Draft

INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION

for the

CHARTWELL SCHOOL
EXPANSION PROJECT

Prepared for:

City of Seaside
440 Harcourt Avenue
Seaside, CA 93955

Prepared by:

Denise Duffy & Associates
947 Cass Street, Suite 5
Monterey, CA 93940

January 2025

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FIGURES

TABLES

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CHAPTER 1. PROJECT DATA

1. **Project Title:** Chartwell School Expansion Project

2. **Lead Agency Name and Address:** City of Seaside, 440 Harcourt Avenue, Seaside, CA 93955

3. **Contact Person and Phone Number:** Beth Rocha, Senior Planner, (831) 899-6728, BRocha@ci.seaside.ca.us

4. **Project Location**: The Chartwell School Expansion Project (project or proposed project), described below, is located at 2511 Numa Watson Road in the City of Seaside (City), California. The proposed project site would be located on Assessor's Parcel Numbers (APNs) 031-151-022-000, 031-151-060-000, and 031-151-061-000, which is owned by the existing Chartwell School. The proposed project is surrounded primarily by undeveloped land, public/institutional uses, and residential uses. The project site currently consists of public/institutional uses. Regional access to the project site is provided from General Jim Moore Boulevard, and local access to the project site is provided from Normandy Road and Parker Flats Road.

5. **Project Description**: The proposed project consists of the expansion of the existing Chartwell School (School) campus across two phases of construction. The project would include two new buildings in the mid-campus area (Phase 1) on parcel 031-151-022-000, and three new buildings and various site improvements in the new campus area (Phase 2) on parcels 031-151-061-000 and 031-151-061-000. In addition, Phase 2 of the project includes the installation of streetlights and a prefabricated guard shack on Numa Watson Road. The Mid-Campus component of the proposed project consists of the construction of two new buildings, referred to as Buildings 1 and 2. The Mid-Campus Phase 1 expansion would develop a new 2,850 square-foot (sf) maker space building (Building 1) and a new 1,560 sf classroom building (Building 2). The New High School Phase 2 component of the proposed project consists of the construction of three new buildings and site improvements, referred to as Buildings A, B, and C. The New High School Phase 2 expansion would develop a new 24,892 sf, three-story building consisting of offices, classrooms, and a library (Building A); a new 11,406 sf, three-story building consisting of classrooms, offices, and science labs (Building B); a new 21,440 sf, two-story building consisting of a gymnasium, classrooms, and offices (Building C); and various site improvements including a new outdoor soccer field and basketball court, exterior lighting, tree removals, and landscaping. The proposed project would install an irrigation system that meets current state and local water efficiency standards. In addition, the New High School Phase 2 expansion would introduce 107 new parking spaces, including six accessible spaces, 25 electric vehicle (EV) capable spaces, and two accessible electric vehicle charging station (EVCS) spaces.

6. **Acreage of Project Site**: The proposed project is located on three parcels with a total area of 58.65 acres.

7. **Land Use Designations**: The Seaside 2040 General Plan (2024) designates the proposed project area as Public/Institutional (PI) and the proposed project site is zoned Public/Institutional (PI).

8. **Date Prepared**: January 2025

9. **Prepared By**: Denise Duffy & Associates, Inc.

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CHAPTER 2. PROJECT DESCRIPTION

2.1 INTRODUCTION

This Initial Study has been prepared to evaluate the potential environmental effects associated with the Chartwell School Expansion Project (project or proposed project), located in the City of Seaside (City), California. This document has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code §21000 et. seq., and the State CEQA Guidelines, California Code of Regulations (CCR) §15000 et. seq.

An Initial Study is an informational document prepared by a lead agency to determine if a project may have a significant effect on the environment (CEQA Guidelines §15063, subd. (a)). If there is substantial evidence that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) must be prepared, in accordance with CEQA Guidelines §15064(a). However, if the lead agency determines that revisions in the project plans or proposals made by, or agreed to by, the applicant mitigate the potentially significant effects to a less-than-significant level, an Initial Study/Mitigated Negative Declaration (IS/MND) may be prepared instead of an EIR (CEQA Guidelines §15070, subd. (b)). The lead agency prepares a written statement describing the reasons a proposed project would not have a significant effect on the environment and, therefore, why an EIR need not be prepared. This IS/MND conforms to the content requirements under CEQA Guidelines §15071.

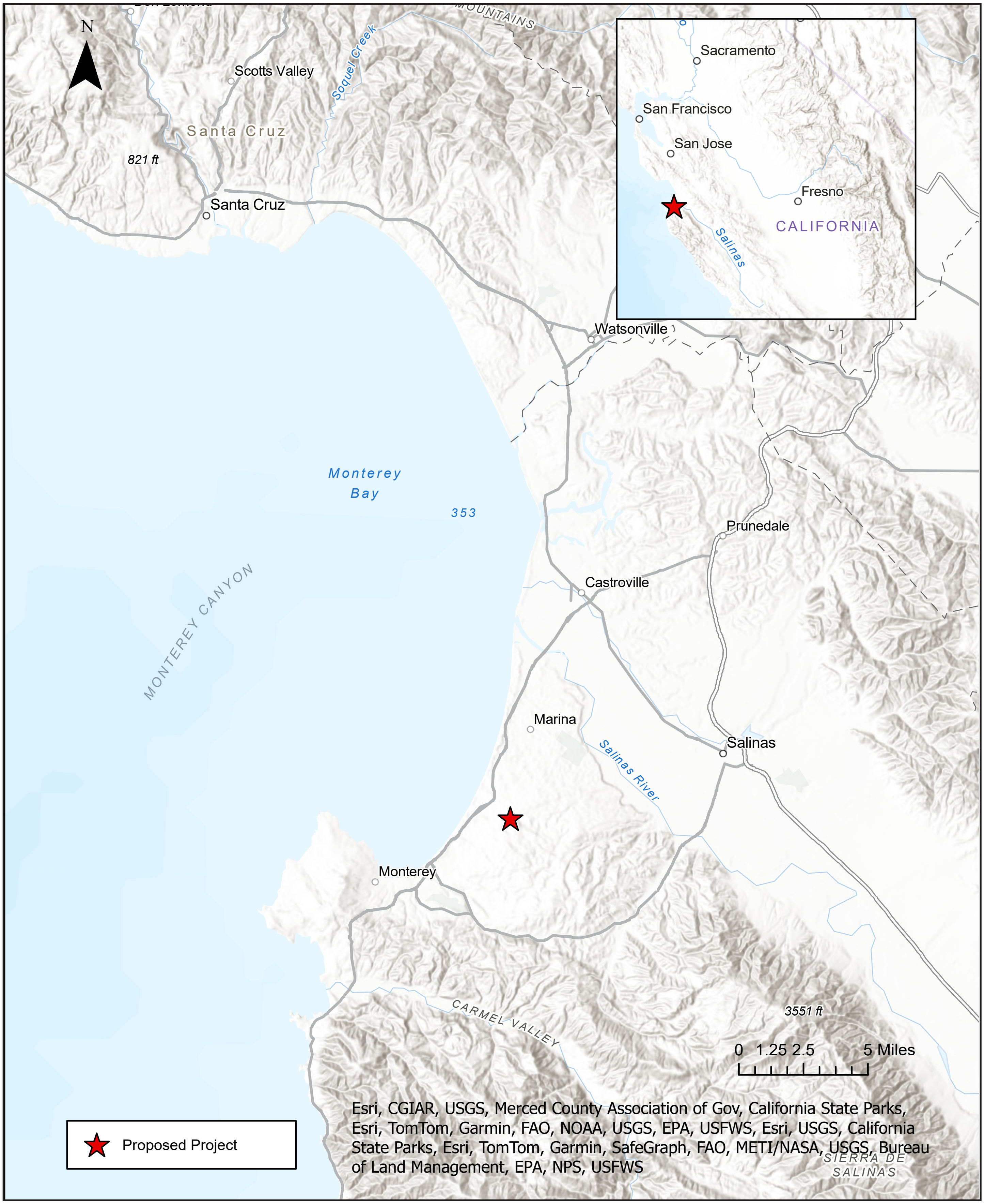
The City is acting as the lead agency pursuant to CEQA Guidelines §15050(a). As the lead agency, the City oversaw preparation of this Initial Study pursuant to CEQA Guidelines §15063, §15070, and §15152. This Initial Study will be circulated for agency and public review during a 30-day public review period pursuant to CEQA Guidelines §15073. Comments received by the City on this IS/MND will be reviewed and considered as part of the deliberative process in accordance with CEQA Guidelines §15074.

The following section is consistent with the requirements of CEQA Guidelines §15124 to the extent that it is applicable to the proposed project. This section contains a detailed description of the project location, existing setting, project components and relevant project characteristics, and applicable regulatory requirements.

2.2 PROJECT LOCATION

The proposed project, described below, is located at 2511 Numa Watson Road within the limits of the City of Seaside, in Monterey County (County), California (see **Figure 1**). The site consists of three parcels with a total area of 58.65 acres (APNs 031-151-022-000, 031-151-060-000, and 031-151-061-000) and is located approximately one-half of a mile east of General Jim Moore Boulevard (see **Figure 2**). The property is partially developed with the existing Chartwell School campus, and partially vacant, with evidence of previous building sites (see **Figures 3a** and **3b**). The project site also includes Numa Watson Road.

Regional access to the project site is provided from General Jim Moore Boulevard, and local access to the project site is provided from Normandy Road and Parker Flats Road. The site is accessed Numa Watson Road. The proposed project is surrounded primarily by undeveloped land, public/institutional uses, and residential uses.



Esri, CGIAR, USGS, Merced County Association of Gov, California State Parks, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS, Esri, USGS, California State Parks, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS

Title:
Regional Map

Date 8/22/2024
Scale N/A
Project 2024.49

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Figure
1

Source: Maxar; Esri 2024

Title:

Aerial Map

Date 8/22/2024

Scale N/A

Project 2024.49

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Figure
2

Photo #1: East facing view of Mid-Campus site. (Source: BASIN, 2024)

Photo #2: Northeast facing view of High School site and Numa Watson Road. (Source: BASIN, 2024)

Photo #3: South facing view of Numa Watson Road from Normandy Road. (Source: BASIN, 2024)

Photo #4: Southeast facing view of High School site. (Source: BASIN, 2024)

Title:

Site Photos

Date 9/6/2024

Scale N/A

Project 2024.49

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Figure
3a

Photo #5: Southeast facing view of vegetated area at southeast corner of parcel. (Source: BASIN, 2024)

Photo #6: Southwest facing view of High School site from northeast parcel boundary. (Source: BASIN, 2024)

Photo #7: Southwest facing view of High School site from northwest parcel boundary. (Source: BASIN, 2024)

Photo #8: West facing view of future Mid-Campus parking area. (Source: BASIN, 2024)

Title:
Site Photos

Date 9/6/2024
Scale N/A
Project 2024.49

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Figure
3b

2.3 PROJECT DESCRIPTION

Chartwell School is an independent day school that provides specialized educational services to Kindergarten through Grade 12 students with learning differences, including dyslexia and other language-related learning difficulties. The School was founded in 1983 as an independent, nonprofit school for students with learning disabilities. The existing current campus at 2511 Numa Watson Road was opened in 2006 and occupies an approximately 12 acre site in the City of Seaside. The School has a maximum student body of approximately 205 students and employs 72 faculty/staff. The School has a policy of maintaining class sizes of 10 students or fewer and provides additional services as part of the base tuition including physical therapy, occupational therapy, speech therapy, and other social/emotional-focused therapies.

The School is seeking to expand the existing campus. The proposed project would consist of the construction of five new buildings and other improvements in two phases of construction. Specifically, the Mid-Campus (Phase 1) phase of the proposed project would include the construction of a new 2,850 square foot (sf) makerspace building (Building 1) and a new 1,560 sf classroom building (Building 2). The New High School (Phase 2) phase of the proposed project would include the construction of a new 24,892 sf, three-story building consisting of offices, classrooms, and a library (Building A); a new 11,406 sf, three-story building consisting of classrooms, offices, and science labs (Building B); a new 21,440 sf, two-story building consisting of a gymnasium, classrooms, and offices (Building C); and various site improvements including a new outdoor soccer field and basketball court, exterior lighting, tree removals, and landscaping (see **Figures 4a** and **4b**). In addition, Phase 2 of the project includes the installation of streetlights and a prefabricated guard shack on Numa Watson Road. The proposed project is anticipated to increase the maximum size of the student body from 205 to 400 students and increase the size of the faculty from 72 to 112 faculty/staff.

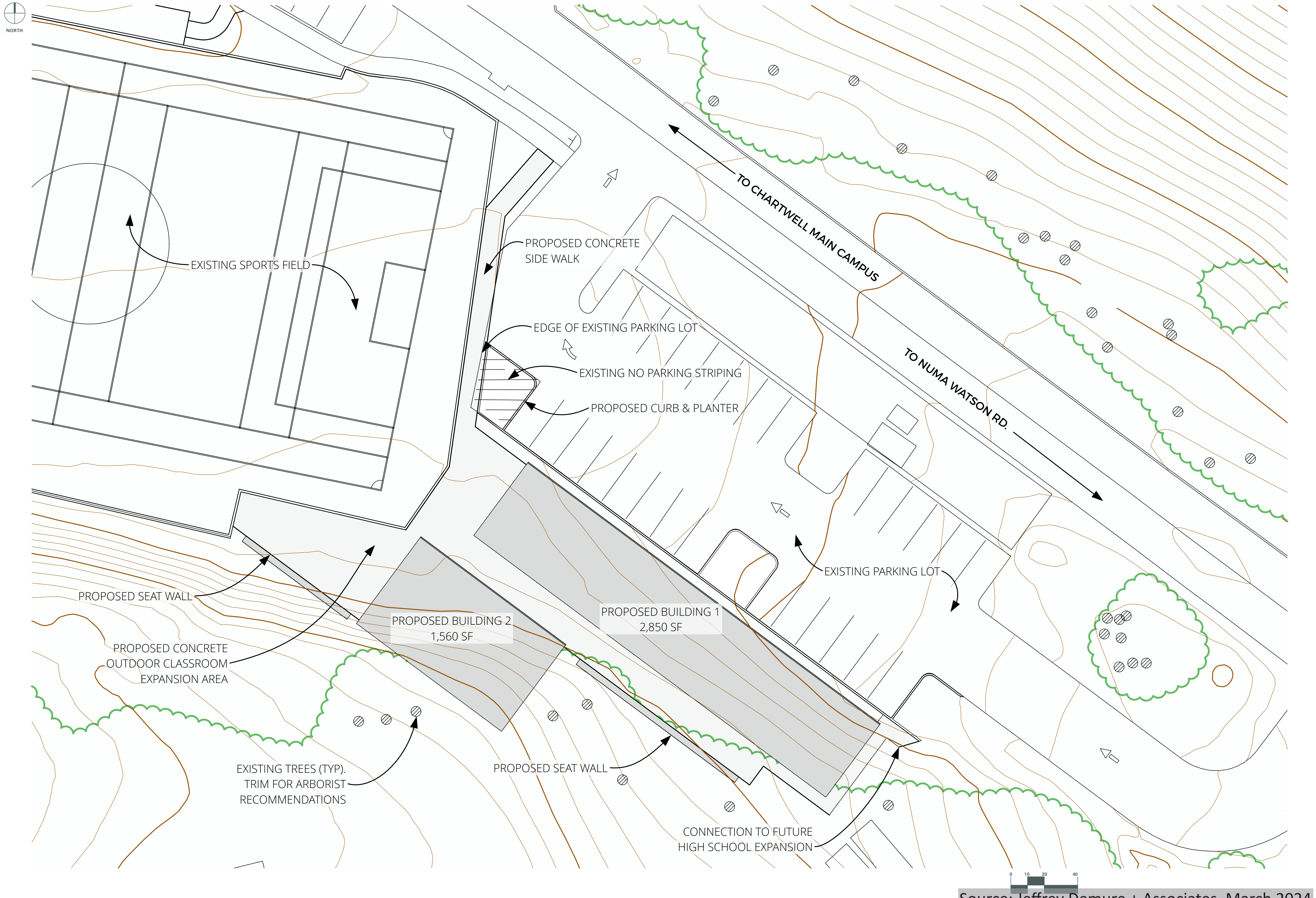
The Mid-Campus expansion (Phase 1) would be comprised of the construction of buildings located southeast of the existing campus buildings and south of the existing sports fields, on APN 031-151-022-000. The New High School expansion (Phase 2) would be comprised of the construction of buildings and site improvements located to the southeast of the existing campus, on APNs 031-151-060-000 and 031-151-061-000. The two project components would be located at the Chartwell School campus.

Mid-Campus (Phase 1)

The Mid-Campus component of the proposed project consists of the construction of two new buildings, referred to as Buildings 1 and 2 (**Figure 4a**). The Mid-Campus expansion would develop a new 2,850 sf maker space building (Building 1) and a new 1,560 sf classroom building (Building 2) (see **Figure 5a**).

New High School (Phase 2)

The New High School component of the proposed project consists of the construction of three new buildings and site improvements, referred to as Buildings A, B, and C (**Figure 4b**). The New High School expansion would develop a new 24,892 sf, three-story building consisting of offices, classrooms, and a library (Building A); a new 11,406 sf, three-story building consisting of classrooms, offices, and science labs (Building B); a new 21,440 sf, two-story building consisting of a gymnasium, classrooms, and offices (Building C); and various site improvements including a new outdoor soccer field and basketball court, exterior lighting, tree removals, and landscaping (see **Figures 5b** through **5i**). In addition, Phase 2 of the project includes the installation of streetlights and a prefabricated guard shack on Numa Watson Road.



