering Sciences Company

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Geotechnical Engineering Report Update

ELK GROVE SELF STORAGE

WKA No. 10842.06

July 2, 2021

Prepared for:

Elk Grove Self Storage LLC
10608 Industrial Avenue #100
Roseville, CA 95678

Geotechnical Engineering Report Update

ELK GROVE SELF STORAGE

Elk Grove, California

WKA No. 10842.06

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APPENDIX A – *Geotechnical Engineering Report* (WKA No. 10842.01, dated February, 25, 2016)

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Geotechnical Engineering Report Update
ELK GROVE SELF STORAGE
Elk Grove Boulevard, West of Bruceville Road
Elk Grove, California
WKA No. 10842.06
July 2, 2021

INTRODUCTION

We have completed this update to the *Geotechnical Engineering Report* (Wallace-Kuhl & Associates [WKA] No. 10842.01, dated February 25, 2016) prepared for the subject property, previously referred to as Stathos Cove, located north of Elk Grove Boulevard, west of Bruceville Road in Elk Grove, California.

The purpose of this update has been to evaluate the applicability of the original report to the planned improvements, as well as to update the report to reflect changes to the site, changes to the proposed development at the site, changes in the applicable building code and local standards, and changes in the practice of geotechnical engineering since the original report was issued.

Our study has been performed in general accordance with our *Geotechnical Engineering Services – Proposal*, dated April 19, 2021, and authorized by Mr. Ryan Smith on June 23, 2021.

Scope of Services

Our scope of services has included the following:

- Review the original geotechnical engineering report and geotechnical engineering report update prepared for the property;
- Perform a site reconnaissance to observe the current site conditions; and,
- Prepare this updated letter presenting our findings, conclusions, modified recommendations, as appropriate.

Proposed Development

The previous report was written for development of a residential subdivision. We understand the irregular shaped property will now be developed as a self-storage facility with six storage buildings, an office/management building and RV parking for 78 vehicles. We anticipate the structures will be single-story, except for the office building, which will be two-story, and consist of masonry or wood-frame construction with concrete slab-on-grade lower floors. We understand the structures will be slab-on-grade and below-grade basements will not be constructed at the site. Associated development will include underground utilities, exterior flatwork, and asphalt concrete pavements.

Site Reconnaissance

On June 25, 2021, a representative from our office performed a site reconnaissance to observe the existing conditions of the property. At the time of our site reconnaissance, the property was generally vacant and undeveloped, supporting a moderate growth of volunteer weeds and grass. Mature trees were observed along the western boundary of the property and scattered debris across the northern portion of the site. The property was observed to be in very similar condition as it was in 2016 during our initial study.

CONCLUSIONS AND RECOMMENDATIONS

Based on review of the 2016 *Geotechnical Engineering Report*, recent site observations, and understanding of the proposed construction, we conclude that the recommendations contained in the 2016 *Geotechnical Engineering Report* for the site generally remain applicable for design and construction of the planned development and associated improvements with the following amended recommendations. The majority of the amended recommendations are due to the development changing from a residential subdivision to a commercial, self-storage development. The original report is attached as Appendix A.

2019 CBC/ASCE 7-16 Seismic Design Criteria

The 2019 California Building Code (CBC) references the *American Society of Civil Engineers (ASCE), Minimum Design Loads and Associated Criteria for Buildings and Other Structures 7-16*. To assist with the structural design of the project, we have provided seismic design parameters for the 2019 CBC which have been determined based on the site location and the web interface developed by the Structural Engineers Association of California (SEAOC) and the Office of Statewide Health Planning and Development (OSHPD) (https://seismicmaps.org).

Since S_1 is greater than 0.2g, the 2019 CBC coefficient values F_v, S_{M1}, and S_{D1} presented are valid for seismic design, provided the requirements in Exception Note 2 in Section 11.4.8 of *ASCE 7*-16 apply, specifically if $T \leq 1.5T_S$. In our experience, the planned storage and office buildings will meet Exception Note 2 of ASCE 7-16. However, the project structural engineer should verify the exception is met.

Table 1: 2019 CBC/ASCSE 7-16 Seismic Design Parameters

Latitude: 38.4104° N Longitude: 121.4241° W	ASCE 7-16 Table/Figure	2019 CBC Figure/Section/Table	Factor/ Coefficient	2019 CBC Values
0.2-second Period MCE_R	Figure 22-1	Figure 1613.2.1(1)	S_S	0.577 g
1.0 second Period MCE_R	Figure 22-2	Figure 1613.2.1(2)	S_1	0.253 g
Soil Class	Table 20.3-1	Section 1613.2.2	Site Class	D
Site Coefficient	Table 11.4-1	Table 1613.2.3(1)	F_a	1.338
Site Coefficient	Table 11.4-2	Table 1613.2.3(2)	F_v	2.094*
Adjusted MCE Spectral Response Parameters	Equation 11.4-1	Equation 16-36	S_{MS}	0.772 g
	Equation 11.4-2	Equation 16-37	S_{M1}	0.530 g*
Design Spectral Acceleration Parameters	Equation 11.4-3	Equation 16-38	S_{DS}	0.515 g
	Equation 11.4-4	Equation 16-39	S_{D1}	0.353 g*
Seismic Design Category	Table 11.6-1	Table 1613.2.5(1)	Risk Category I to IV	D
	Table 11.6-2	Table 1613.2.5(2)	Risk Category I to IV	D

Notes: MCE_R = Risk-Targeted Maximum Considered Earthquake; g = gravity
* = The value is valid since the requirements in Exception Note No. 2 in Section 11.4.8 of ASCE 7-16 are met.

Based on the soil, groundwater, and geology conditions of the site, it is our opinion that the potential for liquefaction of the soils beneath the site is very low.

Soil Expansion Potential

Previous laboratory testing performed during preparation of the 2016 *Geotechnical Engineering Report* indicates the near-surface soils at the site possess a high expansion potential. Based on these test results, the near-surface soils at the site are considered capable of exerting significant expansion pressures on building foundations, interior floor slabs, and exterior flatwork.

To reduce the impact of the near-surface expansive clay soils, at least 12 inches of imported, compactable, very low-expansive (Expansion Index < 20) granular soils will be required beneath interior and exterior concrete slabs-on-grade, including sidewalks. Chemical amendment of the clay soils (i.e., lime-treatment) also could be considered to reduce the expansion potential of the on-site clays. Specific recommendations for subgrade preparation and engineered fill construction are included in this report update to reduce the effect of expansive clay soils on the planned building and concrete slabs.

Site Clearing and Subgrade Preparation

The upper 12 inches of final subgrade for the interior concrete slabs and exterior flatwork should consist of imported compactable, non-expansive (Expansion Index < 20) granular soils, or, 12 inches of lime-treated soils as described in the Lime Treated Subgrade Alternative section of this report update. All non-expansive soils supporting interior and exterior slab-on-grade concrete should be uniformly compacted to 90 percent of the ASTM D1557 maximum dry density.

The remainder of the site clearing and subgrade preparation recommendations provided in the Site Clearing and Site Preparation sections of the 2016 *Geotechnical Engineering Report* are considered valid and applicable.

Lime Treated Subgrade Alternative

Based on the high expansion potential of the near surface clays encountered at the site during our initial study, consideration may be given to chemically treating the proposed building pad and exterior flatwork areas to provide a uniform bearing surface; to reduce the moisture content of near-saturated soils, enabling construction to proceed during or shortly after the rainy season; and, to reduce the expansive characteristics of the clayey soil subgrade.

Lime-treated subgrade soils should be treated with at least 4½ pounds of high-calcium or dolomitic quicklime per square foot at a depth sufficient to produce a finished compacted lime-treated layer 12 inches thick. Lime-stabilized soils should be compacted to at least 90 percent relative compaction within building pad and exterior flatwork areas, at a moisture content at least two percent over optimum conditions. If necessary, our firm can provide additional recommendations for subgrade stabilization based on the soil conditions at the time of earthwork construction.

If undisturbed native soils are to be lime-treated, the scarification and compaction procedures outlined in the Site Preparation section of the original report are not required within the upper 12 inches of the final subgrade, prior to lime-treatment.

Utility Trench Backfill

Utility trench backfill should be placed and compacted in accordance with the recommendations of the 2016 *Geotechnical Engineering Report*.

In addition, backfill for the upper 12 inches of trenches must match the adjacent materials. That is, if the upper 12 inches of subgrades for the building pad and exterior flatwork consists of granular and/or lime-treated soils, the upper 12 inches of trench backfill should consist of controlled density fill (CDF) or aggregate base.

Foundations

The conventional foundation recommendations provided in the 2016 *Geotechnical Engineering Report* are considered valid and appropriate for design and construction for the proposed structures provided the upper 12 inches of the final building pad subgrade consists of non-expansive engineered fill and/or lime-treated native soils.

Interior Floor Slab Support

Interior concrete slab-on-grade floors can be supported upon the low-expansive soil subgrade (either non-expansive imported materials and/or lime treated native soils) prepared in accordance with the recommendations in this report update and maintained in that condition (at least the optimum or two percent above the optimum moisture content) and are protected from disturbance. The recommendations provided in the 2016 *Geotechnical Engineering Report* are considered valid and applicable; however, moisture conditioning as noted in the *Geotechnical Engineering Report* is not considered necessary if the floors are supported on low-expansive soil subgrade as noted herein.

Exterior Concrete Flatwork

Soil subgrade areas to support exterior concrete flatwork should be prepared in accordance with the recommendations included in this report update (i.e., at least 12 inches of non-expansive fill and/or lime treated subgrade). Exterior flatwork subgrade soils should be maintained in a moist condition (at least the optimum moisture content) and protected from disturbance. If this is not the case and subgrade soils become dry and/or disturbed, the exterior flatwork subgrade will require additional scarification, moisture conditioning and compaction prior to construction of the exterior flatwork. Exterior flatwork should be underlain by at least four inches of aggregate base compacted to at least 90 percent relative compaction. The aggregate base should be placed over the 12 inches of low-expansion potential imported soil, or lime treated soil. The additional four inches of aggregate base is not required if the low-expansion imported fill below the flatwork consists of aggregate base.

Pavement Design Recommendations

Pavement design recommendations for residential streets were provided in the 2016 *Geotechnical Engineering Report*. Since the development will consist of a self storage facility, we are providing the following pavement design alternatives for varying traffic conditions anticipated at the site. Note that the geotextile fabric and edge drain requirements for untreated subgrades is not applicable for the proposed pavement areas at the site from a geotechnical perspective.

Table 2: Pavement Design Alternatives

Traffic Index (TI)	Pavement Use	Untreated Subgrades R-value = 10			Chemically Treated Subgrades R-value = 50		
		Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)	Portland Cement Concrete (inches)	Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)	Portland Cement Concrete (inches)
4.5	Automobile Parking	2½*	9	--	2½*	4	--
		--	6	4	--	4	4
6.0	Automobile, Light to Moderate Truck Traffic, and Fire Lanes	2½	14	--	2½	6	--
		3½*	12	--	3½*	4	--
		--	6	6	--	4	5
7.0	Trash Enclosures, Loading Areas and Entryways	3	17	--	3	7	--
		4*	15	--	4*	5	--
		--	6	6	--	6	5

* = Asphalt concrete thickness contains the Caltrans safety factor.

The upper six inches of untreated pavement subgrade soils whether achieved by excavation, fill, or remaining at grade, should be scarified at least six inches and recompacted at least the optimum moisture content to at least 95 percent relative compaction in accordance with the Subgrade Preparation section of this report.

Pavement design alternates for chemically amended soil are based upon at least 12 inches of the pavement subgrade soils being chemically amended. Based on experience, we anticipate native soils mixed with at least 4½ pounds per square foot of amended soil high-calcium or dolomitic quicklime, compacted at least two percent over the optimum moisture content to at least 95 percent relative compaction, will provide a subgrade capable of providing an R-value of 50.

To help identify unstable subgrade areas within the pavement limits, a proof-roll should be performed with a fully loaded, 4000-gallon water truck (or equivalent) on the exposed pavement subgrade areas prior to placement of aggregate base. The proof-roll should be observed by the Geotechnical Engineer's representative.

We emphasize that the performance of the pavement is critically dependent upon adequate and uniform compaction of the subgrade soils, including utility trench backfill within the limits of the pavements. The upper six inches of untreated pavement subgrade and upper 12 inches of treated subgrade should be compacted to at least 95 percent of the maximum dry density as determined by ASTM D1557. Aggregate base materials should be compacted to at least 95 percent of the maximum dry density at least the optimum moisture content. Class 2 aggregate base should generally conform to Section 26 of the Caltrans Standard Specifications.

It has been our experience that pavement failures may occur where a non-uniform or disturbed subgrade soil condition is created. Subgrade disturbances can result if pavement subgrade preparation is performed prior to underground utility construction and/or if a significant time period passes between subgrade preparation and placement of aggregate base. Therefore, we recommend that final pavement subgrade preparation (i.e. scarification, moisture conditioning, and compaction) be performed just prior to aggregate base placement.

In the summer heat, high axle loads coupled with shear stresses induced by sharply turning tire movements can lead to failure in asphalt concrete pavements. Therefore, PCC pavements should be used in areas subjected to concentrated heavy wheel loading, such as entry driveways, in front of trash enclosures, and/or any loading areas. Alternate PCC pavement sections have been provided above in Table 2.

We suggest the concrete slabs be constructed with thickened edges in accordance with the American Concrete Institute (ACI) design standards, latest edition. Reinforcing for crack control, if desired, should be provided in accordance with ACI guidelines. Reinforcement must be located at mid-slab depth to be effective. Joint spacing and details should conform to the current PCA or ACI guidelines. PCC should achieve a minimum compressive strength of 3,500 pounds per square inch at 28 days. Construction traffic should not be allowed to traverse concrete pavements until the minimum compressive strength of the concrete has been achieved.

All pavement materials and construction methods of structural pavement sections should conform to the applicable provisions of the *Caltrans Standard Specifications*, latest edition.

Pavement Drainage

Efficient drainage of all surface water to avoid infiltration and saturation of the supporting aggregate base and subgrade soils is important to pavement performance. Weep holes could be provided at drainage inlets, located at the subgrade-base interface, to allow accumulated water to drain from beneath the pavements.

We suggest considering the use of full depth curbs where pavements abut landscaping. The curbs should extend to at least six inches into the surface of the soil subgrade. Weep holes also could be provided at storm drain drop inlets, located at the subgrade-base interface, to allow water to drain from beneath the pavements.

<u>Drought Considerations</u>

The soils at the site are considered moderately to highly expansive. These soils swell when the moisture content increases and shrink when the soil moisture content decreases. It will be essential that the soil moisture content under and near foundations and exterior concrete flatwork remain relatively constant or be treated with lime as noted herein to mitigate the potential for heaving or settling of the foundation and slabs.

The State of California can experience extended periods of severe drought. The ability for land owners to use irrigation as a means for maintaining landscape vegetation and soil moisture may be inhibited for unpredictable periods of time. For this reason, landscape and hardscape systems for this development should be carefully planned to prevent the desiccation of soils under and near foundations and slabs. Trees with invasive shallow root systems should be avoided. No trees or large shrubs that could remove soil moisture during dry periods should be planted within five feet of any foundation or slab. Fallow ground adjacent to foundations must be avoided.

To reduce potential for soil creep adversely affecting residential foundations or exterior flatwork, we recommend a minimum horizontal distance of five feet be provided and maintained between the outside edge of the foundation or flatwork to the nearest adjacent slope (e.g. building pad hinge point), for slopes greater than two feet in height.

<u>Construction Testing and Observation</u>

Representatives of Wallace-Kuhl & Associates should be present during site clearing and all grading operations to observe and test the fill/backfill to verify compliance with our recommendations and the job specifications. These services are beyond the scope of work authorized for this investigation.

We also recommend that our firm be retained to review final plans and specifications to determine if the intent of our recommendations has been implemented into those documents.

In the event that Wallace-Kuhl & Associates is not retained to provide geotechnical engineering observation and testing services during construction, the Geotechnical Engineer retained to provide these services should indicate in writing that they agree with the recommendations of this report, or prepare supplemental recommendations as necessary. A final report by the Geotechnical Engineer should be prepared upon completion of the project.

LIMITATIONS

This letter is considered to be an addendum to the *Geotechnical Engineering Report* referenced above, and is therefore subject to the limitations stated in that report.

Wallace-Kuhl & Associates

Guang H. Zhu
Staff Engineer

Matthew S. Moyneur
Senior Engineer

GHZ:MSM:/ghz

APPENDIX A

Geotechnical Engineering Report

(WKA No. 10842.01, dated February 25, 2016)

Geotechnical Engineering Report

STATHOS COVE

WKA No. 10842.01

February 25, 2016

Prepared For:

Mr. Frank Stathos

c/o TSX, Inc.

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Sacramento, California 95864

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Geotechnical Engineering Report
STATHOS COVE
Elk Grove Boulevard, west of Bruceville Road
Elk Grove, California
WKA No. 10842.01
February 25, 2016

INTRODUCTION

We have completed a geotechnical engineering investigation for the Stathos Cove Subdivision to be constructed on the north side of Elk Grove Boulevard, west of Bruceville Road in Elk Grove, California. The purposes of our work have been to explore the existing soil and groundwater conditions at the site, and to provide geotechnical engineering conclusions and recommendations for the design and construction of the proposed residential subdivision. This report presents the results of our work.

Work Scope

Our scope of work included the following tasks:

1. a site reconnaissance;
2. review of previous geotechnical reports prepared by Wallace-Kuhl & Associates, Inc. for nearby projects;
3. review of United States Geological Survey (USGS) topographic maps, aerial photographs and available groundwater information;
4. subsurface exploration, including drilling and sampling one test boring to a depth of approximately 31½ feet below existing site grades, and the excavation and sampling of 14 test pits to depths of approximately four to 10 feet below existing site grades;
5. collection of bulk samples of near-surface soils;
6. laboratory testing of selected soil samples;
7. engineering analyses; and,
8. preparation of this report.

Related Experience and Supplemental Information

- Wallace-Kuhl & Associates, Inc. (WKA, Inc.) previously prepared a Geotechnical Engineering Report for the Backer Property (WKA, Inc. No. 4648.02, dated July 31, 2001), located on the south side of Elk Grove Boulevard opposite of the subject site.

- Wallace-Kuhl & Associates, Inc. (WKA, Inc.) previously prepared a Geotechnical Engineering Report for the Elk Grove/Bruceville Center (WKA Inc. No. 4949.02, dated October 30, 2002), located at the southwest corner of Elk Grove Boulevard and Bruceville Road.

Information from these reports was reviewed and utilized in the preparation of this report.

Figures and Attachments

This report contains a Vicinity Map as Figure 1; a Site Plan, showing the approximate test boring and test pit locations, as well as remnants of former structures, piles of concrete, and areas of fill as Figure 2A. A Site Plan showing the approximate locations of former site structures is presented as Figure 2B. The Log of Boring and Logs of Test Pits completed for this project are presented as Figures 3 through 8. An explanation of symbols and classification system used on the logs is included as Figure 9. Appendix A contains information of a general nature regarding project concepts, exploratory methods used during the field investigation phase of our study, a description of laboratory tests performed, and laboratory test results. Appendix B contains *Earthwork Specifications* that may be used in the preparation of project plans and specifications.

Proposed Development

Review of the *Preliminary Grading and Drainage Plan* prepared by MacKay & Somps, dated July 8, 2014, indicates the approximate 8.6-acre site is being considered for residential development with 40 single-family residential lots. We assume residential construction will consist of one- and two-story wood-frame structures with interior slab-on-grade lower floors. Structural loads for the houses are anticipated to be relatively light based on this type of construction. We understand there will be a pump station constructed within a manhole located near the southern site boundary, and that the manhole will be approximately 20 feet deep. Associated development will include construction of underground utilities, exterior flatwork, interior streets, and typical residential landscaping.

FINDINGS

Historical Aerial Photograph Review

We reviewed historical topographic maps from the years 1957 through 2015. Review of the 1957 photograph shows the approximate southern two-thirds of the property consisted of undeveloped pastureland. A heavy concentration of mature trees and five structures, one with a pool, are visible across the northern portion of the property. Available aerial photographs from 1964, 1966, 1967 and 1993 are blurred and the presence of a heavy concentration of trees makes it difficult to determine the actual number of structures across the northern portion of the property. An aerial photograph from 2002 show at least seven larger structures and two additional shed like structures on the northernmost central portion of the property. Review of available aerial photographs taken after 2002 up to the middle of 2006 are too blurry to be able to determine any additional changes to the property. An aerial photographs from around the middle of 2006 indicates the structures visible in earlier aerial photographs have been demolished. Review of aerial photographs taken after 2006 through 2015 indicate the site remained essentially unchanged during this period.

Site Description

The subject property is located on the north side of Elk Grove Boulevard, west of Bruceville Road in Elk Grove, California (Figure 1). The site is bordered to the north by a parking lot and a house; to the east by residential and commercial development; to the south by Elk Grove Boulevard; and, to the west by a church and the Laguna Creek Racquet Club. At the time of our investigation, January 25, 2016, the site was undeveloped and the near-surface soils across the approximate southern two-thirds of the site were loose from previous discing operations. Mature trees were observed along the western boundary of the property and scattered across the northern portion of the site. The remnants of an asphalt paved road was observed traversing north-south near the western border of the site along the tree line, terminating near the north-central border of the property. A capped water well was observed near the northern-central boundary of the property. Foundation remnants extending approximately four to five feet deep below existing site grade were observed on the northern portion of the property near the west border of the property (Figure 2A). End dumped piles of concrete, rubble and debris were observed at various locations across the northern portion of the site.

A depression approximately 30 feet wide by about 50 feet in length and about eight feet in depth was observed east of the foundation remnants. A well and a concrete vault were observed at the top of the eastern side of the depression, and several rows of end-dumped soil stockpiles were observed on the north side of the depression. The concrete vault was approximately 10 feet in length by six feet wide. At the time of our subsurface investigation, the top from the concrete vault was removed and the depth of the vault was determined to be approximately 25 feet deep. The bottom of the vault contained debris and metal pipes. An approximate 18 to 24 inch diameter pipe was observed within the north sidewall near the bottom of the vault. The concrete top to the vault was replaced after measuring the depth.

An elevated area of fill, about two to three feet higher than the surrounding grade, was observed adjacent to the south side of the depression. The area was approximately 100 feet in length by about 50 feet wide. During our site investigation our field engineer was informed by Mr. Stathos that the fill material was obtained during grading operation during the development of Carlton Plaza, adjacent to the southeast border of the site.

Our field engineer was also informed that one or two below grade concrete tanks were previously removed by Ramcon. Representatives with Ramcon informed our field engineer that the tank excavations were loosely backfilled. During our subsurface investigation, we identified three areas containing loose backfill and organics within Test Pits 2, 3, and 5. The depth of the fill in Test Pits 2 and 3 was approximately 6 and 5½ feet respectively. The fill in Test Pit 5 was about nine feet deep. Ramcon provided us with a document titled “In-Place Septic Tank Abandonment/Destruction Procedure” prepared by Sacramento County. The document contained a hand drawn map identifying seven locations with numbers and associated pictures of four of the locations. The pictures show concrete tops and a depression containing a shopping cart and debris.

Topography of the site is essentially flat, with the exception of the depression, with an average surface elevation of about +30 feet relative to mean sea level (msl), based on topographic information contained on the *Preliminary Grading and Drainage Plan* prepared by MacKay & Somps, dated July 8, 2014.

<u>Soil Conditions</u>

Fourteen exploratory test pits were excavated across the property and one boring was drilled at the proposed pump station location on January 25, 2016, at the approximate locations shown on Figure 2A.

The test pits indicate a near-surface soil profile generally consists of about one to 4½ feet of sandy silts and silty fine sands overlying a layer of sandy to silty clay ranging from about ½ foot to 3½ feet in thickness. Variably cemented sandy silts (locally known as “hardpan”) were encountered below the clays to the explored depth of approximately 10 feet below existing site grade within the test pits. Test Pits 2, 3, and 5 encountered undocumented fill. The fill in Test Pits 2, 3, and 5 consisted of sandy silt with organics and was observed to extend to depths of 6, 5½, and 9 feet below existing site grades, respectively. Test Pits 8 and 9 were excavated in the fill on the south side of the depression. The fill was in relatively loose condition and was about two and three feet thick, consisting of a mixture of silty sands and sandy clays. The approximate extent of the fill is shown on Figure 2A.

Excavation into the rows of end-dumped soil stockpiles located on the north side of the depression indicated the stockpiles consist primarily of a mixture of silty fine sands and sandy silts.

The test boring indicates the surface and near-surface soils at the boring location to be generally consistent with subsurface information obtained from the test pits. The soils encountered below a depth of 10 feet consist of alternating layers of clayey sands, variably cemented clayey silts, and silty sands. A relatively thin layer of clean sand, approximately ½ foot thick, was encountered at a depth of about 20 feet below the surface.

The soils below a depth of 20 feet consist of variably cemented clayey silts to 25 feet underlain by silty sand to the explored depth of 31½ feet.

For detailed soil conditions at a particular location, please refer to the Logs of Soil Borings and the Logs of Test Pits presented as Figures 3 through 8.

Groundwater

Free groundwater was not encountered within the test pits or the boring performed on January 25, 2016, to the maximum explored 31½ foot depth of the boring.

The Sacramento County Department of Public Works *Groundwater Elevations Map, Fall 2007* indicates that regional groundwater beneath the site is generally present at an elevation of approximately -40 feet msl, or at least 70 feet below the existing ground surface.

CONCLUSIONS

Effects of Existing and Past Site Development

Remnants of several removed structures were observed on the site during our field exploration. Most notably, a 25 foot deep concrete vault, the foundation remnants of a removed structure, and two capped wells. Piles of concrete, end-dumped soils and surface fills were also encountered. Loose fills between 5½ to 9 feet below existing site grade were encountered in Test Pits 2, 3, and 5 that were possibly the locations of concrete tanks that were removed and loosely backfilled by Ramcon. These backfilled soils will require removal and replacement as engineered fill. We anticipate that septic tanks and leach fields may be encountered during grading operations as well as buried rubble, burn pits, and organic concentrations. Unknown subsurface features could also be present below grade based on our previous experience with development of rural residential properties. During site clearing it will be essential that our representative be on-site to observe the site clearing operations on a relatively continuous basis to identify the areas that may require additional overexcavation. This is considered to be critical for the successful development of this property.

Bearing Capacity

Important aspects of site development will include properly backfilling the 25 foot deep concrete vault, the removal of end-dumped stockpiles of concrete and debris, end-dumped soil stockpiles and surface fills, and the adequate clearing of remnants of existing and former structures.

Another concern for site development and uniform structural support is the presence of undocumented fill soils encountered in Test Pits 2, 3, 5, 8 and 9. The fills encountered in these test pits were not placed as engineered fill and are considered unsuitable for support of the proposed structures and pavements at the site. These fill soils should be removed and replaced with engineered fill in accordance with the recommendations of this report.

Clearing operations to remove end-dumped soil stockpiles and piles of concrete and rubble, surface and buried fills, remnants of former structures, and trees will disturb the soils and create loose and variable soil conditions. Disturbed areas must be excavated to expose firm, undisturbed native soils and the excavations backfilled with engineered fill to provide adequate and uniform support for the planned residential structures and pavements. Engineered fill that is properly placed and compacted as recommended in this report will be capable of supporting the proposed structures and pavements.

2013 California Building Code Seismic Design Parameters

Section 1613 of the 2013 edition of the CBC references the American Society of Civil Engineering (ASCE) Standard 7-10 for seismic design. The following seismic parameters were determined based on the site latitude and longitude using the public domain computer program developed by the USGS. The following parameters summarized in the table below may be used for seismic design of the proposed residential structures.

TABLE 1 2013 CBC/ASCE 7-10 SEISMIC DESIGN PARAMETERS				
Latitude: 38.4104° N Longitude: 121.4241° W	ASCE 7-10 Table/Figure	2013 CBC Table/Figure	Factor/ Coefficient	Value
Short-Period MCE at 0.2 second	Figure 22-1	Figure 1613.3.1(1)	S_S	0.694 g
1.0s Period MCE	Figure 22-2	Figure 1613.3.1(2)	S_1	0.295 g
Soil Class	Table 20.3-1	Section 1613.3.2	Site Class	D
Site Coefficient	Table 11.4-1	Table 1613.3.3(1)	F_a	1.245
Site Coefficient	Table 11.4-2	Table 1613.3.3(2)	F_v	1.809
Adjusted MCE Spectral Response Parameters	Equation 11.4-1	Equation 16-37	S_{MS}	0.864 g
	Equation 11.4-2	Equation 16-38	S_{M1}	0.534 g
Design Spectral Acceleration Parameters	Equation 11.4-3	Equation 16-39	S_{DS}	0.576 g
	Equation 11.4-4	Equation 16-40	S_{D1}	0.356 g
Seismic Design Category	Table 11.6-1	Section 1613.3.5(1)	Risk Category I to IV	D
	Table 11.6-2	Section 1613.3.5(2)	Risk Category I to IV	D

<u>Liquefaction Potential</u>

Based on the results of our subsurface exploration, the known geologic, seismic, groundwater and soil conditions, it is our opinion that the potential for liquefaction occurring at the site is very low.

<u>Excavation Conditions</u>

Based on the information obtained during the field exploration and our local experience, we anticipate the soils at the site will be readily excavatable with conventional earthmoving and trenching equipment. However, larger equipment may be required to excavate through the underlying cemented soils (locally referred to as hardpan).

In general, we anticipate the on-site soils will likely remain stable at or near-vertical inclinations without significant caving for relatively short periods (i.e., less than one or two days) during utility and foundation construction. However, excavations extending into saturated and/or disturbed soils, or relatively clean sands may require excavation bracing or shoring to control sloughing and caving during utility construction.

Excavations deeper than five feet that will be entered by workers should be sloped, braced or shored in accordance with current Occupational Safety and Health Administration (OSHA) regulations. The contractor must provide an adequately constructed and braced shoring system in accordance with federal, state and local safety regulations for individuals working in an excavation that may expose them to the danger of moving ground.

Excavated materials should not be stockpiled directly adjacent to an open trench to prevent surcharge loading of the trench sidewalls. Excessive truck and equipment traffic also should be avoided near open trenches. If material is stored or heavy equipment is operated near an excavation, stronger shoring would be needed to resist the extra pressure due to the superimposed loads.

Soil Expansion Potential

Laboratory test results on near-surface clays indicate these materials possess a high expansion potential when tested in accordance with the ASTM D4829 test method (Figure A1). Additional laboratory tests performed on a sample of near-surface clay indicates the sample possesses a high plasticity when subjected to Atterberg Limits tests in accordance with ASTM D4318 test method (Figure A2).

Based on the results of the laboratory testing and our experience in the area, we conclude the near-surface clays are capable of exerting significant expansion pressures on building foundations, interior floor slabs and exterior flatwork. Specific recommendations to reduce the effects of expansive soils, including alternate foundation design options and moisture conditioning and presaturation of the slab subgrade soils, are presented in this report.

Soil Suitability for Engineered Fill Construction

The on-site soils encountered in our test pits and soil boring are considered suitable for use in engineered fill construction, provided these materials are free of significant organics, rubble, and other deleterious material, and are at moisture contents suitable to achieve the desired degree of compaction. Pulverized asphalt concrete is not considered suitable for use as engineered fill within building pads, but would be suitable for fills within pavement areas.

Imported materials, if necessary, should be granular and approved by our office prior to importing the materials to the site.

Pavement Subgrade Quality

Laboratory test results indicate the anticipated pavement subgrade soils are poor quality materials for support of asphalt concrete pavements, and will require thicker pavement sections to compensate for the lower strength of the soils. Laboratory tests indicate that the near-surface soils possess a Resistance ("R") value of 13 when tested in accordance with California Test 301 (Figure A3).

Our experience with soils in the vicinity of the site, indicates treatment of the on-site surface and near-surface clay soils with high-calcium or dolomitic quicklime can be used to improve the pavement subgrade support quality of the soil, and reduce the require thickness of aggregate base materials. Based upon laboratory testing and our experience with clay soil in the vicinity of the site, it is our opinion that pavements supported on native clay soils treated with at least four percent (by dry weight of soil) of lime can be designed using an improved R-value of at least 50.

Soil Corrosion Potential

One sample of near-surface soil was submitted to Sunland Analytical Lab for testing to determine pH, chloride and sulfate concentrations, and minimum resistivity to help evaluate the potential for corrosive attack upon buried concrete. The results of the corrosivity testing are summarized in the following table. Copies of the test reports are presented on Figures A4 and A5.

TABLE 2
SOIL CORROSIVITY TESTING

Analyte	Test Method	Sample Identification TP12 (1'-4')
pH	CA DOT 643 Modified*	7.17
Minimum Resistivity	CA DOT 643 Modified*	1150 W-cm
Chloride	CA DOT 417	21.2 ppm
Sulfate	CA DOT 422	14.6 ppm
Sulfate – SO4	ASTM D-516	11.92 mg/kg

Notes: * = Small cell method; W-cm = Ohm-centimeters; ppm = Parts per million; ppm=mg/kg

The California Department of Transportation Corrosion and Structural Concrete Field Investigation Branch, 2012 Corrosion Guidelines (Version 2.0), considers a site to be corrosive to foundation elements if one or more of the following conditions exists for the representative soil and/or water samples taken: has a chloride concentration greater than or equal to 500 ppm, sulfate concentration greater than or equal to 2000 ppm, or the pH is 5.5 or less. Based on this criterion, the on-site soils tested are not considered corrosive to steel reinforcement properly embedded within Portland cement concrete (PCC). However, the low resistivity values suggest the soils likely are corrosive to unprotected buried metal.

Table 4.2.1 – *Exposure Categories and Classes*, American Concrete Institute (ACI) 318, Section 4.2, as referenced in Section 1904.1 of the 2013 CBC, indicates the severity of sulfate exposure for the sample tested is *Not Applicable*. Ordinary Type I-II Portland cement is considered suitable for use on this project, assuming a minimum concrete cover is maintained over the reinforcement.

Wallace-Kuhl & Associates are not corrosion engineers. Therefore, if it is desired to further define the soil corrosion potential at the site, a corrosion engineer should be consulted.

Groundwater Conditions and Seasonal Moisture

Available data indicates the permanent groundwater table is located at a depth of at least 70 feet below the existing ground surface. Therefore, groundwater should not adversely effect development of the project.

However, during the winter and spring months, infiltrating surface run-off water will create saturated surface soil conditions due to the impervious nature of the underlying shallow, cemented soils. It is probable that grading operations attempted following the onset of winter rains and prior to prolonged drying periods will be hampered by high soil moisture contents. Such soils, intended for use as engineered fill, will require a prolonged period of dry weather and/or considerable aeration to reach a moisture content suitable to achieve proper compaction.

RECOMMENDATIONS

General

We anticipate maximum excavations and fills on the order of one to three feet for most of the site, and up to about eight feet to backfill depressions. The recommendations in this report are based upon this assumption. Also, the recommendations presented below are appropriate for typical construction in the late spring through fall months. The on-site soils likely will be saturated by rainfall in the winter and early spring months. Should the construction schedule require work to continue during the wet months, additional recommendations can be provided, as conditions warrant.

Due to previous site development, conditions exist at the site that likely will require additional earthwork operations The contractor should anticipate additional excavation, backfilling, and reworking of the areas within the vicinity of former structures and areas of fill. The property also contains capped water wells, which will require proper abandonment.

Site Clearing

Initially, the site should be cleared of deleterious debris, end-dumped piles of concrete, surface and subsurface structures associated with former development of the site, including foundations, concrete slabs, leach fields and septic tanks, underground utilities designated for removal, including all trench backfill, and underground irrigation lines, if present. Trees and shrubs designated to be removed should include the entire rootball and all roots larger than one-half inch in diameter. Wells should be destroyed in accordance with Sacramento County Environmental Management Department requirements. Depressions resulting from clearing operations, as well as any loose, saturated, or organically contaminated soils, as identified by our representative, should be cleaned out to firm, undisturbed soils and widened, as necessary, to allow access with construction equipment. Depressions should be backfilled with engineered fill in accordance with the recommendations contained in this report.

Undocumented surface fills should be removed to expose undisturbed native soils. The approximate limits of the fill are shown on Figure 2A; the fill depth varies between two and three feet and covers an area of about 50 feet wide by approximately 100 feet in length. The fills encountered in Test Pits 2, 3, and 5 should also be removed to expose undisturbed native soils. The depths of the fill vary between 5½ to 9 feet deep. The bid documents should include a unit cost (per cubic yard) for additional excavation and recompaction as engineered fill.

Site Preparation

Following site clearing, any remaining surface organics should be removed by stripping. Strippings should not be used in general fill construction, but may be used in future backyard areas within the proposed subdivision, provided they are kept at least five feet from the building pads, moisture conditioned and compacted, and do not exceed a depth of two feet. Discing of organics into the surface soils may be a suitable alternative to stripping, depending upon the quantity and condition of the surface vegetation at the time of grading. Discing will be allowed only with our prior approval and discing operations must be continuous until organics are adequately mixed with the soil to provide a compactable mixture. Pockets or concentrations of organics will not be allowed.

Structural areas to remain at-grade, or to receive fill, should be scarified to a depth of at least 12 inches. Native soils exposed at the bottom of excavations should be scarified to a depth of six inches. In areas that previously supported structures (Figure 2B), the existing grades should be thoroughly ripped and cross-ripped to a depth of 12 inches to help uncover and remove any remaining remnants of former structures, debris and rubble. The processed soil should then be uniformly moisture conditioned to at least two percent over optimum, and compacted to at least 90 percent of the ASTM D1557 maximum dry density. Due to the relatively loose nature of the surface soils, thorough moisture conditioning and recompaction of the existing surface soils is crucial to site development.

Compaction of soil subgrades should be achieved using a heavy, self-propelled, sheepsfoot compactor (such as a Caterpillar 815 or equivalent) and must be performed in the presence of our representative who will evaluate the performance of the subgrade under the compaction loads and identify loose or unstable soil conditions that could require additional excavation. Difficulty in achieving subgrade compaction or unusual soil instability may be indications of loose soils associated with past subsurface items such as septic tanks or dump pits. Should these conditions exist, the materials should be excavated to check for possible subsurface structures and the excavations backfilled with engineered fill.

We recommend construction bid documents contain a unit price (price per cubic yard) for additional excavation due to unsuitable materials and replacement with engineered fill. We also recommend that a sizeable contingency be set aside to cover the increased costs that likely will occur due to the presence of unknown subsurface features.

Engineered Fill

On-site soils will be suitable for engineered fill construction in structural areas, if free from rubbish, rubble greater than three inches, and significant organic concentrations. Imported fill materials, if required, should be compactable, granular soils with an Expansion Index of 20 or less and be free of particles greater than three inches in maximum dimension. Imported soils should be approved by our office prior to being transported to the site. Also, if import fills are required (other than aggregate base), the contractor must provide appropriate documentation that the import is clean of known contamination and within acceptable corrosion limits.

Engineered fill should be placed in lifts not exceeding six inches in compacted thickness with each lift being uniformly moisture conditioned to at least two percent above the optimum moisture content and compacted to not less than 90 percent of the maximum dry density per ASTM D1557.

Differential Fill Depths

Individual buildings should not be supported upon differential fill depths greater than five feet. This could occur in areas where new construction will span onto or across the backfill from the former pool excavation, removed structures, or overexcavated areas.

Overexcavation and recompaction of the affected building pads should be performed to limit the differential fill depths on building pads with differential fill depths greater than five feet. The cut portion or shallower fill portion of the pad should be excavated to provide a fill differential of less than five feet. For example, if part of a building pad is to be located over an area that is nine feet deep, the entire building pad should be excavated four feet to limit the differential fill below the pad to five feet or less. The resulting overexcavated pad should then be uniformly brought up to the final pad elevation. Once complete, the grading plans should be reviewed by our firm to determine which pads if any, will require over-excavation to limit differential fill depths.

Concrete Vault Backfill

Based on the depth of the concrete vault, it is our opinion that the most appropriate method to backfill the vault would be to use controlled low strength material (CLSM), also referred to as controlled density fill (CDF). Prior to placement of the CLSM, the concrete vault walls should be removed to a depth of at least five feet, although the removal may need to be deeper if the structure will interfere with the future improvements. Debris at the bottom of the vault and vertical piping within the vault should be removed and the open pipe within the sidewall of the vault should be sealed off prior to placement of CLSM. We recommend the CLSM achieve a 28-day compressive strength in the range of 100 to 200 pounds per square inches (psi). Experience on a recent project suggests that a 1½ to 2 sack mix is capable of achieving the desired strength. However, the contractor retained for this repair should select an appropriate mix to achieve the desired strength.

As a minimum the CLSM should extend vertically to an elevation of five feet below the bottom of proposed finished, provided that it does not conflict with future underground utilities or other planned subsurface development. The final five feet of backfill should consist of native on-site materials moisture conditioned to at least two percent above the optimum moisture content and compacted to at least 90 percent of the ASTM D1557 maximum dry density. The CLSM should be allowed to cure for at least two days before placing and compacting engineered fill.

Final Subgrade Preparation

The upper 12 inches of all final building pad subgrades, should be moisture conditioned to two percent above the optimum moisture content and uniformly compacted to at least 90 percent of the maximum dry density as determined by ASTM D1557, regardless of whether final subgrade elevation is attained by filling, excavation or is left at existing grade.

The upper six inches of all final pavement subgrades should be moisture conditioned to conditioned to at least the optimum moisture content and uniformly compacted to at least 95 percent of the maximum dry density as determined by the ASTM D1557 Test Method, regardless of whether final subgrade elevation is attained by filling, excavation or is left at existing grade.

Site earthwork should be accomplished in accordance with the recommendations of this section and the *Earthwork Specifications* provided in Appendix B. A representative of the Geotechnical Engineer should be present on a regular basis during all clearing and grading operations to verify adequate removal of remnants from former construction, and also to verify thorough recompaction of disturbed soils and observe and test fill materials, as necessary. The Geotechnical Engineer referenced herein is the Geotechnical Engineer that is retained to provide the construction testing services.

Utility Trench Backfill

Bedding of utilities and initial backfill should be in accordance with the manufacturer's recommendations for the pipe materials selected, and the City of Elk Grove Standards, latest edition.

We recommend that native soil be used to backfill utility trenches, especially within building areas. Utility trench backfill should be placed in maximum 12-inch lifts (compacted thickness), moisture conditioned to two percent above the optimum moisture content, and mechanically compacted to at least 90 percent of the maximum dry density as determined by ASTM D1557. Within the upper six inches of pavement areas the minimum compaction should be increased to 95 percent.

We recommend that underground utility trenches that are aligned nearly parallel with foundations be at least three feet from the outer edge of foundations, wherever possible. As a general rule, trenches should not encroach into the zone extending outward at a horizontal to one vertical (1:1) inclination below the bottom of the foundations. Additionally, trenches parallel to existing foundations should not remain open longer than 72 hours. The intent of these recommendations is to prevent loss of both lateral and vertical support of foundations, resulting in possible settlement.

Foundation Design

Based upon results of our investigation, the laboratory test results, and our extensive experience in the area, we recommend one- and two-story residential structures be supported on either post-tensioned foundations or deepened and heavily reinforced conventional foundations with conventional interior slabs-on-grade. In our experience, post-tensioned slabs typically provide less risk of foundation movement related to the potential expansion of the onsite clays. Recommendations for each foundation type are provided below.

Post-Tensioned Concrete Foundation/Slab Systems

We have computed the following post-tensioned concrete foundation/floor slab system design parameters presented as Table 3, based on the characteristics of the on-site soils. Specific design of post-tensioned foundation/slab systems should performed by a qualified structural engineer using the following geotechnical engineering parameters, which were derived from the results of laboratory tests and guidelines contained in the *Post-Tensioning Institute Design Manual (Third Edition).*

TABLE 3
PT SLAB DESIGN PARAMETERS

1.	Thornthwaite Moisture Index = -20
2.	Average Edge Moisture Variation Distance (Em): Center Lift = 8.0 feet Edge Lift = 4.1 feet
3.	Plasticity Index = 30
4.	Plastic Limit = 21
5.	Liquid Limit = 51
6.	Percent Clay = 33% (≤ 0.002 mm)
7.	Activity Ratio (Ac) = 0.90
8.	Zone = II
9.	Approximate Depth to Constant Moisture = 5.0 feet
10.	Approximate Soil Suction = 3.9 pF
11.	Anticipated Swell (Ym): Center Lift = 0.50 inches Edge Lift = 1.0 inches

The post-tensioned slab foundation should not exert more than 1500 pounds per square foot (psf) on the building pad soils for the dead plus live load conditions. The allowable post-tensioned slab bearing capacity may be increased by 1/3 to include wind or seismic forces.

The project structural engineer should determine the appropriate thickness of the post-tensioned foundations. However, in the greater Sacramento area a minimum of a 10-inch thick slab, deepened to 12 inches at the perimeter is a commonly used post-tensioned foundation.

We recommend the 10-inch thick portion of the slab be underlain by a durable vapor retarder membrane barrier (at least 10 mils thick) placed directly on the soil subgrade. Prior to placement of the vapor retarder, the subgrade soils should be moisture conditioned to at least two percent above the optimum moisture content to a depth of at least 12 inches. Our representative should confirm the subgrade soils are at the appropriate moisture content within 48 hours of slab construction.

Conventional Foundations

Alternatively, one- and two-story residential structures may be supported upon continuous and/or isolated spread foundations that extend at least 18 inches into the compacted building pad, as measured from lowest adjacent soil grade. For this project, the building pad subgrade is defined as the soil surface on which capillary break gravel is placed. A continuous, reinforced foundation should be utilized for the perimeter of the structures to act as a “cut-off” to help minimize moisture infiltration and variations beneath the interior slab-on-grade areas of the structure. Continuous foundations should be at least 12 inches wide; isolated spread foundations should maintain a minimum 24-inch dimension.

Foundations bearing in undisturbed or recompacted native soils, engineered fill, or a combination of those materials may be sized for maximum vertical compressive loads utilizing maximum allowable soil bearing pressures of 2500 pounds per square foot (psf) for dead plus live load; this bearing value may be increased by one-third to include the effects of seismic or wind forces. The weight of foundation concrete extending below lowest adjacent soil grade may be disregarded in sizing computations.

We recommend that all foundations be adequately reinforced to provide structural continuity, mitigate cracking and permit spanning of local soil irregularities. The structural engineer or civil engineering consultant should determine final foundation reinforcing requirements.

Resistance to lateral displacement of shallow foundations may be computed using an allowable friction factor of 0.25 multiplied by the effective vertical load on each foundation. Additional lateral resistance may be achieved using an allowable passive earth pressure against the vertical projection of the foundation equal to an equivalent fluid pressure of 300 psf per foot of depth. These two modes of resistance should not be added unless the frictional component is reduced by 50 percent since mobilization of the passive resistance requires some horizontal movement, effectively reducing the frictional resistance.

Sound Wall Systems

Perimeter sound walls may be supported upon conventional foundations utilizing the design parameters provided in the Foundation Design section of this report, or drilled, cast-in-place reinforced concrete piers (drilled piers). Piers for support of sound walls should be at least 12 inches in diameter and extend at least three feet below lowest adjacent soil grade.

Drilled piers extending at least three feet below the ground surface may be sized utilizing a maximum allowable vertical bearing capacity of 3000 psf or an allowable skin friction of 250 psf for dead plus live loads, applied over the surface of the pier. Those values may be increased by one-third to include short-term wind or seismic forces. The weight of foundation concrete below grade may be disregarded in sizing computations if designed as end-bearing piers.

Uplift resistance of pier foundations may be computed using the following resisting forces, where applicable: 1) weight of the pier concrete (150 pounds per cubic foot) and, 2) the allowable skin friction of 250 psf applied over the shaft area of the pier. Increased uplift resistance can be achieved by increasing the diameter of the pier or increasing the depth.

The upper 12 inches of skin friction should be disregarded unless the pier is completely surrounded by concrete or pavements for a distance of at least three feet from the edge of the foundation pier.

Sizing of piers to resist lateral loads can be evaluated using Section 1807.1 of the 2013 California Building Code (CBC). A value of 300 pcf for lateral bearing as defined in Table 1806.2 of the 2013 CBC may be used for the coefficients S_1 and S_3 for the nonconstrained and constrained conditions, respectively. Per section 1806.1 of the 2013 CBC, an increase of 1/3 is permitted when using the alternate load combinations in Section 1605.3.2 that include wind or earthquake loads. The upper 12 inches of the soil should be disregarded for the nonconstrained condition.

Retaining Walls

Retaining walls may be supported upon continuous foundations bearing upon undisturbed native surface soils, engineered fill, or a combination of these materials. Retaining walls capable of slight rotation about their base (unrestrained at the top or sides) should be capable of resisting an "active" lateral earth pressure equal to an equivalent fluid pressure of 45 psf per foot of wall backfill for horizontal backfill conditions for a distance equal to at least the wall height. Retaining walls that are fixed at the top should be capable of resisting an "at-rest" lateral earth pressure equal to an equivalent fluid pressure of 55 psf per foot for horizontal backfill conditions for a distance equal to at least the wall height.

Retaining walls could experience additional surcharge loading if vehicles are parked or at-grade foundations are constructed within a one horizontal to one vertical (1:1) projection from the top of the retaining wall. Surcharge loading under these circumstances should be evaluated on a case-by-case basis.

Retaining wall foundations should extend at least 18 inches below lowest adjacent soil grade, and may be designed utilizing the parameters provided in the Foundation Design section of this report for conventional foundations.

Retaining walls should be fully drained to prevent the build-up of hydrostatic pressure behind the wall. Retaining walls should be provided with a drainage blanket (Class 2 permeable material) at least one (1) foot wide extending from the base of wall to within one foot of the top of the wall. The top foot above the drainage layer should consist of compacted soil backfill. Weep holes or perforated rigid pipe should be provided near the base of the wall to allow drainage of accumulated water. Drain pipes, if used, should slope to discharge at no less than a one percent fall to suitable drainage facilities. Open-graded ½- to ¾-inch crushed rock may be used in lieu of the Class 2 permeable material, if the rock and drain pipe are completely enveloped in an approved non-woven geotextile filter fabric. Alternatively, geotextile drainage composites such as MiraDRAIN® may be used in lieu of the drain rock layer. If used, geocomposite drain panels should be installed in conformance with the manufacturer's recommendations. Detailing of wall drainage should be provided by the designer of the retaining wall.

Structural backfill materials for retaining walls, other than the drainage layer, should consist of granular soils free of significant quantities of rubbish, rubble, organics and rock over three (3) inches in size; clays are not allowed for use as wall backfill. Structural backfill should be placed in lifts not exceeding 12 inches in compacted thickness, and should be mechanically compacted to at least 90 percent relative compaction based on ASTM D1557.

Interior Floor Slab Support

The following recommendations apply only to interior slab-on-grade floors used in conjunction with conventional foundations.

Due to the presence of expansive clay soils, moisture conditioning of subgrade soils prior to placement of floor slab concrete is considered essential. Immediately prior to slab concrete placement, the subgrade soils, to a depth of least 12 inches, should be brought to a uniform, near-saturated moisture condition by liberal watering or sprinkling. Slab subgrade moisture condition should be field checked by our representative within 48 hours prior to slab placement. Due to saturation of these upper soils, it is imperative that moisture vapor penetration resistance techniques be utilized in design and construction of conventional interior floor slabs.

Slabs-on-grade should be at least four inches thick, although final thickness, reinforcement and joint spacing should be determined by the slab designer. Proper and consistent location of the reinforcement near mid-slab is essential to its performance. The risk of uncontrolled shrinkage cracking is increased if the reinforcement is not properly located within the slab.

Floor slabs should be underlain by a layer of free-draining crushed rock, serving as a deterrent to migration of capillary moisture. The crushed rock layer should be at least four inches thick and graded such that 100 percent passes a one-inch sieve and no appreciable material passes a No. 4 sieve. Additional moisture protection can be provided by placing a vapor retarder membrane (at least 10-mils thick) directly over the crushed rock. The membrane should meet or exceed the minimum specifications as outlined in ASTM E1745 and be installed in strict conformance with the manufacturer’s recommendations.

Floor slab construction over the past 30 years or more has included placement of a thin layer of sand over the vapor retarder membrane. The intent of the sand is to aid in the proper curing of the slab concrete. However, recent debate over excessive moisture vapor emissions from floor slabs includes concern for water trapped within the sand. As a consequence, we consider the use of the sand layer as optional. The concrete curing benefits should be weighed against efforts to reduce slab moisture vapor transmission.

The recommendations presented above are intended to mitigate any significant soils-related cracking of the slab-on-grade floors. More important to the performance and appearance of a Portland cement concrete slab is the quality of the concrete, the workmanship of the concrete contractor, the curing techniques utilized, and the spacing of control joints.

Floor Slab Moisture Penetration Resistance

Presaturation of the subgrade soils prior to slab placement will result in wet floor slab subgrade soils. For this reason, it should be assumed that all slabs in living areas, as well as those intended for moisture-sensitive floor coverings or materials, require protection against moisture or moisture vapor penetration. Standard practice includes the gravel/sand and vapor retarder membrane as suggested above. However, the gravel/sand and membrane offer only a limited, first-line of defense against soil-related moisture. Recommendations contained in this report concerning foundation and floor slab design are presented as *minimum* requirements, only from the geotechnical engineering standpoint.

It is emphasized that the use of a membrane below the slab will not "moisture proof" the slab, nor does it assure that slab moisture transmission levels will be low enough to prevent damage to floor coverings or other building components. If increased protection against moisture vapor penetration of slabs is desired, a concrete moisture protection specialist should be consulted. It is commonly accepted that maintaining the lowest practical water-cement ratio in the slab concrete is one of the most effective ways to reduce future moisture vapor penetration of the completed slabs.

Exterior Flatwork

The soil subgrade in areas to receive exterior concrete flatwork (e.g., sidewalks, patios, driveways, etc.) should be moisture conditioned to at least two percent above the optimum moisture content, prior to the placement of the concrete. Proper moisture conditioning of the subgrade soils is considered essential to the performance of exterior flatwork. Expansion joints should be provided to allow for minor vertical movement of the flatwork. Uniform moisture conditioning of subgrade soils is important to reduce the risk of non-uniform moisture withdrawal from the concrete and the possibility of plastic shrinkage cracks. Practices recommended by the Portland Cement Association (PCA) for proper placement and curing of concrete should be followed during exterior concrete flatwork construction. Expansion joints should be provided to allow for minor vertical movement of the flatwork.

Consideration should be given to thickening the edges of sidewalks and patios to at least twice the slab thickness. Flatwork reinforcement for crack control, if desired, should be determined by the exterior flatwork designer.

Areas adjacent to new exterior flatwork should be landscaped to maintain more uniform soil moisture conditions adjacent to and under flatwork. We recommend final landscaping plans not allow fallow ground adjacent to exterior concrete flatwork.

Subgrade preparation and base requirements for sidewalks, curbs and gutters adjacent to the street should conform to the City of Elk Grove Standards.

Pavement Design

Based upon the laboratory test results on the surface and near-surface soils, and using City of Elk Grove Standards for varying street right-of-ways, we have calculated the following alternate pavement sections. The procedures used for design are in general conformance with Chapters 600 to 670 of the *California Highway Design Manual, 6th Edition*, and the City of Elk Grove, October 2007 Improvement Standards, Section 4 – Street Design Standards. An untreated R-value of 10 was used for the design of on-site pavements. The project civil engineer should determine the appropriate traffic index based on anticipated traffic conditions.

TABLE 4
PAVEMENT DESIGN ALTERNATIVES

Traffic Index (TI)	Street Classification	Untreated Pavement Subgrade R-value = 10		Lime-treated Pavement Subgrade R-value = 50	
		Type B Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)	Type B Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)
6.5	Local Residential (42', 46', 48' R.O.W)	4**	13	4**	5**
6.5	Residential Collector / Cul-de-sacs (50' to 66' R.O.W)	4**	13	4**	5**

* = Asphalt concrete thickness includes the Caltrans Safety Factor.
** = Minimum thickness per City of Elk Grove Standards
(a) = Lime-treated subgrade should be at least 12 inches thick and possess a minimum R-value of 50 when tested in accordance with CT 301.

For untreated pavement subgrades with an R-value less than 30, the City of Elk Grove requires the use of a geotextile fabric conforming with AASHTO M228-96 specifications be used in construction. Installation of pavement edge drains at least 12 inches deep also are required on both sides of the streets and are to be located at the back of curb on all untreated pavement subgrades. The use of geotextile fabric and installation of edge drains are not required where pavement subgrades are lime treated.

Lime Treatment of Pavement Subgrade Soils

The native clay soils are anticipated to react well with the addition of quicklime (high-calcium or dolomitic) and could enhance the support characteristics of the subgrade and allow for a reduction in the aggregate base section. Chemical treatment of subgrade soils as part of the pavement section would be subject to approval by the City of Elk Grove and should be performed in accordance with Section 24 of the *Caltrans Standard Specifications*. For estimating purposes only, we recommend a minimum spread rate of at least 4½ pounds of quicklime per square foot of mixing depth (at least 12 inches). Lime-treated subgrades should be compacted to not less than 95 percent of the ASTM D1557 maximum dry density, at a moisture content of at least two percent above the optimum moisture content. If chemical treatment alternates are selected for use at this site, testing should be performed during construction to verify that the design parameters are achieved in the field.

We emphasize that the performance of pavements is critically dependent upon uniform and adequate compaction of the soil subgrade, as well as all engineered fill and utility trench backfill within the limits of the pavements. We recommend that pavement subgrade preparation, i.e. scarification, moisture conditioning and compaction, be performed after underground utility construction is completed and just prior to aggregate base placement. The upper six inches of untreated subgrade soils should be compacted to at least 95 percent relative compaction at two percent above the optimum moisture content. All aggregate base should be compacted to at least 95 percent of the maximum dry density.

Materials quality and construction of the structural section should conform to the applicable provisions of the Caltrans Standard Specifications and the City of Elk Grove Standards, latest editions.

Efficient drainage of all surface water to avoid infiltration and saturation of the supporting aggregate base and subgrade soils is important to pavement performance. Weep holes could be provided at drainage inlets, located at the subgrade-base interface, to allow accumulated water to drain from beneath the pavements.

Site Drainage

Final site grading should be accomplished to provide positive drainage of surface water away from structures and prevent ponding of water adjacent to foundations, slabs or pavements. The grade adjacent to houses should be sloped away from foundations at a minimum two percent slope for a distance of at least five feet, where possible. Roof gutter downspouts and surface drains should drain onto pavements or be connected to rigid non-perforated piping directed to an appropriate drainage point away from the houses. Ponding of surface water should not be allowed adjacent to the buildings or pavements. Landscape berms, if planned, should not be constructed in such a manner as to promote drainage toward structures.

Geotechnical Engineering Observation and Testing During Earthwork

Site preparation should be accomplished in accordance with the recommendations of this report and the *Earthwork Specifications* provided in Appendix B. Representatives of the Geotechnical Engineer should be present during site preparation and all grading operations to observe and test the fill to verify compliance with our recommendations and the job specifications. Testing frequency will depend on how the site is graded and should be determined during the rough grading operations. These services are beyond the scope of work authorized for this investigation.