Source: Jeffrey Demure + Associates, March 2024

Title:

Site Plan - Mid-Campus

Date 8/9/2024

Scale N/A

Project 2024.49

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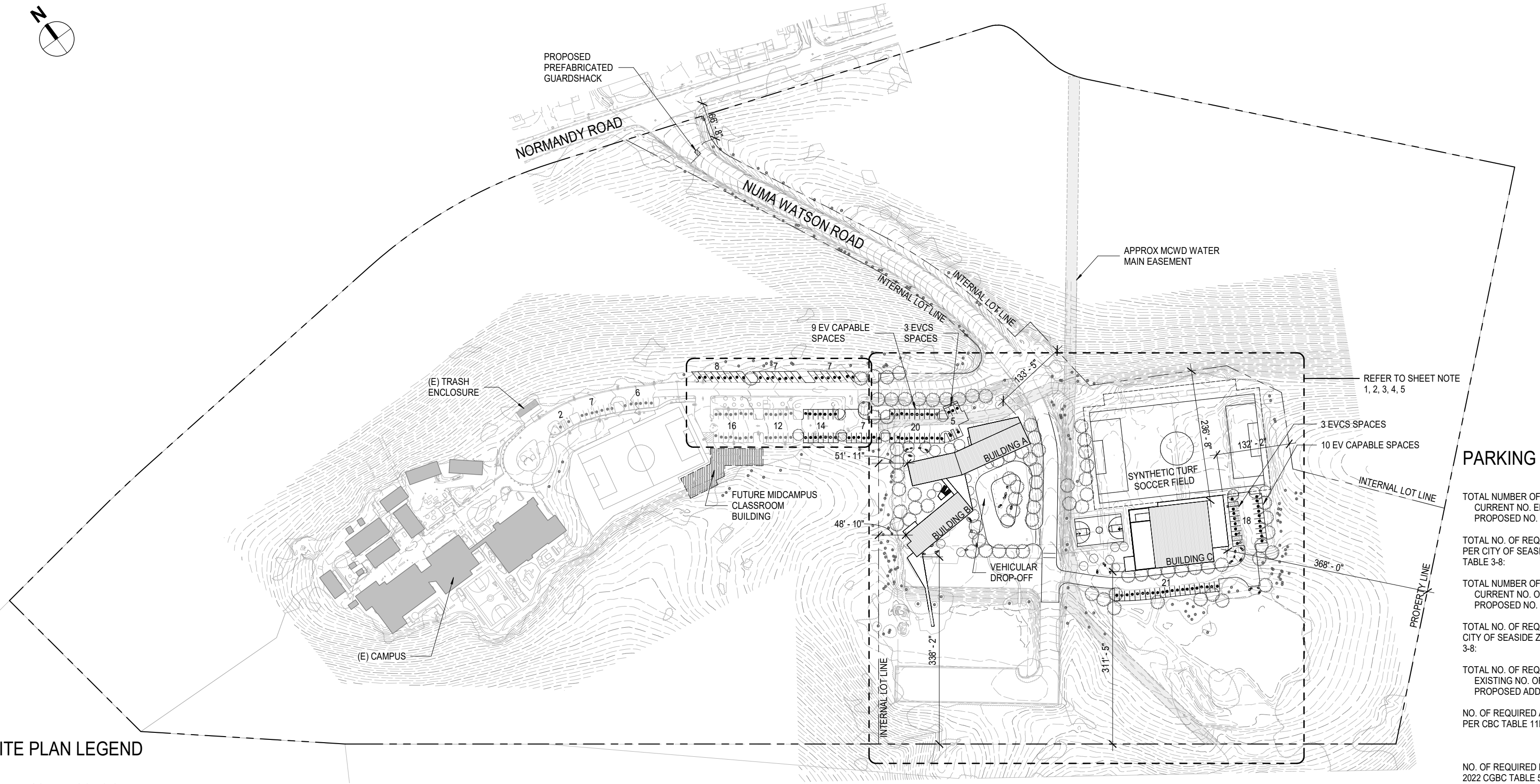
Figure
4a



PARKING CALCULATIONS

TOTAL NUMBER OF EMPLOYEES:	**112 TOTAL EMPLOYEES**
CURRENT NO. EMPLOYEES:	72 (CURRENT)
PROPOSED NO. OF ADDITIONAL EMPLOYEES:	40 (PROPOSED ADDITIONAL)
TOTAL NO. OF REQUIRED SPACES FOR EMPLOYEES PER CITY OF SEASIDE ZONING ORDINANCE 17.34.041, TABLE 3-8:	1 SPACE PER EMPLOYEE **112 SPACES FOR 112 EMPLOYEES**
TOTAL NUMBER OF STUDENTS:	380 TOTAL STUDENTS
CURRENT NO. OF STUDENTS:	200 (CURRENT)
PROPOSED NO. OF ADDITIONAL STUDENTS:	180 (PROPOSED ADDITIONAL)
TOTAL NO. OF REQUIRED SPACES FOR STUDENTS PER CITY OF SEASIDE ZONING ORDINANCE 17.34.041, TABLE 3-8:	1 SPACE FOR EACH 10 STUDENTS **38 SPACES FOR 380 STUDENTS**
TOTAL NO. OF REQUIRED SPACES:	**150 SPACES**
EXISTING NO. OF PARKING SPACES:	43 SPACES (EXISTING)
PROPOSED ADDITIONAL NO OF PARKING SPACES:	107 SPACES (NEW)
NO. OF REQUIRED ACCESSIBLE SPACES PROVIDED PER CBC TABLE 11B-208.2:	**6 ACCESSIBLE SPACES** (5 STANDARD ACCESSIBLE SPACES) (2 VAN ADA SPACES)
NO. OF REQUIRED EV CAPABLE SPACES PROVIDED PER 2022 CGBC TABLE 5.106.5.3.1:	**25 SPACES** (19 EV CAPABLE SPACES W/O EVSE) (6 EV CAPABLE SPACES W/ EVSE)
NO. OF REQUIRED ACCESSIBLE EVCS PROVIDED PER CBC TABLE 11B-228.3.2.1:	**2 ACCESSIBLE EVCS SPACES** (1 STANDARD ACCESSIBLE) (1 VAN ACCESSIBLE)

SITE PLAN LEGEND

●	NEW (N) PARKING SPACES
●	EXISTING (E) PARKING SPACES

Source: EHDD, December, 2023

Title:
Site Plan - High School

Date 8/9/2024
Scale N/A
Project 2024.49

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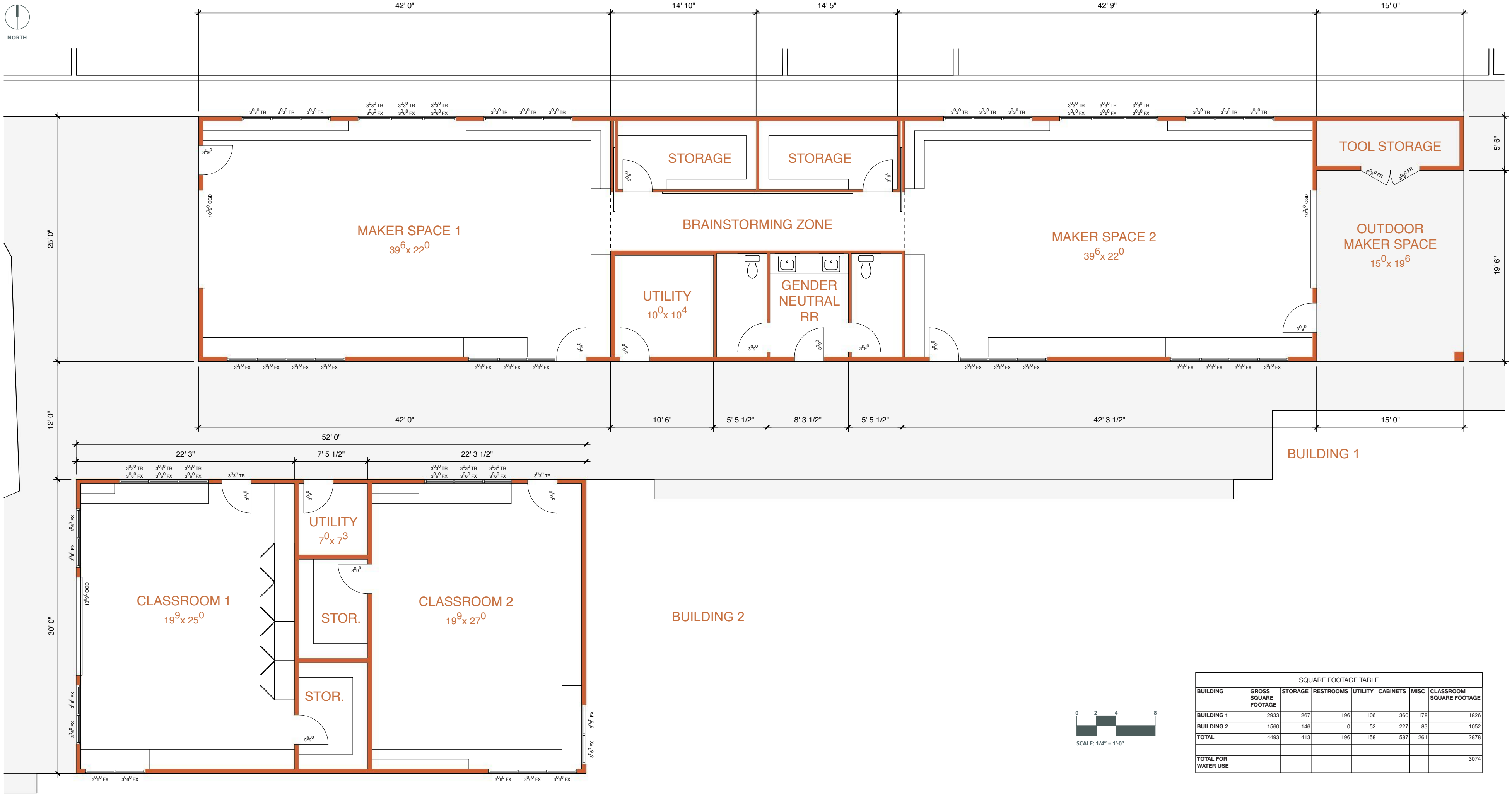
Figure
4b



SQUARE FOOTAGE TABLE							
BUILDING	**GROSS SQUARE FOOTAGE**	**STORAGE**	**RESTROOMS**	**UTILITY**	**CABINETS**	**MISC**	**CLASSROOM SQUARE FOOTAGE**
BUILDING 1	2933	267	196	106	360	178	1826
BUILDING 2	1560	146	0	52	227	83	1052
TOTAL	4493	413	196	158	587	261	2878
TOTAL FOR WATER USE							3074

Source: Jeffrey Demure + Associates, March 2024

Title:

Floor Plan - Mid-Campus - Bldgs 1 & 2

Date 8/9/2024
Scale N/A
Project 2024.49

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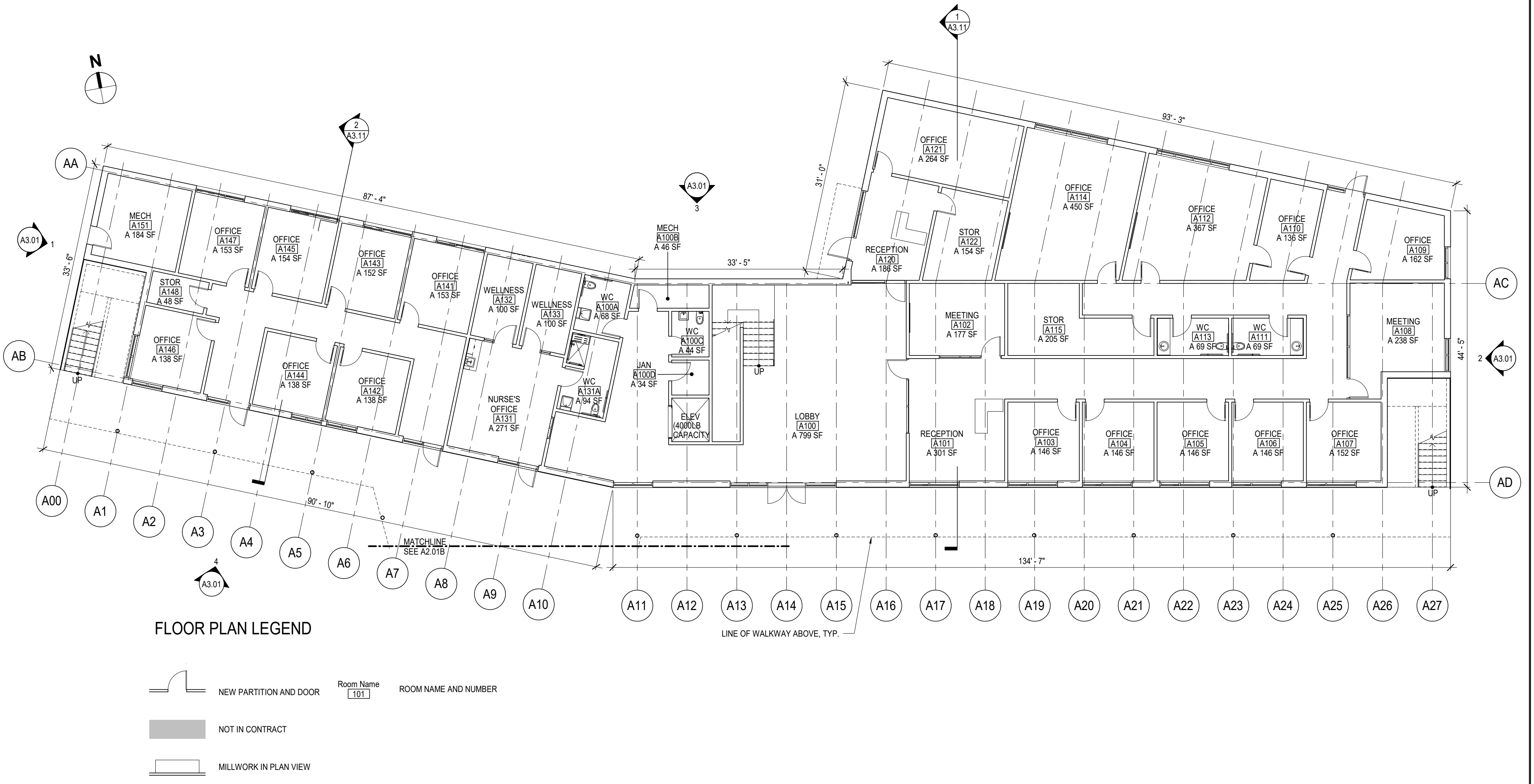
Figure
5a



Source: EHDD, December, 2023

Title: **Floor Plan - High School - Bldg A - 1st Floor**

Date 8/9/2024
Scale N/A
Project 2024.49

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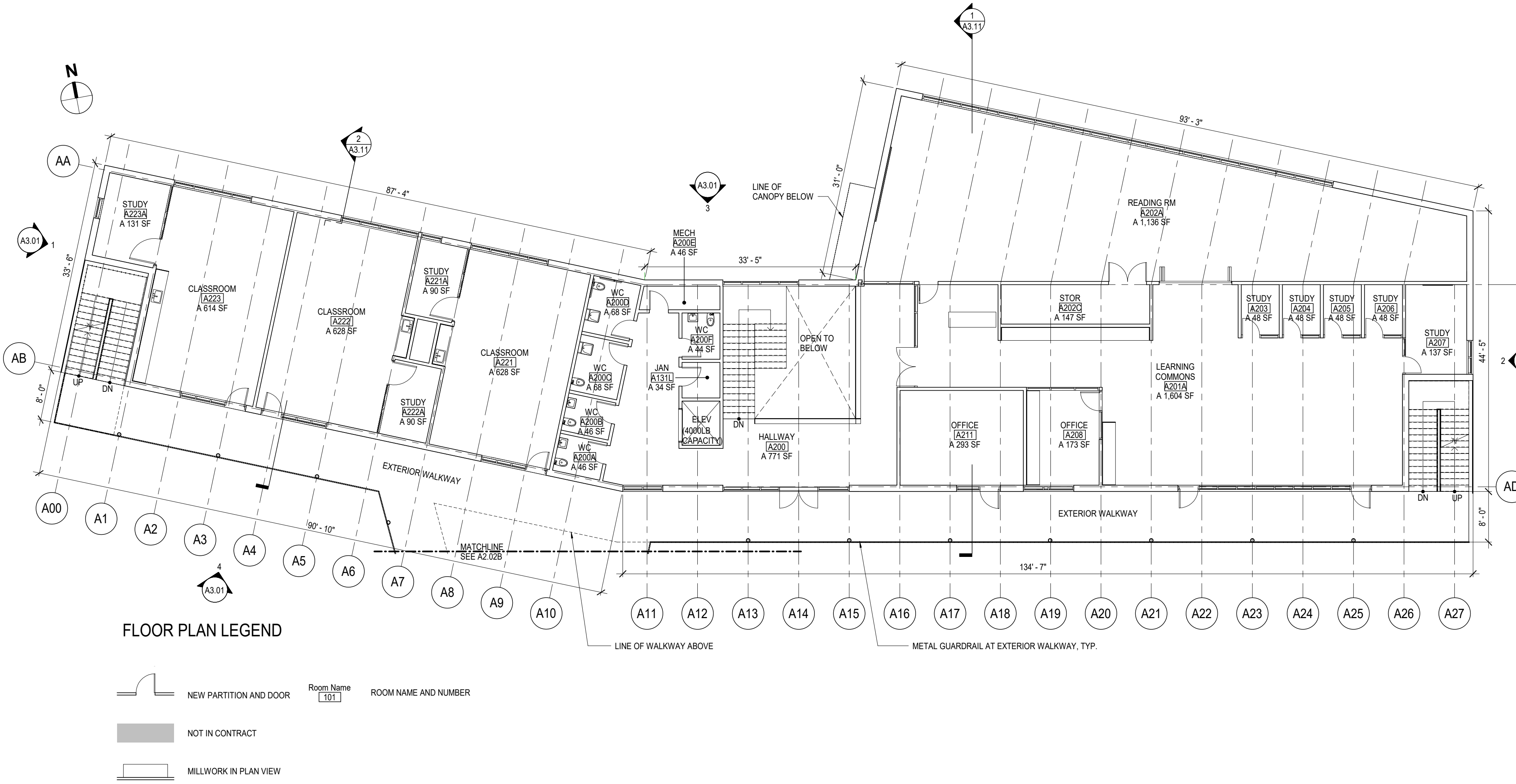
Figure
5b



Source: EHDD, December, 2023

Title: **Floor Plan - High School - Bldg A - 2nd Floor**

Date 8/9/2024
Scale N/A
Project 2024.49

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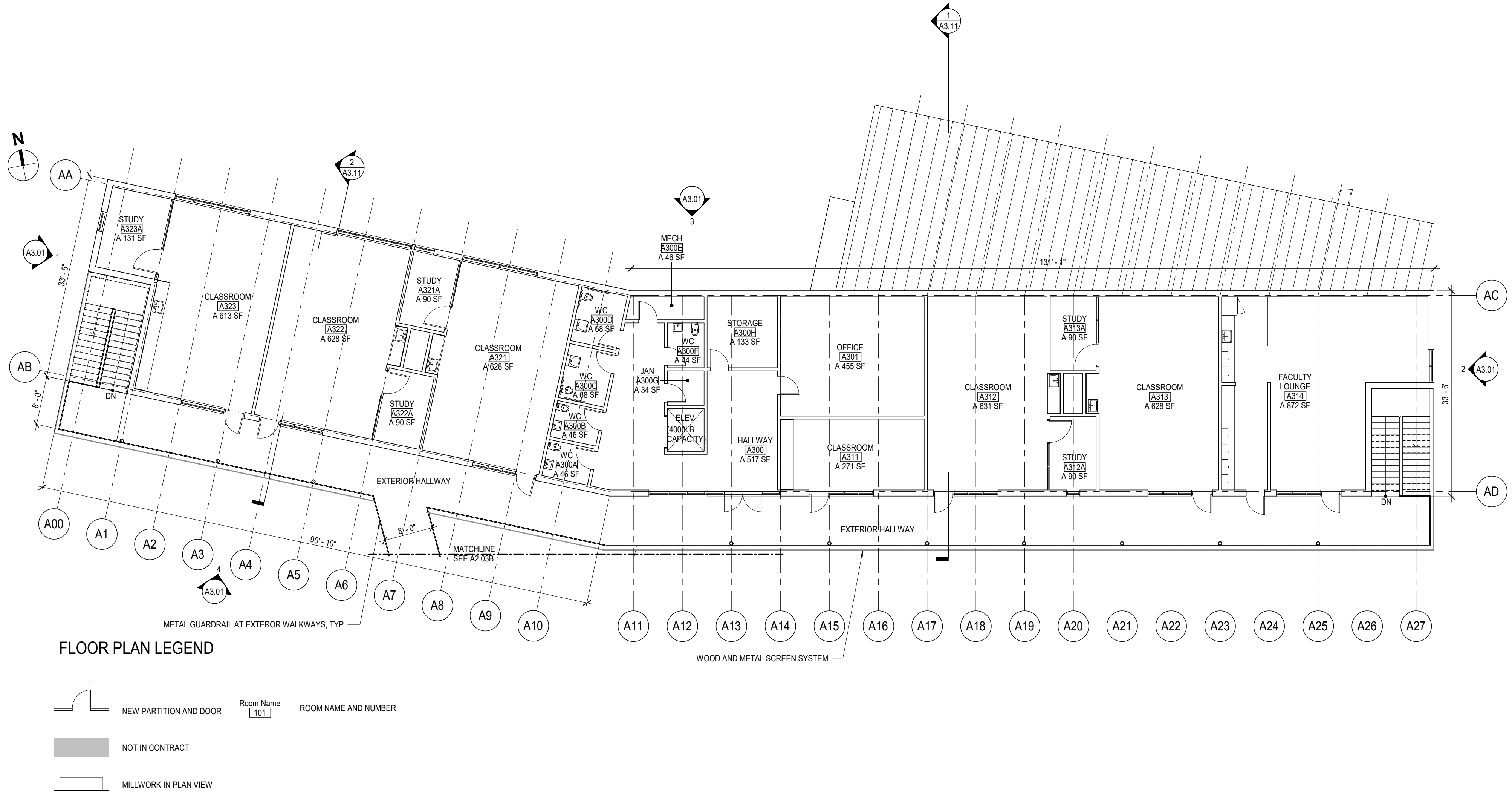
Figure
5c