In the event that Wallace-Kuhl & Associates is not retained to provide geotechnical engineering observation and testing services during construction, the Geotechnical Engineer retained to provide these services should indicate in writing that they agree with the recommendations of this report, or prepare supplemental recommendations as necessary. A final report by the Geotechnical Engineer providing construction testing services should be prepared upon completion of the project.

LIMITATIONS

Our recommendations are based upon the information provided regarding the proposed project, combined with our analysis of site conditions revealed by the field exploration and laboratory testing programs. We have used our engineering judgment based upon the information provided and the data generated from our investigation. This report has been prepared in substantial compliance with generally accepted geotechnical engineering practices that exist in the area of the project at the time the report was prepared. No warranty, either express or implied, is provided.

If the proposed construction is modified or re-sited; or, if it is found during construction that subsurface conditions differ from those we encountered at the boring and/or test pit locations, we should be afforded the opportunity to review the new information or changed conditions to determine if our conclusions and recommendations must be modified.
We emphasize that this report is applicable only to the proposed construction and the investigated site, and should not be utilized for construction on any other site.

The conclusions and recommendations of this report are considered valid for a period of three years. If design is not completed and construction has not started within three years of the date of this report, the report must be reviewed and updated if necessary.

Wallace-Kuhl & Associates

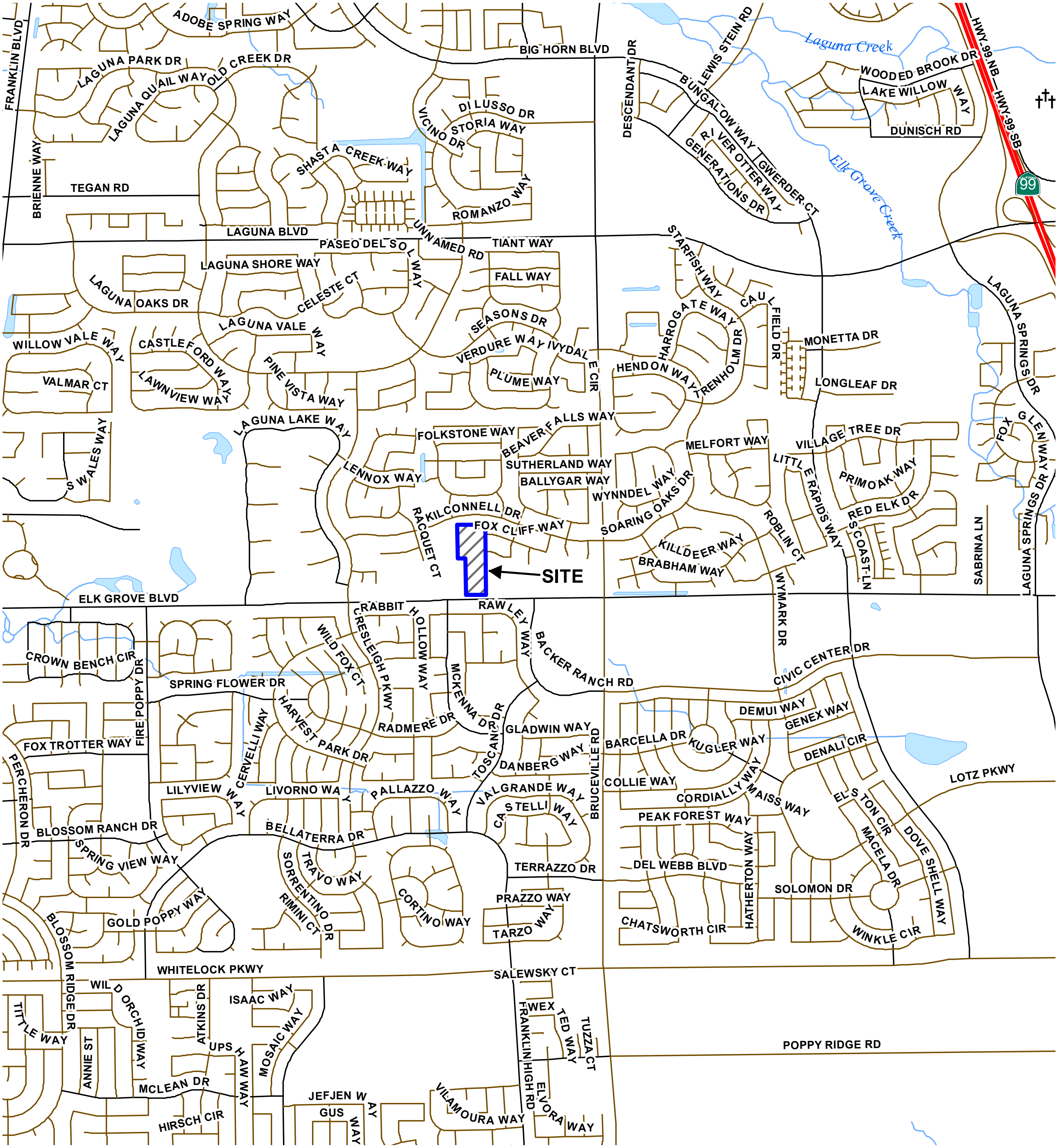
Gerard J. Follettie /ny.

REGISTERED PROFESSIONAL ENGINEER
STEPHEN L. FRENCH
NO. 323
Exp. 3/31/16
GEOTECHNICAL
STATE OF CALIFORNIA

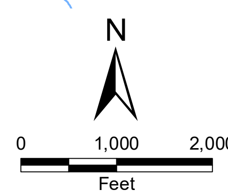
Stephen L. French

Gerard J. Follettie
Staff Engineer

Stephen L. French
Senior Engineer



Street data courtesy of Sacramento County.
Hydrography courtesy of the U.S. Geological Survey
acquired from the GIS Data Depot, December, 2007.
Projection: NAD 83, California State Plane, Zone II



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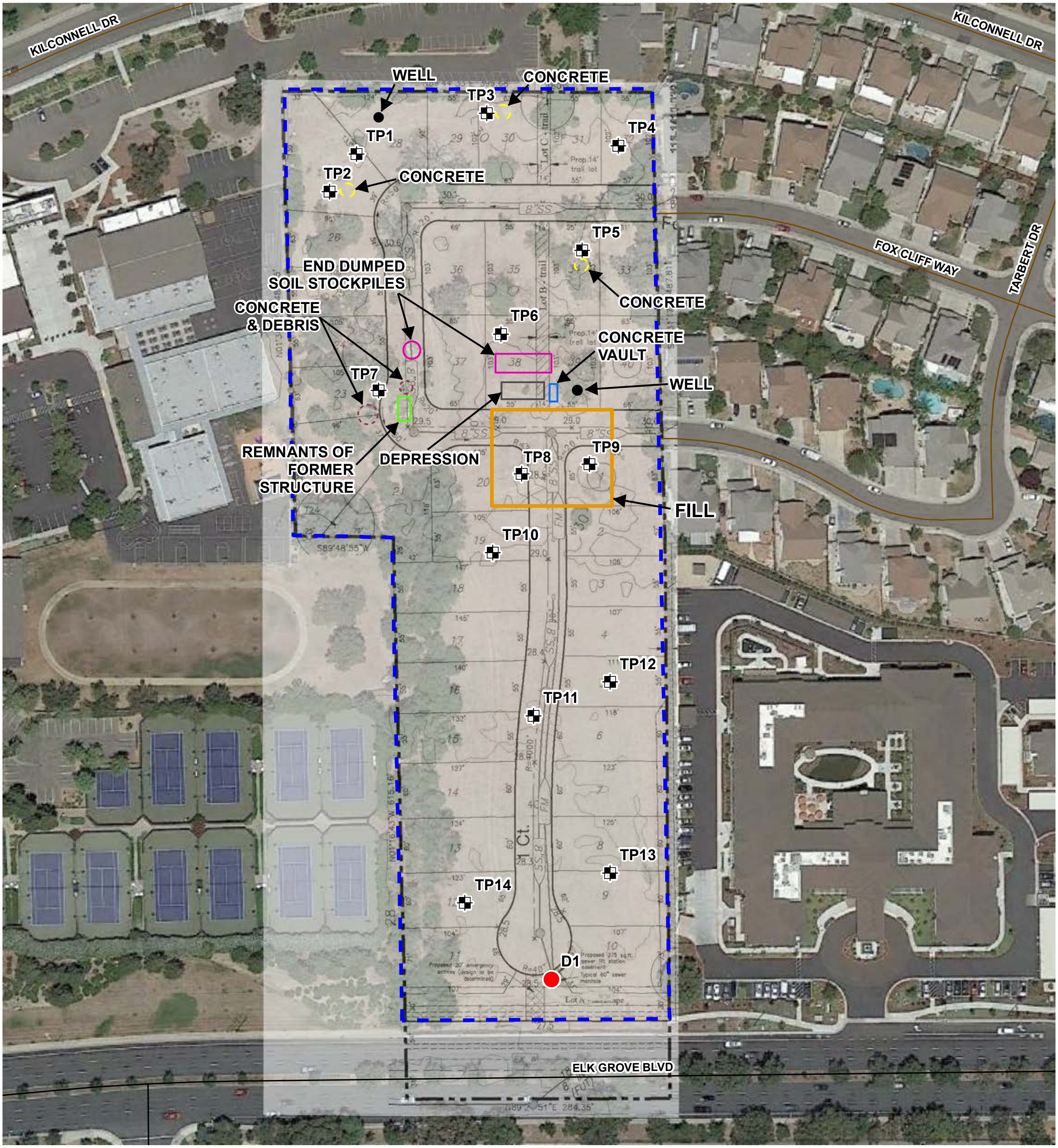
VICINITY MAP

STATHOS COVE

Elk Grove, California

FIGURE	1
DRAWN BY	RWO
CHECKED BY	GJF
PROJECT MGR	SLF
DATE	01/16
WKA NO.	10842.01



Aerail provided by Google Earth, dated 7/13/15.
Sit Plan provided by MacKay & Somps, dated 7/9/14.
Projection: NAD 83, California State Plane, Zone II

Legend

- Site Boundary
- Approximate Test Pit Location
- Approximate Boring Location

N

0 75 150
Feet

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SITE PLAN

STATHOS COVE

Elk Grove, California

FIGURE	2A
DRAWN BY	RWO
CHECKED BY	GJF
PROJECT MGR	SLF
DATE	01/16
WKA NO.	10842.01

Aerail provided by Google Earth, dated 4/30/2002
Projection: NAD 83, California State Plane, Zone II

Legend

Site Boundary

N

0 30 60
Feet

WallaceKuhl & ASSOCIATES

SITE PLAN - FORMER STRUCTURES

STATHOS COVE

Elk Grove, California

FIGURE	2B
DRAWN BY	RWO
CHECKED BY	GJF
PROJECT MGR	SLF
DATE	01/16
WKA NO.	10842.01

Project: Stathos Cove	LOG OF SOIL BORING D1
Project Location: Elk Grove	Sheet 1 of 1
WKA Number: 10842.01	

Date(s) Drilled	1/25/16	Logged By	JRY	Checked By	GJF
Drilling Method	Solid Flight Augers	Drilling Contractor	V&W Drilling, Inc.	Total Depth of Drill Hole	31.5 feet
Drill Rig Type	CME-75	Diameter(s) of Hole, inches	6	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	Groundwater not encountered	Sampling Method(s)	California Modified	Drill Hole Backfill	Soil
Remarks	Bulk sample D1 retrieved from 0-3 feet			Driving Method and Drop	140-lb hammer; 30-inch drop

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE NUMBER	NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			Dark brown, very moist, silty fine SAND (SM)						
			Brown, moist, medium stiff, sandy SILTY CLAY (CL)		D1-1I	6			
	5		Brown/orange brown, moist, medium dense, silty fine to medium SAND (SM)		D1-2I	22			
	10		Brown, moist, medium dense, slightly clayey SAND (SC)		D1-3I	34	10.1	113	
	15		Brown with orange mottling, moist, hard, variably cemented, clayey SILT (ML)		D1-4I	51	25.0	99	
	20		Light brown, moist, dense, fine to medium SAND (SP)						
			Brown, moist, hard, variably cemented, clayey SILT (ML)		D1-5I	55	6.1	109	
	25		Brown, moist, dense, silty fine SAND (SM)		D1-6I	41	18.5	112	
	30		medium dense		D1-7I	21	20.9	102	
			Boring termianted at 31.5 feet below existing site grade. Groundwater was not encountered.						

BORING LOG 10842.01 - STATHOS COVE.GPJ WKA.GDT 1/29/16 10:39 AM

Wallace Kuhl & Associates

FIGURE 3

LOGS OF TEST PITS
STATHOS COVE
Excavated January 25, 2016
Hitachi 5U Mini Excavator
WKA No. 10842.01

<u>TEST PIT 1</u>

0' to ½'	Dark brown, very moist, silty fine SAND (SM)
½' to 1'	Brown, very moist, silty, sandy CLAY (CL)
1' to 2½'	Dark brown, very moist, sandy SILT (ML)
2½' to 4'	Brown, very moist, silty CLAY (CH)
4' to 6½'	Brown, moist, variably cemented, sandy SILT (ML)
	Test Pit terminated at 6½ feet
	Excavated sidewalls remained vertical
	Groundwater was not encountered
	Drive sample retrieved from ½' to 1'
	Moisture = 18.2%
	Dry Unit Weight = 101 pcf

<u>TEST PIT 2</u> Possible location of a concrete tank that was removed and loosely backfilled

0' to 6'	Brown, slightly moist, sandy SILT with organics and some cobbles (ML) - FILL
6' to 7'	Brown, moist, variably cemented, sandy SILT (ML)
	Test Pit terminated at 7 feet
	Excavated sidewalls caving
	Groundwater was not encountered

<u>TEST PIT 3</u> Possible location of a concrete tank that was removed and loosely backfilled

0' to 5½'	Brown, dry to moist, sandy SILT with organic and broken clay pipe (ML) - FILL
5½' +	Light brown, moist, variably cemented, sandy SILT (ML)
	Test Pit terminated at 5½ feet
	Excavated sidewalls caving
	Groundwater encountered at 11 feet
	Drive sample retrieved from 1½' to 2'
	Moisture = 24.4%
	Dry Unit Weight = 95 pcf

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LOGS OF TEST PITS

STATHOS COVE

Elk Grove, California

FIGURE	4
DRAWN BY	RWO
CHECKED BY	GJF
PROJECT MGR	SLF
DATE	01/16
WKA NO.	10842.01

LOGS OF TEST PITS
STATHOS COVE
Excavated January 25, 2016
Hitachi 5U Mini Excavator
WKA No. 10842.01

TEST PIT 4

0' to 1½'	Dark brown, very moist, silty fine SAND (SM)
1½' to 4'	Brown, very moist, sandy CLAY (CH)
4' +	Light brown, moist, variably cemented, sandy SILT (ML)
	Test Pit terminated at 4 feet
	Excavated sidewalls remained vertical
	Groundwater was not encountered
	Bulk sample retrieved from 1½' to 4'
	Drive sample retrieved from 1' to 1½'
	Unconfined Compressive Strength = 0.5 tsf
	Moisture = 15.6%
	Dry Unit Weight = 110 pcf

TEST PIT 5 Possible location of a concrete tank that was removed and loosely backfilled

0' to 2'	Dark brown, very moist, sandy SILT (ML) - FILL
2' to 9'	Brown, slightly moist, sandy SILT with organics and plastic pipe (ML) – FILL
	Layer of organics at 3½'
9' +	Brown, moist, variably cemented, sandy SILT (ML
	Test Pit terminated at 9 feet
	Excavated sidewalls caving
	Groundwater was not encountered

TEST PIT 6

0' to 3'	Reddish brown, moist, silty fine SAND (SM)
3' to 4'	Brown, very moist, silty, sandy CLAY (CH)
4' to 8½'	Light brown, moist, variably cemented, sandy SILT (ML)
	Test Pit terminated at 8½ feet
	Excavated sidewalls remained vertical
	Groundwater was not encountered
	Bulk sample retrieved from 0' to 3'
	Drive sample retrieved from 1' to 1½'
	Moisture = 15.5%
	Dry Unit Weight = 105 pcf

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LOGS OF TEST PITS

STATHOS COVE

Elk Grove, California

FIGURE	5
DRAWN BY	RWO
CHECKED BY	GJF
PROJECT MGR	SLF
DATE	01/16
WKA NO.	10842.01

LOGS OF TEST PITS
STATHOS COVE
Excavated January 25, 2016
Hitachi 5U Mini Excavator
WKA No. 10842.01

TEST PIT 7

0' to 4½'	Dark brown, very moist, sandy SILT (ML)
4½' to 5'	Brown, very moist, silty, sandy CLAY (CL)
5' to 7'	Brown, moist, variably cemented, sandy SILT (ML)
	Test Pit terminated at 7 feet
	Excavated sidewalls remained vertical
	Groundwater was not encountered

TEST PIT 8

0' to 2'	Dark brown, very moist, silty fine SAND and sandy CLAY (SM/CL) - FILL
2' to 4'	Dark brown, very moist, sandy SILT (ML)
4' +	Light brown, moist, variably cemented, sandy SILT (ML)
	Test Pit terminated at 4 feet
	Excavated sidewalls remained vertical
	Groundwater was not encountered

TEST PIT 9

0' to 3'	Brown, very moist, silty fine SAND and sandy CLAY (SM/CL) - FILL
3' to 5'	Dark brown, very moist, sandy SILT (ML)
5' to 6'	Brown, moist, variably cemented, sandy SILT (ML)
	Test Pit terminated at 6 feet
	Excavated sidewalls remained vertical
	Groundwater was not encountered

TEST PIT 10

0' to 2'	Dark brown, very moist, silty fine SAND (SM)
2' to 2½'	Brown, very moist, silty, sandy CLAY (CL)
2½' to 6½'	Light brown to brown, moist, variably cemented, sandy SILT (ML)
	Test Pit terminated at 6½ feet
	Excavated sidewalls remained vertical
	Groundwater was not encountered
	Drive sample retrieved from 2' to 2½'
	Unconfined Compressive Strength = 1.7 tsf
	Moisture = 15.0%
	Dry Unit Weight = 127 pcf

LOGS OF TEST PITS
STATHOS COVE
Excavated January 25, 2016
Hitachi 5U Mini Excavator
WKA No. 10842.01

TEST PIT 11

0' to 1½'	Dark brown, very moist, clayey, sandy SILT (ML)
1½' to 2½'	Brown, very moist, sandy, silty CLAY (CL)
2½' to 4'	Light brown to brown, moist, variably cemented, sandy SILT (ML)
	Test Pit terminated at 6½ feet
	Excavated sidewalls remained vertical
	Groundwater was not encountered
	Bulk sample retrieved from 0' to 1½'

TEST PIT 12

0' to 1'	Dark brown, very moist, silty fine SAND (SM)
1' to 4'	Brown, very moist, sandy, silty CLAY (CH)
4' to 10'	Light brown to brown, moist, variably cemented, sandy SILT (ML)
	Test Pit terminated at 10 feet
	Excavated sidewalls remained vertical
	Groundwater was not encountered
	Bulk sample retrieved from 1' to 4'
	Drive sample retrieved from 1' to 1½'
	Unconfined Compressive Strength = 0.3 tsf
	Moisture = 23.8%
	Dry Unit Weight = 98 pcf

TEST PIT 13

0' to 2'	Dark brown, very moist, slightly clayey, silty fine SAND (SM)
2' to 4'	Brown, very moist, silty, sandy CLAY (CH)
4' to 7½'	Light brown, moist, variably cemented, sandy SILT (ML)
	Test Pit terminated at 7½ feet
	Excavated sidewalls remained vertical
	Groundwater was not encountered
	Drive sample retrieved from 0' to ½'
	Moisture = 18.6%
	Dry Unit Weight = 101 pcf

LOGS OF TEST PITS
STATHOS COVE
Excavated January 25, 2016
Hitachi 5U Mini Excavator
WKA No. 10842.01

TEST PIT 14

0' to 1'	Dark brown, very moist, silty fine SAND (SM)
1' to 4½'	Dark brown, very moist, silty, sandy CLAY (CH)
4½' to 10'	Light brown to brown, moist, variably cemented, sandy SILT (ML)
	Test Pit terminated at 10 feet
	Excavated sidewalls remained vertical
	Groundwater was not encountered

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		SYMBOL	CODE	TYPICAL NAMES
COARSE GRAINED SOILS (More than 50% of soil > no. 200 sieve size)	GRAVELS (More than 50% of coarse fraction > no. 4 sieve size)	GW		Well graded gravels or gravel - sand mixtures, little or no fines
		GP		Poorly graded gravels or gravel - sand mixtures, little or no fines
		GM		Silty gravels, gravel - sand - silt mixtures
		GC		Clayey gravels, gravel - sand - clay mixtures
	SANDS (50% or more of coarse fraction < no. 4 sieve size)	SW		Well graded sands or gravelly sands, little or no fines
		SP		Poorly graded sands or gravelly sands, little or no fines
		SM		Silty sands, sand - silt mixtures
		SC		Clayey sands, sand - clay mixtures
FINE GRAINED SOILS (50% or more of soil < no. 200 sieve size)	SILTS & CLAYS LL < 50	ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL		Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS LL ≥ 50	MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH		Inorganic clays of high plasticity, fat clays
		OH		Organic clays of medium to high plasticity, organic silty clays, organic silts
HIGHLY ORGANIC SOILS		Pt		Peat and other highly organic soils
ROCK		RX		Rocks, weathered to fresh
FILL		FILL		Artificially placed fill material

OTHER SYMBOLS

= Drive Sample: 2-1/2" O.D. Modified California sampler

= Drive Sampler: no recovery

= SPT Sampler

= Initial Water Level

= Final Water Level

= Estimated or gradational material change line

= Observed material change line

Laboratory Tests

PI = Plasticity Index

EI = Expansion Index

UCC = Unconfined Compression Test

TR = Triaxial Compression Test

GR = Gradational Analysis (Sieve)

K = Permeability Test

GRAIN SIZE CLASSIFICATION

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL coarse (c) fine (f)	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.76 76.2 to 19.1 19.1 to 4.76
SAND coarse (c) medium (m) fine (f)	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.76 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below 0.074

WallaceKuhl & ASSOCIATES

UNIFIED SOIL CLASSIFICATION SYSTEM

STATHOS COVE

Elk Grove, California

FIGURE	9
DRAWN BY	RWO
CHECKED BY	JDW
PROJECT MGR	MSM
DATE	01/16
WKA NO. 10842.01	

APPENDICES

APPENDIX A

General Project Information, Field and Laboratory Test Results

APPENDIX A

A. GENERAL INFORMATION

The performance of a geotechnical engineering investigation for the proposed Stathos Cove Subdivision to be constructed on the north side of Elk Grove Boulevard, west of Bruceville Road in Elk Grove, California was authorized by Mr. Frank Stathos on January 25, 2016. Authorization was for an investigation as described in our proposal letter dated January 11, 2016, sent to our client Mr. Frank Stathos c/o TSX, Inc., whose address is 4321 Lantzy Court, Sacramento, California; telephone (916) 612-4432.

The project civil engineering consultant is MacKay & Somps, whose mailing address is 1552 Eureka Avenue, Suite 100, Roseville, California 95661; telephone (916) 773-1189; facsimile (916) 773-2595.

In performing this investigation, we made reference to a Preliminary Grading and Drainage Plan, dated July 8, 2014 and a Conceptual Sanitary Sewer Facilities Map, dated July 9, 2014. Both drawings were prepared by MacKay & Somps.

B. FIELD EXPLORATION

A total of 14 exploratory test pits were excavated across the site on January 25, 2016, utilizing a Hitachi 5U Mini Excavator equipped with a 24-inch wide bucket. The test pits were excavated to the approximate depths ranging from four to 10 feet at the approximate locations indicated on Figure 2A. At the test pit locations bulk samples were collected of the near-surface soils. At various intervals, relatively undisturbed soil samples were recovered with a 6-inch long, 2¼-inch O.D., 2-inch I.D. sampler driven by a 10-pound, hand-operated slide hammer.

One boring was drilled at the location of the proposed pump station on January 25, 2016, at the approximate location indicated on Figure 2A. The boring was performed utilizing a CME-75 truck-mounted drill rig equipped with six-inch diameter, solid-flight helical augers. The boring was drilled to a maximum depth of approximately 31½ feet below existing site grade. At various intervals, relatively undisturbed soil samples were recovered with a 2½-inch O.D., 2-inch I.D., modified California sampler driven by an automatic 140-pound hammer freely falling 30 inches. The number of blows of the hammer required to drive the 18-inch long sampler each 6-inch interval was recorded. The sum of the blows required to drive the sampler the lower 12-inch interval is designated the penetration resistance or "blow count" for that particular drive.

The samples were retained in 2-inch diameter by 6-inch long thin-walled brass tubes contained within the sampler. Immediately after recovery, the soils in the tubes were visually classified by the field engineer and the ends of the tubes were sealed to preserve the natural moisture contents. All samples were taken to our laboratory for additional soil classification and selection of samples for testing.

The Boring Log and Test Pit Logs, Figures 3 through 8, contain descriptions of the soils encountered at each boring or test pit location. A Boring Legend explaining the Unified Soil Classification System and the symbols used on the logs is contained on Figure 9.

C. LABORATORY TESTING

Selected undisturbed samples of the soils were tested to determine dry unit weight (ASTM D2937), natural moisture content (ASTM D2216) and unconfined compressive strength (ASTM D2166). The results of these tests are included on the boring log and test pit logs at the depth each sample was obtained.

One bulk sample of near-surface soil was subjected to Expansion Index testing (ASTM D4829); the results of the test are presented on Figure A1. The same sample was tested to determine the Atterberg limits (ASTM D4318). The results of this test are presented on Figure A2.

One bulk sample of anticipated pavement subgrade soil was subjected to Resistance-value ("R-value") testing in accordance with California Test 301. The results of the R-value test, which were used in the pavement design, are presented on Figure A3.

A representative sample of near-surface soil was submitted to Sunland Analytical for corrosivity testing in accordance with California Test (CT) No. 643 (Modified Small Cell), CT 417, CT 422, and ASTM D516. Copies of the analytical results are presented on Figures A4 and A5.

To assist in the computation of post-tensioned slab design parameters, a hydrometer test was performed to determine the percentage of the near-surface clay soils passing the No. 200 sieve (ASTM D1140). The results of this test are presented on Figure A6.

EXPANSION INDEX TEST RESULTS

ASTM D4829

MATERIAL DESCRIPTION: Brown, sandy, silty clay

LOCATION: TP12

Sample Depth	Pre-Test Moisture (%)	Post-Test Moisture (%)	Dry Density (pcf)	Expansion Index
1' - 4'	13.5	29.2	99	**92**

CLASSIFICATION OF EXPANSIVE SOIL *

EXPANSION INDEX	POTENTIAL EXPANSION
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	**High**
Above 130	Very High

* From ASTM D4829, Table 1

WallaceKuhl & ASSOCIATES

EXPANSION INDEX

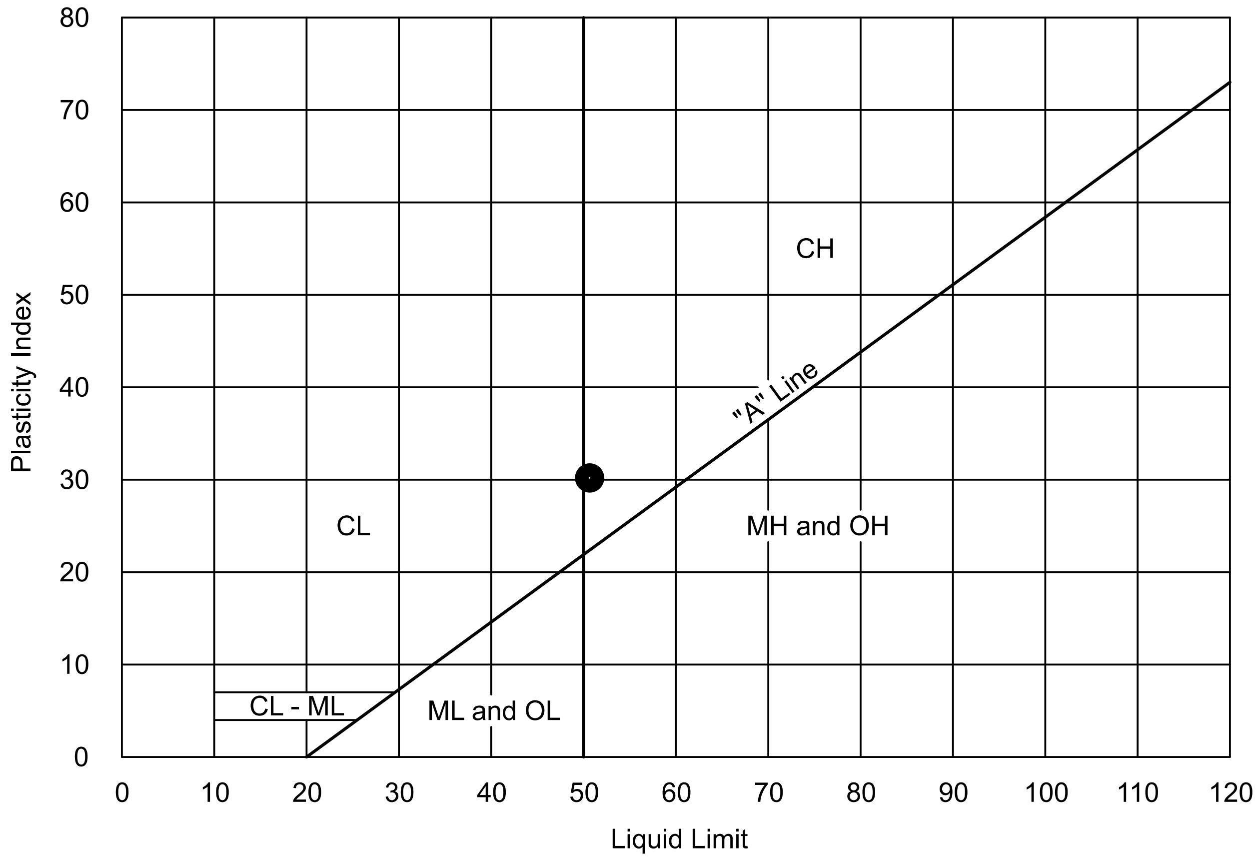
STATHOS COVE

Elk Grove, California

FIGURE	A1
DRAWN BY	RWO
CHECKED BY	GJF
PROJECT MGR	SLF
DATE	01/16
WKA NO. 10842.01	

ATTERBERG LIMITS

ASTM D4318



KEY SYMBOL	LOCATION	SAMPLE DEPTH	NATURAL WATER CONTENT (%)	ATTERBERG LIMITS		PASSING No. 200 SIEVE (%)	UNIFIED SOIL CLASSIFI-CATION SYMBOL
				LIQUID LIMIT (%)	PLASTICITY INDEX (%)		
●	TP 12	1.0'-4.0'	---	51	30	82	CH

Wallace Kuhl & ASSOCIATES	**ATTERBERG LIMITS** STATHOS COVE Elk Grove, California	FIGURE A2 DRAWN BY RWO CHECKED BY GJF PROJECT MGR SLF DATE 01/16 WKA NO. 10842.01

RESISTANCE VALUE TEST RESULTS

(California Test 301)

MATERIAL DESCRIPTION: Brown, clayey sandy silt

LOCATION: TP11 (0' - 1.5')

Specimen No.	Dry Unit Weight (pcf)	Moisture @ Compaction (%)	Exudation Pressure (psi)	Expansion (dial, inches x 1000)	Expansion (psf)	R Value
1	122	12.3	394	10	43	29
2	119	13.4	359	5	22	16
3	115	14.6	216	5	22	11

R-Value at 300 psi exudation pressure = **13**

WallaceKuhl & ASSOCIATES

RESISTANCE VALUE TEST RESULTS

STATHOS COVE

Elk Grove, California

FIGURE	A3
DRAWN BY	RWO
CHECKED BY	GJF
PROJECT MGR	SLF
DATE	01/16
WKA NO.	10842.01

Sunland Analytical

11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 01/29/2016
Date Submitted 01/26/2016

To: Joe Follettie
Wallace-Kuhl & Assoc.
3050 Industrial Blvd.
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney RA
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 10842.01-STATHOS CV. Site ID : TP12 @ 1-4FT.
Your purchase order number is 3790.
Thank you for your business.