Source: EHDD, December, 2023

Title: **Floor Plan - High School - Bldg A - 3rd Floor**

Date	8/9/2024
Scale	N/A
Project	2024.49

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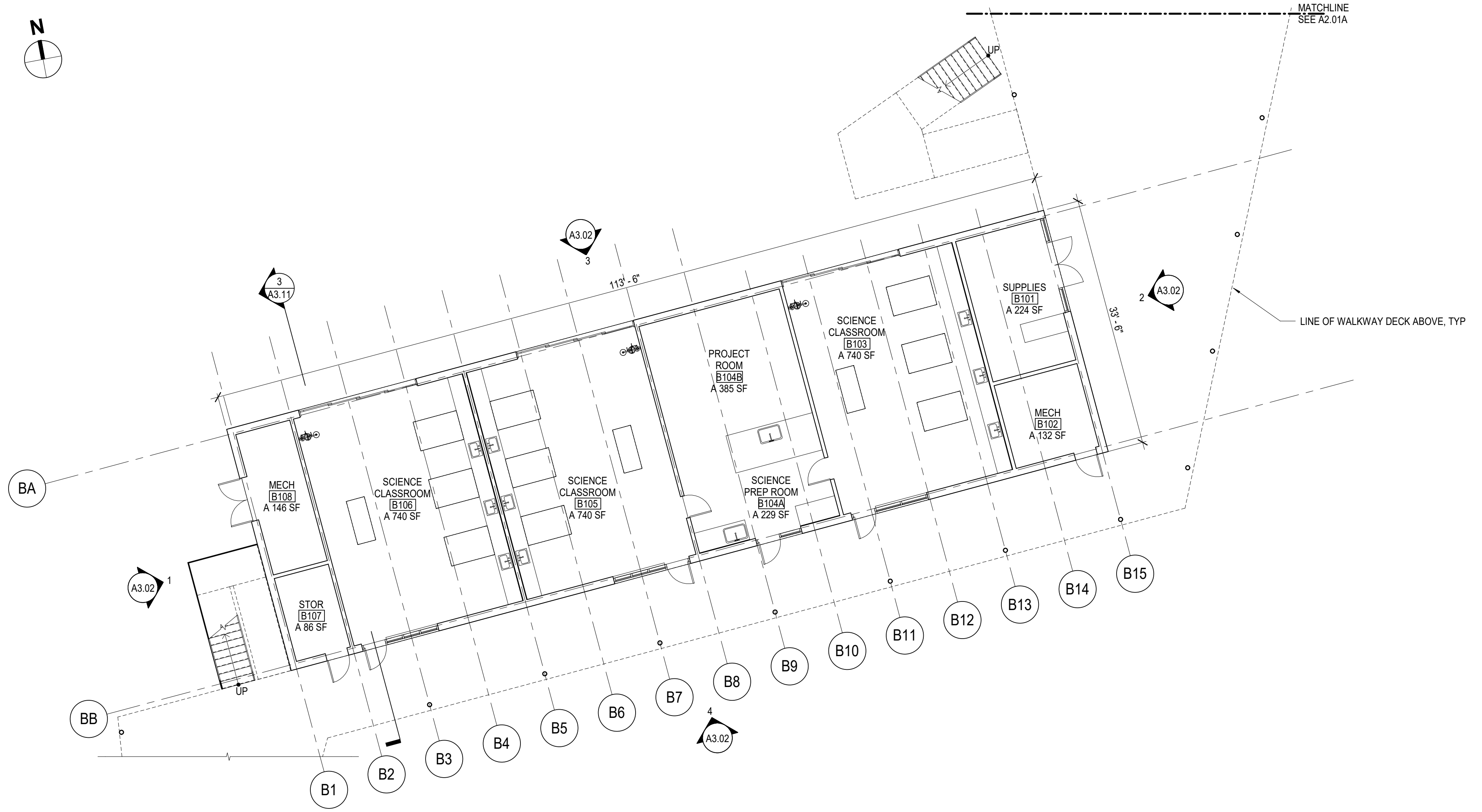
Figure
5d



FLOOR PLAN LEGEND

NEW PARTITION AND DOOR

Room Name 101 ROOM NAME AND NUMBER

▨ NOT IN CONTRACT

MILLWORK IN PLAN VIEW

Source: EHDD, December, 2023

Title: **Floor Plan - High School - Bldg B - 1st Floor**

Date 8/9/2024
Scale N/A
Project 2024.49

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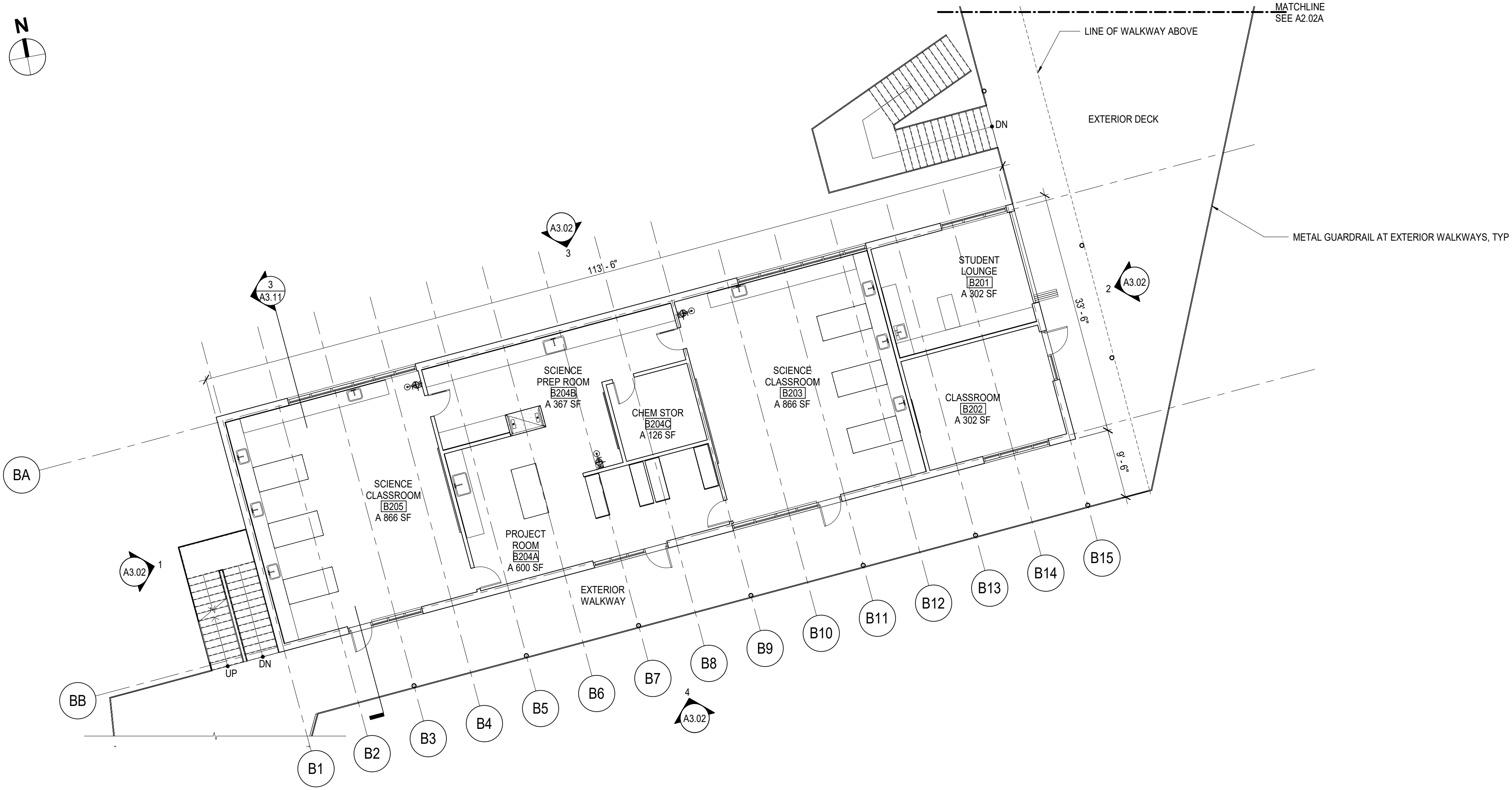
Figure
5e



FLOOR PLAN LEGEND

NEW PARTITION AND DOOR

Room Name 101 ROOM NAME AND NUMBER

▨ NOT IN CONTRACT

MILLWORK IN PLAN VIEW

Source: EHDD, December, 2023

Title: **Floor Plan - High School - Bldg B - 2nd Floor**

Date 8/9/2024
Scale N/A
Project 2024.49

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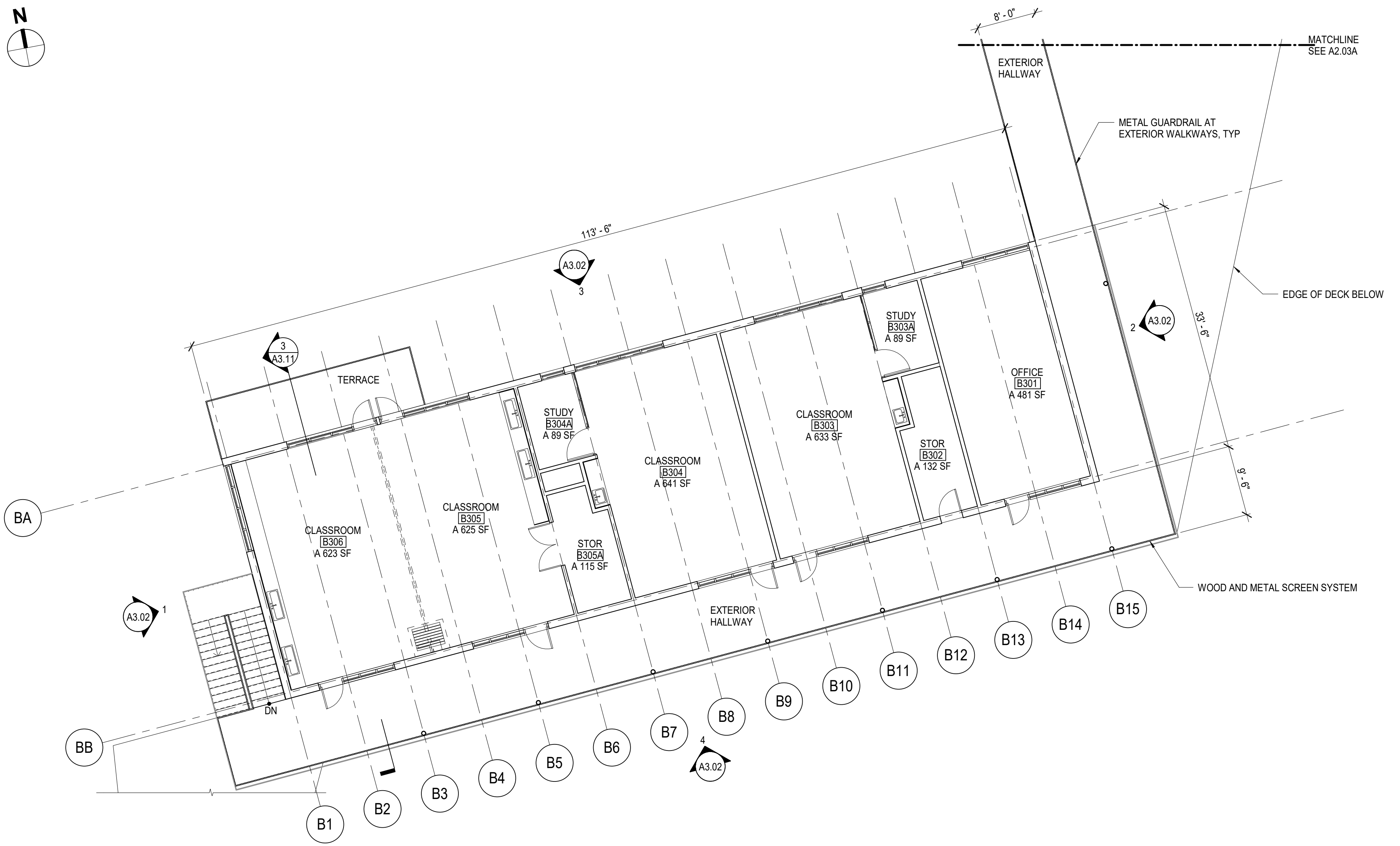
Figure
5f



FLOOR PLAN LEGEND

NEW PARTITION AND DOOR

Room Name
101
ROOM NAME AND NUMBER

NOT IN CONTRACT

MILLWORK IN PLAN VIEW

Source: EHDD, December, 2023

Title: **Floor Plan - High School - Bldg B - 3rd Floor**

Date	8/9/2024
Scale	N/A
Project	2024.49

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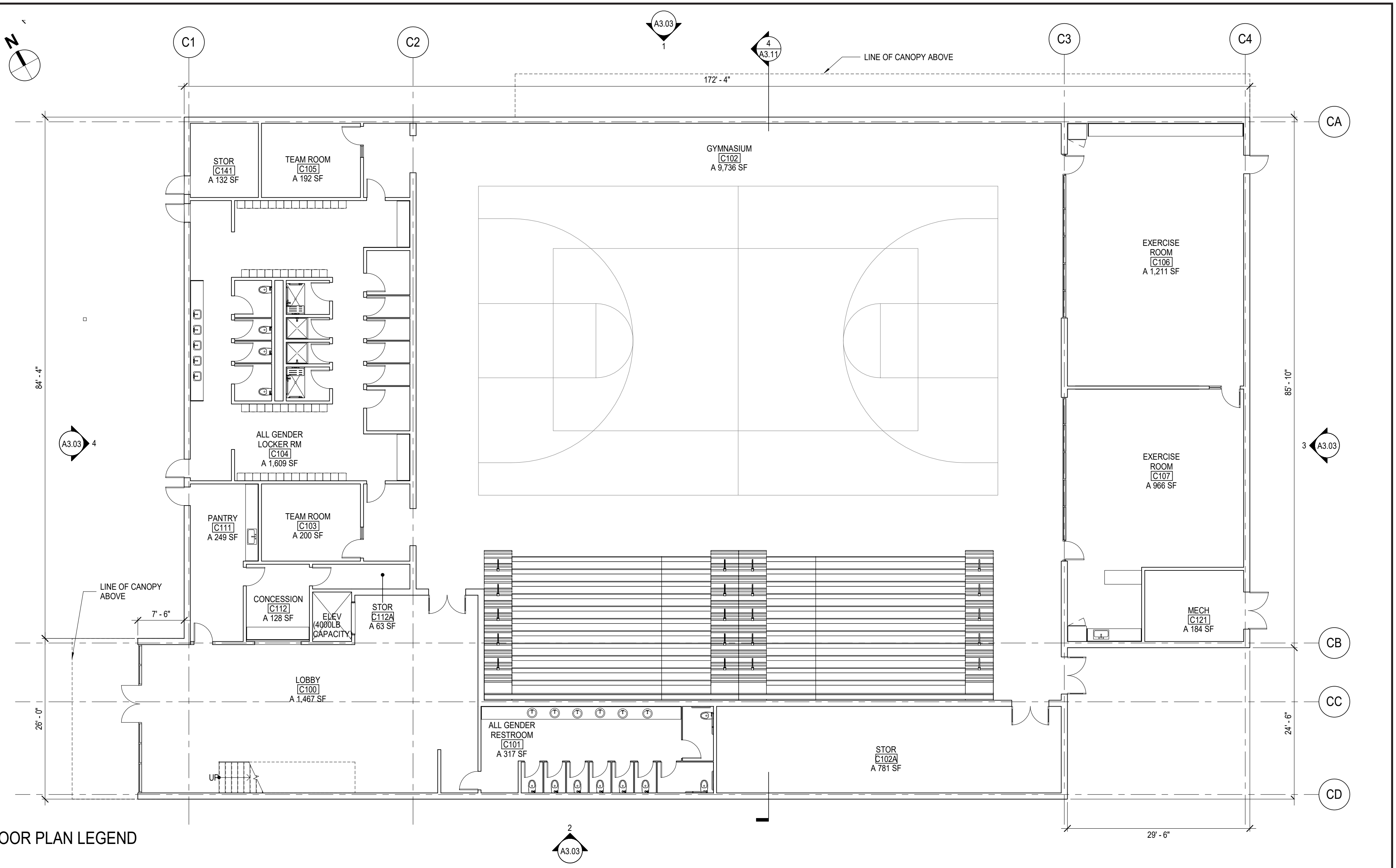
Figure
5g



FLOOR PLAN LEGEND

NEW PARTITION AND DOOR	Room Name 101 ROOM NAME AND NUMBER
▨ NOT IN CONTRACT	
MILLWORK IN PLAN VIEW	

Source: EHDD, December, 2023

Title: **Floor Plan - High School - Bldg C - 1st Floor**

Date 8/9/2024
Scale N/A
Project 2024.49

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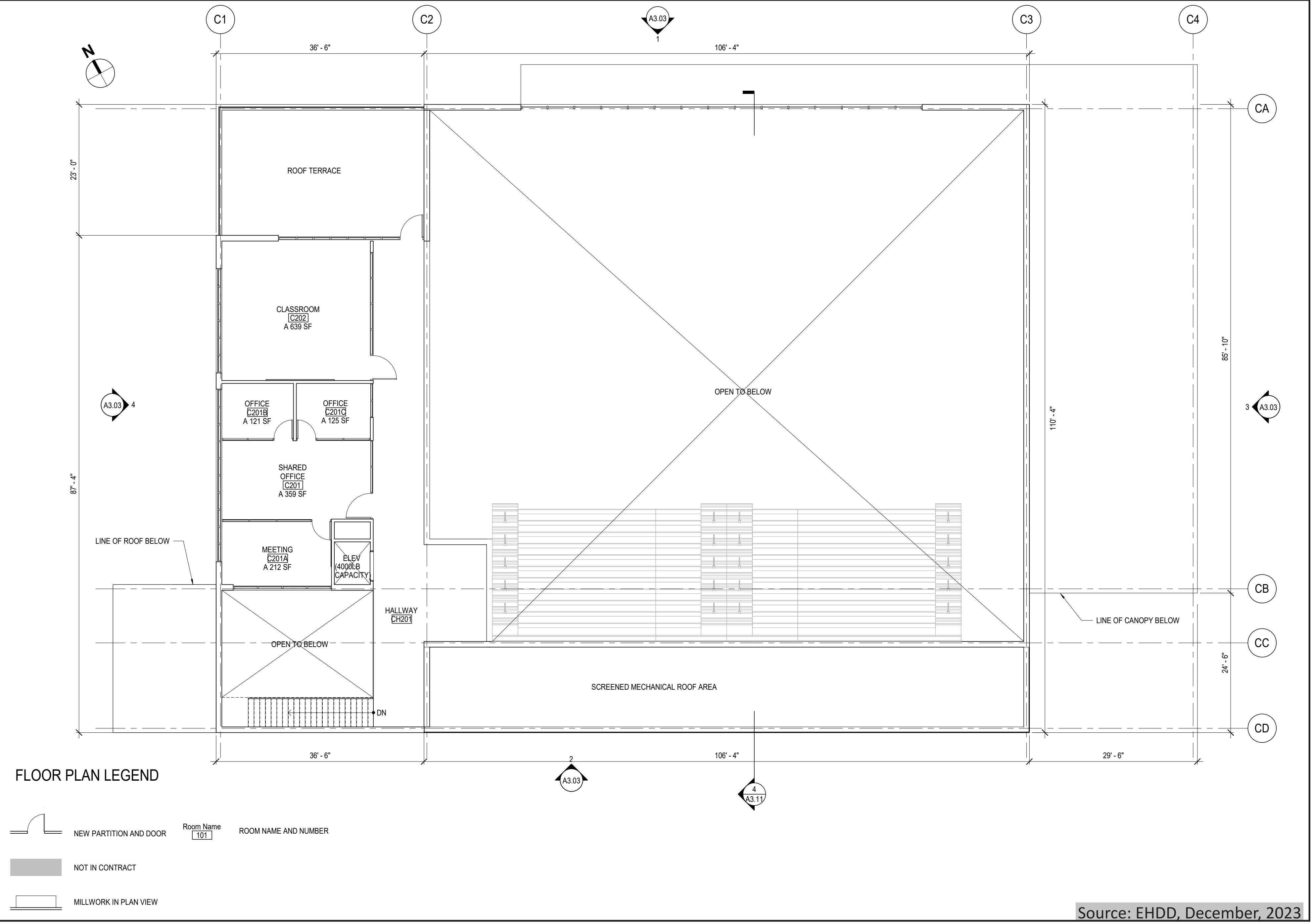
Figure
5h



Source: EHDD, December, 2023

Title: **Floor Plan - High School - Bldg C - 2nd Floor**

Date 8/9/2024
Scale N/A
Project 2024.49

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Figure
5i

Source: Jeffrey Demure + Associates, March 2024

Title:

Elevations - Mid-Campus - Bldg 1

Date 8/9/2024
Scale N/A
Project 2024.49

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Figure
6a

Source: Jeffrey Demure + Associates, March 2024

Title:
Elevations - Mid-Campus - Bldg 2

Date 8/9/2024
Scale N/A
Project 2024.49

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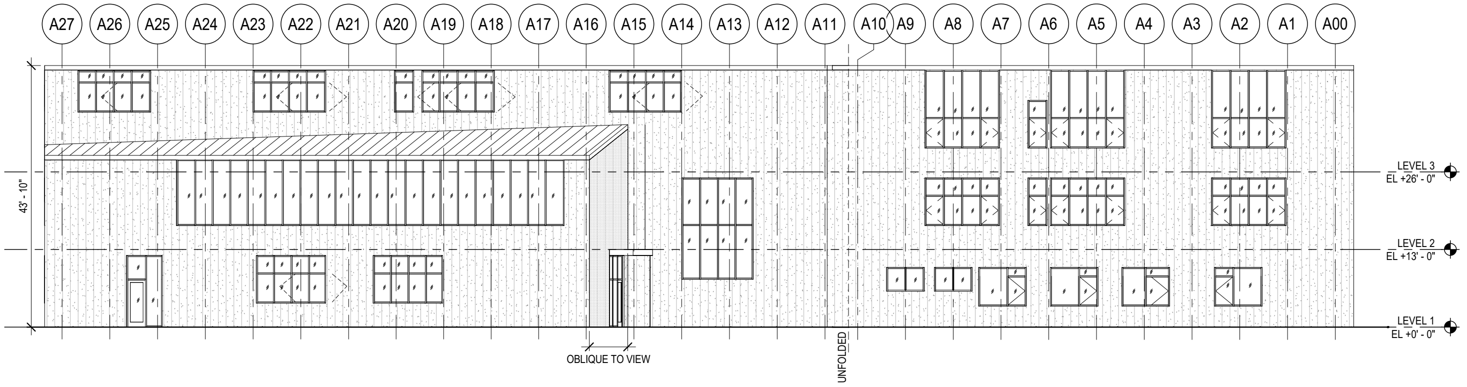
Figure
6b

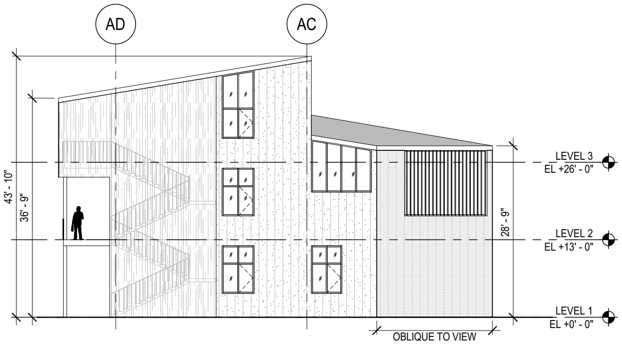
4 A3.01 SOUTH ELEVATION

SCALE: 3/32" = 1'-0"



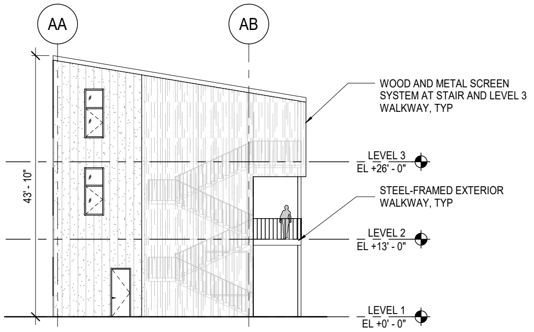
3 A3.01 NORTH ELEVATION

SCALE: 3/32" = 1'-0"



2 A3.01 EAST ELEVATION

SCALE: 3/32" = 1'-0"



WOOD AND METAL SCREEN SYSTEM AT STAIR AND LEVEL 3 WALKWAY, TYP

STEEL-FRAMED EXTERIOR WALKWAY, TYP

1 A3.01 WEST ELEVATION

SCALE: 3/32" = 1'-0"

ELEVATION LEGEND

- ▨ CEMENT PANEL CLADDING SYSTEM
- ▥ METAL PANEL ROOFING OR CLADDING SYSTEM
- ▥ WOOD AND METAL SCREEN SYSTEM
- ▦ PERFORATED METAL SCREEN SYSTEM

Source: EHDD, December, 2023

Title:
Elevations - High School - Bldg A

Date 8/9/2024
Scale N/A
Project 2024.49

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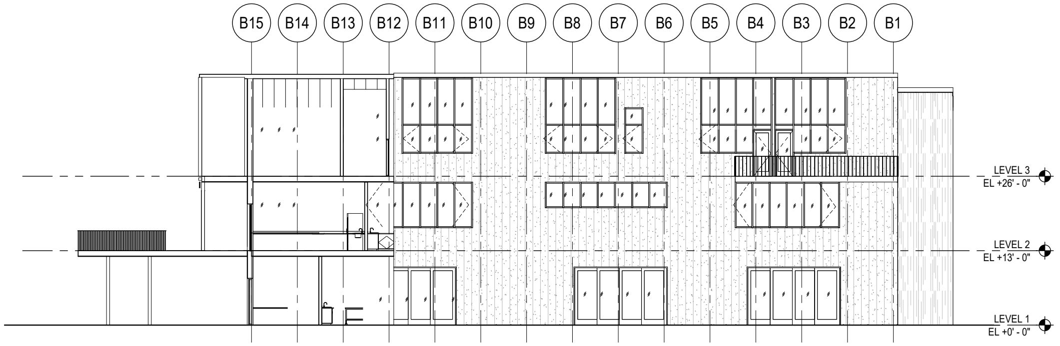
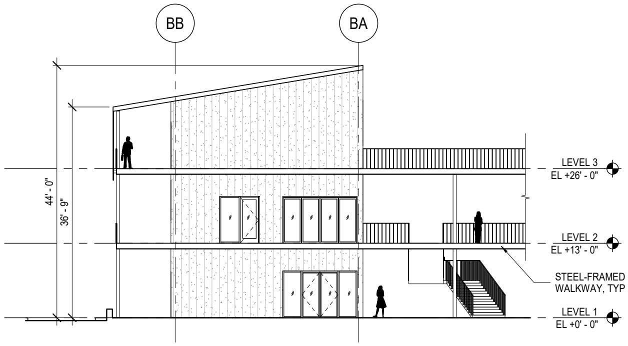
Figure
6c

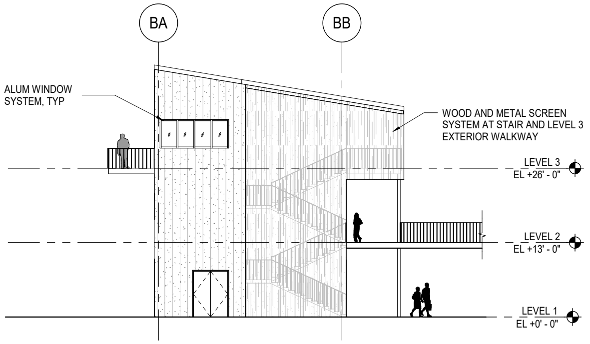
4
A3.02
SOUTH ELEVATION
SCALE: 3/32" = 1'-0"



3
A3.02
NORTH ELEVATION
SCALE: 3/32" = 1'-0"



2
A3.02
EAST ELEVATION
SCALE: 3/32" = 1'-0"



1
A3.02
WEST ELEVATION
SCALE: 3/32" = 1'-0"

ELEVATION LEGEND

▨	CEMENT PANEL CLADDING SYSTEM
▯	METAL PANEL ROOFING OR CLADDING SYSTEM
▥	WOOD AND METAL SCREEN SYSTEM
▦	PERFORATED METAL SCREEN SYSTEM

Source: EHDD, December, 2023

Title:
Elevations - High School - Bldg B

Date 8/9/2024
Scale N/A
Project 2024.49

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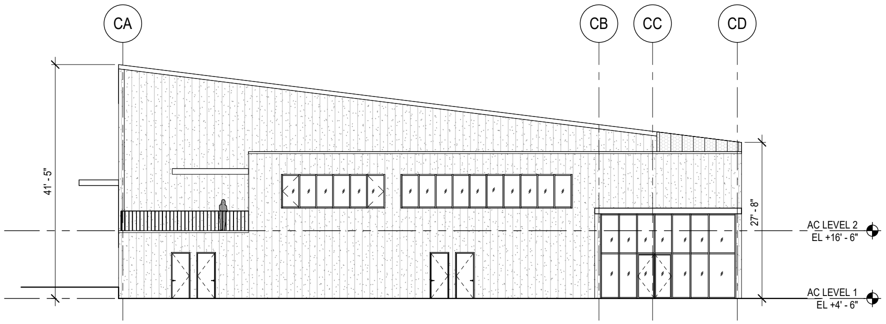
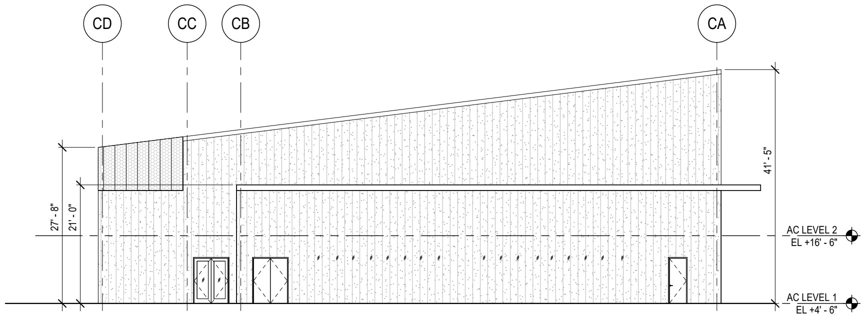
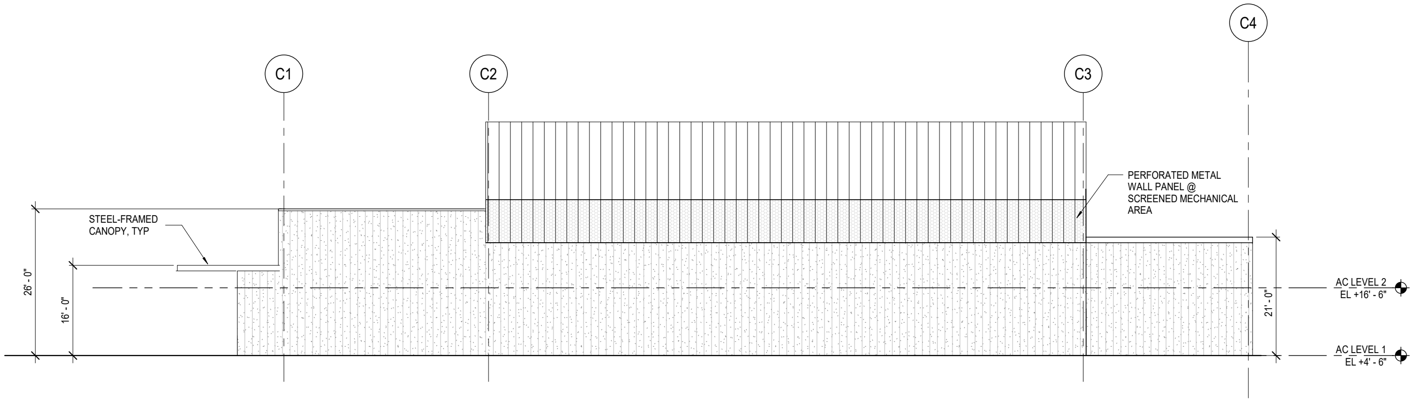
Figure
6d



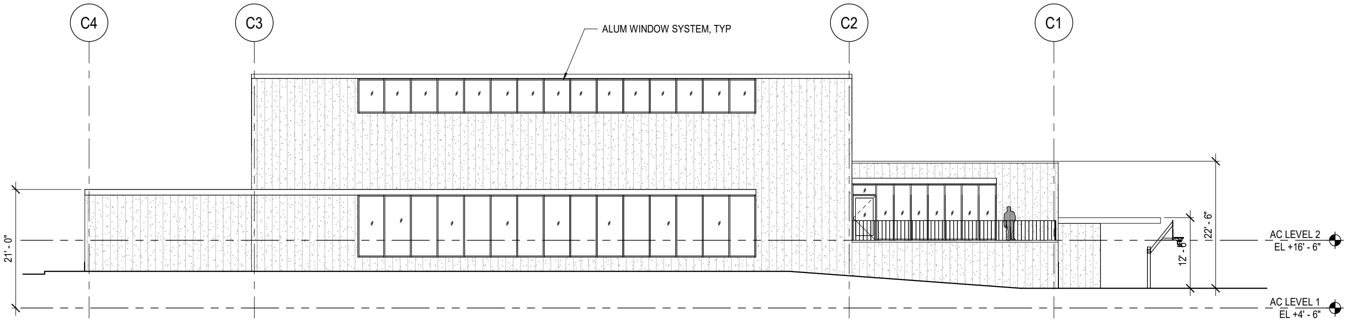
4
A3.03
WEST ELEVATION
SCALE: 3/32" = 1'-0"



3
A3.03
EAST ELEVATION
SCALE: 3/32" = 1'-0"



2
A3.03
SOUTH ELEVATION
SCALE: 3/32" = 1'-0"



1
A3.03
NORTH ELEVATION
SCALE: 3/32" = 1'-0"

ELEVATION LEGEND

▨	CEMENT PANEL CLADDING SYSTEM
▥	METAL PANEL ROOFING OR CLADDING SYSTEM
▥	WOOD AND METAL SCREEN SYSTEM
▦	PERFORATED METAL SCREEN SYSTEM

Source: EHDD, December, 2023

Title:
Elevations - High School - Bldg C

Date 8/9/2024
Scale N/A
Project 2024.49

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Figure
6e

All new buildings would be subject to the California Green Building Standards Code (also known as CALGreen). Please refer to **Table 1** for site information of the components of the proposed project and **Figure 6a** through **6e** for elevations of the proposed buildings.

Table 1.
Proposed Project Components

Characteristics	Mid-Campus (Phase 1)	New High School (Phase 2)
APNs and Acreage (acres, ac)	031-151-022-000 (28.96 ac)	031-151-022-000 (28.96 ac) 031-151-060-000 (15.17 ac) 031-151-061-000 (14.52 ac)
Building Area (sf)	Building 1 (2,850 sf) Building 2 (1,560 sf)	Building A (24,892 sf) Building B (11,406 sf) Building C (21,440 sf) Site Improvements (12,282 sf)
Building Names	Maker Space Building (Building 1) Classroom Building (Building 2)	Learning and Leadership Building (Building A) Classroom Building (Building B) Athletic Center (Building C)
Building Components	Maker Space Building (maker spaces) Classroom Building (classrooms)	Building A (classrooms, offices, library) Building B (classrooms, offices, science labs) Building C (classrooms, offices, gymnasium)
Height	Building 1 (18 ft 5 in, one story) Building 2 (19 ft 7 in, one story)	Building A (43 ft 10 in, three stories) Building B (44 ft, three stories) Building C (41 ft 5 in, two stories)
Parking Spaces	Existing Parking	107 new spaces

The following discussion provides a more detailed description of key proposed project elements, including construction, grading, parking and circulation, drainage and utilities, landscaping, lighting, architectural design, and operation.

Construction

Construction of Phase 1 and Phase 2 of the proposed project would take place over approximately 18 months (inclusive of both phases). Phase 1 and Phase 2 are anticipated to be constructed consecutively with some overlap. Construction is anticipated to begin in May 2025. Construction activities would be limited to weekdays between the hours of 7:00 A.M. to 5:00 P.M. and no night-time construction is proposed. Construction activities would include grading, site preparation, building construction, paving/landscaping/irrigation, and site restoration.

The construction contractor would determine the precise sequencing of construction activities between the two construction phases during the 18 month construction period. The anticipated schedule of these construction activities is as follows:

1. Mobilization and site preparation: This period would last approximately six months.
2. Construction: This period would last approximately 15 months, overlapping #1 (mobilization and site preparation).
3. Site restoration: This period would last approximately two to three months, overlapping #2 (construction).

Construction equipment is anticipated to include, but would not be limited to, excavators, rubber tired dozers, tractors, loaders, backhoes, cranes, pavers, rollers, air compressors. Staging and parking areas would be located on-site; no separate construction access roads would be needed. A maximum of 50-75 construction personnel may be present with an estimated 30-50 daily trips for workers and equipment over the course of 18 months.

Grading

The proposed project would result in a total ground disturbance of 5.82 acres. The proposed project is anticipated to generate 8,300 cubic yards of cut and 8,000 cubic yards of fill, with a net export of 300 cubic yards of material (see **Figure 7**).

Parking and Circulation

The New High School component would introduce 107 new parking spaces, including six accessible spaces, 25 electric vehicle (EV) capable spaces, and two accessible electric vehicle charging station (EVCS) spaces. Section 17.34.040 of the City's Municipal Code provides parking standards for schools of one space per employee, plus one space for each 10 students.