* For future reference to this analysis please use SUN # 71163-148402.

EVALUATION FOR SOIL CORROSION

Soil pH	7.17		
Minimum Resistivity	1.15	ohm-cm (x1000)	
Chloride	21.2 ppm	00.00212	%
Sulfate	14.6 ppm	00.00146	%

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

WallaceKuhl & ASSOCIATES

CORROSION TEST RESULTS

STATHOS COVE

Elk Grove, California

FIGURE	A4
DRAWN BY	RWO
CHECKED BY	GJF
PROJECT MGR	SLF
DATE	01/16
WKA NO.	10842.01

Sunland Analytical
11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 01/29/2016
Date Submitted 01/26/2016

To: Joe Follettie
Wallace-Kuhl & Assoc.
3050 Industrial Blvd.
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

RA

The reported analysis was requested for the following:
Location : 10842.01-STATHOS CV. Site ID : TP12 @ 1-4FT.
Your purchase order number is 3790. Thank you for your business.

* For future reference to this analysis please use SUN # 71163-148403.

Extractable Sulfate in Water

TYPE OF TEST	RESULTS	UNITS
Sulfate-SO4	11.92	mg/kg

ASTM D-516 from sat.paste extract-reported based on dry wt.

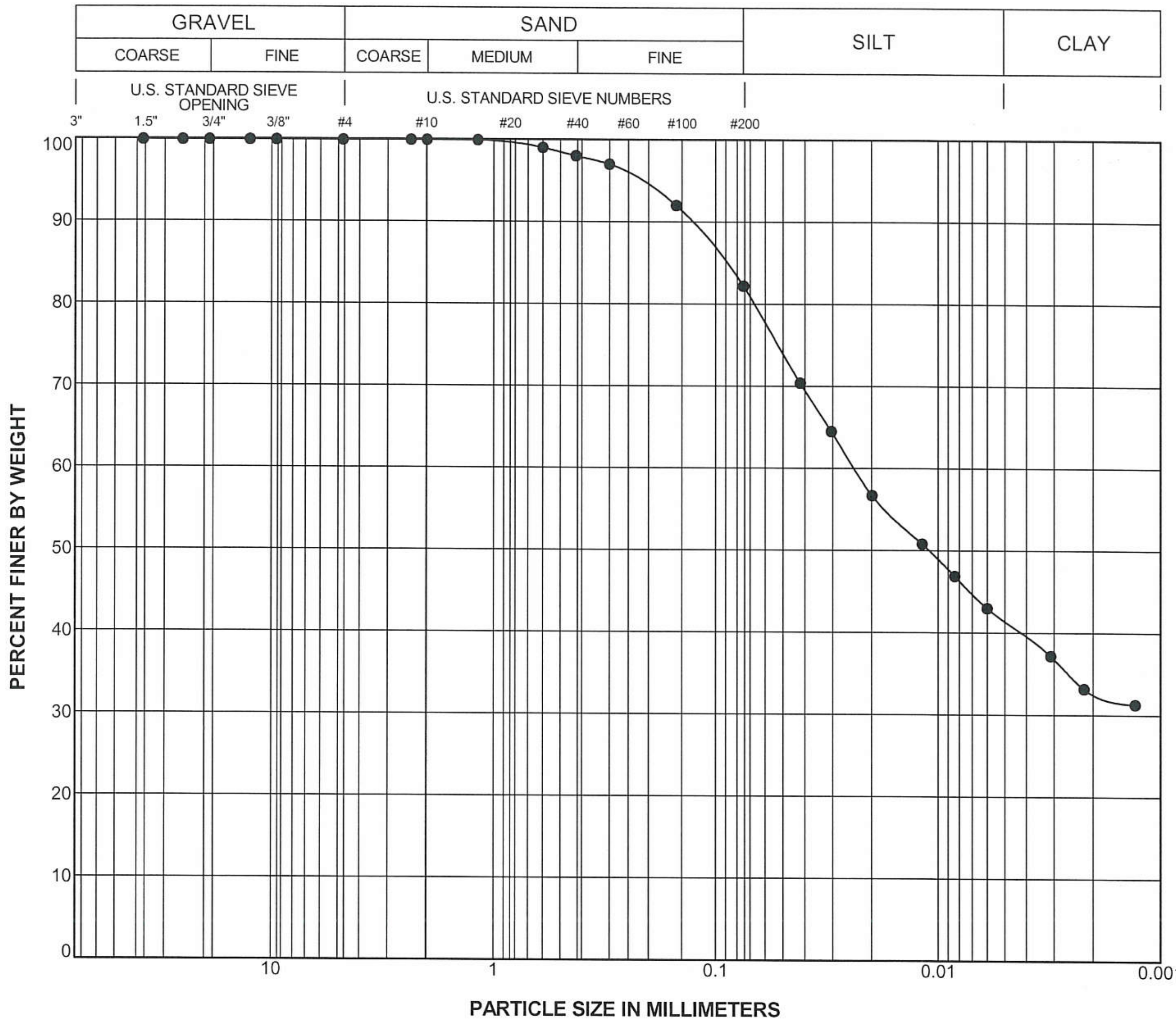
WallaceKuhl & ASSOCIATES

CORROSION TEST RESULTS

STATHOS COVE

Elk Grove, California

FIGURE	A5
DRAWN BY	RWO
CHECKED BY	GJF
PROJECT MGR	SLF
DATE	01/16
WKA NO.	10842.01



Test Pit Number	Sample Number	USCS	Depth (feet)	Symbol	LL	PI	Classification
TP12	TP12	CH	1-4	●	51	30	Brown, sandy, silty clay

PARTICLE SIZE DISTRIBUTION

Project: Stathos Cove
WKA No. 10842.01

Wallace Kuhl & ASSOCIATES

FIGURE A6

APPENDIX B

Earthwork Specifications

APPENDIX B

EARTHWORK SPECIFICATIONS

STATHOS COVE

Elk Grove, California

WKA No. 10842.01

GEOTECHNICAL ENGINEERING REPORT

A Geotechnical Engineering Report (WKA No. 10842.01; dated February 25, 2016) has been prepared for this site by Wallace - Kuhl & Associates, Geotechnical Engineers of West Sacramento, California; (916) 372-1434. A copy is available for review at the office of Wallace - Kuhl & Associates. The information contained in the Geotechnical Engineering Report was obtained for design purposes only.

GENERAL DESCRIPTION

This item shall include all clearing and grubbing, site demolition, preparation of land to be filled, spreading, compaction, observation and testing of the fill, and all subsidiary work necessary to complete the grading of the site to conform with the lines, grades and slopes as shown on the accepted plans.

CLEARING, GRUBBING AND PREPARING BUILDING AND PAVEMENT AREAS

Initially, the site shall be cleared of deleterious debris, end-dumped piles of concrete, surface and subsurface structures associated with former development of the site, including foundations, concrete slabs, leach fields and septic tanks, underground utilities designated for removal, including all trench backfill, and underground irrigation lines, if present. Trees and shrubs designated to be removed shall include the entire rootball and all roots larger than one-half inch (½") in diameter. Wells shall be destroyed in accordance with Sacramento County Environmental Management Department requirements. Depressions resulting from clearing operations, as well as any loose, saturated, or organically contaminated soils, as identified by our representative, shall be cleaned out to firm, undisturbed soils and widened, as necessary, to allow access with construction equipment. Depressions shall be backfilled with engineered fill in accordance with the recommendations contained in this report.

Undocumented surface fills shall be removed to expose undisturbed native soils. The approximate limits of the fill are shown on Figure 2A; the fill depth varies between two (2') and three (3') feet and covers an area of about fifty feet (50') feet wide by approximately one hundred feet (100') in length. The fills encountered in Test Pits 2, 3, and 5 shall also be removed to expose undisturbed native soils. The depths of the fill vary between five and a half feet (5½') to nine feet (9') feet deep. The bid documents shall include a unit cost (per cubic yard) for additional excavation and recompaction as engineered fill.

Following site clearing, remaining surface organics shall be removed by stripping. Strippings shall not be used in general fill construction, but may be used in future backyard areas within the proposed subdivision, provided they are kept at least five feet (5') from the building pads, moisture conditioned and compacted, and do not exceed a depth of two feet (2'). Discing of organics into the surface soils may be a suitable alternative to stripping, depending upon the quantity and condition of the surface vegetation at the time of grading. Discing will be allowed only with our prior approval and discing operations must be continuous until organics are adequately mixed with the soil to provide a compactable mixture. Pockets or concentrations of organics will not be allowed.

Structural areas to remain at-grade, achieved by excavation or to receive fill, shall be scarified to a depth of at least twelve inches (12"). Soils exposed at the bottom of excavations shall be scarified to a depth of six inches (6"). In areas that previously supported structures (Figure 2B), the existing grades shall be thoroughly ripped and cross-ripped to a depth of twelve inches (12") to help uncover and remove any remaining remnants of former structures, debris and rubble. The processed soil shall then be uniformly moisture conditioned to at least two percent (2%) over the optimum moisture, and compacted to at least ninety percent (90%) of the ASTM D1557 Test Method. Due to the relatively loose nature of the surface soils, thorough moisture conditioning and recompaction of the existing surface soils is crucial to site development.

Compaction of soil subgrades shall be achieved using a heavy, self-propelled, sheepsfoot compactor (such as a Caterpillar 815 or equivalent) and shall be performed in the presence of the Geotechnical Engineer's representative who will evaluate the performance of the subgrade under the compaction loads and identify loose or unstable soil conditions that could require additional excavation. Difficulty in achieving subgrade compaction or unusual soil instability may be indications of loose soils associated with past subsurface items such as septic tanks or dump pits. Should these conditions exist, the materials shall be excavated to check for possible subsurface structures and the excavations backfilled with engineered fill.

Construction bid documents contain a unit price (price per cubic yard) for additional excavation due to unsuitable materials and replacement with engineered fill.

The concrete vault shall be backfilled with controlled low strength material (CLSM), also referred to as controlled density fill (CDF). Prior to placement of the CLSM, the concrete vault walls extending five feet (5’) below future finish grade shall be removed. Debris at the bottom of the vault and vertical piping within the vault shall be removed and the open pipe within the sidewall of the vault shall be sealed off prior to placement of CLSM. The CLSM shall achieve a 28-day compressive strength in the range of 100 to 200 pounds per square inches (psi). Experience on a recent project suggests that a one and a half (1½) to two (2) sack mix is capable of achieving the desired strength. However, the contractor shall select an appropriate mix to achieve the desired strength.

As a minimum the CLSM shall extend vertically to an elevation of five feet (5’) below the bottom of proposed finished grade, provided that it does not conflict with future underground utilities or other planned subsurface development. The final five feet (5’) of backfill shall consist of native on-site materials moisture conditioned to at least two percent (2%) above the optimum moisture content for clay soils and compacted to at least ninety percent (90%) of the ASTM D1557 maximum dry density. The CLSM shall be allowed to cure for at least two (2) days before placing and compacting engineered fill.

Individual buildings shall not be supported upon differential fill depths greater than five feet (5’). This is especially important in areas where new construction will span onto or across the backfill from former pool excavation, removed structures, or overexcavated areas. When fill differentials exceed five feet (5') excavation shall be performed on the cut portion or shallower fill portion of the building pad to reduce the fill differential of five feet (5'). The resulting overexcavated pad should then be uniformly brought up to the final pad elevation with engineered fill.

MATERIALS

On-site soils are suitable for engineered fill construction of structural areas, if free from rubbish, rubble greater than three inches (3”), and significant organic concentrations. Imported fill materials, if required, shall be compactable, granular soils with an Expansion Index of twenty (20) or less and be free of particles greater than three inches (3”) in maximum dimension. Imported soils shall be approved by our office prior to being transported to the site. If import fills are required (other than aggregate base), the contractor shall provide appropriate documentation that the import is clean of known contamination and within acceptable corrosion limits.

PLACING, SPREADING AND COMPACTING FILL MATERIAL

Engineered fill shall be placed in lifts not exceeding six inches (6”) in compacted thickness with each lift being uniformly moisture conditioned to at least two percent (2%) above the optimum moisture content, and compacted to not less than ninety percent (90%) of the ASTM D1557 Test Method.

When the moisture content of the fill material is less than the recommended minimum moisture, water shall be added until the proper moisture content is achieved.

When the moisture content of the fill material is too high to permit the specified compaction to be attained, the fill material shall be aerated by blading or other methods until the moisture content is satisfactory.

Compaction of fill shall be undertaken with a heavy, self-propelled, sheepsfoot compactor (Caterpillar 815 or equivalent) capable of achieving the specified density, and shall be accomplished while the fill material is at the required moisture content. Each layer shall be compacted over its entire area until the desired density has been obtained.

FINAL SUBGRADE PREPARATION

The upper twelve inches (12") of all final building pad subgrades shall be moisture conditioned to two percent above the optimum moisture content and uniformly compacted to at least ninety percent (90%) of the maximum dry density as determined by the ASTM D1557 Test Method, regardless of whether final subgrade elevation is attained by filling, excavation or is left at existing grade.

The upper six inches (6") of all final pavement subgrades shall be moisture conditioned to two percent above the optimum moisture content for clay soils or to at least the optimum moisture content for granular soils and uniformly compacted to at least ninety-five percent (95%) of the maximum dry density as determined by the ASTM D1557 Test Method.

TESTING

Observation and testing by the Geotechnical Engineer or his representative shall be provided during all clearing, filling and compaction operations. The grading contractor shall give at least twenty-four (24) hours notice prior to beginning such operations to allow proper scheduling of the work.

SEASONAL LIMITS

Fill materials shall not be placed, spread or rolled during unfavorable weather conditions. When heavy rains interrupt the work, fill operations shall not be resumed until field tests indicate that the moisture content and density of the fill are satisfactory.

APPENDIX D

PRELIMINARY DRAINAGE STUDY

Preliminary Drainage Study
Elk Grove Self-Storage
City of Elk Grove, California

Drainage Analysis

Contents:

Drainage Analysis Narrative
Hydraulic Calculations

Appendices:

- *Sac. County Drainage Manual, Fig. 4-1*
- *Preliminary Drainage Shed Map*
- *SQDM Figure 3-1*
- *LID Credits Worksheets*
- *BioClean Modular Wetlands Details*

BY
Burrell Consulting Group Inc.
1001 Enterprise Way
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Calculated By: Adam Clark, EIT
Reviewed By: Regina Reusser, PE
Date: 7/26/2021

Burrell Project No. 2434-00-1275

1. INTRODUCTION

The Elk Grove Self-Storage project encompasses approximately 7.7 acres located along the North side of Elk Grove Blvd in Elk Grove, CA between Backer Ranch Road and McKenna Drive. The project area consists of a mostly flat undeveloped area bordered on all sides by developed properties. A parking lot to the north, residential homes and a retirement complex to the East, an arterial road to the south, and a sports complex to the west. The elevations range from approximately 24 on the south of the site (nearest the street), to approximately 29 near the center of the site. No off-site flows are expected to enter the site.

2. PROJECT DESCRIPTION

The intent of this project is to construct a self-storage facility. The current impervious area is approximately 0% and will be increased to approximately 95% due to development of this site.

3. EXISTING DRAINAGE CONDITIONS

The existing on-site drainage consists of one large shed, the south of the site is a low point compared to the surrounding parcels and the street and runoff does not leave the site. The average annual precipitation for the site is approximately 17 inches (Sacramento County Drainage Manual, Figure 4-1).

4. PROPOSED DRAINAGE SYSTEM AND HYDRAULICS

The proposed site consists of 8 small water sheds and shed runoff is treated via Bioclean modular wetlands units. The 2018 LID Commercial LID Credits spreadsheet was used to size the Bioclean units. The sheds were assumed to be full impervious, and no LID credits utilized. The Capacity of the Bioclean units is greater than or equal to the resulting Treatment (flow based) requirement in Step 4a. Stormwater treatment beyond source control measures is not integrated for this site. The Preliminary Drainage Shed Map & Hydraulics Analysis provides the design flows (using the Nolte Method) as well as the pipe hydraulics of each system.

a) 10-YEAR

Under the 10-year flow conditions, the maximum capacity in the two systems are 33%, and 93% full at each existing outfall. The HGL was analyzed assuming the outfall pipes were at full capacity. All extents of pipes have HGLs below 12 inches from the rim/grate. See attached Hydraulics Analysis for details.

5. OFF-SITE

As mentioned in the Introduction and Existing Drainage Conditions section of this narrative, no off-site flows are expected.

6. POST-CONSTRUCTION BMPS

The commercial LID credits worksheet exceeds the 100 points required for low impact standards utilizing the Bioclean Modular Wetland Units.

7. CONCLUSION

By incorporating a combination of post-construction BMPs, the proposed project will contain and treat on-site runoff prior to entering the City storm water system.

STORM DRAIN CALCULATIONS

NORMAL DEPTH & VELOCITY IN CIRCULAR PIPE - DESIGN FLOW

TRIANGLE POINT - PARCEL 6

MANNING'S n = 0.015

10-YEAR STORM DRAIN DESIGN

UP STREAM NODE	DOWN STREAM NODE	DESIGN DISCHARGE (cfs)	UP STREAM IE	DOWN STREAM IE	PIPE LENGTH (ft)	SLOPE (ft/ft)	PIPE DIA (in)	FRICTION SLOPE	FLOW TYPE	Dn (in)	Dc (in)	Vn (fps)	Vc (fps)	Qcap (cfs)	% FULL	UP STREAM RIM	UP STREAM HGL	DOWN STREAM RIM	DOWN STREAM HGL	FINISHED GRADE UPSTREAM	COVER (FEET)	ACTUAL HGL
SHED-1	SHED-2	0.28	17.16	16.93	79	0.0030	12	0.0001	PART	3.24	2.52	1.64	2.34	1.69	17	27.50	17.69	27.50	17.68	27.50	9.34	In pipe
SHED-2	MH-1	0.56	16.93	16.88	17	0.0030	12	0.0003	PART	4.68	3.72	1.97	2.70	1.69	33	27.50	17.68	27.80	17.67	27.50	9.57	In pipe
MH-1	OUT-1	0.56	16.88	16.65	75	0.0030	12	0.0003	PART	4.68	3.72	1.97	2.70	1.69	33	27.80	17.67	29.00	17.65	27.80	9.93	In pipe
SHED-3	SHED-4	0.95	20.54	20.28	88	0.0030	12	0.0009	PART	6.36	4.80	2.25	3.24	1.69	56	26.00	21.77	26.00	21.68	26.00	4.46	21.77
SHED-4	MH-2	1.85	20.28	19.81	117	0.0040	12	0.0036	PART	9.24	6.84	2.85	4.00	1.95	95	26.00	21.68	26.80	21.26	26.00	4.72	21.68
SHED-5	SHED-3	0.22	20.59	20.28	104	0.0030	12	0.0001	PART	2.88	2.28	1.52	2.12	1.69	13	26.00	21.77	26.00	21.77	26.00	4.41	21.77
SHED-6	MH-2	0.38	20.45	19.81	214	0.0030	12	0.0002	PART	3.84	3.00	1.75	2.48	1.69	22	26.00	21.29	26.80	21.26	26.00	4.55	In pipe
SHED-7	SHED-8	0.41	20.52	20.25	90	0.0030	12	0.0002	PART	3.96	3.12	1.81	2.53	1.69	24	26.00	21.44	26.00	21.42	26.00	4.48	In pipe
SHED-8	MH-2	1.03	20.25	19.81	146	0.0030	12	0.0011	PART	6.72	5.04	2.28	3.29	1.69	61	26.00	21.42	26.80	21.26	26.00	4.75	21.42
MH-2	MH-3	3.29	19.81	19.68	88	0.0015	18	0.0013	PART	13.68	8.28	2.28	4.15	3.53	93	26.80	21.26	27.00	21.15	26.80	5.49	In pipe
MH-3	MH-4	3.29	19.68	19.52	106	0.0015	18	0.0013	PART	13.68	8.28	2.28	4.15	3.53	93	27.00	21.15	27.00	21.01	27.00	5.82	In pipe
MH-4	OUT-2	3.29	19.52	19.45	45	0.0015	18	0.0013	PART	13.68	8.28	2.28	4.15	3.53	93	27.00	21.01	27.20	20.95	27.00	5.98	In pipe

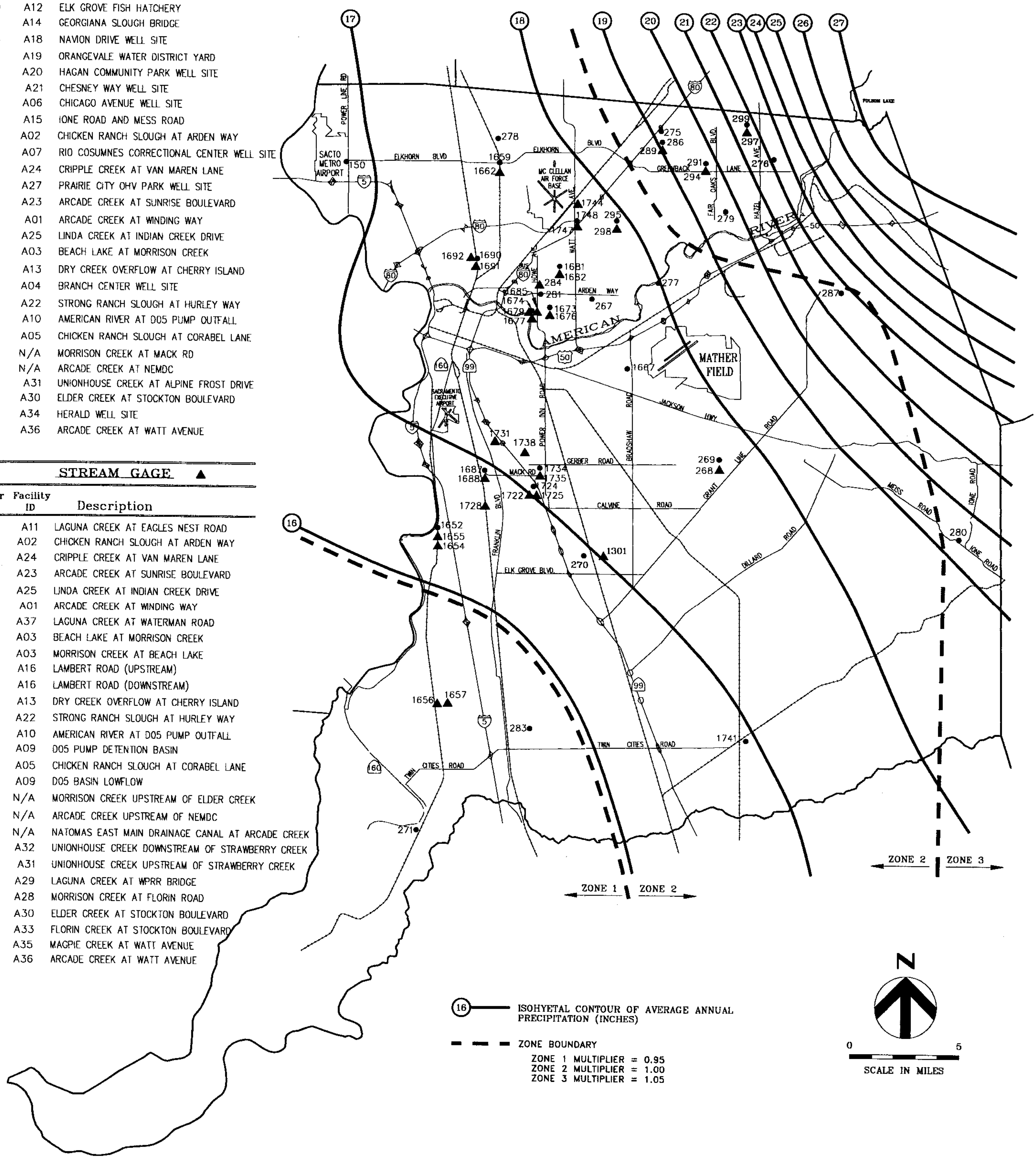
KEY

PRECIPITATION GAGE ●

Sensor ID	Facility ID	Description
150	A17	METRO AIRPORT WIND SOCK
267	A08	CRESTA PARK WELL SITE
269	A11	LAGUNA CREEK AT EAGLES NEST ROAD
270	A12	ELK GROVE FISH HATCHERY
271	A14	GEORGIANA SLOUGH BRIDGE
275	A18	NAVION DRIVE WELL SITE
276	A19	ORANGEVALE WATER DISTRICT YARD
277	A20	HAGAN COMMUNITY PARK WELL SITE
278	A21	CHESNEY WAY WELL SITE
279	A06	CHICAGO AVENUE WELL SITE
280	A15	IONE ROAD AND MESS ROAD
281	A02	CHICKEN RANCH SLOUGH AT ARDEN WAY
283	A07	RIO COSUMNES CORRECTIONAL CENTER WELL SITE
286	A24	CRIPPLE CREEK AT VAN MAREN LANE
287	A27	PRAIRIE CITY OHV PARK WELL SITE
291	A23	ARCADE CREEK AT SUNRISE BOULEVARD
295	A01	ARCADE CREEK AT WINDING WAY
299	A25	LINDA CREEK AT INDIAN CREEK DRIVE
1652	A03	BEACH LAKE AT MORRISON CREEK
1659	A13	DRY CREEK OVERFLOW AT CHERRY ISLAND
1667	A04	BRANCH CENTER WELL SITE
1673	A22	STRONG RANCH SLOUGH AT HURLEY WAY
1674	A10	AMERICAN RIVER AT D05 PUMP OUTFALL
1681	A05	CHICKEN RANCH SLOUGH AT CORABEL LANE
1687	N/A	MORRISON CREEK AT MACK RD
1690	N/A	ARCADE CREEK AT NEMDC
1724	A31	UNIONHOUSE CREEK AT ALPINE FROST DRIVE
1734	A30	ELDER CREEK AT STOCKTON BOULEVARD
1741	A34	HERALD WELL SITE
1748	A36	ARCADE CREEK AT WATT AVENUE

STREAM GAGE ▲

Sensor ID	Facility ID	Description
268	A11	LAGUNA CREEK AT EAGLES NEST ROAD
284	A02	CHICKEN RANCH SLOUGH AT ARDEN WAY
289	A24	CRIPPLE CREEK AT VAN MAREN LANE
294	A23	ARCADE CREEK AT SUNRISE BOULEVARD
297	A25	LINDA CREEK AT INDIAN CREEK DRIVE
298	A01	ARCADE CREEK AT WINDING WAY
1301	A37	LAGUNA CREEK AT WATERMAN ROAD
1654	A03	BEACH LAKE AT MORRISON CREEK
1655	A03	MORRISON CREEK AT BEACH LAKE
1656	A16	LAMBERT ROAD (UPSTREAM)
1657	A16	LAMBERT ROAD (DOWNSTREAM)
1662	A13	DRY CREEK OVERFLOW AT CHERRY ISLAND
1676	A22	STRONG RANCH SLOUGH AT HURLEY WAY
1677	A10	AMERICAN RIVER AT D05 PUMP OUTFALL
1679	A09	D05 PUMP DETENTION BASIN
1682	A05	CHICKEN RANCH SLOUGH AT CORABEL LANE
1685	A09	D05 BASIN LOWFLOW
1688	N/A	MORRISON CREEK UPSTREAM OF ELDER CREEK
1691	N/A	ARCADE CREEK UPSTREAM OF NEMDC
1692	N/A	NATOMAS EAST MAIN DRAINAGE CANAL AT ARCADE CREEK
1722	A32	UNIONHOUSE CREEK DOWNSTREAM OF STRAWBERRY CREEK
1725	A31	UNIONHOUSE CREEK UPSTREAM OF STRAWBERRY CREEK
1728	A29	LAGUNA CREEK AT WPRR BRIDGE
1731	A28	MORRISON CREEK AT FLORIN ROAD
1735	A30	ELDER CREEK AT STOCKTON BOULEVARD
1738	A33	FLORIN CREEK AT STOCKTON BOULEVARD
1744	A35	MAGPIE CREEK AT WATT AVENUE
1747	A36	ARCADE CREEK AT WATT AVENUE



Sacramento City and County Rainfall Zones and Multipliers/ Average Annual Precipitation Map

Date **December 1996**

Figure **4–1**

SHED MAP EXHIBIT FOR:

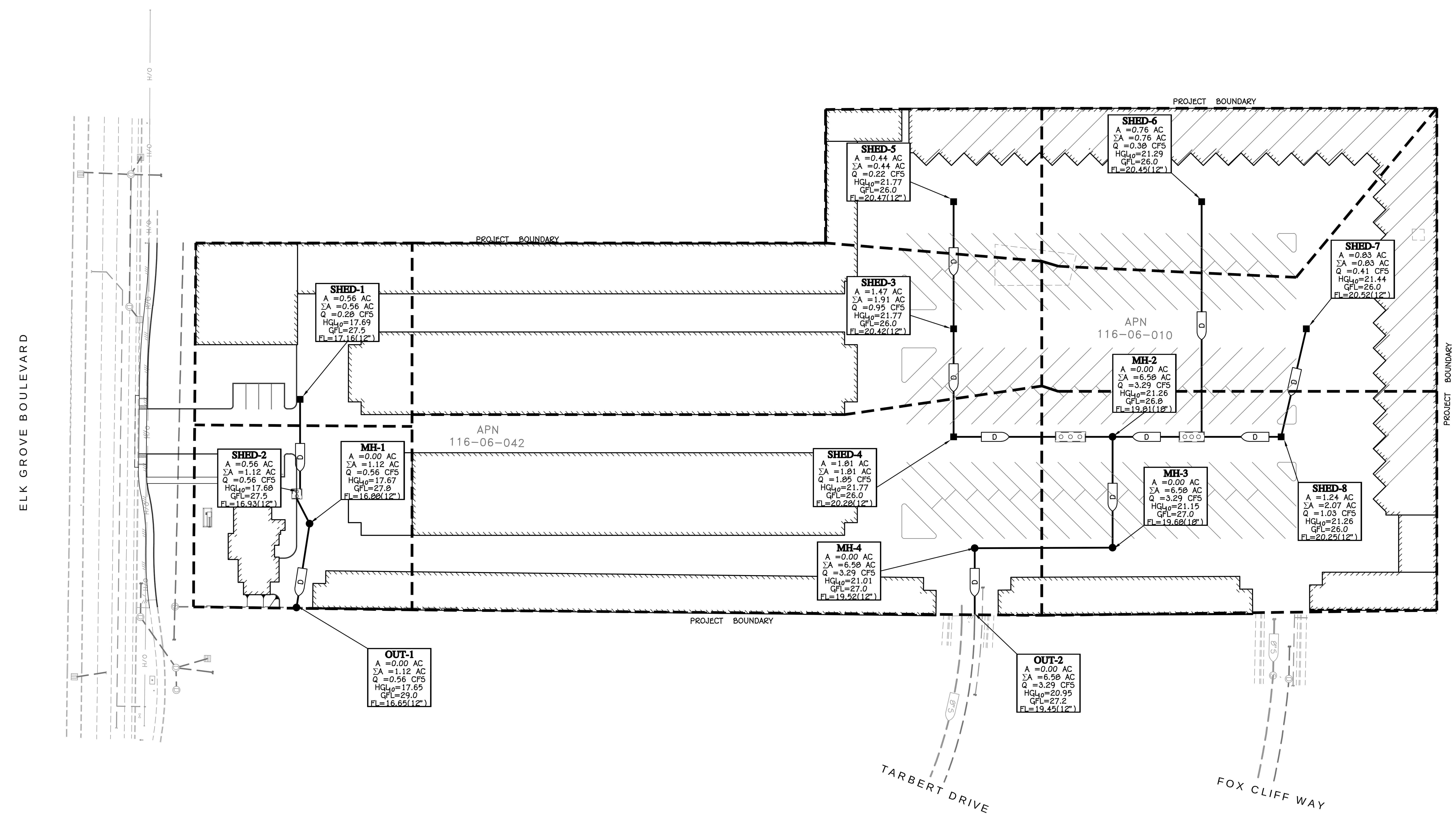
ELK GROVE STORAGE

CITY OF ELK GROVE — CALIFORNIA

SCALE: 1"=40'

LEGEND

DESCRIPTIONS	(P) PROPOSED	(E) EXISTING
STORM DRAIN	12" D	12" D
SANITARY SEWER	6" S	6" S
WATER MAIN	8" W	8" W
FIRE SERVICE	8" FS	8" FS
CENTERLINE		
RIGHT OF WAY LINE		
BOUNDARY LINE		
ELECTRICAL LINE		E
GAS LINE		G
TELEPHONE LINE		T
JOINT TRENCH		J/T
SIDEWALK WITH CURB AND GUTTER		
VARIABLE CURB FACE		
EDGE OF PAVEMENT		
MANHOLE		
DRAIN INLET		
SEWER CLEANOUT		
METERED WATER SERVICE		
POST INDICATOR VALVE		
FIRE HYDRANT		
FIRE DEPT. CONNECTION		
BLOWOFF VALVE		
GATE VALVE		
BUTTERFLY VALVE		
REDUCED PRESSURE BACKFLOW PREVENTOR		
DOUBLE DETECTOR CHECK VALVE		
TYPE 'A' STREET LIGHT		
TYPE 'B' STREET LIGHT		
TRANSFORMER		
PULLBOX		
PEDESTAL & SERVICE CAN		
UTILITY SERVICE PEDESTAL		
UTILITY POLE		
GUY WIRE		
4 SIDED STREET SIGN		
SIGN		
GRADE BREAK	GB	
DIRECTION OF FLOW		
SWALE		
ELEVATION	123.45	(123.45)
2:1 SLOPE UNLESS NOTED OTHERWISE		



ABBREVIATIONS

Abbreviation	Meaning
AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
ACP	ASBESTOS CEMENT PIPE
AP	ANGLE POINT
ASB.	AGGREGATE SUB-BASE
ARV.	AIR & VACUUM RELIEF VALVE
BC	BEGIN CURVE
BM	BENCH MARK
BNDY	BOUNDARY
BO	BLOW OFF VALVE
BVC.	BEGIN VERTICAL CURVE
BW	BOTTOM OF WALL
BWF.	BARBED WIRE FENCE
C&G	CURB & GUTTER
C.D.	CHANNEL DRAIN
CL	CENTERLINE
CLF.	CHAIN LINK FENCE
CMP.	CORRUGATED METAL PIPE
CONST	CONSTRUCT
CO	CLEAN OUT
COTG	CLEAN OUT TO GRADE
CONC.	CONCRETE
CP	CONCRETE PIPE
CR RT	CURB RETURN, RIGHT SIDE
CR LT	CURB RETURN, LEFT SIDE
CTVPB	CABLE T.V. PULLBOX
CTVPED	CABLE T.V. PEDESTAL
CTVR	CABLE T.V. RISER
D.	DRAIN
DI	DRAIN INLET
DIP	DUCTILE IRON PIPE
DMH	DRAIN MANHOLE
DWG	DRAWING
(E) EXIST.	EXISTING
EG	EXISTING GRADE
EL	ELEVATION
EMH	ELECTRICAL MANHOLE
EP	EDGE OF PAVEMENT
EPB.	ELECTRICAL PULLBOX
EPED	ELECTRICAL PEDESTAL
ER	ELECTRICAL RISER
ESMT	EASEMENT
EC	END CURVE
EVC.	END VERTICAL CURVE
FB	FLUSHER BRANCH
FDC.	FIRE DEPARTMENT CONNECTION
FF	FINISHED FLOOR
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
FS	FINISHED SURFACE
GB	GRADE BREAK
GM	GAS METER
GR	GRATE ELEVATION
GRSR	GAS RISER
GV	GAS VALVE
HC	HANDICAP
HGL	HYDRAULIC GRADE LINE
HP	HIGH POINT
HS	HOUSE SERVICE
IMP'S	IMPROVEMENTS
INTX	INTERSECTION
JP	JOINT POLE
JT	JOINT TRENCH
LE	LANDSCAPE EASEMENT
LF	LINEAR FEET
LIP	LIP OF GUTTER
LP	LOW POINT
M.	MANIFOLD
MH	MANHOLE
MB	MAILBOX
MW	MONITORING WELL
NG	NATURAL GRADE (EXISTING)
NGF.	NATURAL GRADE FOUNDATION
NTS.	NOT TO SCALE
OLR.	OVERLAND RELEASE
(P)	PROPOSED
PB	PULLBOX
PCC	POINT OF CONCENTRIC CURVATURE
PCP	PLASTIC CORRUGATED PIPE
PED	PEDESTRIAN
PIV	POST INDICATOR VALVE
P.O.C.	POINT OF CONNECTION
PVI	POINT OF VERTICAL INTERSECTION
PL	PROPERTY LINE
PP	POWER POLE
PPB	PEDESTRIAN PUSH BUTTON
PRC	POINT OF REVERSE CURVATURE
PNT.	POINT
PSE	PUBLIC SEWER EASEMENT
PUE	PUBLIC UTILITY EASEMENT
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
RCP	REINFORCED CONCRETE PIPE
(REL)	ITEM TO BE RELOCATED
R.	RADIUS
RL	RESTRAINT LENGTH
RP	RADIUS POINT
RW	RECLAIMED WATER
R/W	RIGHT-OF-WAY
S.	SEWER
SS	SEWER SERVICE
SBL	SETBACK LINE
SDE	STORM DRAIN EASEMENT
SDWK	SIDEWALK
SMH	SEWER MANHOLE
STA.	STATION
STD.	STANDARD
STLT	STREET LIGHT
STS.	STORM SEWER
SLPB	STREET LIGHT PULLBOX
SUBD	SUBDIVISION
SWF.	SMOOTH WIRE FENCE
TBC.	TOP BACK OF CURB
TBM	TEMPORARY BENCH MARK
TBW	TOP BACK OF WALK
TC	TOP OF CURB
TMH	TELEPHONE MANHOLE
TOE	TOE OF SLOPE
TOP	TOP OF SLOPE
TP	TELEPHONE POLE
TPB.	TELEPHONE PULLBOX
TPED	TELEPHONE PEDESTAL
TR	TELEPHONE RISER
TSB.	TRAFFIC SIGNAL BOX(CONTROLLER)
TSPB	TRAFFIC SIGNAL PULLBOX
TW	TOP OF WALL
TYP.	TYPICAL
UPC	UNIFORM PLUMBING CODE
VCF.	VARIABLE CURB FACE
VCP.	VITRIFIED CLAY PIPE
W.	WATER LINE
WF	WOOD FENCE
WM	WATER METER
WV	WATER VALVE

PRELIMINARY GRADING AND UTILITY EXHIBIT FOR:

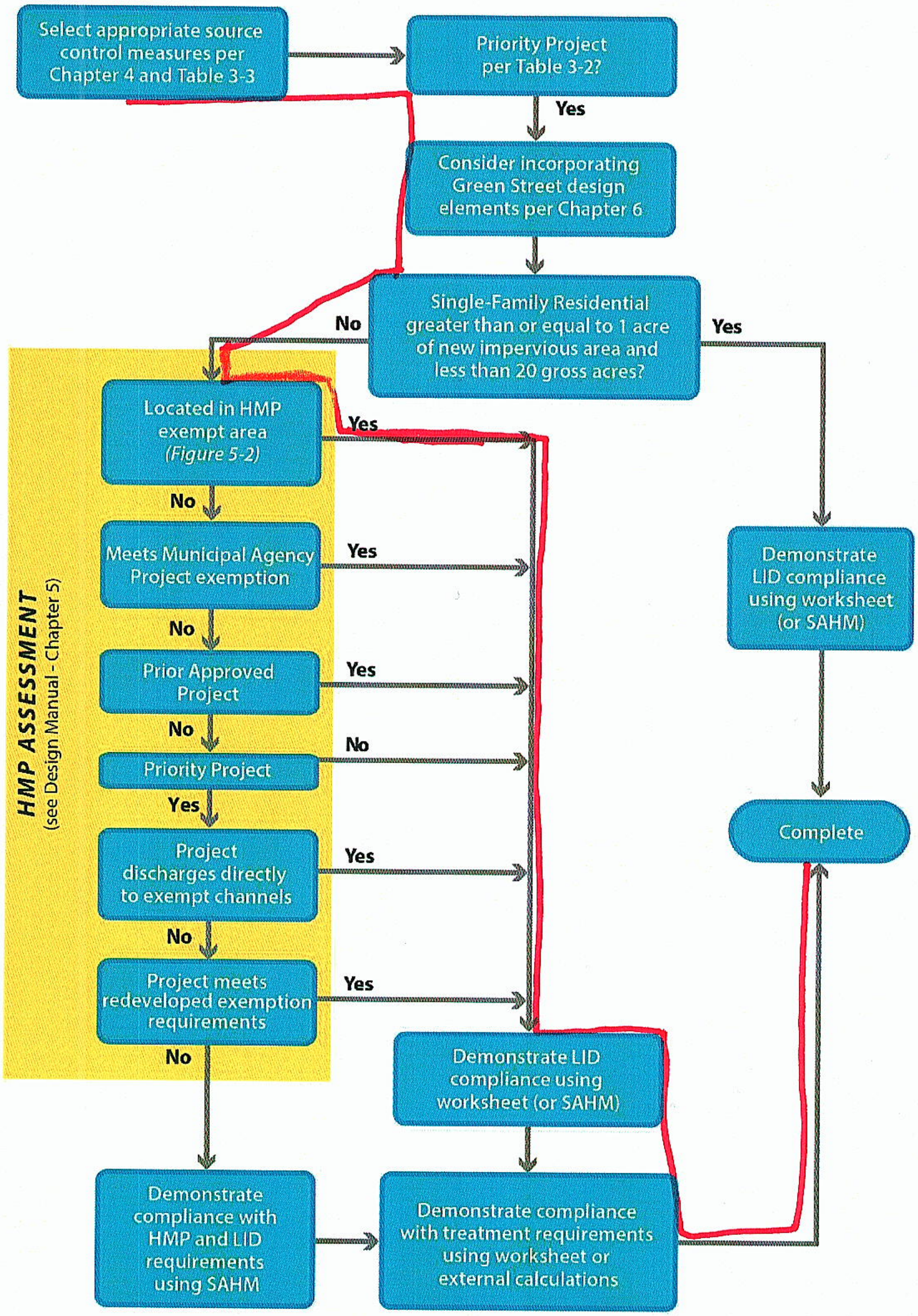
ELK GROVE STORAGE

JUNE 29, 2021

SHEET 1 OF 1

BURRELL CONSULTING GROUP, INC.
1001 Enterprise Way, Suite 100 Roseville, CA 95678 (916) 783-8898

Figure 3-1 *Identifying Stormwater Quality Requirements for New Development and Redevelopment Projects*



Click here to link to Figure 5-2, Applicability Map.

Appendix D-2: Commercial Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations

Name of Drainage Shed: Elk Grove Storage - Shed 1 — Fill in Blue Highlighted boxes

Location of project: Sacramento

Step 1 - Open Space and Pervious Area Credits

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

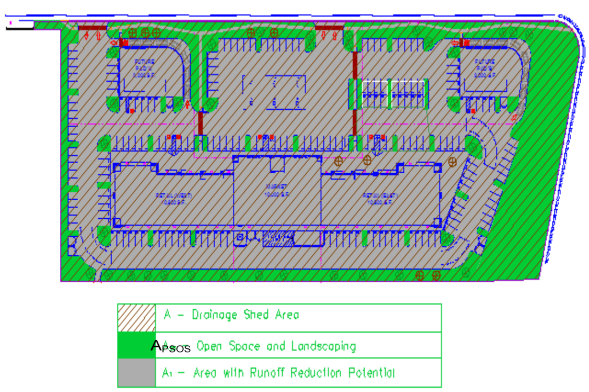
1 a. Common Drainage Plan Area		0	acres	A_{CDP}
Common Drainage Plan Open Space (Off-project)		0	acres	A_{OS}
a. Natural storage reservoirs and drainage corridors		0	acres	
b. Buffer zones for natural water bodies		0	acres	
c. Natural areas including existing trees, other vegetation, and soil		0	acres	
d. Common landscape area/park		0	acres	
e. Regional Flood Control/Drainage basins		0	acres	
1 b. Project Drainage Shed Area (Total)		1.13	acres	A
Project-Specific Open Space (In-project, communal)**		0.00	acres	A_{PSOS}
a. Natural storage reservoirs and drainage corridors		0.00	acres	
b. Buffer zones for natural water bodies		0.00	acres	
c. Natural areas including existing trees, other vegetation, and soil		0.00	acres	
d. Landscape area/park		0.00	acres	
e. Flood Control/Drainage basins		0.00	acres	

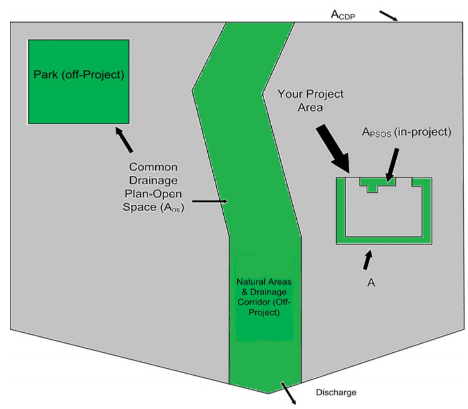
see area example below

see area example below

** Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

Area with Runoff Reduction Potential	$A - A_{PSOS} =$	1.13	acres	A_T
Assumed Initial Impervious Fraction	$A_T / A =$	1.00		I
Open Space & Pervious Area LID Credit (Step 1)	$(A_{OS}/A_{CDP}+A_{PSOS}/A)x100 =$	0	pts	





Step 2 - Runoff Reduction Credits

Runoff Reduction Treatments	Impervious Area Managed			Efficiency Factor		Effective Area Managed (A_C)	
Porous Pavement:							
Option 1: Porous Pavement (see Fact Sheet, excludes porous pavement used in Option 2)	0	acres	x		=	0.000	acres
Option 2: Disconnected Pavement (see Fact Sheet, excludes porous pavement used in Option 1)	use Form D-2a for credits					0.00	acres
Landscaping used to Disconnect Pavement (see Fact Sheet)	0.0000	acres			=	0.00	acres
Disconnected Roof Drains (see Fact Sheet and/or Table D-2b for summary of requirements)	0	acres			=	0.00	acres
Ecoroof (see Fact Sheet)	0	acres			=	0.00	acres
Interceptor Trees (see Fact Sheet)	use Form D-2b for credits					0.00	acres
Total Effective Area Managed by Runoff Reduction Measures				A_C		0.00	acres
Runoff Reduction Credit (Step 2)				$(A_C / A_T)*100 =$		0	pts

Table D-2a

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete/Asphalt	0.60
Modular Block Pavement &	0.75
Reinforced Grass Pavement	1.00

Table D-2b

Maximum roof size	Minimum travel distance
≤ 3,500 sq ft	21 ft
≤ 5,000 sq ft	24 ft
≤ 7,500 sq ft	28 ft
≤ 10,000 sq ft	32 ft

Form D-2a: Disconnected Pavement Worksheet

See Fact Sheet for more information regarding Disconnected Pavement credit guidelines

Effective Area Managed (A_C)

Pavement Draining to Porous Pavement

2. Enter area draining onto Porous Pavement 0.00 acres Box K1

3. Enter area of Receiving Porous Pavement 0.00 acres Box K2
(excludes area entered in Step 2 under Porous Pavement)

4. Ratio of Areas (Box K1 / Box K2) 0.00 Box K3

5. Select multiplier using ratio from Box K3 and enter into Box K4

Ratio (Box D)	Multiplier
Ratio is ≤ 0.5	1.00
Ratio is > 0.5 and < 1.0	0.83
Ratio is > 1.0 and < 1.5	0.71
Ratio is > 1.5 and < 2.0	0.55

1 Box K4

6. Enter Efficiency of Porous Pavement (see table below) Box K5

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete Asphalt Pavement	0.60
Modular Block Pavement Porous Gravel Pavement	0.75
Reinforced Grass Pavement	1.00

7. Multiply Box K2 by Box K5 and enter into Box K6 0.00 acres Box K6

8. Multiply Boxes K1,K4, and K5 and enter the result in Box K7 0.00 acres Box K7

9. Add Box K6 to Box K7 and multiply by 60%, and enter the Result in Box K8 0.00 acres
This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-2

Form D-2b: Interceptor Tree Worksheet

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

New Evergreen Trees

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1. trees Box L1

2. Multiply Box L1 by 200 and enter result in Box L2 0 sq. ft. Box L2

New Deciduous Trees

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3. trees Box L3

4. Multiply Box L3 by 100 and enter result in Box L4 0 sq. ft. Box L4

Existing Tree Canopy

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5. 0 sq. ft. Box L5

6. Multiply Box L5 by 0.5 and enter the result in Box L6 0 sq. ft. Box L6

Total Interceptor Tree EAM Credits

Add Boxes L2, L4, and L6 and enter it into Box L7 0 sq. ft. Box L7

Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter result in Box L8 0.00 acres Box L8
This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-2

Step 3 - Runoff Management Credits

Capture and Use Credits

Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems

(see Fact Sheet) | - | enter gallons, for simple rain barrels | 0.00 | acres

Automated-Control Capture and Use System

(see Fact Sheet, then enter impervious area managed by the system) | 0.00 | acres

Bioretention/Infiltration Credits

Impervious Area Managed by Bioretention BMPs

(see Fact Sheet)

Bioretention Area ___ sq ft

Subdrain Elevation ___ inches

Ponding Depth, inches ___ inches | 0.00 | acres

Impervious Area Managed by Infiltration BMPs

(see Fact Sheet)

Drawdown Time, hrs ___ drawdown_hrs_inf

Soil Infiltration Rate, in/hr ___ soil_inf_rate

Sizing Option 1: Capture Volume, acre-ft 0.00 capture_vol_inf | 0.00 | acres

Sizing Option 2: Infiltration BMP surface area, sq ft 0 soil_surface_area | 0.00 | acres

Basin or trench? ___ approximate BMP depth 0.00 ft

Impervious Area Managed by Amended Soil or Mulch Beds

(see Fact Sheet) Mulched Infiltration Area, sq ft ___ mulch_area | 0.00 | acres

Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs | 0.00 | A_{LIDc}

Runoff Management Credit (Step 3) A_{LIDC}/A_T*200 = | 0.0 | pts

Total LID Credits (Step 1+2+3) Warning: More LID Is Required 0.0

Does project require hydromodification management? If yes, proceed to using SacHM.

Adjusted Area for Flow-Based, Non-LID Treatment A_T - A_C -A_{LIDC} = | 1.13 | A_{AT}

Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment A_{AT} / A = | 1.00 | I_A

Further treatment is required, see choose flow-based or volume-based sizing in Step 4

Step 4a Treatment - Flow-Based (Rational Method)

Calculate treatment flow (cfs): Flow = Runoff Coefficient x Rainfall Intensity x Area

Look up value for i in Table D-2c (Rainfall Intensity) | 0.18 | i

Obtain A_{AT} from Step 3 | 1.13 | A_{AT}

Use C = 0.95 | 0.95 | C

Flow = 0.95 * i * A_{AT} | 0.19 | cfs

Table D-2c

Rainfall Intensity			
Roseville	i =	0.20	in/hr
Sacramento	i =	0.18	in/hr
Folsom	i =	0.20	in/hr

Step 4b Treatment - Volume-Based (ASCE-WEF)

Calculate water quality volume (Acre-Feet): WQV = Area x Maximized Detention Volume (P_0)

Obtain A from Step 1 | 1.13 | A | 12 hrs | Specified Draw Down time

Obtain P_0: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I_A from Step 2. | 0.64 | P_0

Calculate treatment volume (acre-ft):

Treatment volume = A x (P_0 / 12) | 0.06 | Acre-Feet

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Appendix D-2: Commercial Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations

Name of Drainage Shed: Elk Grove Storage - Shed 2 | Fill in Blue Highlighted boxes

Location of project: Sacramento

Step 1 - Open Space and Pervious Area Credits

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

1 a. Common Drainage Plan Area		0	acres	A_{CDP}
Common Drainage Plan Open Space (Off-project)		0	acres	A_{OS}
a. Natural storage reservoirs and drainage corridors		0	acres	
b. Buffer zones for natural water bodies		0	acres	
c. Natural areas including existing trees, other vegetation, and soil		0	acres	
d. Common landscape area/park		0	acres	
e. Regional Flood Control/Drainage basins		0	acres	
1 b. Project Drainage Shed Area (Total)		3.72	acres	A
Project-Specific Open Space (In-project, communal)**		0.00	acres	A_{PSOS}
a. Natural storage reservoirs and drainage corridors		0.00	acres	
b. Buffer zones for natural water bodies		0.00	acres	
c. Natural areas including existing trees, other vegetation, and soil		0.00	acres	
d. Landscape area/park		0.00	acres	
e. Flood Control/Drainage basins		0.00	acres	

see area example below

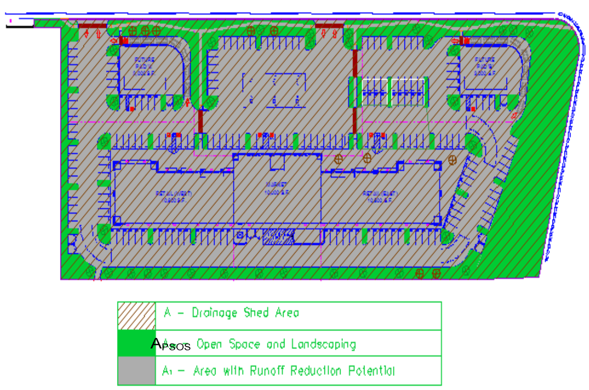
see area example below

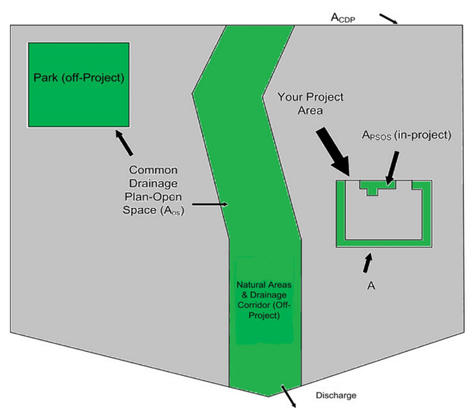
** Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

Area with Runoff Reduction Potential	$A - A_{PSOS} =$	3.72	acres	A_T
Assumed Initial Impervious Fraction	$A_T / A =$	1.00		I

Open Space & Pervious Area LID Credit (Step 1)

$(A_{OS}/A_{CDP}+A_{PSOS}/A)x100 =$ 0 pts





Step 2 - Runoff Reduction Credits

Runoff Reduction Treatments	Impervious Area Managed			Efficiency Factor		Effective Area Managed (A_C)	
Porous Pavement:							
Option 1: Porous Pavement (see Fact Sheet, excludes porous pavement used in Option 2)	0	acres	x		=	0.000	acres
Option 2: Disconnected Pavement (see Fact Sheet, excludes porous pavement used in Option 1)	use Form D-2a for credits			→		0.00	acres
Landscaping used to Disconnect Pavement (see Fact Sheet)	0.0000	acres			=	0.00	acres
Disconnected Roof Drains (see Fact Sheet and/or Table D-2b for summary of requirements)	0	acres			=	0.00	acres
Ecoroof (see Fact Sheet)	0	acres			=	0.00	acres
Interceptor Trees (see Fact Sheet)	use Form D-2b for credits			→		0.00	acres
Total Effective Area Managed by Runoff Reduction Measures				A_C		0.00	acres

Runoff Reduction Credit (Step 2) $(A_C / A_T)*100 =$ 0 pts

Table D-2a

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete/Asphalt	0.60
Modular Block Pavement &	0.75
Reinforced Grass Pavement	1.00

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Maximum roof size	Minimum travel distance
≤ 3,500 sq ft	21 ft
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≤ 10,000 sq ft	32 ft

Form D-2a: Disconnected Pavement Worksheet

See Fact Sheet for more information regarding Disconnected Pavement credit guidelines

Effective Area Managed (A_C)

Pavement Draining to Porous Pavement

2. Enter area draining onto Porous Pavement — 0.00 acres — Box K1

3. Enter area of Receiving Porous Pavement — 0.00 acres — Box K2
(excludes area entered in Step 2 under Porous Pavement)

4. Ratio of Areas (Box K1 / Box K2) — 0.00 — Box K3

5. Select multiplier using ratio from Box K3 and enter into Box K4

Ratio (Box D)	Multiplier
Ratio is ≤ 0.5	1.00
Ratio is > 0.5 and < 1.0	0.83
Ratio is > 1.0 and < 1.5	0.71
Ratio is > 1.5 and < 2.0	0.55

1 — Box K4

6. Enter Efficiency of Porous Pavement (see table below) — Box K5

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete Asphalt Pavement	0.60
Modular Block Pavement Porous Gravel Pavement	0.75
Reinforced Grass Pavement	1.00

7. Multiply Box K2 by Box K5 and enter into Box K6 — 0.00 acres — Box K6

8. Multiply Boxes K1,K4, and K5 and enter the result in Box K7 — 0.00 acres — Box K7

9. Add Box K6 to Box K7 and multiply by 60%, and enter the Result in Box K8 — 0.00 acres
This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-2

Form D-2b: Interceptor Tree Worksheet

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

New Evergreen Trees

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1. — trees — Box L1

2. Multiply Box L1 by 200 and enter result in Box L2 — 0 sq. ft. — Box L2

New Deciduous Trees

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3. — trees — Box L3

4. Multiply Box L3 by 100 and enter result in Box L4 — 0 sq. ft. — Box L4

Existing Tree Canopy

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5. — 0 sq. ft. — Box L5

6. Multiply Box L5 by 0.5 and enter the result in Box L6 — 0 sq. ft. — Box L6

Total Interceptor Tree EAM Credits

Add Boxes L2, L4, and L6 and enter it into Box L7 — 0 sq. ft. — Box L7

Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter result in Box L8 — 0.00 acres — Box L8
This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-2

Step 3 - Runoff Management Credits

Capture and Use Credits

Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems

(see Fact Sheet) | - | enter gallons, for simple rain barrels | 0.00 | acres

Automated-Control Capture and Use System

(see Fact Sheet, then enter impervious area managed by the system) | 0.00 | acres

Bioretention/Infiltration Credits

Impervious Area Managed by Bioretention BMPs

(see Fact Sheet)

Bioretention Area ___ sq ft

Subdrain Elevation ___ inches

Ponding Depth, inches ___ inches | 0.00 | acres

Impervious Area Managed by Infiltration BMPs

(see Fact Sheet)

Drawdown Time, hrs ___ drawdown_hrs_inf

Soil Infiltration Rate, in/hr ___ soil_inf_rate

Sizing Option 1: Capture Volume, acre-ft 0.00 capture_vol_inf | 0.00 | acres

Sizing Option 2: Infiltration BMP surface area, sq ft 0 soil_surface_area | 0.00 | acres

Basin or trench? ___ approximate BMP depth 0.00 ft

Impervious Area Managed by Amended Soil or Mulch Beds

(see Fact Sheet) Mulched Infiltration Area, sq ft ___ mulch_area | 0.00 | acres

Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs | 0.00 | A_{LIDc}

Runoff Management Credit (Step 3) A_{LIDC}/A_T*200 = 0.0 pts

Total LID Credits (Step 1+2+3) Warning: More LID Is Required 0.0

Does project require hydromodification management? If yes, proceed to using SacHM.