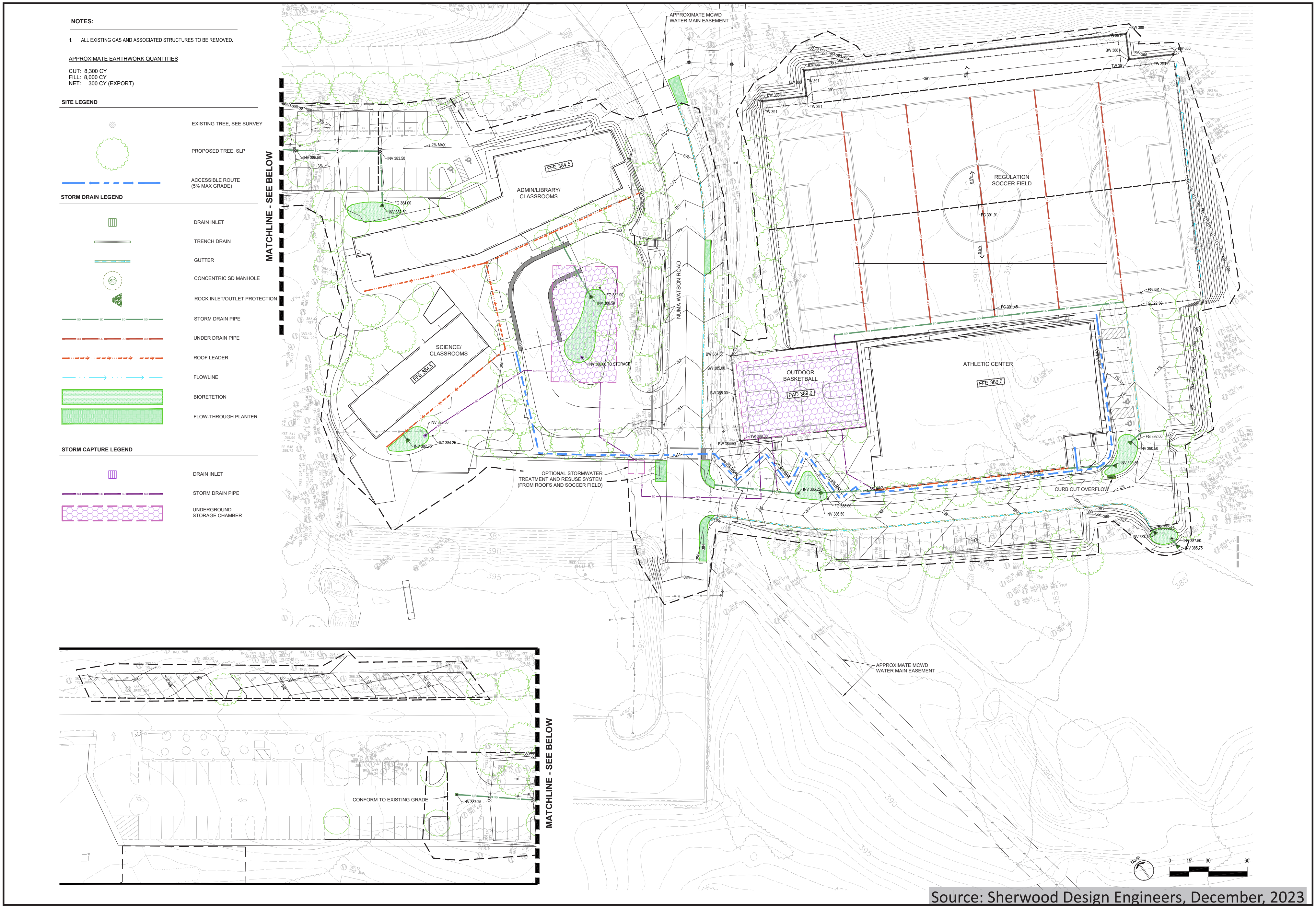
During construction, the project site would be accessed by Numa Watson Road. After construction, the School campus would continue to be accessed via Numa Watson Road.

Drainage & Utilities

The proposed project would construct storm drainage improvements, including six bioretention basins and five flow-through planters (see **Figure 7** Drainage Plan). The storm drainage system would be designed in accordance with State of California Best Management Practices (BMPs) for water quality treatment standards.

Domestic Water

The Marina Coast Water District (MCWD) currently provides domestic water service to the existing campus. The proposed project would install new water system piping and relocated meter and backflow assemblies to serve the new buildings.



NOTES:

1. ALL EXISTING GAS AND ASSOCIATED STRUCTURES TO BE REMOVED.

APPROXIMATE EARTHWORK QUANTITIES

CUT: 8,300 CY
FILL: 8,000 CY
NET: 300 CY (EXPORT)

Source: Sherwood Design Engineers, December, 2023

Title:

Grading and Drainage Plan

Date	8/9/2024
Scale	N/A
Project	2024.49

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Figure
7

The School has a total water allocation of 6.4 acre-feet per year (AFY) from MCWD. Existing water use at the School includes approximately 2.69 AFY for indoor use and 2.6 AFY for outdoor irrigation. However, the School is in the process of converting their existing grass field to synthetic turf, which would reduce existing outdoor irrigation to 0.1 AFY. Phase 1 of the project would require 0.37 AFY and the landscaping component of Phase 2 would require 0.57 AFY. These components of the proposed project can be built under the School's existing allocation from MCWD. Construction of the New High School component Phase 2 would require 3.94 AFY of water, which would exceed the School's existing allocation from MCWD by 1.3 AFY. Construction of the New High School component of Phase 2 of the proposed project would be contingent on the availability of an additional 1.3 AFY of potable water (see *Section 5.19* of this IS/MND for further discussion).

Wastewater

MCWD currently provides sanitary sewer collection service to the existing campus. Wastewater generated by the existing School is conveyed by MCWD to the Monterey One Water Regional Treatment Plant. The new buildings constructed under the proposed project would receive sanitary sewer collection service from MCWD via a new sanitary sewer main connecting to the existing sewer line in the street right-of-way on the property.

Electric Power

Electricity service to the proposed project site would be provided by Central Coast Community Energy (3CE) through Pacific Gas and Electric Company (PG&E). The proposed project would remove existing overhead electrical lines and place new electrical lines underground to serve the existing campus and the proposed project. The proposed project would utilize photovoltaic (PV) arrays and battery storage to minimize stress on regional electrical infrastructure while providing flexibility during loss of electrical grid events.

Natural Gas

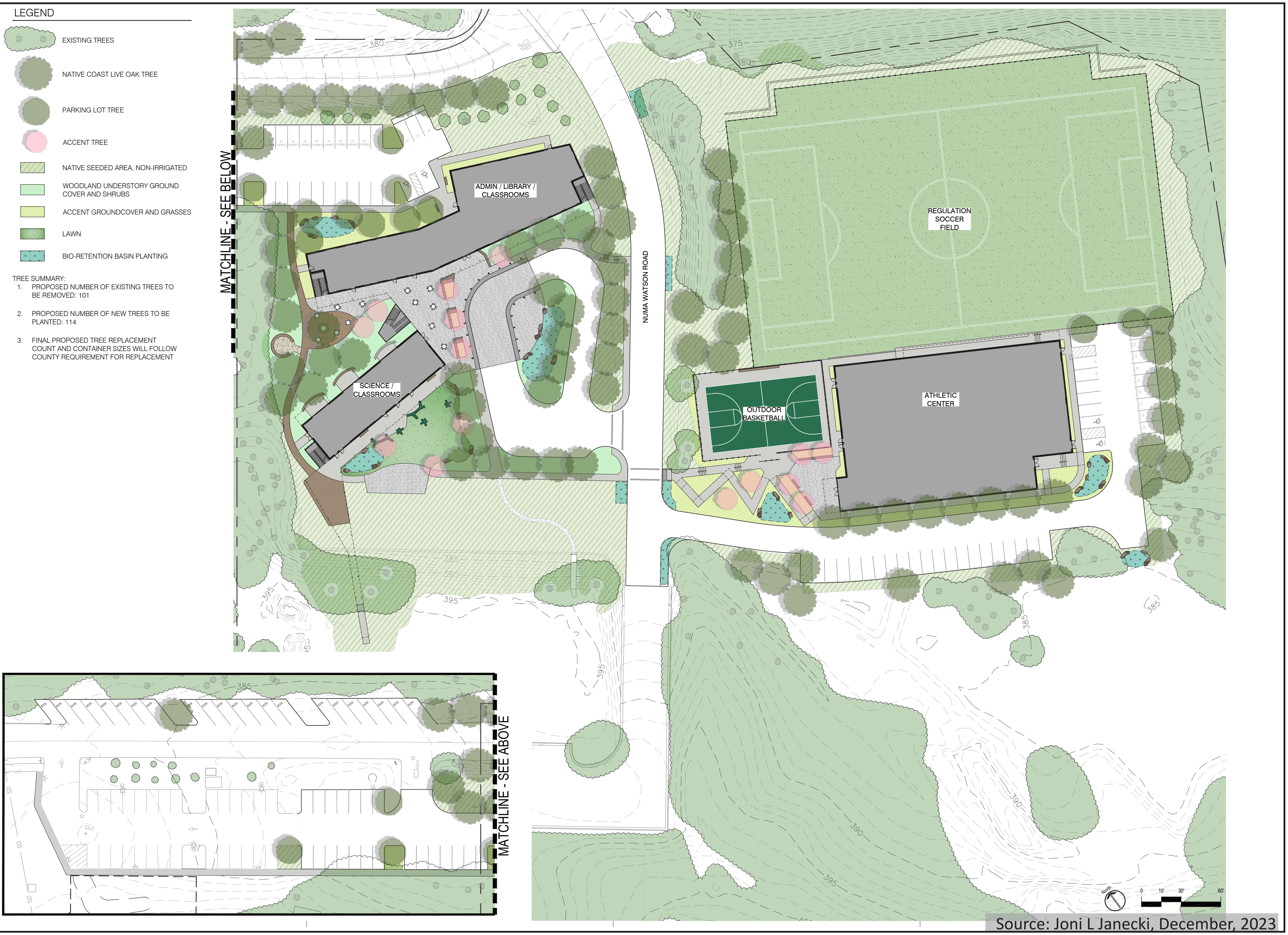
PG&E currently provides natural gas service to the School. The new buildings included under the proposed project would not include natural gas connections.

Landscaping

Landscaping would be confined to the building perimeters and site perimeter. Existing plantings that are not removed during construction, if in good condition and climate appropriate, would be maintained. The proposed project would install an irrigation system that meets current state and local water efficiency standards. A landscape plan with proposed plantings and landscaping design is included in **Figure 8**.

Lighting

The project includes new nighttime lighting for security and access, both on the expanded campus and the existing Numa Watson Road that provides access to the School. Lighting would be directed downward to provide safe access and security to the site at night. Light poles included under the project would have a maximum height of 20 feet. A total of 43 light poles would be installed as part of the project. Downward facing security lighting would also be included on the new buildings.



TREE SUMMARY:
1. PROPOSED NUMBER OF EXISTING TREES TO BE REMOVED: 101
2. PROPOSED NUMBER OF NEW TREES TO BE PLANTED: 114
3. FINAL PROPOSED TREE REPLACEMENT COUNT AND CONTAINER SIZES WILL FOLLOW COUNTY REQUIREMENT FOR REPLACEMENT

Source: Joni L Janecki, December, 2023

Title:
Landscape Plan

Date 8/9/2024
Scale N/A
Project 2024.49

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Figure
8

In addition, the project would include new lighting for the proposed soccer fields. The number and type of lighting fixtures for this component of the project have not been determined at this time. However, the project would utilize lighting designs and fixtures approved by the International Dark Sky Association (IDSA) and would obtain an IDSA "DarkSky Approved certificate" for the lighting prior to operation.

Operation

Once completed, the project site would continue to be accessed via Numa Watson Road. The project is anticipated to increase the maximum size of the student body from 205 to 400 students and increase the size of the faculty from 72 to 112 staff. The school's operational schedule would remain unchanged compared to existing conditions, with the exception of occasional nighttime athletic events that would end no later than 9:00 P.M.

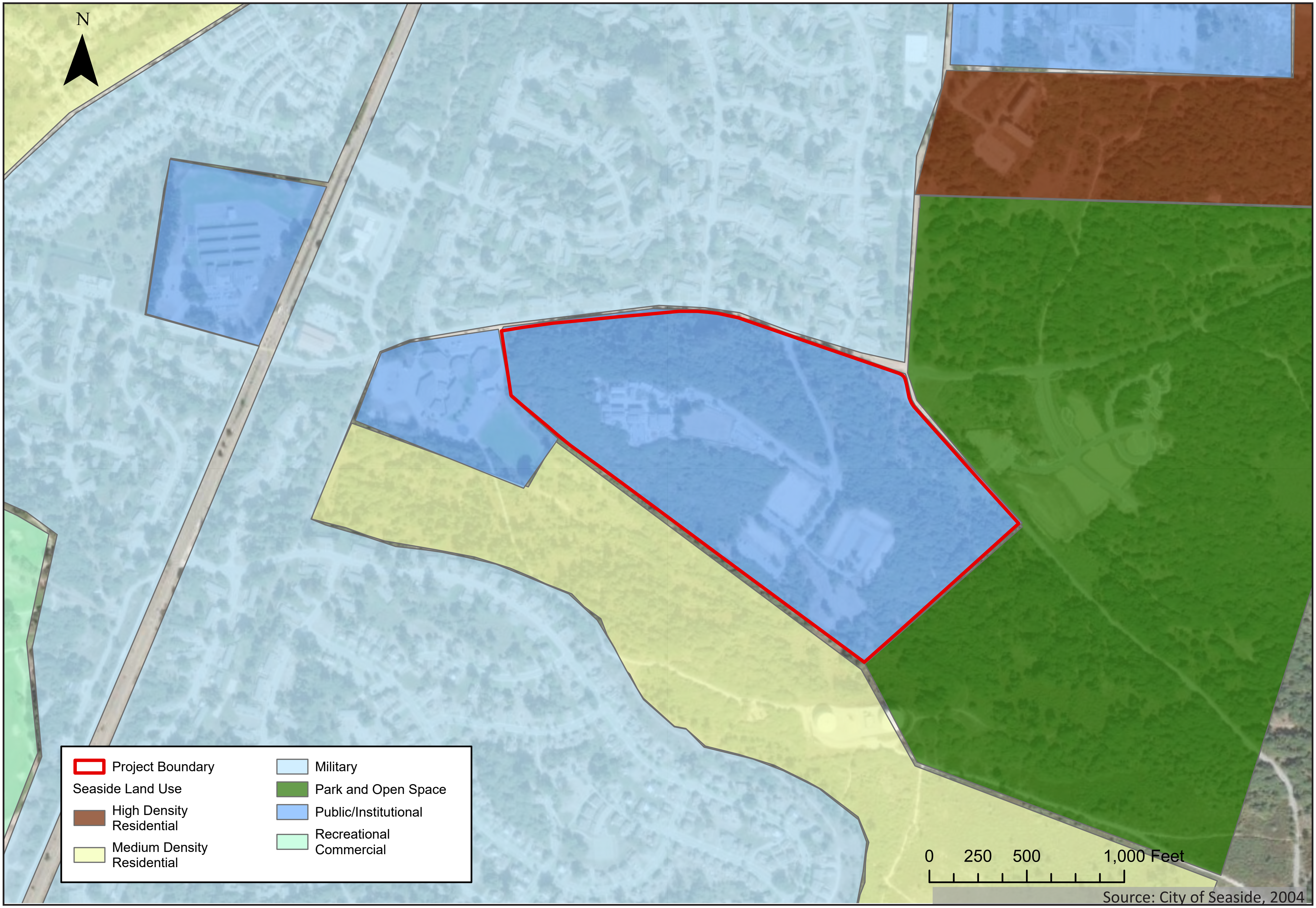
Land Use and Zoning

The Seaside 2040 General Plan (2024) designates the proposed project area as Public/Institutional (PI) and the proposed project site is zoned Public/Institutional (PI). A land use map of the site is provided in **Figure 9**.

2.4 PROJECT APPROVALS AND PERMITS

Local Agencies

- City of Seaside
    - Use Permit
    - Architectural Review
    - Environmental Review
    - Building Permit, includes building, fire, mechanical, electrical, and grading
    - Tree Permit
- Regional Water Quality Control Board (RWQCB)
    - National Pollutant Discharge Elimination System (NPDES) Construction General Permit
- International Dark Sky Association
    - DarkSky Approved Certificate



Source: City of Seaside, 2004

Title:

Land Use Map

Date 7/11/2024
Scale N/A
Project 2024.49

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Figure
9

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CHAPTER 3. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

☑ Aesthetics
☐ Agriculture and Forestry 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

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CHAPTER 4. DETERMINATION

On the basis of this initial evaluation:

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

☑ I find that although the proposed 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 project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

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

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

Signature ______________________ Date January 16, 2025

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CHAPTER 5. ENVIRONMENTAL EVALUATION

This Initial Study evaluates the following resource sections within *Section 5.2. Environmental Setting and Impacts:* aesthetics, agricultural/forestry resources, air quality, biological resources, cultural resources, energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use/planning, mineral resources, noise, population/housing, public services, recreation, transportation, tribal cultural resources, utilities and service systems, and wildfire.

5.1 EVALUATION OF ENVIRONMENTAL IMPACTS

The following describes how the proposed project's impacts to resource areas will be analyzed in this Initial Study in accordance with the CEQA. Each resource section includes: 1) existing setting and applicable regulatory background, 2) CEQA impact checklist for the resource area, and 3) impact discussion in response to the questions in the checklist and mitigation where warranted. The impact discussion will identify the level of environmental effect from the proposed project. An explanation or discussion is required for all answers to the resource impact checklist as follows.

1. A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on project-specific screening analysis).
2. All answers must take into account the whole action involved, including offsite as well as onsite, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular environmental impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant based on the thresholds. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
4. "Less-Than-Significant Impact with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less-Than-Significant Impact." The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less-than-significant level with mitigation measures.
5. Supporting Information Sources: A source list will be attached, and other sources used, or individuals contacted will be cited in the discussion.
6. The explanation of each issue will identify:
   a. The significance criteria or threshold, if any, used to evaluate each question; and
   b. The mitigation measure identified, if any, to reduce the impact to less than significant.

5.2 ENVIRONMENTAL SETTING AND IMPACTS

The following section describes the environmental setting and identifies the environmental impacts anticipated from implementation of the proposed project. The criteria provided in the CEQA environmental checklist was used to identify potentially significant environmental impacts associated with the proposed project.

5.2.1 AESTHETICS

Setting

The proposed project is located 1.8 miles east of Monterey Bay, which is a notable visual resource. The proposed project site is disturbed and was previously occupied by military housing buildings, which have been removed from the site. The City's 2040 General Plan does not designate the proposed project site as a "scenic vista" (City 2024). The operation of the proposed project would require exterior lighting, including field lighting for the soccer field.

CEQA Thresholds

ENVIRONMENTAL IMPACTS	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
AESTHETICS. Except as provided in Public Resources Code § 21099, would the project:					
a) Have a substantial adverse effect on a scenic vista?				X	1, 2, 3, 4
b) Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?				X	1, 2, 3, 4, 6
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 points). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?			X		1, 2
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?		X			1, 2, 5

Explanation

a) **No Impact**. A scenic vista is generally characterized as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. The proposed project site is largely screened from view from potential scenic vistas due to the topography and vegetation surrounding the site. In addition, the proposed project is not located in an area designated by the City's General Plan as having any scenic vistas. Further, due to distance and existing topography and vegetation, Monterey Bay is not visible from the proposed project site. As a result, the proposed project would have no impact on scenic vistas.

b) **No Impact**. The State Scenic Highways Program is designed to protect and enhance the natural scenic beauty of California highways and adjacent corridors through special conservation treatment. There are no State Scenic Highways designated under the Scenic Highway Act located in the proposed project vicinity. The nearest officially designated State Scenic Highway is the portion of State Route (SR) 68 located approximately four miles southwest of the proposed project. The nearest eligible State Scenic Highway is the portion of SR 1 located approximately one mile northwest of the proposed project (Caltrans 2024). In addition, according to the City's General Plan, there are no designated scenic viewsheds near the proposed project vicinity. There are no historic buildings or rock outcroppings located on the proposed project site or in the surrounding vicinity. Furthermore, construction of the proposed project would not result in the removal or damage of scenic resources. Therefore, implementation of the proposed project would occur on a disturbed site and would not damage scenic resources within a state or locally designated scenic roadway; therefore, no impact would occur.

c) **Less-Than-Significant Impact**. The proposed project would be located in a disturbed area and would expand the existing School campus across two phases of construction. The proposed new buildings, sports fields, landscaping, and exterior lighting would be consistent with the visual character the of area of the existing School. In addition, all development would be consistent with applicable City zoning and regulations governing scenic quality, and the site is largely screened from view on adjacent roadways by existing vegetation. Construction impacts would include the presence of construction vehicles, equipment and materials, stockpiles, and exposed soils. These impacts would be limited to the proposed project site and would be temporary in nature, with all equipment removed following completion of construction. For these reasons, construction and operation of the proposed project would result in a less-than-significant impact to the visual quality of the site.

d) **Less-Than-Significant Impact with Mitigation Incorporated**. The proposed project would include exterior lighting poles throughout the expanded School campus and on Numa Watson Road, as well as security lighting for the new buildings that could create new sources of light and glare. However, the existing School campus and Normandy Road in the vicinity of the proposed project also include exterior lighting. Further, all proposed exterior lighting would be downward facing and shielded to direct light downwards. This would ensure that the proposed lighting does not spill over onto nearby properties, consistent with local lighting ordinances including the City Outdoor Illumination Standards (City Municipal Code 17.30.070). In addition, the proposed project would utilize non-reflective building materials and does not propose to introduce materials into the design that would create substantial glare.