Adjusted Area for Flow-Based, Non-LID Treatment $A_T - A_C - A_{LIDC}$ = 3.72 A_{AT}

Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment A_{AT} / A = 1.00 I_A

Further treatment is required, see choose flow-based or volume-based sizing in Step 4

Step 4a Treatment - Flow-Based (Rational Method)

Calculate treatment flow (cfs): Flow = Runoff Coefficient x Rainfall Intensity x Area

Look up value for i in Table D-2c (Rainfall Intensity) | 0.18 | i

Obtain A_{AT} from Step 3 | 3.72 | A_{AT}

Use C = 0.95 | 0.95 | C

Flow = 0.95 * i * A_{AT} | 0.64 | cfs

Table D-2c

Rainfall Intensity			
Roseville	i =	0.20	in/hr
Sacramento	i =	0.18	in/hr
Folsom	i =	0.20	in/hr

Step 4b Treatment - Volume-Based (ASCE-WEF)

Calculate water quality volume (Acre-Feet): WQV = Area x Maximized Detention Volume (P_0)

Obtain A from Step 1 | 3.72 | A | 12 hrs | Specified Draw Down time

Obtain P_0: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I_A from Step 2. | 0.64 | P_0

Calculate treatment volume (acre-ft):

Treatment volume = A x (P_0 / 12) | 0.20 | Acre-Feet

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Appendix D-2: Commercial Sites: Low Impact Development (LID) Credits and Treatment BMP Sizing Calculations

Name of Drainage Shed: Elk Grove Storage - Shed 2 — Fill in Blue Highlighted boxes

Location of project: Sacramento

Step 1 - Open Space and Pervious Area Credits

Is your project within the drainage area of a common drainage plan that includes open space? If not, skip to 1 b.

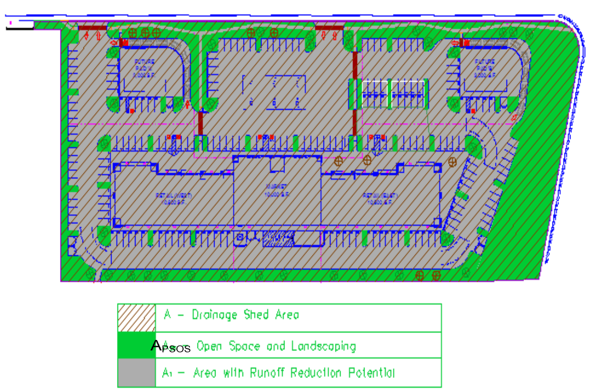
1 a. Common Drainage Plan Area		0	acres	A_{CDP}
Common Drainage Plan Open Space (Off-project)		0	acres	A_{OS}
a. Natural storage reservoirs and drainage corridors		0	acres	
b. Buffer zones for natural water bodies		0	acres	
c. Natural areas including existing trees, other vegetation, and soil		0	acres	
d. Common landscape area/park		0	acres	
e. Regional Flood Control/Drainage basins		0	acres	
1 b. Project Drainage Shed Area (Total)		2.83	acres	A
Project-Specific Open Space (In-project, communal)**		0.00	acres	A_{PSOS}
a. Natural storage reservoirs and drainage corridors		0.00	acres	
b. Buffer zones for natural water bodies		0.00	acres	
c. Natural areas including existing trees, other vegetation, and soil		0.00	acres	
d. Landscape area/park		0.00	acres	
e. Flood Control/Drainage basins		0.00	acres	

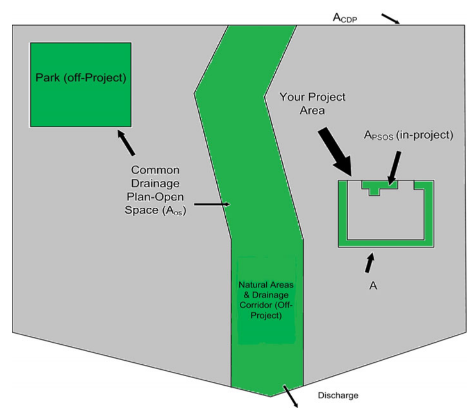
see area example below

see area example below

** Doesn't include impervious areas within individual lots and surrounding individual units. That is accounted for below using Form D-1a in Step 2.

Area with Runoff Reduction Potential	$A - A_{PSOS}$ =	2.83	acres	A_T
Assumed Initial Impervious Fraction	A_T / A =	1.00		I
Open Space & Pervious Area LID Credit (Step 1)	$(A_{OS}/A_{CDP}+A_{PSOS}/A)\times100$ =	0	pts	





Step 2 - Runoff Reduction Credits

Runoff Reduction Treatments	Impervious Area Managed			Efficiency Factor		Effective Area Managed (A_C)	
Porous Pavement:							
Option 1: Porous Pavement (see Fact Sheet, excludes porous pavement used in Option 2)	0	acres	x		=	0.000	acres
Option 2: Disconnected Pavement use Form D-2a for credits (see Fact Sheet, excludes porous pavement used in Option 1)				→		0.00	acres
Landscaping used to Disconnect Pavement (see Fact Sheet)	0.0000	acres			=	0.00	acres
Disconnected Roof Drains (see Fact Sheet and/or Table D-2b for summary of requirements)	0	acres			=	0.00	acres
Ecoroof (see Fact Sheet)	0	acres			=	0.00	acres
Interceptor Trees use Form D-2b for credits (see Fact Sheet)				→		0.00	acres
Total Effective Area Managed by Runoff Reduction Measures				A_C		0.00	acres
Runoff Reduction Credit (Step 2)				(A_C / A_T)*100 =		0	pts

Table D-2a

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete/Asphalt	0.60
Modular Block Pavement &	0.75
Reinforced Grass Pavement	1.00

Table D-2b

Maximum roof size	Minimum travel distance
≤ 3,500 sq ft	21 ft
≤ 5,000 sq ft	24 ft
≤ 7,500 sq ft	28 ft
≤ 10,000 sq ft	32 ft

Form D-2a: Disconnected Pavement Worksheet

See Fact Sheet for more information regarding Disconnected Pavement credit guidelines

Effective Area Managed (A_C)

Pavement Draining to Porous Pavement

2. Enter area draining onto Porous Pavement	0.00	acres	Box K1
3. Enter area of Receiving Porous Pavement (excludes area entered in Step 2 under Porous Pavement)	0.00	acres	Box K2
4. Ratio of Areas (Box K1 / Box K2)	0.00		Box K3

5. Select multiplier using ratio from Box K3 and enter into Box K4

Ratio (Box D)	Multiplier
Ratio is ≤ 0.5	1.00
Ratio is > 0.5 and < 1.0	0.83
Ratio is > 1.0 and < 1.5	0.71
Ratio is > 1.5 and < 2.0	0.55

Box K4: 1

6. Enter Efficiency of Porous Pavement (see table below) — Box K5

Porous Pavement Type	Efficiency Multiplier
Cobblestone Block Pavement	0.40
Pervious Concrete Asphalt Pavement	0.60
Modular Block Pavement Porous Gravel Pavement	0.75
Reinforced Grass Pavement	1.00

7. Multiply Box K2 by Box K5 and enter into Box K6	0.00	acres	Box K6
8. Multiply Boxes K1,K4, and K5 and enter the result in Box K7	0.00	acres	Box K7

9. Add Box K6 to Box K7 and multiply by 60%, and enter the Result in Box K8 — 0.00 acres
This is the amount of area credit to enter into the "Disconnected Pavement" Box of Form D-2

Form D-2b: Interceptor Tree Worksheet

See Fact Sheet for more information regarding Interceptor Tree credit guidelines

New Evergreen Trees

1. Enter number of new evergreen trees that qualify as Interceptor Trees in Box L1.		trees	Box L1
2. Multiply Box L1 by 200 and enter result in Box L2	0	sq. ft.	Box L2

New Deciduous Trees

3. Enter number of new deciduous trees that qualify as Interceptor Trees in Box L3.		trees	Box L3
4. Multiply Box L3 by 100 and enter result in Box L4	0	sq. ft.	Box L4

Existing Tree Canopy

5. Enter square footage of existing tree canopy that qualifies as Existing Tree canopy in Box L5.	0	sq. ft.	Box L5
6. Multiply Box L5 by 0.5 and enter the result in Box L6	0	sq. ft.	Box L6

Total Interceptor Tree EAM Credits

Add Boxes L2, L4, and L6 and enter it into Box L7	0	sq. ft.	Box L7
Divide Box L7 by 43,560 and multiply by 20% to get effective area managed and enter result in Box L8	0.00	acres	Box L8

This is the amount of area credit to enter into the "Interceptor Trees" Box of Form D-2

Step 3 - Runoff Management Credits

Capture and Use Credits

Impervious Area Managed by Rain barrels, Cisterns, and automatically-emptied systems

(see Fact Sheet) | - | enter gallons, for simple rain barrels | 0.00 | acres

Automated-Control Capture and Use System

(see Fact Sheet, then enter impervious area managed by the system) | 0.00 | acres

Bioretention/Infiltration Credits

Impervious Area Managed by Bioretention BMPs

(see Fact Sheet)

Bioretention Area ____ sq ft

Subdrain Elevation ____ inches

Ponding Depth, inches ____ inches | 0.00 | acres

Impervious Area Managed by Infiltration BMPs

(see Fact Sheet)

Drawdown Time, hrs ____ drawdown_hrs_inf

Soil Infiltration Rate, in/hr ____ soil_inf_rate

Sizing Option 1: Capture Volume, acre-ft 0.00 capture_vol_inf | 0.00 | acres

Sizing Option 2: Infiltration BMP surface area, sq ft 0 soil_surface_area | 0.00 | acres

Basin or trench? ____ approximate BMP depth 0.00 ft

Impervious Area Managed by Amended Soil or Mulch Beds

(see Fact Sheet) Mulched Infiltration Area, sq ft ____ mulch_area | 0.00 | acres

Total Effective Area Managed by Capture-and-Use/Bioretention/Infiltration BMPs | 0.00 | A_{LIDc}

Runoff Management Credit (Step 3) A_{LIDC}/A_T*200 = | 0.0 | pts

Total LID Credits (Step 1+2+3) Warning: More LID Is Required 0.0

Does project require hydromodification management? If yes, proceed to using SacHM.

Adjusted Area for Flow-Based, Non-LID Treatment A_T - A_C -A_{LIDC} = 2.83 A_{AT}

Adjusted Impervious Fraction of A for Volume-Based, Non-LID Treatment A_{AT} / A = 1.00 I_A

Further treatment is required, see choose flow-based or volume-based sizing in Step 4

Step 4a Treatment - Flow-Based (Rational Method)

Calculate treatment flow (cfs): Flow = Runoff Coefficient x Rainfall Intensity x Area

Look up value for i in Table D-2c (Rainfall Intensity) 0.18 i

Obtain A_{AT} from Step 3 2.83 A_{AT}

Use C = 0.95 0.95 C

Flow = 0.95 * i * A_{AT} 0.48 cfs

Table D-2c

Rainfall Intensity			
Roseville	i =	0.20	in/hr
Sacramento	i =	0.18	in/hr
Folsom	i =	0.20	in/hr

Step 4b Treatment - Volume-Based (ASCE-WEF)

Calculate water quality volume (Acre-Feet): WQV = Area x Maximized Detention Volume (P_0)

Obtain A from Step 1 2.83 A | 12 hrs | Specified Draw Down time

Obtain P_0: Maximized Detention Volume from figures E-1 to E-4 in Appendix E of this manual using I_A from Step 2. 0.64 P_0

Calculate treatment volume (acre-ft):

Treatment volume = A x (P_0 / 12) 0.15 Acre-Feet

v06232012

SITE SPECIFIC DATA			
PROJECT NUMBER			
ORDER NUMBER			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
TREATMENT HGL AVAILABLE (FT)			
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD	PEDESTRIAN	OPEN PLANTER	PEDESTRIAN
FRAME & COVER	ø30"	N/A	ø24"
WETLANDMEDIA VOLUME (CY)			TBD
ORIFICE SIZE (DIA. INCHES)			TBD
NOTES: PRELIMINARY NOT FOR CONSTRUCTION.			

INSTALLATION NOTES

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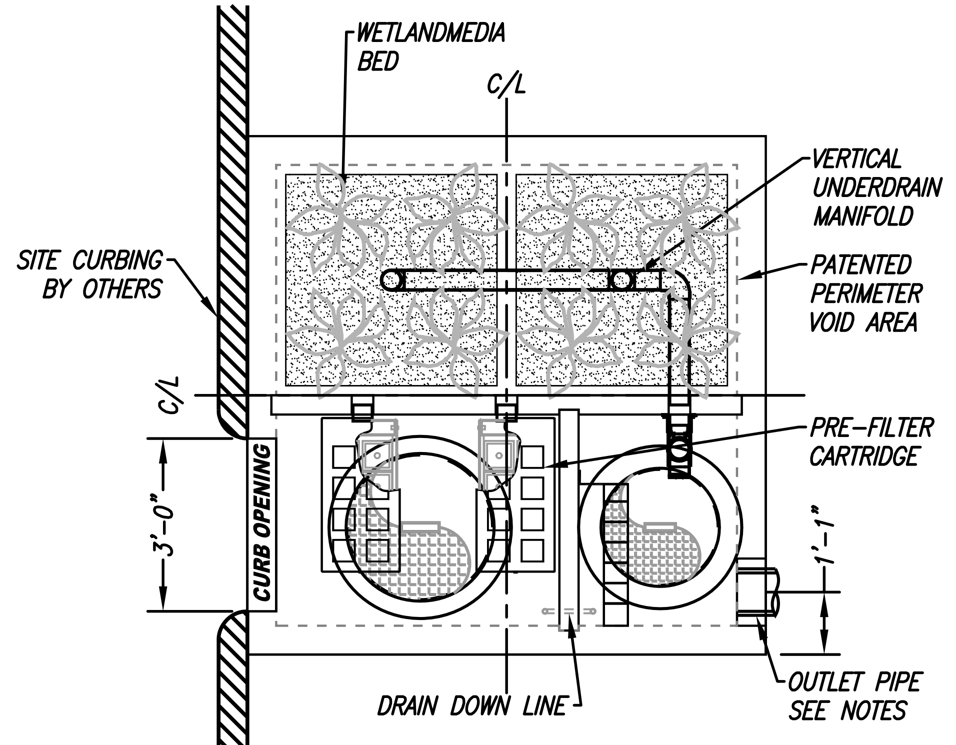
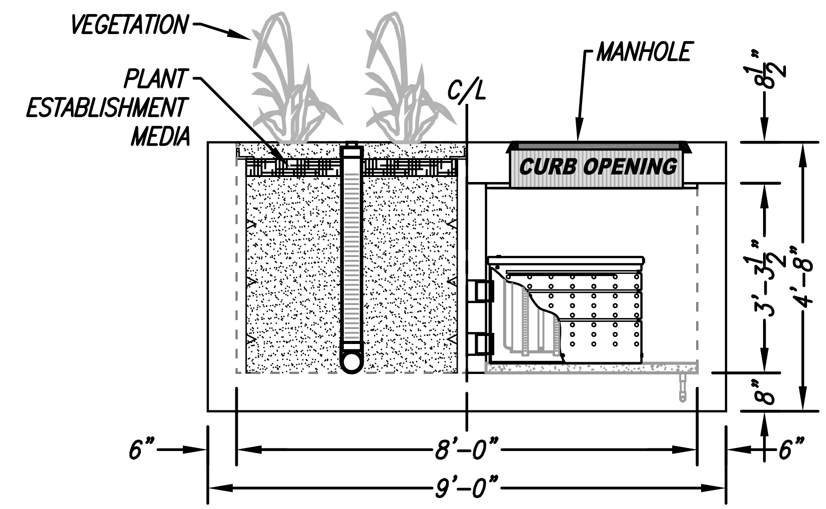
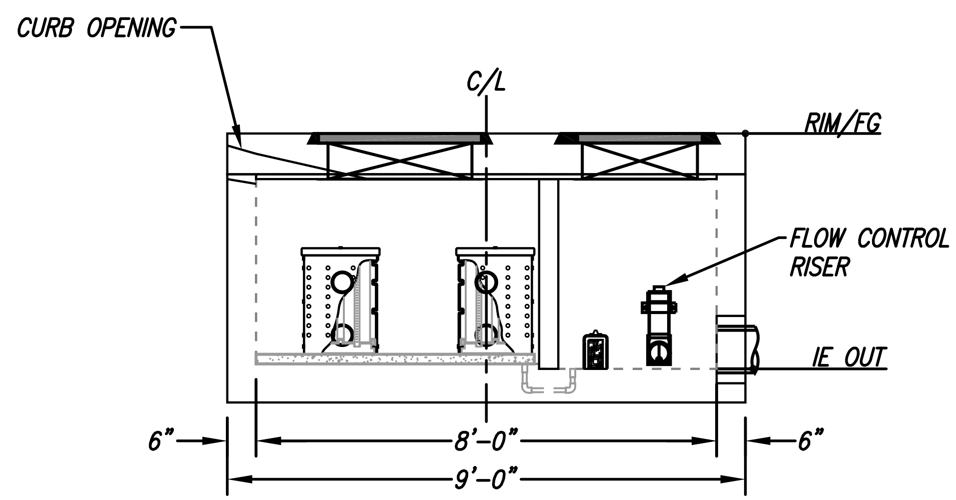


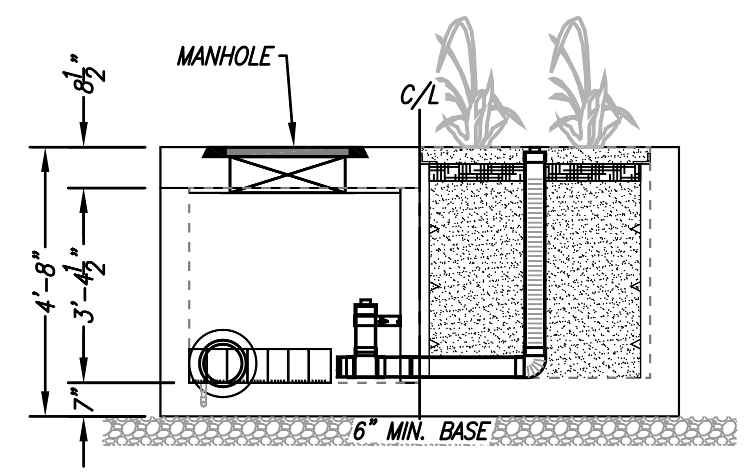
PLAN VIEW



LEFT END VIEW



ELEVATION VIEW



RIGHT END VIEW

TREATMENT FLOW (CFS)	0.231
OPERATING HEAD (FT)	3.4
PRETREATMENT LOADING RATE (GPM/SF)	2.0
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0

MODULAR WETLANDS

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Bio Clean
A Forterra Company

MWS-L-8-8-C
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

SITE SPECIFIC DATA			
PROJECT NUMBER			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
N/A		0.693	
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			OFFLINE
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2	N/A	N/A	N/A
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD	PEDESTRIAN		
FRAME & COVER	3EA ø30"	OPEN PLANTER	ø24"
NOTES:			

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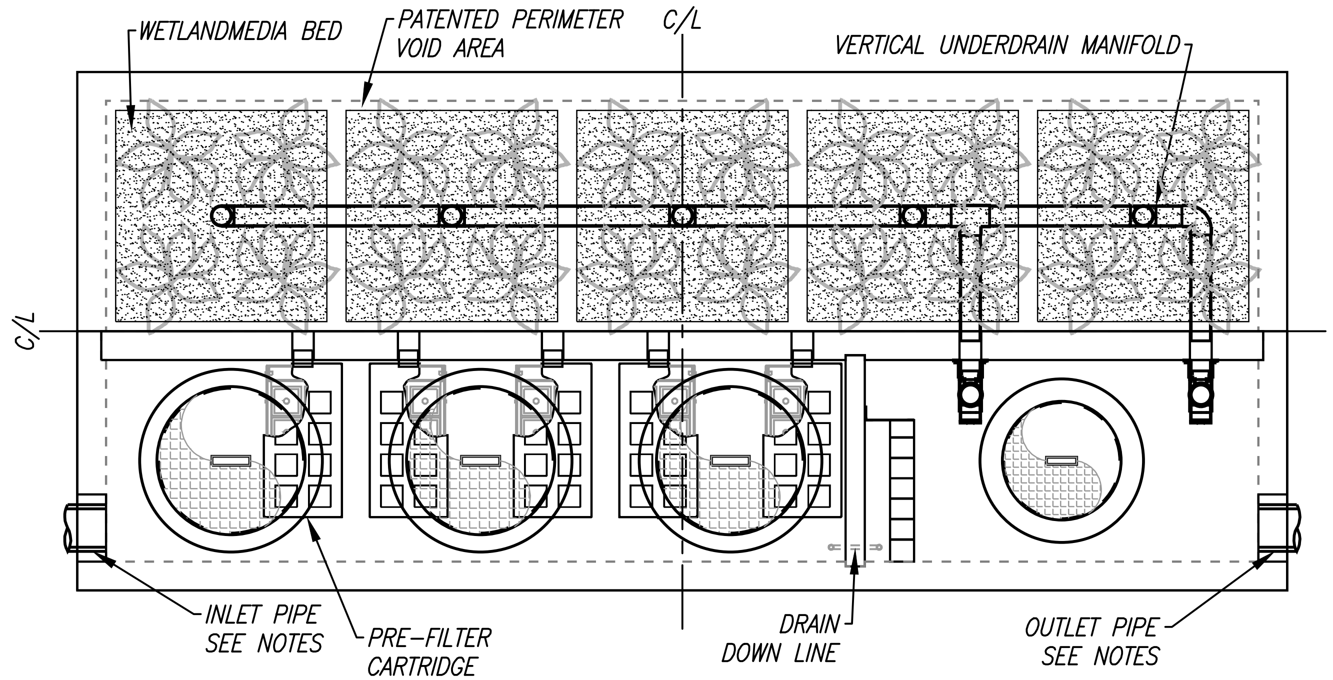
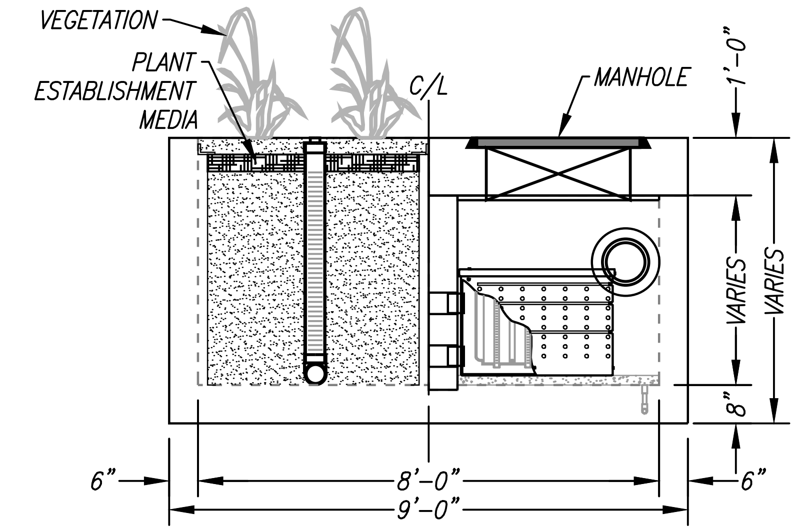


PLAN VIEW



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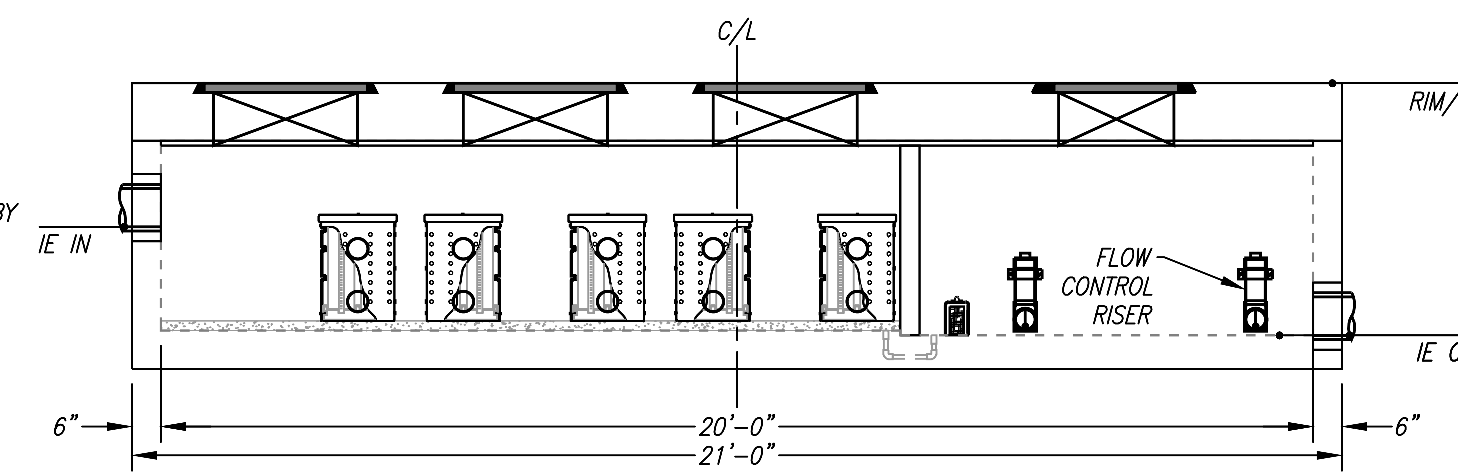
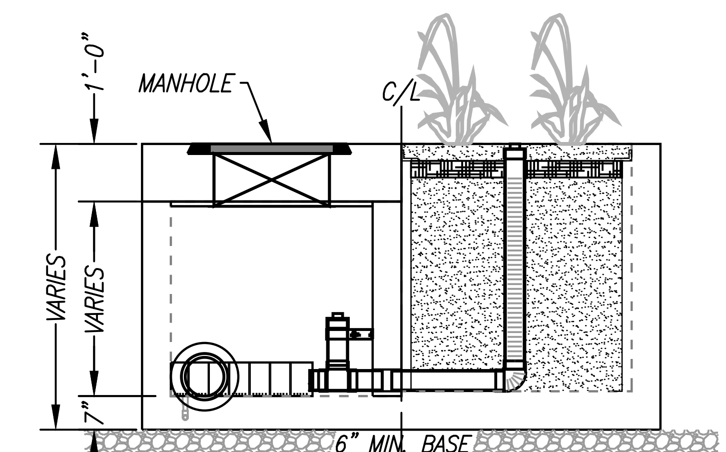


ELEVATION VIEW



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TREATMENT FLOW (CFS)	0.693
OPERATING HEAD (FT)	3.4
PRETREATMENT LOADING RATE (GPM/SF)	2.0
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0

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Bio Clean
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MWS-L-8-20-V
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

5/23/19TOLFE

SITE SPECIFIC DATA			
PROJECT NUMBER			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
N/A		0.577	
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			OFFLINE
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2	N/A	N/A	N/A
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD	PEDESTRIAN		
FRAME & COVER	3EA ø30"	OPEN PLANTER	2EA ø24"
NOTES:			