The proposed project includes new lighting for the new outdoor soccer field. The exact number, height, and intensity of the proposed light poles is not known at this time. This lighting would be used for nighttime athletic events that would potentially go as later as 9:00 P.M. The introduction of a new source of nighttime lighting could result in a potentially significant environmental impact.

While the exact design, height, and intensity of the field lighting is not known at this time, the proposed project includes **Mitigation Measures AES-1** and **AES-2**, requiring the School to implement IDSA approved lighting designs and seek an IDSA Fixture Seal of Approval prior to operation of the field lighting. The IDSA is a non-profit group that provides objective, third-party certifications for “products, designs, and completed projects that minimize glare, reduce light trespass, and don’t pollute the night sky” (IDSA 2024).

Mitigation Measures

MM-AES 1: Prior to construction of the soccer field, the School shall prepare a lighting plan and submit to the City and IDSA for review and approval. This lighting plan shall demonstrate the number, location, height, and intensity of all field lighting. The lighting plan shall confirm that the chosen field lighting products will be compliant with IDSA design criteria, including, but not limited to:

- Restricting the amount of upward-directed light;
- Avoiding glare;
- Avoiding over-lighting;
- Utilizing dimming and other appropriate lighting controls; and
- Minimizing short-wavelength (bluish) light in the nighttime environment.

The School shall be responsible for implementing revisions proposed by IDSA to ensure that final lighting plan is IDSA compliant. Once finalized, IDSA will provide a letter of design compliance. The School shall provide the IDSA letter of design compliance to the City prior to construction of the soccer fields.

MM-AES 2: Prior to operation of the field lighting component of the proposed project, the School shall initiate Phase 2 of the IDSA Fixture Seal of Approval process. This would consist of retaining IDSA to perform a field visit and inspection of the constructed field lighting to confirm that the lighting was constructed in accordance with the requirements of the IDSA Fixture Seal of Approval issued for the proposed project. The IDSA will verify the proposed project's compliance with IDSA standards by issuing a "DarkSky Approved Certificate" for the proposed project. If the installation is not in compliance with IDSA standards, the affected components of the field lighting will be removed and reinstalled based on IDSA recommendations. The School shall provide a copy of the DarkSky Approved Certificate to the City. Operation of the field lighting component of the proposed project shall not occur until the City issues written verification that a DarkSky Approved Certificate has been issued for the proposed project.

The proposed project would have a less-than-significant impact on light and glare with implementation of **Mitigation Measures AES-1** and **AES-2**.

Conclusion: The project would have a less-than-significant impact on aesthetics with local ordinance compliance and implementation of **Mitigation Measures AES-1** and **AES-2**.

5.2.2 AGRICULTURAL AND FORESTRY RESOURCES

Setting

In California, agricultural land is given consideration under CEQA. According to Public Resources Code §21060.1, "agricultural land" is identified as prime farmland, farmland of statewide importance, or unique farmland, as defined by the U.S. Department of Agriculture land inventory and monitoring criteria, as modified for California:

- Prime Farmland (P) comprises the best combination of physical and chemical features able to sustain long-term agricultural production. Irrigated agricultural production is a necessary land use four years prior to the mapping date to qualify as Prime Farmland. The land must be able to store moisture and produce high yields.

- Farmland of Statewide Importance (S) possesses similar characteristics to Prime Farmland with minor shortcomings, such as less ability to hold and store moisture and more pronounced slopes.
- Unique Farmland (U) has a production history of propagating crops with high-economic value.
- Farmland of Local Importance (L) is important to the local agricultural economy. Local advisory committees and a county specific Board of Supervisors determine this status.
- Grazing Land (G) is suitable for browsing or grazing of livestock.

The Monterey County Important Farmlands Map classifies the proposed project site and existing campus as “Urban and Built Up Land”, while the existing access road is classified as “Other Land” (Department of Conservation 2024). CEQA also requires consideration of impacts on lands that are under a Williamson Act contract. The project site does not contain lands under a Williamson Act contract (DOC 2022).

CEQA requires the evaluation of forest and timber resources where they are present. The proposed project does not include any work on forest land as defined in Public Resources Code section 12220(g), timberland as defined by Public Resources Code section 4526, or property zoned for Timberland Production as defined by Government Code section 51104(g).

CEQA Thresholds

ENVIRONMENTAL IMPACTS	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
AGRICULTURAL AND FOREST RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state’s inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:					
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?				X	1, 2, 3, 4, 5, 7
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X	1, 2, 3, 4, 5, 7

ENVIRONMENTAL IMPACTS	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
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))?				X	1, 2, 3, 4, 5, 7
d) Result in the loss of forest land or conversion of forest land to non-forest uses?				X	1, 2, 3, 4, 5, 7
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?				X	1, 2, 3, 4, 5, 7

Explanation

a, b) **No Impact**. The proposed project site is designated as "Urban or Built Up Land" and the existing access road is designated "Other Land" on the Important Farmlands Map for Monterey County. The proposed project site does not contain any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, nor lands under a Williamson Act contract. As a result, the project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to a non-agricultural use, nor conflict with existing zoning for agricultural use or a Williamson Act contract. Therefore, no impact would occur.

c, d) **No Impact**. While the project is located adjacent to a wooded area, the proposed project site is zoned as "Public Institution" in the City's zoning map (City of Seaside 2010). The proposed project site is not designated as forestland by the City of Seaside or timberland by CAL FIRE (CAL FIRE 2024). As a result, the proposed project would not impact forest resources or result in the loss or conversion of forest land since the proposed project site does not contain any forest land as defined in Public Resources Code section 12220(g), timberland as defined by Public Resources Code section 4526, or property zoned for Timberland Production as defined by Government Code section 51104(g). No impact would occur.

e) **No Impact**. As per the discussion above, the proposed project would not involve changes in the existing environment which, due to their location or nature, could result in conversion of farmland or agricultural land, since none are present on this property. The proposed project includes expansion of an existing school on a previously disturbed parcel and would not convert any land for other use; therefore, no impact would occur.

Conclusion: The proposed project would have no impact on agricultural and forest resources.

5.2.3 AIR QUALITY

Setting

Denise Duffy & Associates, Inc. (DD&A) performed Air Quality & Greenhouse Gas modeling for the proposed project (August 2024), which is included as **Appendix A**. DD&A utilized the California Emissions Estimator Model (CalEEMod) to calculate air quality and greenhouse gas emissions from the proposed project based on project data supplied by the School and default modeling parameters. Information contained in the section was derived from this assessment.

Existing Setting

The proposed project is located within the North Central Coast Air Basin (NCCAB) and within the jurisdiction of the Monterey Bay Air Resources District (MBARD). Air quality in a region is affected by its topography, meteorology, and climate. These factors are discussed in more detail in the following sections:

Topography. The NCCAB encompasses Santa Cruz, San Benito, and Monterey counties. The NCCAB is generally bounded by the Diablo Range to the northeast, which together with the southern portion of the Santa Cruz Mountains forms the Santa Clara Valley which extends into the northeastern tip of the NCCAB. Further south, the Santa Clara Valley transitions into the San Benito Valley, which runs northwest-southeast and has the Gabilan Range as its western boundary. To the west of the Gabilan Range is the Salinas Valley that extends from Salinas at the northwest end to King City at the southeast end. The northwest portion of the NCCAB is dominated by the Santa Cruz Mountains.

Meteorology and Climate. The climate of the NCCAB is dominated by a semi-permanent high-pressure cell over the Pacific Ocean. In the summer, the dominant high-pressure cell results in persistent west and northwest winds across the majority of coastal California. As air descends in the Pacific high-pressure cell, a stable temperature inversion is formed. As temperatures increase, the warmer air aloft expands, forcing the coastal layer of air to move onshore producing a moderate sea breeze over the coastal plains and valleys. Temperature inversions inhibit vertical air movement and often result in increased transport of air pollutants to inland receptor areas. Predominant wind flow during most times of the year is typically from the west to the east.

In the winter, when the high-pressure cell is weakest and farthest south, the inversion associated with the Pacific high-pressure cell is typically absent in the NCCAB. Air frequently flows in a southeasterly direction out of the Salinas and San Benito valleys in the NCCAB. The predominant offshore flow during this time of year tends to aid in pollutant dispersal producing relatively healthful to moderate air quality throughout the majority of the region. Conditions during this time are often characterized by afternoon and evening land breezes and occasional rainstorms. However, local inversions caused by the cooling of air close to the ground can form in some areas during the evening and early morning hours.

Winter daytime temperatures in the NCCAB typically average in the mid-50s during the day, with nighttime temperatures averaging in the low 40s. Summer daytime temperatures typically average in the 60s during the day, with nighttime temperatures averaging in the 50s. Precipitation varies within the region, but in general, annual rainfall is lowest in the coastal plains and inland valleys, higher in the foothills, and highest in the mountains.

Criteria Air Pollutants. For the protection of public health and welfare, the Federal Clean Air Act (FCAA) required that the U.S. EPA establish National Ambient Air Quality Standards (NAAQS) for various pollutants. These pollutants are referred to as "criteria" pollutants because the U.S. EPA publishes criteria documents to justify the choice of standards. These standards define the maximum amount of air pollutants that can be present in ambient air. An ambient air quality standard is generally specified as a concentration averaged over a specific time period, such as one hour, eight hours, 24 hours, or one year. The different averaging times and concentrations are meant to protect against different exposure effects. Standards established for the protection of human health are referred to as primary standards; whereas, standards established for the prevention of environmental and property damage are called secondary standards. The FCAA allows states to adopt additional or more health-protective standards.

Table 2 provides a summary discussion of the primary and secondary criteria air pollutants of primary concern. In general, primary pollutants are directly emitted into the atmosphere, and secondary pollutants are formed by chemical reactions in the atmosphere. The health effects of common criteria air pollutants are also summarized in **Table 2**.

The State of California has established air quality standards for some pollutants not addressed by federal standards. The California Air Resources Board (CARB) has established state standards for hydrogen sulfide, sulfates, vinyl chloride, and visibility reducing particles.

Table 2.
Summary of Criteria Air Pollutants and Health Effects

Pollutant	Major Man-Made Sources	Human Health & Welfare Effects
Ozone (O_3)	Formed by a chemical reaction between volatile organic compounds (VOC) and nitrous oxides (NO_X) in the presence of sunlight. Motor vehicle exhaust, industrial emissions, gasoline storage and transport, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield. Damages rubber, some textiles and dyes.
Particulate Matter (PM_{10} & $PM_{2.5}$)	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Can get deep into your lungs or even enter your blood stream and cause serious health problems. Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; aggravated asthma; development of chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility (haze).
Carbon Monoxide (CO)	Formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, effecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
Nitrogen Dioxide (NO_2)	Fuel combustion in motor vehicles and industrial sources. Motor vehicles; electric utilities, and other sources that burn fuel.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Contributes to global warming, and nutrient overloading which deteriorates water quality. Causes brown discoloration of the atmosphere.
Sulfur Dioxide (SO_2)	Formed when fuel containing sulfur, such as coal and oil, is burned; when gasoline is extracted from oil; or when metal is extracted from ore. Examples are petroleum refineries, cement manufacturing, metal processing facilities, locomotives, large ships, and fuel combustion in diesel engines.	Respiratory irritant. Aggravates lung and heart problems. In the presence of moisture and oxygen, sulfur dioxide converts to sulfuric acid which can damage marble, iron and steel; damage crops and natural vegetation. Impairs visibility. Precursor to acid rain.

Source: Office of Environmental Health Hazard Assessment 2024.

Odors. Typically, odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from the psychological (i.e. irritation, anger, or anxiety) to the physiological, including circulatory and respiratory effects, nausea, vomiting, and headache.

The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor and in fact, an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because the phenomenon is known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word strong to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Neither the state nor the federal governments have adopted rules or regulations for the control of odor sources. MBARD does not have an individual rule or regulation that specifically addresses odors; however, odors would be subject to MBARD Rule 402, Nuisance. Any actions related to odors would be based on citizen complaints to local governments and MBARD.

Monterey Bay Air Resources District

MBARD is the agency primarily responsible for ensuring that NAAQS and CAAQS are not exceeded and that air quality conditions are maintained in the NCCAB, within which the project is located. Responsibilities of MBARD include, but are not limited to, preparing plans for the attainment of ambient air quality standards, adopting and enforcing rules and regulations concerning sources of air pollution, issuing permits for stationary sources of air pollution, inspecting stationary sources of air pollution and responding to citizen complaints, monitoring ambient air quality and meteorological conditions, and implementing programs and regulations required by the FCAA and the CCAA. In an attempt to achieve NAAQS and CAAQS and maintain air quality, MBARD has most recently completed the 2012-2015 Air Quality Management Plan (AQMP) for achieving the state ozone standards and the 2007 Federal Maintenance Plan for maintaining federal ozone standards (MBARD 2024b).

Regulatory Attainment Designations

An attainment designation for an area signifies that pollutant concentrations did not violate the standard for that pollutant in that area. A nonattainment designation indicates that a pollutant concentration violated the standard at least once, excluding those occasions when a violation(s) was caused by an exceptional event, as defined in the criteria. Unclassified designations indicate insufficient data is available to determine attainment status.

The attainment status of the NCCAB is summarized in **Table 3**. Under the CCAA, the basin is designated as a nonattainment transitional area for the state ozone Ambient Air Quality Standards (AAQS). The basin is designated attainment for the NAAQS.

Table 3.
NCCAB Attainment Status Designations

Pollutant	State Designation	National Designation
Ozone (O_3)	Nonattainment-Transitional	Attainment
Inhalable Particulates (PM_{10})	Nonattainment	Attainment
Fine Attainment ($PM_{2.5}$)	Attainment	Attainment
Carbon Monoxide (CO)	Monterey County-Attainment San Benito County-Unclassified Santa Cruz County-Unclassified	Attainment
Nitrogen Dioxide (NO_2)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Lead	Attainment	Attainment

Source: MBARD 2012-2015 Air Quality Management Plan, https://www.mbard.org/air-quality-plans.

Sensitive Receptors

One of the most important reasons for air quality standards is the protection of those members of the population who are most sensitive to the adverse health effects of air pollution termed “sensitive receptors.” The term sensitive receptors refer to specific population groups, as well as the land uses where individuals would reside for long periods. Commonly identified sensitive population groups are children, the elderly, the acutely ill, and the chronically ill. Commonly identified sensitive land uses would include facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Residential dwellings, schools, parks, playgrounds, childcare centers, convalescent homes, and hospitals are examples of sensitive land uses.

The proposed project site consists of the existing Chartwell School and would contain sensitive receptors, located immediately adjacent to construction activities (at the existing athletic fields) and 240 feet from educational buildings. The nearest sensitive receptor outside of the proposed project site is George C. Marshall Elementary School located approximately 900 feet southwest of the proposed project site. While the majority of construction would occur approximately 590 feet from nearby sensitive residential receptors, some construction work and construction vehicle traffic would occur closer to the intersection of Numa Watson Road and Normandy Road, within about 115 feet from sensitive residential receptors.

CEQA Thresholds

ENVIRONMENTAL IMPACTS	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:					

ENVIRONMENTAL IMPACTS	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
a) Conflict with or obstruct implementation of the applicable air quality plan?			X		8
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?		X			8
c) Expose sensitive receptors to substantial pollutant concentrations?			X		8
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			X		8

Approach to Analysis

To assist local jurisdictions in the evaluation of air quality impacts, MBARD has published the *CEQA Air Quality Guidelines* (MBARD 2008). This guidance document includes recommended thresholds of significance to be used for the evaluation of short-term construction, long-term operational, odor, toxic air contaminant, and cumulative air quality impacts. These thresholds were developed taking into consideration potential impacts to regional and local air quality and related public-health concerns. The following MBARD-recommended thresholds of significance were relied upon for the determination of impact significance:

- Short-term Emissions of Criteria Air Pollutants. Construction impacts would be significant if the proposed project would emit greater than 82 pounds per day (lbs/day) of PM_{10} or will cause a violation of PM_{10} national or state AAQS at nearby receptors. Construction-generated emissions of ozone precursors (i.e., ROG or NO_X) are accommodated in the emission inventories of state and federally required air plans. For this reason, MBARD has not identified recommended thresholds of significance for construction-generated ozone precursors.
- Long-Term Emissions of Criteria Air Pollutants. Emissions of 137 lbs/day or more of direct and indirect VOC emissions would have a significant impact on regional air quality by emitting substantial amounts of ozone precursors (i.e., ROG or NO_x) (MBARD 2008). Such projects would significantly impact attainment and maintenance of ozone AAQS. In addition, operational impacts would be significant if the proposed project would emit greater than 82 lbs/day of PM_{10}, or if the project would contribute to local PM_{10} concentrations that exceed AAQS. Emissions of SO_X would be significant if the project generates direct emissions greater than 150 lbs/day.
- Local Mobile-Source CO Concentrations. Local mobile-source impacts would be significant if the project generates direct emissions of greater than 550 lbs/day of CO or if the project would contribute to local CO concentrations that exceed the CAAQS of 9.0 ppm for eight hours or 20 ppm for one hour. Indirect emissions are typically considered to include mobile sources that access the project site but generally emit off-site; direct emissions typically include sources that emit pollutants on-site (e.g., stationary sources, on-site mobile equipment).
- Toxic Air Contaminants. TAC impacts would be significant if the project would expose the public to substantial levels of TACs so that the probability of contracting cancer for the Maximally Exposed Individual would exceed 10 in 1 million and/or so that ground-level

concentrations of non- carcinogenic toxic air contaminants would result in a Hazard Index (HI) greater than 1 for the Maximally Exposed Individual.

- Odorous Emissions. Odor impacts would be significant if the project has the potential to frequently expose members of the public to objectionable odors.

Explanation

a) **Less-Than-Significant Impact**. Consistency with the AQMP is assessed by comparing the proposed growth associated with a proposed project with the population and dwelling unit forecasts adopted by the Association of Monterey Bay Area Governments (AMBAG). These projections are used to generate emission forecasts upon which the AQMP is based. Projects which are consistent with AMBAG's regional forecasts would be considered consistent with the AQMP (MBARD 2008). In addition, projects that would result in a significant increase in emissions, in excess of MBARD significance thresholds, would also be considered to potentially conflict with or obstruct implementation of the AQMP.