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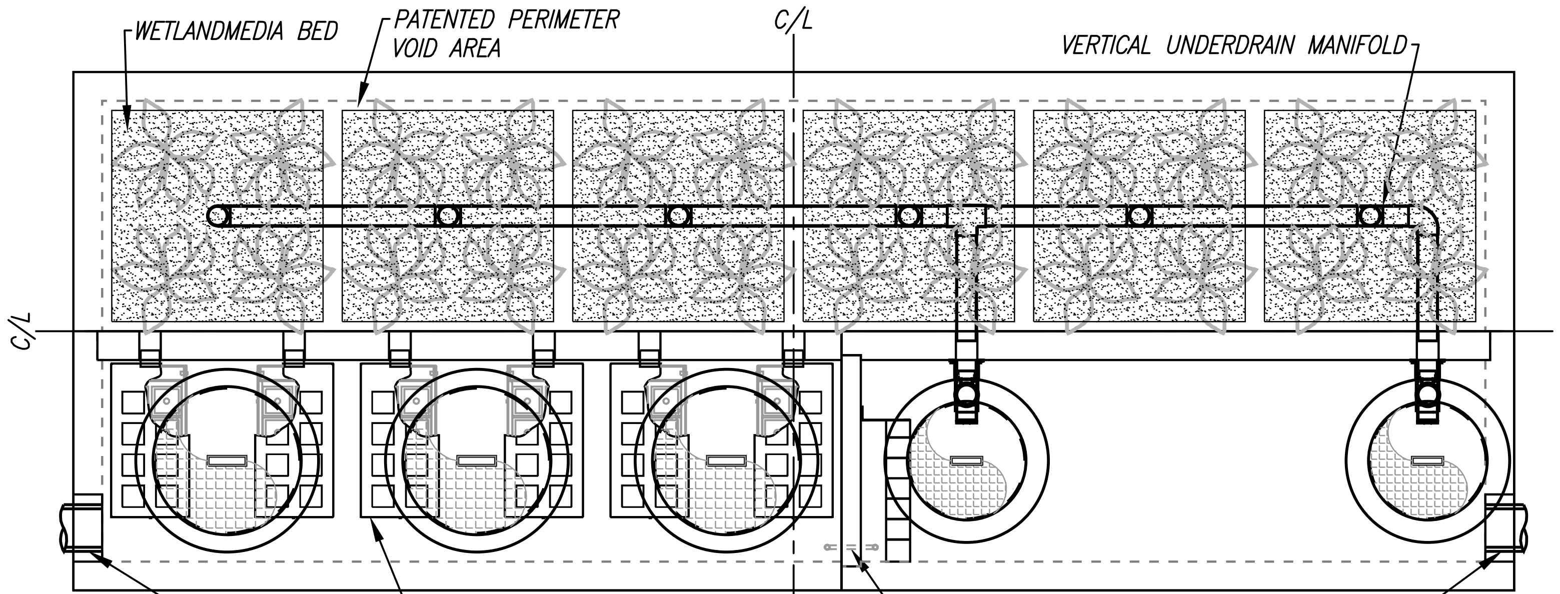
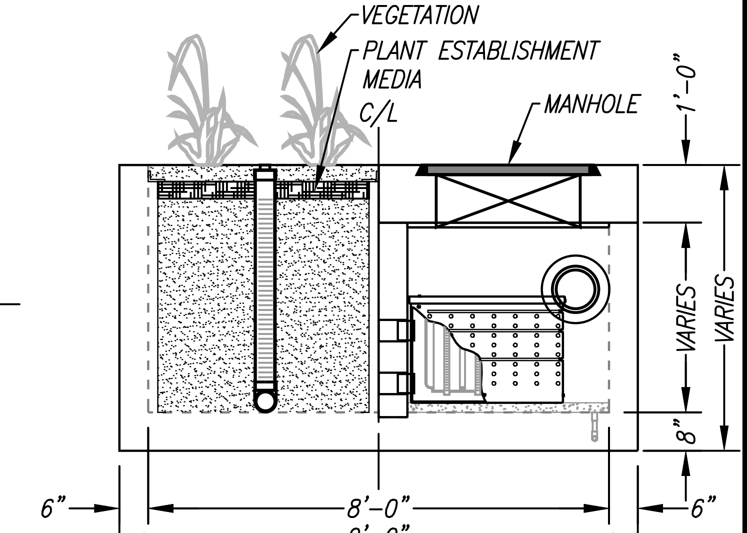


PLAN VIEW



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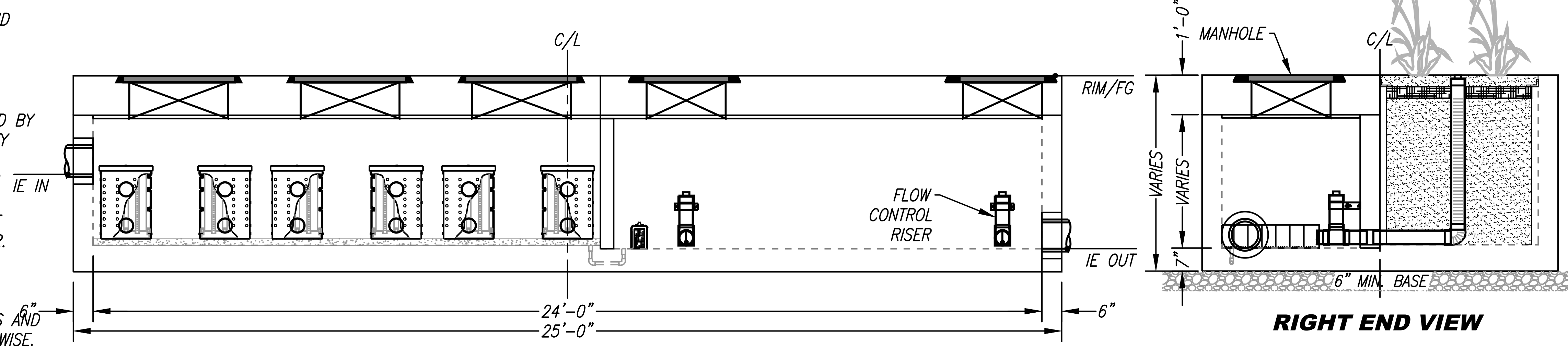

ELEVATION VIEW

RIGHT END VIEW

TREATMENT FLOW (CFS)	0.577
OPERATING HEAD (FT)	3.4
PRETREATMENT LOADING RATE (GPM/SF)	2.0
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0

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MWS-L-8-24-V
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

5/23/19TOLFF

APPENDIX E

VMT MEMORANDUM

MEMORANDUM

Date: October 5, 2022

To: Rod Stinson, RANEY Planning & Management, Inc.

From: David B. Robinson, Fehr & Peers

Subject: **Elk Grove Self Storage - VMT**

RS22-4168

Fehr & Peers completed a vehicle miles of travel (VMT) evaluation of the Elk Grove Self Storage project. The purpose of the VMT analysis is to determine if the proposed project complies with City of Elk Grove General Plan Policy (Policy MOB-1-1) adopted to reduce VMT and achieve State-mandated reductions in VMT. This memorandum outlines SB 743, the proposed project, the analysis methodology, the evaluation criteria, presents the analysis results, including an evaluation of bicycle, pedestrian, transit, and roadway facilities.

SB 743

SB 743 (Stats. 2013, ch. 386) resulted in several statewide CEQA changes. It required the Governor's Office of Planning and Research (OPR) to establish new metrics for determining the significance of transportation impacts of projects within transit priority areas (TPAs) and allows OPR to extend use of the metrics beyond TPAs. OPR selected VMT as the preferred transportation impact metric and applied their discretion to require its use statewide. This legislation also established that aesthetic and parking effects of a residential, mixed-use residential, or employment center projects on an infill site within a TPA are not significant impacts on the environment. The revised CEQA Guidelines that implement this legislation became effective on December 28, 2018, and state that vehicle level of service (LOS) and similar measures related to delay shall not be used as the sole basis for determining the significance of transportation impacts.

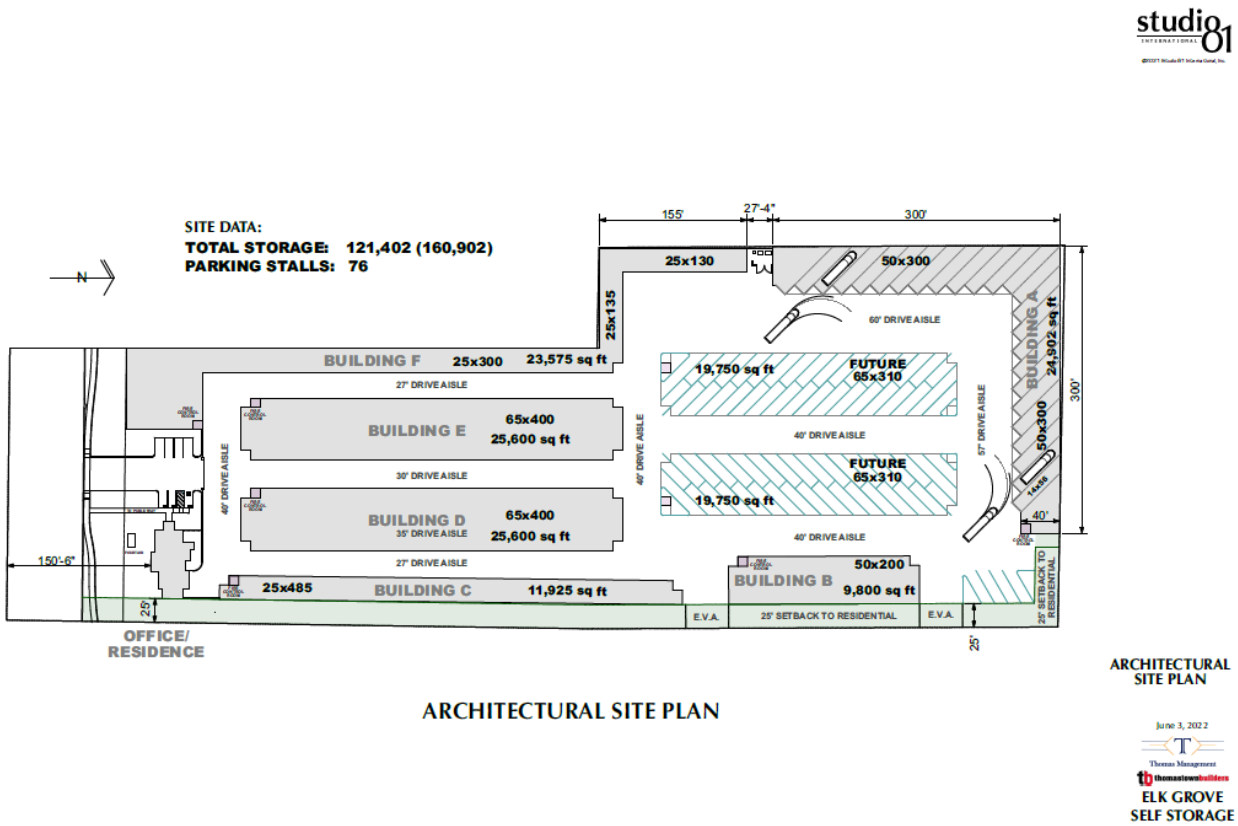
Proposed Project

Located at 6901 Elk Grove Boulevard, the Project would include construction of a self storage facility located on two parcels (APN 116-0006-042 and APN 16-0006-010), totaling 7.71 acres. The project would include about 160,902 square feet of storage area and an office/residence. These components are summarized below:

- Building Storage – 121,402 square feet (160,902 square feet with future conversion of parking to standard storage units)
- Parking Storage (76 stalls) – 39,500 square feet (future conversion to standard storage units)
- Office/Residence – 3,648 square feet

The project has a General Plan land use designation of low density residential (LDR) and is zoned Low Density Residential with a maximum of five dwelling units per acre (RD-5). Approval of the Project would require General Plan Amendment from LDR to Employment Center (EC), a corresponding Rezone from RD-

5 to Industrial-Office Park (MP), a Conditional Use Permit, and a Major Design Review. The project site plan is shown below.



ARCHITECTURAL SITE PLAN

Analysis Methodology

The City uses total daily VMT and VMT per service population as the basis for VMT analysis. The following describes these two VMT metrics and their intended use:

- VMT per Service Population – Includes the sum of all vehicle miles of travel produced by the project including employees and visitors to the project. The VMT per service population metric is used to assess a project against specific land use VMT limits.
- Total Daily VMT – Includes the sum of all daily vehicle miles of travel produced by all uses within the City of applicable Study Area. Since the project is located in the City limits, the Citywide cumulative VMT limit that is outlined in Policy MOB-1-1(a)(ii) is used to assess the project.

Using the modified version of SACOG's SACSIM regional travel demand forecasting model, developed for the City of Elk Grove General Plan Update, origin-destination/tour-based transportation analysis VMT forecasts VMT based on all trips that have one end in a project location and includes the following:

- Trip Types – Includes internal-to-internal (II), internal-to-external (IX), and external-to-internal (XI) trips. External-to-external (XX) trips are excluded.
- Trip Length – Fully accounts for entire length of each trip.
- Trip Tours – Includes trip tours without an origin or destination at the home.

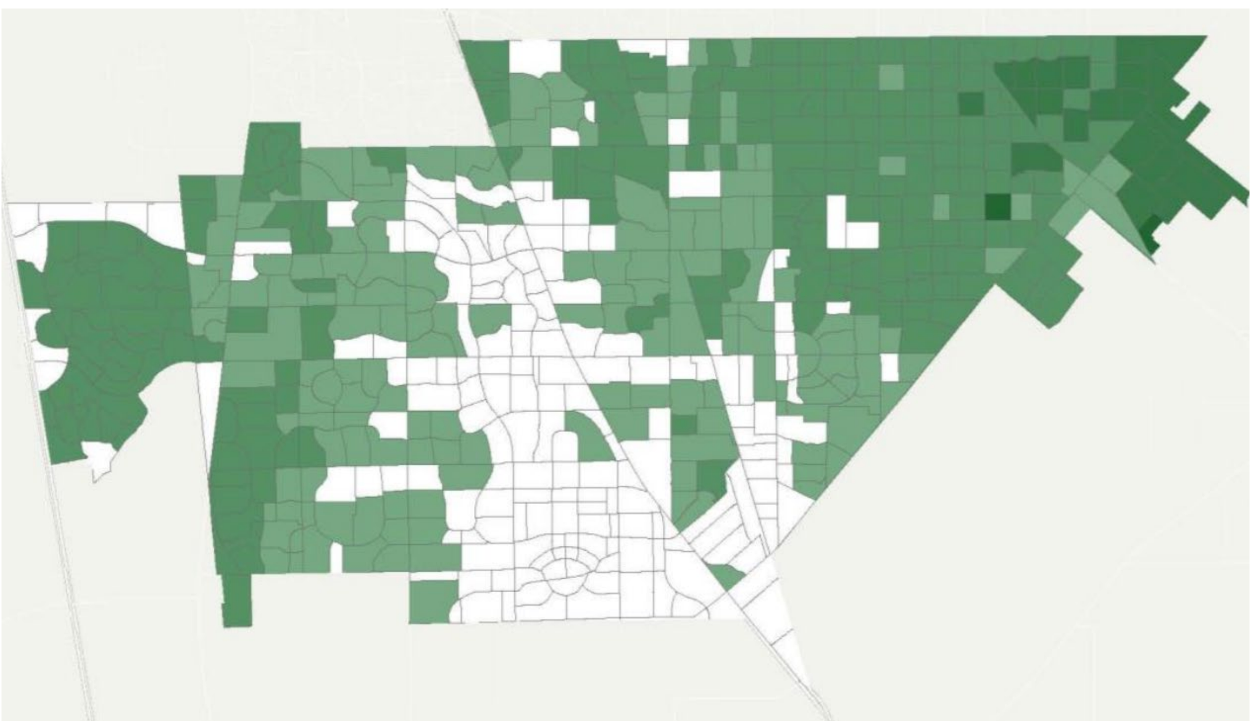
Details of the VMT calculation process are included in Appendix E of the City of Elk Grove Transportation Analysis Guidelines.

We estimated VMT using a modified version of SACOG's SACSIM regional travel demand forecasting model, developed for the analysis of the City of Elk Grove General Plan Update and data from Streetlight Data.

Analysis Evaluation Criteria

We used the following evaluation criteria from Policy MOB-1-1 of the City of Elk Grove General Plan to determine if the addition of the proposed project would result in an impact in the City of Elk Grove. The City desires to achieve a reduction in VMT. Reductions in VMT, which can be accomplished through a combination of land use and mobility actions. To reduce VMT, the City has established the following metrics and limits.

The following VMT Screening Map identifies areas in the City that are exempt from VMT analysis. These include sites that have been pre-screened through Citywide VMT analysis. Pre-screened areas are shown in white and have been determined to result in 15 percent or below the average service population VMT established for that land use designation if built to the specifications of the Land Use Plan. With an average VMT per service population of 12.0, the City's target VMT per service population threshold is 10.2.



For projects that have not been pre-screened and that do not achieve the limits outlined below shall be subject to all feasible mitigation measures necessary to reduce the VMT for, or induced by, the project to the applicable limits.

- **New Development** – Any new land use plans, amendments to such plans, and other discretionary development proposals (referred to as "development projects") are required to demonstrate a 15 percent reduction in VMT from existing (2015) conditions. To demonstrate this reduction, conformance with following land use and cumulative VMT limits is required:

1. **Land Use** – Development projects shall demonstrate that the VMT produced by the project at buildout is equal to or less than the VMT limit of the project's General Plan land use designation, as shown in the following table, which incorporates the 15 percent reduction from 2015 conditions:

Vehicle Miles Traveled Limits by Land Use Designation

Land Use Designation	VMT Limit (daily per service population)
Commercial and Employment Land Use Designations	
Community Commercial	41.6
Regional Commercial	44.3
Employment Center	47.1
Light Industrial/Flex	24.5
Light Industrial	24.5
Heavy Industrial	39.5
Mixed Use Land Use Designations	
Village Center Mixed Use	41.6
Residential Mixed Use	21.2
Public/Quasi Public and Open Space Land Use Designations	
Parks and Open Space	0.0
Resource Management and Conservation	0.0
Public Services	53.1
Residential Land Use Designations	
Rural Residential	34.7
Estate Residential	49.2
Low Density Residential	21.2
Medium Density Residential	20.9
High Density Residential	20.6
Other Land Use Designations	
Agriculture	34.7

Notes:

1. *These land use designations are not anticipated to produce substantial VMT, as they have no residents and few to no employees. These land use designations therefore have no limit and are exempt from analysis.*

2. **Cumulative for Development Projects within the Existing City** – Development projects located within the existing (2017) City limits shall demonstrate that cumulative VMT within the City including the project would be equal to or less than the established Citywide limit of 6,367,833 VMT (total daily VMT).

3. **Cumulative for Development Projects within Growth Areas** – Development projects located in Study Areas shall demonstrate that cumulative VMT within the applicable Study Area would be equal to or less than the established limit shown in the following table.

Study Area Total Vehicle Miles Traveled Limits

Study Area	**VMT Limit (total VMT at buildout)**
North Study Area	37,622
East Study Area	420,612
South Study Area	1,311,107
West Study Area	705,243

The project is located within the City limits. The project and remainder of the City shall meet the buildout VMT Limit of 6,367,833.

Analysis Results

The following presents the analysis of Project VMT under cumulative conditions, relative to the threshold of significance presented above. The VMT analysis includes all of the roadway improvement included as part of the General Plan VMT analysis.

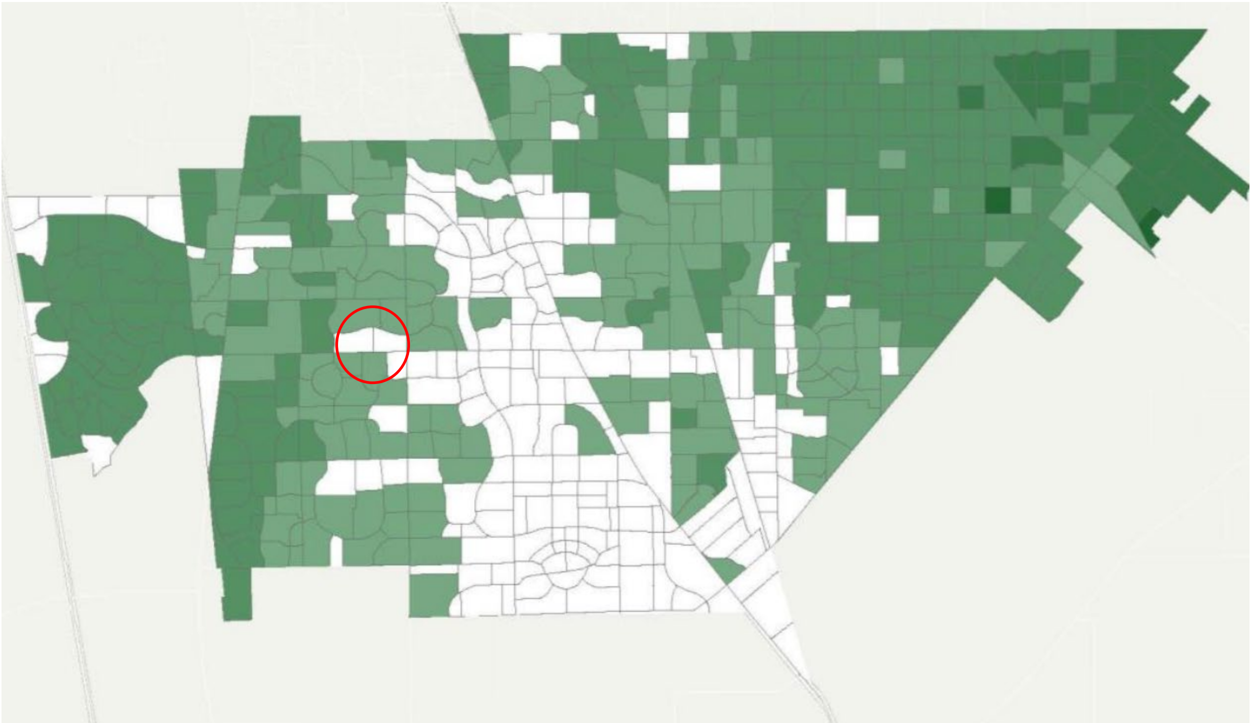
<u>Project-Type VMT Exemption</u>

The City has identified the following project types that are exempt from VMT analysis:

- A residential project of < 10 dwelling units
- A commercial, office, or industrial project of < 50,000 square feet
- A mixed-use project containing < 10 dwelling units and < 50,000 square feet of commercial, office, or industrial space
- A project that is high density low-income housing on a high-density housing site as designated in the Housing Element

Based on these criteria, the project is not exempt from VMT analysis due to the size of the project (i.e., 160,902 square feet), which exceed the 50,000 square-foot threshold outlined above for commercial projects.

However, the proposed project is located within a pre-screened area (as outlined in red below) that has been determined to result in 15 percent or below the average service population VMT established for that land use designation if built to the specifications of the Land Use Plan.



Project VMT Performance

Typically, no further analysis would be required for projects located in a pre-screened area that are consistent with the General Plan land use designation. However, since the project requires a General Plan Amendment from LDR to EC, additional analysis is required for the proposed project to confirm VMT performance for the proposed EC land use designation. A modified version of SACOG's SACSIM15 regional travel demand forecasting model, developed for the analysis of the City of Elk Grove General Plan Update, was used to calculate the VMT per service population for the parcels that represent the proposed project. Attachment A details the VMT calculation methodology that includes the SACSIM15 model input files and calculation steps by trip type (II, IX, and XI).

Table 1 compares the project's VMT per service population to the City's VMT limit for that land use (which incorporates a 15% reduction in total VMT from the 2015 baseline). As shown, the project's VMT per service population would be 39.0. That VMT performance would be 17% lower than the City's VMT limit for the EC land use. The VMT performance would not exceed the City's VMT limit for the EC land use.

Table 1: VMT by Land Use Designation Limits – Project Buildout Conditions

Project	Land Use Designation	VMT Per Service Population		Limit Exceeded?
		Limit	Project	
Buildout	Employment Center	47.1	39.0	No

Streetlight Data – IN Storage, 9200 Brinkman Ct, Elk Grove CA, 95624 (January 1, 2019, to January 31, 2020)
Source: Fehr & Peers, 2022.

As outlined above, land use development Projects located with the existing (2017) City limits shall demonstrate that cumulative VMT within the City, including the project, would be equal to or less than the City's established total VMT limit. **Table 2** compares the citywide total VMT limit to the City's total VMT limit with buildout of the proposed project. As shown in **Table 2**, the addition of the project would not cause cumulative VMT to exceed the established citywide limit. Lower cumulative VMT is due to the difference total VMT between the existing and proposed land use and accounts for existing VMT being generated by existing RV/boat storage uses located at Laguna Self Storage (3300 Dwight Road, Elk Grove, CA 95758). The existing RV/boat storage will be used for the proposed Ace Rail Station project.

Table 2: Citywide VMT Limit – Project Buildout Conditions

Development Projects in Existing City	Total VMT		Limit Exceeded?
	Limit	Project	
Citywide	6,367,833	6,367,676	No

Streetlight Data – IN Storage, 9200 Brinkman Ct, Elk Grove CA, 95624 (January 1, 2019, to January 31, 2020)
Source: Fehr & Peers, 2022.

Other CEQA Considerations

The following discusses the conditions of bicycle facilities, pedestrian facilities, transit service, and roadway design targets with the addition of the proposed Project.

Bicycle Facilities

Bicycle LTS refers to the comfort associated with roadways, or the mental ease people experience riding on them. Metrics for bicycling LTS were developed at the Mineta Transportation Institute (MTI) and published in the report "Low-Stress Bicycling and Network Connectivity."1 The criteria establish a "weakest link" approach, as roadways are classified based on their segments with the highest level of traffic stress, assuming that only those that are comfortable riding under the higher stress would travel on that road. Factors influencing LTS include:

[1] Mekuria, Maaza C., Peter G. Furth, and Hilary Nixon, (2012). *Low-Stress Bicycling and Network Connectivity*. San Jose, California: Mineta Transportation Institute.

- Number of travel lanes
- Speed of traffic
- Number of vehicles
- Presence of bike lanes
- Width of bike lanes
- Presence of physical barrier

Bicycle riders vary in experience, skill, ability, and confidence. As such, they rely on the bikeway system to cater to their specific needs and abilities. Some cyclists are more comfortable riding in traffic and value bikeways and routes that are direct and limit unnecessary delay. They more comfortably utilize facilities that share the roadway with automobiles or have limited bicycle infrastructure. People with limited bicycling confidence and lower or developing skill levels such as children and older adult riders may desire more separation from traffic to feel comfortable enough to ride. Different bicycle types also require more space in bicycle facilities, such as trailers for children or cargo or adult tricycles. For these reasons, facilities should be designed to accommodate the lowest skill levels, especially in heavily traveled areas.

Recent research has correlated these different bicycle riders with the level of "traffic stress" they are willing to experience while cycling. Bicycle LTS criteria span from 1 to 4, with 1 being the least stressful and 4 being the most stressful:

- **LTS 1:** Most children and elderly riders can tolerate this level of stress and feel safe and comfortable. LTS 1 roadways typically require more separation from traffic.
- **LTS 2:** This is the highest level of stress that the mainstream adult population will tolerate while still feeling safe.
- **LTS 3:** Bicyclists who are considered "enthused and confident" but still prefer having their own dedicated space for riding will tolerate this level of stress and feel safe while bicycling.
- **LTS 4:** For bicyclists, this is tolerated only by those characterized as "strong and fearless," which comprises a small percentage of the population. These roadways have high speed limits, multiple travel lanes, limited or non-existent bike lanes and signage, and large distances to cross at intersections.

The Fehr & Peers Streetscore+ tool was used to analyze the level of traffic stress for bicyclists.

Class II bike lanes (on-street with signage and striping) are provided in both directions on Elk Grove Boulevard. **Table 3** summarize bicycle LTS with the addition of the proposed Project Elk Grove Boulevard. As shown in **Table 3**, the addition of the proposed Project will not degrade the Bicycle Streetscore LTS.

Table 3: Bicycle Streetscore LTS

Roadway Segment/Intersection		LTS	
		Current Conditions	With Project
Elk Grove Boulevard	Franklin Boulevard to Bruceville Road	4	4

Source: Fehr & Peers, 2022

Pedestrian Facilities

The Pedestrian Streestcore+ Level of Traffic Stress (LTS) refers to the pedestrian comfort associated with a roadway or intersection.

The Pedestrian LTS methodology builds on Mekuria, Furth, and Nixon's 2012 Low Stress Bicycling and Network Connectivity report and LTS methodology with a corresponding index for pedestrian comfort. A tool to evaluate Pedestrian and Bicycle LTS called Streetscore+ was developed by Fehr & Peers and includes recommended parameters for the pedestrian environment provided by the NACTO Urban Streets Design Guide (USDG) and additional considerations of comfort informed by practitioner and best practice experience. Roadway segments and intersection approaches receive individual scores based on different considerations. The following factors are considered in developing the Pedestrian Streetscore+ for roadways and intersections:

Roadways
Usable sidewalk space
Driveways
Pedestrian-scale lighting
Street trees and landscaping
Speed
Sidewalk quality
Number of travel lanes
Heavy vehicle volumes
Crosswalk frequency

Intersections
Crossing distance
Accessibility
Channelized right-turns
Leading pedestrian intervals (LPIs) and pedestrian scrambles

The Pedestrian Streetscore+ uses a scale that ranges from 1 to 4:

- **Streetscore+ 1:** Highly comfortable, pedestrian-friendly, and easily navigable for pedestrians of all ages and abilities, including seniors or school-aged children walking unaccompanied to school. These streets provide an ideal "pedestrian-friendly" environment.
- **Streetscore+ 2:** Generally comfortable for many pedestrians, but parents may not feel comfortable with children walking alone. Seniors may have concerns about the walking environment and take more caution. These streets may be part of a "pedestrian-friendly" environment where it intersects with a more auto-oriented roadway or other environmental constraints.

- **Streetscore+ 3:** Walking is uncomfortable but possible. Minimum sidewalk and crossing facilities may be present, but barriers are also present that make the walking experience uninviting and uncomfortable.

- **Streetscore+ 4:** Walking is a barrier and is very uncomfortable or even impossible. Streets have limited or no accommodation for pedestrians and are inhospitable and possibly unsafe environment for pedestrians.

Pedestrian facilities are provided on Elk Grove Boulevard, most sidewalks are adjacent to the roadway with some segments on improved frontages buffered from the roadway by landscaping. **Table 4** summarize pedestrian LTS with the addition of the proposed Project. As shown in **Table 4**, the addition of the proposed Project will not degrade the Pedestrian Streetscore LTS.

Table 4: Pedestrian Streetscore LTS

Roadway Segment/Intersection		LTS	
		Current Conditions	With Project[1]
Elk Grove Boulevard	Franklin Boulevard to Bruceville Road	3	3

Source: Fehr & Peers, 2022

<u>Transit Service</u>

Transit service within the study area is provided by Regional Transit. The following three routes that travel near the Project are described briefly below:

- **Route E116** is a local route that provides service between East Elk Grove (Clarke Farm Drive) and Cosumnes River College. This route runs Monday through Friday from approximately 6:00 AM to 8:00 PM. Generally, the route runs about every hour. Near the Project, Route E16 travels on Elk Grove Boulevard and Bruceville Road with a stop on northbound Bruceville Road (north of Elk Grove Boulevard) and on eastbound Elk Grove Boulevard (east of Bruceville Road). Saturday service is also provided.

- **Route E112** is a local route that provides service between the Laguna Town Hall and the Civic Center. This route runs Monday through Friday from approximately 6:00 AM to 8:00 PM. Generally, the route runs about every hour. Near the Project, Route E112 travels on Elk Grove Boulevard (west of the Project) with a stop on Elk Grove Boulevard (west of Cresleigh Parkway).

- **Route E12** is a commuter route that travels from the Civic Center to Downtown Sacramento. With the study area, the route travels on Elk Grove Boulevard (west of Cresleigh Parkway). This route provides two inbound buses in the morning and two outbound buses in the evening, Monday through Friday.

The stops on eastbound Elk Grove Boulevard and Bruceville Road have shelters.

The Federal Transit Administration maintains a database of transit system performance. The City of Elk Grove 2018 Annual Agency Profile2 identifies that local bus service had unlinked trips per vehicle revenue hour of 10.1, or about 10 passengers per hour. Generally, this level of performance is indicative of low demand and productivity. Routes performing at this level would have excess seated and standing capacity. Consequently, the proposed Project would not create demand for public transit services above the crush load capacity of the transit system.

Roadways

General Plan Policy MOB-1-4 includes performance targets for intersections and roadways. The objective of the policy is to balance the effectiveness of design requirements to achieve the targets with the character of the surrounding area, cost, and maintenance. The General Plan Transportation Network Diagram reflects the implementation of roadway performance targes at General Plan Buildout. Elk Grove Boulevard is planned as a 6-lane arterial in the General Plan along the project and is built to this classification.

As outlined, the project has a General Plan land use designation of low density residential (LDR) and is zoned Low Density Residential with a maximum of five dwelling units per acre (RD-5). Approval of the Project would require General Plan Amendment from LDR to Employment Center (EC) and a corresponding Rezone from RD-5 to Industrial-Office Park (MP).

Table 5 compares the daily, AM peak hour, and PM peak hour trip generation with the existing and proposed land use designation. As shown, the proposed project would generate fewer daily, AM peak hour, and PM peak hour trips, resulting in less traffic on Elk Grove Boulevard. Therefore, since the Project would result in less traffic on Elk Grove Boulevard, it would not change the classification of Elk Grove Boulevard needed to accommodate buildout of the General Plan.

Table 5: Trip Generation Comparison

Lane Use		Units	Quantity	Trip Generation[1]		
				Daily	Peak Hour	
					AM	PM
Existing	Single Family Detached Residential	Dwelling Units	38	358	27	36
Proposed	Storage	1,000 Square Feet	160.902	233	15	25
		Difference (Proposed – Existing)		-125	-12	-11

1 Trip Generation Manual, 11th Edition
2 ITE Code 210 – Single Family Detached Housing
3 ITE Code 151 – Mini-Warehouse

Source: Fehr & Peers, 2022

[2] https://cms7.fta.dot.gov/sites/fta.dot.gov/files/transit_agency_profile_doc/2018/90205.pdf

Attachment A:
VMT Calculation Methodology

Based on SB 743 and the modifications to the CEQA guidelines, the following origin-destination (OD) tour-based VMT was applied to develop the VMT thresholds for the City of Elk Grove General Plan Update.

Method		Analysis Application	Approach	Formula	Trip Types Included	Full Accounting?		Source
						Trip Length	Trips	
OD	Tour-Based	Transportation	Estimates/forecasts VMT based on all trips that have one end in a project location	Trips x Trip Length	II IX XI	Fully accounts for entire trip length	Includes trips without an origin or destination at the home	DAYSIM[1] travel diary

Notes:
[1]DAYSIM activity-based travel demand model
II – Internal to Internal Trips
IX – Internal to External Trips
XI – External to Internal Trips
Internal trips are trips that have an origin or destination SACSIM model (the Sacramento Regional Travel Simulation Model) area.
External trips have an origin or destination external to the SACSIM model area.

The OD (Tour-Based) methodology outlined above includes the following input files and calculation steps:

Input Files

II VMT calculations:

- Trip Table (sout.dbf)
- Skim Tables (a3, md, p3, and ev)
- Script File – attach skims to trips.s

Internal-External (IX)/External-Internal (XI) VMT calculations:

- INTEGRATION_11_TRAVEL_IXXI_trip.sql
- ixxi_taz.dbf
- parc_(model year).dbf (parcel table for the specific model year)
- TAZ to RAD correspondence table
- Script File – 3_ixxi_cv_taz_res_shr_revise.s

Calculation Steps

1. II VMT Calculations
    a. Adjust auto trip distance in the output trip table from SACSIM model using skims
        i. Run "attach skims to trips.s" script
        (script inputs: sout.dbf (the trip segment outputs from DAYSIM), skim tables; script

output: sout_2.dbf)

ii. Open Sout_2.dbf

1. Calculate VMT by filtering for vehicle trips and multiplying DISTAU field (automobile trip segment distance) by mode (Mode 7 *1, Mode 5 *0.3, Mode 6 *0.5)

b. Summarize VMT by parcel

i. Select origins from trips that start in the study area and end in both the study area and outside the study area. Select destinations for trips that started outside the study area and ended in the study area. Remove any VMT internal to parcels and then summarize VMT by parcel.

2. IX/XI VMT Calculations

a. Note – the previous process calculates VMT for trips starting and ending within the SACSIM model region. IX/XI VMT is calculated separately.

i. Run "3_ixxi_cv_taz_res_shr_revise.s" script
(script output: ixxi_taz.dbf)

ii. Calculate the total share of IX/XI VMT by parcel by summarizing the VMT shares by RAD and calculating ratio of VMT/population, VMT/employment and VMT/(population+employment) at the RAD level (adapting methodology outlined in INTEGRATION_11_TRAVEL_IXXI_trip.sql)

iii. Apply RAD level ratios to parcel_(model year).dbf

3. Total VMT is II VMT + IX/XI VMT divided by population + employment (i.e., service population) at the parcel level

4. Summarize service population by land use category using VMT by parcel and placetype field

INTRODUCTION

The California Environmental Quality Act (CEQA) Guidelines, Section 15097, requires public agencies, as part of the adoption of a Mitigated Negative Declaration, to adopt a reporting and monitoring program to ensure that changes made to the project to mitigate or avoid significant environmental effects are implemented. The Mitigation Monitoring and Reporting Program (MMRP) contained herein is intended to satisfy the requirements of CEQA as they relate to the Stathos Self Storage Project (Project) in the City of Elk Grove (City). The MMRP is intended to be used by City staff and mitigation monitoring personnel during implementation of the Project.

The MMRP will provide for monitoring of construction activities as necessary, in-the-field identification and resolution of environmental concerns, and reporting to City staff. The MMRP will consist of the components described below.

COMPLIANCE CHECKLIST

Table 1 contains a compliance-monitoring checklist that identifies all newly adopted mitigation measures, identification of agencies responsible for enforcement and monitoring, and timing of implementation.

FIELD MONITORING OF MITIGATION MEASURE IMPLEMENTATION

During construction of the Project, the City of Elk Grove's designated construction inspector will be responsible for monitoring the implementation of mitigation measures. The inspector will report to the City of Elk Grove Department of Public Works, and will be thoroughly familiar with all plans and requirements of the project. In addition, the inspector will be familiar with construction contract requirements, construction schedules, standard construction practices, and mitigation techniques. Aided by Table 1, the inspector will typically be responsible for the following activities:

1. On-site, day to day monitoring of construction activities;
2. Reviewing construction plans to ensure conformance with adopted mitigation measures;
3. Ensuring contractor knowledge of and compliance with all appropriate conditions of project approval;
4. Evaluating the adequacy of construction impact mitigation measures, and proposing improvements to the contractors and City staff;
5. Requiring correction of activities that violate project mitigation measures, or that represent unsafe or dangerous conditions. The inspector shall have the ability and authority to secure compliance with the conditions or standards through the City of Elk Grove Public Works Department, if necessary;
6. Acting in the role of contact for property owners or any other affected persons who wish to register observations of violations of project mitigation measures, or unsafe or dangerous conditions. Upon receiving any complaints, the inspector shall immediately contact the construction representative and the City. The inspector shall be responsible for verifying any such observations and for developing any necessary corrective actions in consultation with the construction representative and the City of Elk Grove Public Works Department;
7. Maintaining prompt and regular communication with City staff;

8. Obtaining assistance as necessary from technical experts, such as archaeologists and wildlife biologists, to develop site-specific procedures for implementing the mitigation measures adopted by the City for the Project. For example, it may be necessary at times for a wildlife biologist to work in the field with the inspector and construction contractor to explicitly identify and mark areas to be avoided during construction; and

9. Maintaining a log of all significant interactions, violations of permit conditions or mitigation measures, and necessary corrective measures.

PLAN CHECK

Many mitigation measures will be monitored via plan check during Project implementation. City staff will be responsible for monitoring plan check mitigation measures.

MITIGATION MONITORING AND REPORTING PROGRAM

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
III-1	Prior to the initiation of ground disturbance, the Project applicant shall show on the plans via notation that the contractor shall ensure that the heavy-duty off-road vehicles (50 horsepower or more) to be used in the construction project, including owned, leased, and subcontractor vehicles, shall not generate PM2.5 emissions in excess of 0.0403 tons PM2.5 per year. The PM2.5 reduction shall be achieved by requiring a combination of engine Tier 3 or Tier 4 off-road construction equipment or the use of hybrid, electric, or alternatively fueled equipment. In addition, all off-road equipment working at the construction site must be maintained in proper working condition according to manufacturer's specifications. Idling shall be limited to five minutes or less in accordance with the Off-Road Diesel Fueled Fleet Regulation as required by CARB. Portable equipment over 50 horsepower must have either a valid District Permit to Operate (PTO) or a valid statewide Portable Equipment Registration Program (PERP) placard and sticker issued by CARB. The aforementioned requirements shall be noted on Grading Plans and submitted for review and approval by the City of Elk Grove Development Services Department.	Prior to initiation of ground disturbance	City of Elk Grove Development Services Department	
IV-1(a)	**Burrowing Owl** During the non-breeding season (September 1 through January 31), the Applicant shall conduct a survey for burrowing owls and burrows or debris that represent suitable nesting or refugia habitat for burrowing owls within areas of proposed ground disturbance. Should owls be	During the non-breeding season (September 1 through January 31); within 14 days prior to	City of Elk Grove Development Services Department	

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
	present, construction activities shall avoid the refugia by 250 feet until the burrowing owl vacates the site. CDFW may provide authorization for the applicant to conduct activities (burrow exclusion, etc.) that may discourage owl use. If clearing and construction activities are planned to occur during the nesting period for burrowing owls (February 1–August 31), a qualified biologist shall conduct a targeted burrowing owl nest survey of all accessible areas within 500 feet of the proposed construction area within 14 days prior to construction initiation, as described in CDFG's Staff Report on Burrowing Owl Mitigation, published March 7, 2012. Surveys shall be repeated if Project activities are suspended or delayed for more than 14 days during nesting season. The results of the surveys shall be submitted to the Development Services Department. If burrowing owls are not detected, further mitigation is not required. If an active burrowing owl nest burrow (is found within 250 feet of a construction area, construction shall cease within 250 feet of the nest burrow until a qualified biologist determines that the young have fledged and adult has vacated, or it is determined that the nesting attempt has failed. If the applicant desires to work within 250 feet of the nest burrow, the applicant shall consult with a qualified biologist, CDFW, and the City, to determine if the nest buffer can be reduced.	the initiation of construction activities, if clearing and construction activities are planned to occur during the nesting period (February 1 through August 31)	California Department of Fish and Wildlife (CDFW) Qualified Biologist	
IV-1(b)	**Burrowing Owl** 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. The mitigation provided	Prior to any ground disturbance related to covered activities during the nesting season (March 15	City of Elk Grove Development Services Department	

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
	shall be consistent with recommendations in the State of California's Department of Fish and Game Staff Report on Burrowing Owl Mitigation, dated March 7, 2012, 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.	through August 31)	CDFW Qualified Biologist	
IV-2	**White-tailed Kite** Prior to any ground disturbance related to covered activities that occur during the nesting season (March 15 - August 31), a qualified biologist shall conduct a preconstruction survey no more than one month prior to construction to establish whether white-tailed kite is nesting in trees in or visible from the site. The findings of the survey shall be submitted to the Development Services Department. In the event active nests are found, a non-disturbance buffer of 300 feet shall be established or as otherwise prescribed by a qualified biologist. The buffer shall be demarcated with painted orange lath or via the installation of orange construction fencing. Disturbance within the buffer shall be postponed until a qualified biologist has determined that the young have attained sufficient flight skills to leave the area or that the nesting cycle has otherwise completed.	Prior to any ground disturbance related to covered activities during the nesting season (March 15 through August 31)	City of Elk Grove Development Services Department CDFW	
IV-3(a)	**Swainson's Hawk** Prior to the commencement of construction activities during the nesting season for Swainson's hawk (between March 1 and September 15), a qualified biologist shall conduct protocol-level preconstruction surveys within at least 2 (two) of the recommended survey periods within the nesting season that coincides with the	Prior to the commencement of construction activities during the nesting season for Swainson's hawk (between	City of Elk Grove Development Services Department	

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
	commencement of construction activities, in accordance with the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000). At least one survey shall be conducted within each survey period selected; the dates should be adjusted in consideration of early or late nesting seasons for the year in which the surveys are conducted. If the final survey is completed more than 14 days prior to initiation of construction, an additional survey shall be conducted within 14 days of the start of construction to ensure that nesting has not been initiated within the intervening time. The qualified biologist shall conduct surveys for nesting Swainson's hawk within 0.25 mile of the Project Site, where legally permitted. The qualified biologist shall use binoculars to visually determine whether Swainson's hawk nests occur within the 0.25-mile survey area, if access is denied on adjacent properties. If no active Swainson's hawk nests are identified on or within 0.25 mile of the Project site within the recommended survey periods, a letter report summarizing the survey results shall be submitted to the City of Elk Grove within 30 days following the final survey, and no further avoidance and minimization measures for nesting habitat are required. If active Swainson's hawk nests are found within 0.25-mile of construction activities, the qualified biologist shall contact the City of Elk Grove within one business day following the pre-construction survey to report the findings. For the purposes of this mitigation measure, construction activities are additionally defined as Project-related activities that could cause nest abandonment or forced fledging within 0.25-mile of a nest site between February 15 and August 31. Should an active nest be present within 0.25-mile of the construction area, the City of Elk Grove	March 1 and September 15)	Qualified Biologist	

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
	shall be consulted to establish take avoidance plan. Such a plan could include measures such as establishment of a construction setback, placement of high-visibility construction fencing along the setback boundaries, and monitoring of the nest during construction activities. The qualified biologist shall have the authority to stop construction activities if the hawks show signs of distress; if this occurs, construction may not resume until the City of Elk Grove is consulted and the construction setback is increased or other take-avoidance measures are modified. A letter report summarizing the survey results and describing implementation of the take avoidance measures will be submitted to the City of Elk Grove within 30 days of the final monitoring event. No further avoidance and minimization measures for nesting habitat would be required after submittal of the report.			
IV-3(b)	**Swainson's Hawk** Prior to initiation of construction activities, the Project applicant shall mitigate for the loss of Swainson's hawk foraging habitat at a 1:1 ratio. Mitigation shall be accomplished through acquisition of a conservation easement(s) or other instrument suitable to preserve foraging habitat for the Swainson's hawk in accordance with either Section 16.130.040 or 16.130.110 of the Elk Grove Municipal Code.	Prior to initiation of construction activities	City of Elk Grove Development Services Department	
IV-4(a)	**Modesto Song Sparrow and Other Migratory Raptors** If vegetation clearing, grading and/or construction activities are planned to occur during the migratory bird nesting season (February 15 to August 30), a preconstruction survey to identify active migratory bird nests shall be conducted by a qualified biologist within three days prior to construction initiation. The survey shall be performed by a qualified biologist for the purposes of	Prior to the initiation of vegetation clearing, grading, and/or construction activities during the migratory season (February 15 through	City of Elk Grove Development Services Department	

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
	determining presence/absence of active nest sites within a 500-foot radius of proposed construction areas, where access is available. If a break in construction activity of more than two weeks occurs, then subsequent surveys shall be conducted. If active Modesto Song Sparrow or raptor nests, not including Swainson's hawk, are found, construction activities shall not take place within 500 feet of the nest/s until the young have fledged. If active songbird nests are found, a 100-foot no disturbance buffer shall be established. The no-disturbance buffers may be reduced if a smaller buffer is proposed by the qualified biologist and approved by the City (and CDFW if the species is a tricolored blackbird nesting colony) after taking into consideration the natural history of the species of bird nesting, the proposed activity level adjacent to the nest, habituation to existing or ongoing activity, and nest concealment (are there visual or acoustic barriers between the proposed activity and the nest). The qualified biologist shall visit the nest as needed to determine when the young have fledged the nest and are independent of the site, or the nest may be left undisturbed until the end of the nesting season.	August 30)	CDFW Qualified Biologist	
IV-4(b)	**Modesto Song Sparrow and Other Migratory Raptors** Should construction activities cause a nesting bird to do any of the following in a way that would be considered a result of construction activities: vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest, then the exclusionary buffer shall be increased such that activities are far enough from the nest to stop the agitated behavior, or as otherwise required through consultation with CDFW and the City. The exclusionary buffer shall remain in place until the chicks have fledged	During construction activities	City of Elk Grove Development Services Department CDFW	

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
	or as otherwise determined by a qualified biologist in consultation with CDFW and the City. Construction activities may only resume within the buffer zone after a follow-up survey by the qualified biologist has been conducted and a report has been prepared indicating that the nest(s) are no longer active, and that new nests have not been identified.			
V-1	In the event of the accidental discovery or recognition of any human remains, the Development Services Department shall be notified, and further excavation or disturbance of the find or any nearby area reasonably suspected to overlie adjacent human remains shall not occur until compliance with the provisions of CEQA Guidelines Section 15064.5(e)(1) and (2) has occurred. The Guidelines specify that in the event of the discovery of human remains other than in a dedicated cemetery, no further excavation at the site or any nearby area suspected to contain human remains shall occur and the County Coroner shall be notified to determine if an investigation into the cause of death is required. If the coroner determines that the remains are Native American, then, within 24 hours, the Coroner must notify the Native American Heritage Commission, which in turn will notify the most likely descendants who may recommend treatment of the remains and any grave goods. If the Native American Heritage Commission is unable to identify a most likely descendant or most likely descendant fails to make a recommendation within 48 hours after notification by the Native American Heritage Commission, or the landowner or his authorized agent rejects the recommendation by the most likely descendant and mediation by the Native American Heritage Commission fails to provide a measure acceptable to the landowner, then the landowner or his authorized representative shall rebury the human remains and grave goods with appropriate dignity at a location on	During ground-disturbing activities	City of Elk Grove Development Services Department County Coroner Native American Heritage Commission	

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
	the property not subject to further disturbances. Should human remains be encountered, a copy of the resulting County Coroner report noting any written consultation with the Native American Heritage Commission shall be submitted as proof of compliance to the Development Services Department. Work on the Project site cannot commence until after the human remains are removed from the area or, if reburial is determined to be the appropriate course of action, reburied at a location on the property not subject to further disturbance.			
V-2	In the event that cultural resources or tribal cultural resources are discovered during grading or construction activities during development of the Project, work shall halt immediately within 100 feet of the discovery, the Development Services Director shall be immediately notified. The Applicant's on-site Construction Supervisor, the City of Elk Grove, an archaeologist meeting the Secretary of the Interior's Standards in Archaeology, and any applicable Native American tribes shall assess the discovery to determine if it qualifies as a tribal cultural resource. The appropriate treatment of the discovery, including any applicable avoidance or mitigation strategies, shall be determined in consultation with the City and the applicable tribes. Construction activities within 100 feet of the discovery shall not commence until the appropriate treatment has been determined by the City of Elk Grove and any applicable mitigation has been completed to the satisfaction to the City of Elk Grove Development Services Department. Mitigation shall follow the recommendations detailed in Public Resources Code Sections 21084.3(a) and (b), and CEQA Guidelines section 15370. Work may continue on other parts of the Project site while historical or unique archaeological resource mitigation takes place (Public Resources Code Section 21083.2).	During grading or construction activities	City of Elk Grove Development Services Department	

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
V-3	The applicant shall retain the services of a qualified professional cultural resources trainer and/or environmental trainer to conduct a worker environmental training session for the construction crew that will be conducting grading and excavation at the Project site. The worker environmental training shall include archaeological and Tribal Cultural Resource awareness. The training shall be developed in coordination with the applicable tribes and approved by the City. The training shall identify the appropriate point of contact in the case of tribal cultural resource discovery and shall include relevant information regarding tribal cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating State laws and regulations. The training shall also underscore the requirement for confidentiality and culturally-appropriate treatment of tribal cultural resources.	During grading or construction activities	City of Elk Grove Development Services Department	
VII-1	Prior to approval of any grading permits, the Project Civil Engineer shall show on the Project plans that the Project design would adhere to all engineering recommendations provided in the site-specific Geotechnical Engineering Report Update prepared by Wallace-Kuhl & Associates, including without limitation the import of at least 12 inches of imported, compactable, and very low-expansive granular soils for all interior and exterior concrete slabs-on-grade. Project plans shall be subject to review and approval by the City Development Services Engineering Division.	Prior to approval of any grading permits	City of Elk Grove Development Services Engineering Division	
VII-2	Before the start of any earthmoving activities, the Project applicant shall retain a qualified scientist (e.g., geologist, biologist, paleontologist) to train all construction personnel involved with earthmoving activities, including the site superintendent, regarding the possibility of encountering fossils, the appearance and types of fossils likely to be seen during construction, and proper notification procedures	Before the start of any earthmoving activities	City of Elk Grove Planning Division	

MM Number	Mitigation Measure	Timing/ Implementation	Enforcement/ Monitoring	Verification (date and Signature)
	should fossils be encountered. Training on paleontological resources shall also be provided to all other construction workers but may use videotape of the initial training and/or written materials rather than in-person training. If any paleontological resources (fossils) are discovered during grading or construction activities within the Project area, work shall be halted immediately within 50 feet of the discovery, and the City Planning Division shall be immediately notified. The Project applicant shall retain a qualified paleontologist to evaluate the resource and prepare a recovery plan in accordance with Society of Vertebrate Paleontology guidelines (SVP 2010). The recovery plan may include, but is not limited to, a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings. Recommendations in the recovery plan that are determined by the City to be necessary and feasible shall be implemented by the applicant before construction activities resume in the area where the paleontological resources were discovered.			
IX-1	Prior to issuance of grading permits, the contractor shall confirm that the on-site well has been abandoned, pursuant to County Municipal Code Section 6.28.404(B). If the on-site well has not been abandoned, the existing domestic/irrigation wells shall be removed/abandoned in accordance with County and State regulations.	Prior to issuance of grading permits	City of Elk Grove	
IX-2	Prior to approval of grading permits, a surficial soil sample laboratory analysis shall be conducted in areas around existing structures on the project site. Once the soils are collected, the soils shall be tested for lead. If soil contaminates are not found, further action is not required; however, if lead is found to be higher than the allowable thresholds, the assessment shall include the appropriate	Prior to approval of grading permits	City of Elk Grove City Engineer	

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	mitigation including, but not limited to, soil remediation to an acceptable total threshold limit concentration (TTLC) level per applicable State and federal regulations by excavation of the contaminated soil, and subsequent transportation and disposal off-site at an appropriate Class I or Class II facility permitted by DTSC; or by properly capping the contaminated soil, in compliance with DTSC regulations. All recommended mitigation measures shall be implemented by the project applicant, subject to review and approval by the City Engineer.			
X-1	Prior to issuance of grading permits, the contractor shall prepare a Storm Water Pollution Prevention Plan (SWPPP) for review and approval by the RWRCB. The developer shall file the Notice of Intent (NOI) and associated fee to the SWRCB. The SWPPP shall serve as the framework for identification, assignment, and implementation of BMPs. The contractor shall implement BMPs to reduce pollutants in stormwater discharges to the maximum extent practicable, as determined by Director of Public Works. Construction (temporary) BMPs for the Project may include, but are not limited to: fiber rolls, straw bale barrier, straw wattles, storm drain inlet protection, velocity dissipation devices, silt fences, wind erosion control, stabilized construction entrance, hydroseeding, revegetation techniques, and dust control measures. The SWPPP shall be submitted to the Director of Public Works/City Engineer for review and approval and shall remain on the Project site during all phases of construction. Following implementation of the SWPPP, the contractor shall subsequently demonstrate the SWPPP's effectiveness and provide for necessary and appropriate revisions, modifications, and improvements to reduce pollutants in stormwater discharges to the maximum extent practicable, as determined by the Director of Public Works.	Prior to issuance of grading permits	City of Elk Grove Director of Public Works/City Engineer Regional Water Resources Control Board State Water Resources Control Board	

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X-2	Prior to approval of improvement plans, the Project improvement plans shall demonstrate, to the satisfaction of the City Engineer, that the Project design is compliant with the City of Elk Grove MS4 permit (Order No. R5-2016-0040-005), consistent with Chapter 15.12 of the City's Municipal Code.	Prior to approval of improvement plans	City of Elk Grove City Engineer	
XIII-1	The following measures shall be followed throughout all phases of construction to reduce noise from construction activities and shall be the responsibility of the construction contractor and Project applicant: • Construction should be limited between the hours of 7:00 AM to 7:00 PM when located in close proximity to residential uses. Noise associated with these activities not located in close proximity to residential uses may occur between the hours of 6:00 PM and 8:00 PM; • Construction equipment should be well maintained and used judiciously to be as quiet as practical. Staging areas should be located in areas as far as possible from adjacent uses; • Equip all internal combustion engine-driven equipment with mufflers, which are in good condition and appropriate for the equipment; • Utilize "quiet" models of air compressors and other stationary noise sources where technology exists. Select hydraulically or electric-powered equipment and avoid pneumatically powered equipment where feasible; • Locate stationary noise-generating equipment as far as possible from sensitive receptors. Construct temporary noise barriers or partial enclosures to acoustically shield such equipment where feasible. Muffle or shield all intake and exhaust ports on power construction equipment;	Throughout all phases of construction	City of Elk Grove Development Services Department	

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	• Where barriers are used to shield equipment, when feasible, as determined by the City of Elk Grove, they should block line-of-sight between the equipment and adjacent buildings. Barriers should have a minimum density of 3 pounds per square foot; • Prohibit unnecessary idling of internal combustion engines; • Ensure that no pieces of equipment (tractors, trucks, generators, radios, etc.) are started or idled prior to 7:00 AM; • Ensure that delivery vehicles arrive to the Project site after 7:00 AM; and • Construction-related deliveries of materials and equipment should avoid residential neighborhoods to the extent possible.			
XVIII-1	Implement Mitigation Measures V-1, V-2, and V-3.	See Mitigation Measures V-1, V-2, and V-3	See Mitigation Measures V-1, V-2, and V-3	
XVIII-2	Prior to ground disturbing activities, the Applicant shall provide the City with a construction schedule that will be provided to the Wilton Rancheria (the "Tribe") to ensure the Tribe is afforded the opportunity to monitor the Project during ground disturbing activities. Should the Tribe desire a Tribal Monitor, the Applicant shall enter into an agreement with the Wilton Rancheria to compensate the Tribal Monitor at the Tribe's current adopted rate. Proof of compliance with this measure shall be submitted to the City of Elk Grove Development Services Department.	Prior to ground-disturbing activities	City of Elk Grove Development Services Department	

CERTIFICATION
ELK GROVE CITY COUNCIL RESOLUTION NO. 2023-258

STATE OF CALIFORNIA)
COUNTY OF SACRAMENTO) ss
CITY OF ELK GROVE)

I, Jason Lindgren, City Clerk of the City of Elk Grove, California, do hereby certify that the foregoing resolution was duly introduced, approved, and adopted by the City Council of the City of Elk Grove at a regular meeting of said Council held on November 8, 2023 by the following vote:

AYES:	***COUNCILMEMBERS:***	***Brewer, Robles, Suen***
NOES:	***COUNCILMEMBERS:***	***None***
ABSTAIN:	***COUNCILMEMBERS:***	***None***
ABSENT:	***COUNCILMEMBERS:***	***Singh-Allen, Spease***

Jason Lindgren, City Clerk
City of Elk Grove, California