The proposed project would result in an employment increase by expanding the School's faculty from 72 to 112, which could result in increased population growth not forecasted in the AQMP. In addition, the expanded school would introduce up to 195 new students compared to existing conditions. However, the new faculty members and students are anticipated to largely come from the surrounding area and would not represent an unanticipated population increase not forecasted in the AQMP. Otherwise, they would commute to and from school from further away areas such as Santa Clara County, which would not represent a population increase. The proposed project is not anticipated to result in the permanent relocation of new students and faculty to the area that would be unaccounted for in the AMBAG population estimates utilized in the AQMP. In addition, as noted in impact b) below, the operation of the proposed project would not result in a significant increase in emissions. For these reasons, the implementation of the proposed project is not anticipated to result in a substantial increase in either direct or indirect emissions that would conflict with or obstruct implementation of the AQMP. This represents a less-than-significant impact.

b) **Less-Than-Significant Impact with Mitigation Incorporated.** The MBARD 2016 CEQA Air Quality Guidelines contain standards of significance for evaluating potential air quality effects of projects subject to the requirements of CEQA. According to MBARD, a project would violate an air quality standard and/or contribute to an existing or projected violation if it would emit (from all sources, including exhaust and fugitive dust):

- 137 pounds per day or more of oxides of nitrogen (NO_x);
- 137 pounds per day or more of reactive organic gases (ROG);
- 82 pounds per day or more of respirable particulate matter (PM_{10});
- 55 pounds per day or more of fine particulate matter ($PM_{2.5}$), and;
- 550 pounds per day or more carbon monoxide (CO).

DD&A quantified the proposed project's potential air quality effects using CalEEMod. Air quality emissions calculations are provided in **Appendix A**.

Construction Emissions[1]

Construction of the proposed project would require grading and excavation. The total area of ground disturbance is anticipated to be approximately 5.82 acres. Construction would require mechanized equipment. Construction related emissions would come from sources such as exhaust or fugitive dust. DD&A quantified construction-period air quality effects using CalEEMod. **Table 4** illustrates the estimated emissions generated by construction.

Table 4.
Construction Air Quality Emissions

Emissions (lbs./day)	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**ROG**	**CO**
Significance Thresholds (MBARD)	137	55	82	137	550
Emissions Generated by the Proposed Project	11.0	3.04	16.2	1.47	15.3
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**

Source: Air Quality Modeling: **Appendix A**
Source: MBARD, 2016

Based on the CalEEMod analysis, construction of the proposed project would not exceed MBARD daily emission thresholds. However, construction of the Proposed Project would generate fugitive dust, which could result in potentially significant air quality impacts if not managed effectively. As a result, implementation of the following mitigation measure is required to ensure that construction air quality emissions from fugitive dust emissions are less than significant.

Mitigation Measure

MM-AQ 1: Throughout construction, the construction contractor shall implement standard Best Management Practices (BMPs) identified by MBARD to ensure emissions are minimized. BMPs include but are not limited to:

- Water all active construction areas at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure;
- Prohibit all grading activities during periods of high wind (over 15 mph);
- Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days);
- Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut and fill operations and hydro seed area;
- Haul trucks shall maintain at least 2'0" of freeboard;
- Cover all trucks hauling dirt, sand, or loose materials;
- Plant tree windbreaks on the windward perimeter of construction projects if adjacent to open land;
- Plant vegetative ground cover in disturbed areas as soon as possible;
- Cover inactive storage piles;

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[1] The CalEEMod emissions and analysis described in this document cover all components of construction for both phases of the proposed project.

- Install wheel washers at the entrance to construction sites for all exiting trucks;
- Pave all roads on construction sites;
- Sweep streets if visible soil material is carried out from the construction site;
- Post a publicly visible sign which specifies the telephone number and person to contact regarding dust complaints. This person shall respond to complaints and take corrective action within 48 hours. The phone number of the Monterey Bay Unified Air Pollution Control District shall be visible to ensure compliance with Rule 402 (Nuisance), and;
- Limit the area under construction at any one time.

In addition to the BMPs identified in **Mitigation Measure AQ-1**, the proposed project would be required to prepare a Storm Water Pollution Prevention Plan (SWPPP) which includes requirements for dust suppression. As discussed in **Chapter 2. Project Description**, construction of the proposed project would result in ground disturbance an area of approximately 5.82 acres and would not exceed MBARD's daily ground disturbing thresholds for excavation (2.2 acres per day) or grading (8.1 acres per day). Therefore, the proposed project would have a less-than-significant impact on air quality from construction activities with implementation of **Mitigation Measure AQ-1**.

Operational Emissions

The operation of the proposed project would result in increased emissions compared to existing conditions. Emissions would result from the increased vehicle trips associated with new students being dropped off and picked up at the School, trips to and from work by the additional faculty members, and increased maintenance associated with the new buildings and outdoor areas. DD&A quantified operational air quality effects using CalEEMod. **Table 5** illustrates the emissions generated from the operation of the proposed project.

Table 5.
Operational Air Quality Emissions

Emissions (lbs./day)	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**ROG**	**CO**
Significance Thresholds (MBARD)	137	55	82	137	550
Emissions Generated by the Proposed Project	9.28	3.45	13.2	11.9	69.4
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**

Source: Air Quality Modeling: **Appendix A**
Source: MBARD, 2016

Based on the CalEEMod analysis, operation of the proposed project would not exceed MBARD daily emission thresholds. Therefore, the proposed project would have a less-than-significant impact to air quality from project operation.

c) **Less-Than-Significant Impact**. The proposed project's potential to expose sensitive receptors to substantial concentrations of pollutants during construction and operation is described below:

Short-term Construction

The proposed project involves the expansion of the existing School campus by constructing five total new buildings and various site improvements including a new outdoor soccer field and basketball court, exterior lighting, tree removals, and landscaping. Sensitive receptors in the area include the existing School to the west, residences to the north and southwest, and George C. Marshall Elementary School to the west. George C. Marshall Elementary School is located 900 feet from the site. The nearest residential sensitive receptors are located approximately 115 feet from the northern portion of the construction site where installation of the guard shack would occur and where construction traffic would access the site (near the intersection of Normandy Road and Numa Watson Road); however, intensive construction would be located approximately 590 feet from these residential receptors. The closest intensive construction activities would occur immediately adjacent to the existing sports field and approximately 240 feet from educational buildings at the existing School. Construction near the existing School would be temporary and would occur over a period of 18 months, with construction activities occurring at different portions of the overall site over this period. As stated above under impact b), air quality emissions generated from construction activities would be temporary in nature and below the thresholds established by MBARD (see **Table 4**) and further minimized by implementation of **Mitigation Measure AQ-1**. Therefore, construction of the proposed project would result in a less-than-significant impact with respect to exposing sensitive receptors to substantial pollutant concentrations.

Long-term Operation

The proposed project would result in increased air quality emissions during operation as a result of increased vehicle trips associated with new students being dropped off and picked up at the School, trips to and from work by the additional faculty members, and increased maintenance associated with the new buildings and outdoor areas. However, as stated above under impact b), air quality emissions generated from operation of the proposed project would be below the thresholds established by MBARD (see **Table 5**). Therefore, operation of the proposed project would result in a less-than-significant impact with respect to exposing sensitive receptors to substantial pollutant concentrations.

d) **Less-Than-Significant Impact**. The proposed project could generate intermittent odors from construction equipment associated with diesel exhaust that could be noticeable at times. However, given the temporary nature of construction, these potential intermittent odors are not anticipated to result in impacts nor affect a substantial number of people. Construction would occur throughout the proposed project area and odor producing activities would not be located in a single location for prolonged periods of time. Any odors generated during construction activities would cease upon completion. Construction is not anticipated to result in substantial concentrations of any other odors beyond diesel exhaust. Once operational, the proposed project would not generate substantial concentrations of odors or other emissions. This represents a less-than-significant impact.

Conclusion: The proposed project would have a less-than-significant impact on air quality with implementation of **Mitigation Measure AQ-1**.

5.2.4 BIOLOGICAL RESOURCES

Setting

DD&A completed a biological assessment for the project site in January 2023 (**Appendix B**) and a Botanical Survey Memorandum in August 2024 (**Appendix C**). The project site is located within previously disturbed parcels within the City limits. The majority of the property is comprised of ruderal/developed habitat; however, disturbed coast live oak woodland and disturbed scrub habitats also occur within the survey area. Potential wetlands or other waters of the U.S. and/or state which may be subject to the jurisdiction of the Army Corps of Engineers (ACOE) and the RWQCB under Sections 404 and 401 of the Clean Water Act (CWA) occur within the survey area.

Survey Methodology

DD&A Assistant Environmental Scientist Kimiya Ghadiri conducted a survey of the survey area on September 1, 2022, to characterize habitats present within the survey area and to identify any special-status plant or wildlife species or suitable habitat for these species within the site. Following the initial site visit the project proponent expanded the potential project site. DD&A Assistant Environmental Scientist Rikki Lougee conducted an additional survey on December 15, 2022, to evaluate the expanded survey area. The survey area consists of all areas within the original survey area and the expanded survey area. Survey methods included walking the survey area to identify general habitat types and potential sensitive habitat types, conducting a reconnaissance-level wildlife habitat survey to identify any special-status wildlife species or suitable habitat for special-status plant and wildlife species occurring within the survey area, and conducting a focused survey for perennial or summer-blooming special-status plant species. The survey area was evaluated for botanical resources following the applicable guidelines outlined in *Guidelines for Conducting and Reporting Botanical Inventories for Federally listed, Proposed and Candidate Plants* (U.S. Fish and Wildlife Service [Service], 2000), *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (California Department of Fish and Wildlife [CDFW], 2018), and California Native Plant Society (CNPS) *Botanical Survey Guidelines* (CNPS 2001).

Data collected during the survey were used to assess the environmental conditions of the survey area and its surroundings, evaluate environmental constraints within the survey area and the local vicinity, and provide a basis for recommendations to minimize and avoid impacts to biological resources.

Sensitive Habitats. Sensitive habitats include riparian corridors, wetlands, habitats for legally protected species, areas of high biological diversity, areas supporting rare or special-status wildlife habitat, and unusual or regionally restricted vegetation types. Vegetation types considered sensitive include those listed on CDFW's California Natural Communities List (i.e., those habitats that are rare or endangered within the borders of California) (CDFW 2022b), those that are occupied by species listed under the ESA or are critical habitat in accordance with the ESA, and those that are defined as Environmentally Sensitive Habitat Areas under the California Coastal Act. Specific habitats may also be identified as sensitive in city or county general plans or ordinances. Sensitive habitats are regulated under federal regulations (such as the CWA and Executive Order 11990 – Protection of Wetlands), state regulations (such as CEQA and the CDFW Streambed Alteration Program), or local ordinances or policies (such as city or county tree ordinances and general plan policies).

Special-Status Species. Special-status species are those plants and animals that have been formally listed or proposed for listing as endangered or threatened or are candidates for such listing under the Endangered Species Act (ESA) or California Endangered Species Act (CESA). Listed species are afforded legal protection under ESA and CESA. Species that meet the definition of rare or endangered under the CEQA Guidelines Section 15380 are also considered special-status species. Animals on the CDFW's list of "species of special concern" (most of which are species whose breeding populations in California may face extirpation if current population trends continue) meet this definition and are typically provided management consideration through the CEQA process, although they are not legally protected under the ESA or CESA. CDFW also includes some animal species that are not assigned any of the other status designations in the California Natural Diversity Database (CNDDB) “Special Animals” list; however, these species have no legal or protection status and are not analyzed in this document.

Plants listed as rare under the California Native Plant Protection Act (CNPPA) or included in CNPS California Rare Plant Rank (CRPR, formerly known as CNPS Lists) 1A, 1B, 2A, and 2B are also treated as special-status species as they meet the definitions of Sections 2062 and 2067 of the CESA and in accordance with CEQA Guidelines Section 15380.1. In general, CDFW requires that plant species on CRPR 1A (plants presumed extirpated in California and either rare or extinct elsewhere), CRPR 1B (plants rare, threatened, or endangered in California and elsewhere), CRPR 2A (plants presumed extirpated in California, but more common elsewhere); and CRPR 2B (plants rare, threatened, or endangered in California, but more common elsewhere) of the CNPS Inventory of Rare and Endangered Vascular Plants of California (CNPS, 2021) be fully considered during the preparation of environmental documents relating to CEQA. CNPS CRPR 4 species (plants of limited distribution) may, but generally do not, meet the definitions of Sections 2062 and 2067 of CESA, and are not typically considered in environmental documents relating to CEQA. While other species (i.e., CRPR 3 or 4 species) are sometimes found in database searches or within the literature, these do not meet the definitions of Section 2062 and 2067 of CESA and are not analyzed in this document.

Existing Setting

Habitat Types. A majority of the survey area is comprised of ruderal/developed habitat; however, disturbed coast live oak woodland and disturbed scrub habitats also occur within the survey area (**Figure 10**). The following section discusses these habitat types and their occurrence within the survey area.

Ruderal: Ruderal areas are those areas which have been subject to historic and ongoing disturbance by human activities and are devoid of vegetation or dominated by non-native and/or invasive weed species. Ruderal areas within the survey area include open sandy washes and landscaped areas. With the exception of landscaped areas, little to no vegetation is present within this habitat. Where vegetation occurs, dominant species include non-native species such as iceplant, thistles (*Carduus* sp., *Silybum* sp.), coastal heron’s bill (*Erodium cicutarium*), and annual grasses (*Bromus* sp., *Avena* sp.). Scattered coast live oaks and Monterey cypress (*Hesperocyparis macrocarpa*) trees occur within this habitat throughout the survey area. Landscaped areas are dominated by Monterey cypress planted along roadsides with an understory dominated by non-native species. Approximately 6.5 acres of ruderal habitat is present within the survey area.

Landscaped and ruderal areas are considered to have low biological value as they are generally dominated by non-native plant species and consist of relatively low-quality habitat from a wildlife perspective. However, common wildlife species which do well in urbanized and disturbed areas, such as the American crow (*Corvus brachyrhynchos*), California ground squirrel (*Otospermophilus beecheyi*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), western scrub jay (*Aphelocoma californica*), European starling (*Sturnus vulgaris*), coast range fence lizard (*Sceloporus occidentalis bocourtii*), and rock pigeon (*Columba livia*) may forage within these areas. However, several special-status species have the potential to occur in open sandy areas of the survey area including Monterey spineflower, coast horned lizard, and California legless lizard.

- *A Manual of California Vegetation classification(s):* None
- *California Natural Communities List*: Not listed

Developed: Developed habitat within the survey area includes paved roads and parking areas. Generally, no vegetation is present within these areas, and they are considered to have little to no biological value. Approximately 3.2 acres of developed habitat is present within the survey area.

- *A Manual of California Vegetation classification(s):* None
- *California Natural Communities List*: Not listed

Disturbed Coast Live Oak Woodland: Coast live oak woodlands occur in the more mesic areas of coastal California from Sonoma County south into Baja California. They are dominated by open to nearly closed canopies of coast live oak. The oak woodland habitat within the survey area is highly disturbed due to the dominance of iceplant (*Carpobrotus edulis*) in the understory. Non-dominant plant species present within this habitat include coyote brush (*Baccharis pilularis*) and poison oak (*Toxicodendron diversilobum*). The canopy within the survey area is relatively open, dominated by coast live oak. Approximately 1.6 acres of disturbed coast live oak woodland is present within the survey area. The survey area is surrounded by dense coast live oak woodland habitat on all sides.

Coast live oak woodland is an important habitat to many wildlife species. Oaks provide nesting sites for many avian species and cover for a variety of mammals. Acorns provide an important food source for acorn woodpecker (*Melanerpes formicivorus*), western scrub jay (*Aphelocoma californica*), and black-tailed deer (*Odocoileus hemionus columbianus*). Other common wildlife species found in coast live oak woodland are Monterey dusky-footed woodrat, Nuttall's woodpecker (*Picoides nuttallii*), northern flicker (*Colaptes auratus*), bobcat (*Lynx rufus*), and coyote (*Canis latrans*).

- *A Manual of California Vegetation classification(s):* Coast live oak woodland (*Quercus agrifolia* woodland alliance)
- *California Natural Communities List*: Not sensitive

Disturbed Scrub: The structure of plant associations that comprise scrub habitat typically consist of low to moderate-sized shrubs with sclerophyllous leaves, flexible branches, semi-woody stems growing from a woody base, and a shallow root system. The scrub habitat within the survey area is highly disturbed due to the presence of non-native species, primarily iceplant and jubata grass (*Cortaderia jubata*). Non-dominant species present within this habitat type include coyote brush, California sagebrush (*Artemisia californica*), and poison oak. The southeast portion of this habitat type is situated in a topographical bowl which is lower than the surrounding topography on the southern, eastern, and western sides and tapers into the existing topography on the northern side. This area is dominated by jubata grass and supports two clusters of arroyo willow (*Salix lasiolepis*). The remaining vegetation within this area is consistent with the scrub vegetation described above. Approximately 1.9 acres of disturbed scrub habitat occur within the survey area (**Figure 10**).

Little is known about the importance of scrub habitat to wildlife; however, common wildlife observed within this habitat include scrub jay (*Aphelocoma californica*), chestnut-backed chickadee (*Poecile rufescens*), western fence lizard (*Sceloporus occidentalis*), and brush rabbit (*Sylvilagus bachmani*). One Monterey dusky-footed woodrat *(Neotoma macrotis luciana*; MDFW) nest was observed within scrub habitat during the December 2022 reconnaissance level survey. MDFW is a subspecies of the dusky-footed woodrat (*Neotoma macrotis*), which is common to oak woodlands and other forest types throughout California (see below for further discussion of this species). Additionally, the sandy soils and presence of leaf litter in this habitat may also support the Northern California legless lizard and coast horned lizard.

Source: DD&A, 2023

Title:

Habitat Map

Date 9/9/2024

Scale N/A

Project 2024.49

Monterey | San Jose

Denise Duffy and Associates, Inc.

Environmental Consultants Resource Planners

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Figure
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- *A Manual of California Vegetation classification(s):* Coyote brush scrub (*Baccharis pilularis* shrubland alliance)
- *California Natural Communities List*: Not sensitive

Sensitive Habitat. The arroyo willow patches may be considered wetlands or other waters of the U.S. and/or state subject to the jurisdiction of the ACOE and the RWQCB under Sections 404 and 401 of the CWA. Arroyo willow is a facultative wetland plant, meaning it usually occurs in wetlands but may occur in non-wetlands. All other surrounding vegetation consists of upland plant species including iceplant, coyote brush, and California sagebrush. There was no surface water present at the time of the December 2022 reconnaissance-level survey. Additionally, this area does not contain bed or bank features and there was no apparent connection to or from other surface water sources. The National Wetlands Institute (NWI) and National Hydrogaphy Database (NHD) do not identify any water bodies within or adjacent to the survey area. Therefore, this area likely does not constitute jurisdictional wetlands or waters. While **Appendix B** recommended a wetland delineation if this area were to be developed in future, this area is not within the construction limits proposed as part of the project.

Special-Status Species. Published occurrence data within the survey area and surrounding quadrangles were evaluated to compile a table of special-status species known to occur in the vicinity of the survey area (Appendix A of **Appendix B**). Each of these species was evaluated for their likelihood to occur within and immediately adjacent to the survey area. The special-status species that are known to or have been determined to have a moderate or high potential to occur within or immediately adjacent to the survey area are discussed below. All other species, which are assumed unlikely to occur or to have a low potential to occur based on the species-specific reasons presented in **Appendix B**, are therefore unlikely to be impacted by the project and are not discussed further.

Monterey Spineflower: Monterey spineflower (*Chorizanthe pungens* var. *pungens*) is a federally Threatened and CNPS CRPR 1B species in the Polygonaceae family. It is a small, prostrate annual herb which blooms from April through July. Monterey spineflower typically occurs on open sandy or gravelly soils on relic dunes in coastal dune, coastal scrub, and maritime chaparral habitats, though it can also be associated with cismontane woodlands and valley and foothill grasslands, at elevations of three to 450 meters.

Suitable habitat for Monterey spineflower occurs in open areas of sandy habitat throughout the survey area. The CNDDB reports 34 occurrences of this species within the quadrangles reviewed, with one occurrence overlapping the northeastern portion of the survey area. This occurrence is mapped generally and encompasses most of the Former Fort Ord. In addition, DD&A biologists have observed this species throughout the adjacent former Fort Ord; therefore, this species has moderate potential to occur within the survey area.

The Biological Assessment determined that Monterey spineflower had the potential to occur within the project site, and recommended that a focused botanical survey for the species be conducted at the appropriate time of year. Therefore, DD&A biologists Patric Krabacher and Rikki Lougee conducted a focused botanical survey of the project site on June 28, 2024, to determine the presence or absence of Monterey spineflower within the project site. Survey methods included walking the site to identify and map populations of Monterey spineflower, if present. Surveys were conducted in accordance with the applicable guidelines identified in **Appendix C**. DD&A did not observe Monterey spineflower within the project site.

Monterey Dusky-Footed Woodrat: The MDFW is a CDFW species of special concern. This is a subspecies of the dusky-footed woodrat (*Neotoma macrotis*), which is common to oak woodlands and other forest types throughout California. Dusky-footed woodrats are frequently found in forest habitats with moderate canopy cover and a moderate to dense understory, including riparian forests; however, they may also be found in chaparral communities. Relatively large nests are constructed of grass, leaves, sticks, and feathers and are built in protected spots, such as rocky outcrops or dense brambles of blackberry and/or poison oak. Typical food sources for this species include leaves, flowers, nuts, berries, and truffles. Dusky-footed woodrats may be a significant food source for small- to medium-sized predators. Populations of this species may be limited by the availability of nest material. Within suitable habitat, nests are often found in close proximity to each other.

The CNDDB reports one occurrence of MDFW within the quadrangles reviewed, located approximately 8.5 miles east of the survey area from 2017. Two MDFW nests, including one within disturbed scrub habitat, were observed within the survey area during the reconnaissance-level surveys conducted in September and December 2022, and several other nests were observed adjacent to the survey area. Therefore, this species is known to be present within and adjacent to the survey area.

Northern California Legless Lizard: The northern California legless lizard (*Anniella pulchra*) is a CDFW species of special concern. This fossorial (burrowing) species typically inhabits sandy or loose (friable) soils. Habitats known to support northern California legless lizard include (but are not limited to) coastal dunes, valley and foothill grasslands, chaparral, and coastal scrub at elevations from near sea level to approximately 1,800 meters (6,000 feet). The northern California legless lizard forages on invertebrates beneath the leaf litter or duff layer at the base of bushes and trees or under wood, rocks, and slash in appropriate habitats. The diet of this species likely overlaps to some extent with that of juvenile alligator lizards and perhaps some other salamanders. This species may be preyed upon by alligator lizards, snakes, birds, and small mammals. Little is known about the specific habitat requirements for courtship and breeding; however, the mating season for this species is believed to begin late spring or early summer, with one to four live young born between September and November.

Suitable habitat for the northern California legless lizard is present within sandy soils of the survey area. The CNDDB reports 56 occurrences of this species within the quadrangles reviewed, the nearest located approximately two miles northwest of the survey area from 2009. Therefore, this species has moderate potential to occur within the survey area.

Coast Horned Lizard: The coast horned lizard (*Phrynosoma blainvillii*) is a CDFW species of special concern. Horned lizards occur in valley-foothill hardwood, conifer, and riparian habitats, as well as in pine-cypress, juniper, chaparral, and annual grass habitats. This species generally inhabits open country, especially sandy areas, washes, flood plains, and wind-blown deposits in a wide variety of habitats. Coast horned lizards rely on camouflage for protection and will often lay motionless when approached. Horned lizards often bask in the early morning on the ground or on elevated objects such as low boulders or rocks. Predators and extreme heat are avoided by burrowing into loose soil. Periods of inactivity and winter hibernation are spent burrowed into the soil or under surface objects. Little is known about the habitat requirements for breeding and egg-laying of this species. Prey species include ants, beetles, wasps, grasshoppers, flies, and caterpillars.

Suitable habitat for coast horned lizard is present within sandy soils of the survey area. The CNDDB reports five occurrences of this species within the quadrangles reviewed, the nearest located approximately three miles north of the survey area from 1992. In addition, DD&A biologists have observed this species throughout the adjacent former Fort Ord; therefore, this species has moderate potential to occur within the survey area.

Raptors and Other Protected Avian Species: Raptors, their nests, and other nesting birds are protected under California Fish and Game Code. While the life histories of these species vary, overlapping nesting and foraging similarities allow for their concurrent discussion. Most raptors are breeding residents throughout most of the wooded portions of the state. Stands of live oak, riparian deciduous, or other forest habitats, as well as open grasslands, are used most frequently for nesting. Breeding occurs February through September, with peak activity May through July. Prey for these species include small birds, small mammals, and some reptiles and amphibians. Many raptor species hunt in open woodland and habitat edges.

Various species of raptors and other nesting birds, such as red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus),* American kestrel (*Falco sparverius*), great horned owl (*Bubo virginianus*), and turkey vulture (*Cathartes aura*), have a potential to nest within any of the large trees present within and adjacent to the survey area.

Protected Trees. Chapter 8.54 of the City Municipal Code regulates the removal or damage of trees over ten feet or more or with a circumference of twenty inches or more within the city limits. Multiple trees within the survey area meet this criterion. Removal of these trees would require a tree removal permit from the City and replacement at a minimum ratio of 1:1.

CEQA Thresholds

ENVIRONMENTAL IMPACTS	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
BIOLOGICAL RESOURCES. Would the project:					
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?		X			1, 2, 3, 4, 9, 10
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?			X		1, 2, 3, 4, 9, 10
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?			X		1, 2, 3, 4, 9, 10
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?			X		1, 2, 3, 4, 9, 10

ENVIRONMENTAL IMPACTS		Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?		X			1, 2, 3, 4, 9, 10
f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X	1, 2, 3, 4, 9, 10

Explanation

a) **Less-than-Significant Impact with Mitigation Incorporated.** The project site consists of a disturbed area associated with previous use as military housing. However, the site is surrounded by trees and undeveloped land and several special-status wildlife species including MDFW, coast horned lizard, California legless lizard, and nesting birds have the potential to occur within the project site. Construction activities may result in direct mortality of individuals and/or loss of habitat for these species, which would represent a potentially significant impact. However, these impacts would be reduced to a less-than-significant level with incorporation of **Mitigation Measures BIO-1A** through **BIO-1H**, as identified below.

Mitigation Measures

MM BIO-1A A qualified biologist will conduct an Employee Education Program for the construction crew prior to any construction activities. The qualified biologist will meet with the construction crew at the onset of construction at the survey area to educate the construction crew on the following: 1) the identification of special status species that may be present; 2) the specific mitigation measures that will be incorporated into the construction effort; 3) the general provisions and protections afforded; 4) the proper procedures if a special status species is encountered within the survey area to avoid impacts; and 5) how a biological monitor will examine the area and agree upon a method which will ensure the safety of the monitor during monitoring.

MM BIO-1B To avoid or minimize impacts to MDFW, the project applicant will retain a qualified biologist to conduct pre-construction surveys in suitable habitat proposed for construction. Surveys for MDFW nests will be conducted within three days prior to construction within the survey area. All MDFW nests identified will be flagged for avoidance. Nests that cannot be avoided will be manually deconstructed prior to land clearing activities to allow animals to escape harm. If a litter of young is found or suspected, nest material will be replaced, and the nest will be left alone for two to three weeks before a re-check to verify that young are capable of independent survival before proceeding with nest dismantling.

MM BIO-1C A qualified biologist shall be on-site for all vegetation removal and initial ground disturbing activities. After ground disturbing and vegetation removal activities are complete, or earlier if deemed appropriate by the qualified biologist, the biologist shall designate a member of the construction personnel as the construction monitor to oversee on-site compliance with all avoidance and minimization measures. The biologist shall ensure that the construction monitor receives sufficient training in the identification of special-status species which have the potential to occur within the survey area. The qualified biologist and the construction monitor shall be authorized to stop work to ensure that avoidance and minimization measures are implemented. The qualified biologist or the construction monitor shall complete a daily log summarizing activities and environmental compliance throughout the duration of the project.

MM BIO-1D If northern California legless lizard or coast horned lizard are observed within the survey area during construction, they shall be allowed to move out of the site unimpeded and of their own volition. If this is not feasible, they shall be captured by a qualified biologist and relocated out of harm's way to the nearest suitable habitat at least 100 feet from the survey area. Work shall halt where the animal is until the animal has left or been removed from the survey area.

MM BIO-1E To prevent inadvertent entrapment of animals during project construction, all excavated, steep-walled holes or trenches more than two feet deep shall be covered at the close of each working day with plywood or similar materials. Alternatively earthen ramps with a slope no greater than 2:1 can be installed for all trenches that exceed two feet deep. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals.

MM BIO-1F Only tightly woven fiber netting or similar material may be used for erosion control at the survey area. Coconut coir matting is an acceptable erosion control material. No plastic mono-filament matting shall be used for erosion control, as this material may ensnare wildlife.

MM BIO-1G All trash that may attract predators shall be properly contained, removed from the construction site, and disposed of on a weekly basis, at a minimum. Following construction, all trash and construction debris shall be removed from work areas.

MM BIO-1H Construction activities that may affect nesting raptors and other protected avian species can be timed to avoid the avian nesting season (February 1 through September 15). Specifically, vegetation and/or tree removal can be scheduled between September 16 and January 31. If this is not possible, pre-construction surveys for protected avian species shall be conducted by a qualified biologist within 15 days prior to the commencement of construction activities in all areas that may provide suitable nesting habitat that exist in or within 300 feet of the project boundary. If nesting birds are identified during pre-construction surveys, an appropriate buffer shall be imposed within which no construction activities or disturbance will take place (generally 300 feet in all directions). A qualified biologist shall be on-site during work re-initiation in the vicinity of the nest offset to ensure that the buffer is adequate and that the nest is not stressed and/or abandoned. No work shall proceed in the vicinity of an active nest until such time as all young are fledged, as determined by the qualified biologist, or until after September 1 (when young are assumed fledged).

In addition to the wildlife species described above, **Appendix B** indicated that Monterey spineflower has the potential to occur on the project site. As described above, DD&A conducted a focused botanical survey for this species in June 2024, as summarized in **Appendix C**. This survey determined that Monterey spineflower was not present on the project site. No other special-status plant species have the potential to occur on the site. No further mitigation is required to address impacts to this species.

The proposed project would have a less-than-significant impact 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 with incorporation of **Mitigation Measures BIO-1A** through **BIO-1H.**

b) **Less-than-Significant Impact**. The proposed project site is largely disturbed and does not contain any riparian habitat or sensitive natural communities identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service. No sensitive habitats were documented on the project site. While arroyo willow patches were documented during reconnaissance surveys, these species may occur in non-wetland areas, and no other evidence of wetlands or other sensitive areas was documented (see also impact c), below). The project would have a less-than-significant impact related to creating a substantial adverse effect on riparian habitat or other sensitive natural communities identified in local or regional plans.

c) **Less-than-Significant Impact**. The proposed project is located primarily on a previously developed site and no natural hydrologic features or federally protected wetlands as defined by Section 404 of the Clean Water Act occur on site. While arroyo willow patches may be considered wetlands or other waters of the U.S. and/or state subject to the jurisdiction of the ACOE and the RWQCB under Sections 404 and 401 of the CWA, this species is considered a facultative wetland plant, meaning it usually occurs in wetlands but may occur in non-wetlands. There was no surface water present at the time of the December 2022 reconnaissance-level survey, the area does not contain bed or bank features, and there was no apparent connection to or from other surface water sources. Further, this area is not within the construction limits proposed as part of the project. Therefore, no direct removal, filling, or hydrological interruption of a wetland area would occur from implementation of the proposed project. The proposed project would have a less-than-significant impact related to creating a substantial adverse effect on wetlands.

d) **Less-than-Significant Impact**. The project is proposed on a previously disturbed site that is primarily characterized as ruderal and developed habitat. The proposed project site is not located within a designated wildlife corridor. However, several special-status species, including MDFW, coast horned lizard, California legless lizard, and various species of nesting birds have the potential to occur on the site. Mitigation for potential impacts to these species are provided in impact a), above. In addition, the project would not disconnect or fragment habitat and, due to regional availability of habitat, would not impede wildlife movement in the area. Therefore, the proposed project would have a less-than-significant impact related to substantially interfering with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.

e) **Less-than-Significant Impact with Mitigation Incorporated**. The City regulates the removal or damage of all protected trees within the City limits, including the survey area. The proposed project would require the removal of approximately 101 trees. As a result, a tree removal permit would be required for damage to or removal of one or more protected trees. Multiple species of protected trees occur within and adjacent to the proposed project site. Since the proposed project would result in removal of protected trees, the School would be required to acquire a tree removal permit from the City prior to construction. The proposed project includes 114 replacement trees, which would meet and exceed the City's requirements for tree protection and replacement. With implementation of **Mitigation Measure BIO-2**, the proposed project would have a less-than-significant impact related to conflicting with any local policies or ordinances protecting biological resources.

Mitigation Measure

MM BIO-2 The City regulates the removal or damage of all protected trees within City limits, including the survey area; a tree removal permit would be required for damage to or removal of one or more protected trees. Multiple species of protected trees occur within and adjacent to the survey area. If the project would result in removal of protected trees, the project proponent would acquire a tree removal permit from the City prior to construction. Implementation of any measures required by the permit would ensure that potential impacts to protected trees are reduced to a less-than-significant level under CEQA. In addition, City requirements for tree protection ensure that protected trees removed are mitigated for by replanting at a 1:1 ratio.

f) **No Impact**. There are presently no adopted Habitat Conservation Plans (HCPs), Natural Community Conservation Plans (NCCPs), or other approved local, regional, or state habitat conservation plans covering the project site. Implementation of the proposed project would not result in any impacts related to interference with any current local, regional, or state HCPs or NCCPs, and no mitigation would be required.

Conclusion: The project would have a less-than-significant impact on biological resources with implementation of the mitigation measures identified above.

5.2.5 CULTURAL RESOURCES

Basin Research Associates, Inc. (BASIN) prepared an Archaeological Resources Assessment for the proposed project in August 2024. The Archaeological Resources Assessment includes the results of background research and field reconnaissance of the proposed project site. Background research consisted of a records search from the California Historical Resources Information System (CHRIS), Northwest Information Center at Sonoma State University (NWIC), and a Sacred Lands File (SLF) search with the Native American Heritage Commission (NAHC). BASIN also conducted limited outreach to tribal groups identified in the SLF review. However, the City conducted formal tribal outreach pursuant to Assembly Bill (AB) 52 under a separate process as described in *Section 5.2.18* of this document. BASIN's field reconnaissance consisted of a pedestrian survey of the site on July 15, 2024, which investigated the site for evidence of cultural and tribal cultural resources.

Setting

Evidence from coastal areas of Monterey County suggests settlement by at least 5,000 BCE and possibly earlier. According to the 2004 and 2040 Seaside General Plans, several areas of the City contain significant archaeological resources associated with occupation and settlement of the area. The City's

2040 General Plan identifies areas of moderate to high archaeological sensitivity in the City, these areas include: 1) the drainage area along the southern border of Seaside, leading into Laguna del Rey, which has been identified as highly sensitive; 2) the area of active sand dunes along the coast has been identified as moderately sensitive; and 3) the area east of General Jim Moore Boulevard preserved by the Bureau of Land Management (BLM) has been identified as highly sensitive. The proposed project site is not located in the vicinity of any of these areas identified in the Seaside 2040 General Plan as containing archeological resources.

The 2004 Seaside General Plan identified Stilwell Hall and 35 other structures in the East Garrison area of Fort Ord as eligible for the National Register of Historic Places; however, the proposed project would not be located within the East Garrison area of Fort Ord. The Seaside 2040 General Plan states that according to the California Historical Resources Information System, a total of six cultural resources have been recorded within the city, including two pre-contact archaeological sites, one historic-age building, and three historic-age engineering structures. The Seaside 2040 General Plan further states that according to the Office of Historic Preservation, one of these resources, the Monterey Branch of the Southern Pacific Railroad, is listed on the CRHR. At this time, there are no other resources listed on the CRHR, nor as California Historical Landmarks or Points of Interest and no resources are listed on the NRHP. However, the City of Seaside has not undergone a city-wide inventory or survey, and there may be undiscovered resources present in Seaside (City 2024).

CEQA Thresholds

ENVIRONMENTAL IMPACTS	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
CULTURAL RESOURCES. Would the project:					
a) Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines § 15064.5?				X	1, 2, 3, 4, 11
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines § 15064.5?		X			1, 2, 3, 4, 11
c) Disturb any human remains, including those interred outside of dedicated cemeteries?		X			1, 2, 3, 4, 11

Explanation

a) **No Impact.** No listed or known potential National Register of Historic Places and/or California Register of Historical Resources are located within the vicinity of the proposed project site. No other significant or potentially significant local, state or federal historic properties, landmarks, points of interest, etc. have been identified within or adjacent to the proposed project site. Therefore, no impacts would result to historical resources pursuant to CEQA Guidelines § 15064.5.

b, c) **Less-Than-Significant Impact with Mitigation Incorporated.** Construction of the proposed project would occur primarily within the existing developed and/or previously disturbed areas of the site. Any archaeological resources would likely have been unearthed at the time of original disturbance to the site. Further, the City's 2040 General Plan does not identify any archaeologically significant sites within the vicinity of the proposed project site. BASIN's pedestrian survey did not observe any precontact or historic cultural materials during their field survey of the site. No known archaeological resources or human remains have been documented at the proposed project site. BASIN did not recommend subsurface testing due to the low potential for exposing cultural resources. However, there is the possibility of inadvertently uncovering such resources or human remains during construction. The potential inadvertent discovery of archaeological resources and/or human remains and potential inadvertent damage or disturbance during construction would be considered a significant impact. This can be mitigated to a less-than-significant impact with the implementation of **Mitigation Measure CR-1** and **CR-2**.

Mitigation Measure

MM CR-1 Prior to issuance of grading permits, the City of Seaside shall require the Applicant to note on any plans that require ground disturbing excavation that there is a potential for exposing buried cultural resources including prehistoric Native American burials. Archaeological site information supplied to the Contractor shall be considered confidential.

The City of Seaside shall require the Applicant to retain a Professional Archaeologist on an “on-call” basis during ground disturbing construction to review, identify and evaluate cultural resources that may be inadvertently exposed during construction. In the event that a potential resource is unearthed during ground disturbing activities, work shall be halted within 50 feet of the find until the find can be evaluated by a qualified archaeologist. The archaeologist shall review and evaluate any discoveries to determine if they are historical resource(s) and/or unique archaeological resources or tribal cultural resources under CEQA.

If the Professional Archaeologist determines that any cultural resources exposed during construction constitute a historical resource and/or unique archaeological resource or tribal cultural resource under CEQA, he/she shall notify the City of Seaside and other appropriate parties of the evaluation. The Professional Archaeologist shall recommend mitigation measures to mitigate to a less-than-significant impact in accordance with California Public Resources Code Section 15064.5. Tribal cultural resources shall be evaluated with the assistance of Native American tribes and/or individual tribal members who have previously been contacted and responded to outreach efforts by the City of Seaside. Mitigation measures may include avoidance, preservation in-place, recordation, additional archaeological testing and data recovery among other options. The completion of a formal Archaeological Monitoring Plan (AMP) and/or Archaeological Treatment Plan (ATP) that may include data recovery may be recommended by the Professional Archaeologist if significant archaeological deposits (or tribal cultural resources) are exposed during ground disturbing construction. Development and implementation of the AMP and ATP and treatment of significant cultural resources and/or tribal cultural resources will be determined by the City of Seaside in consultation with any regulatory agencies and Native American tribes and tribal individuals.

The qualified archaeologist shall file a Monitoring Closure Report with the City of Seaside at the conclusion of ground disturbing construction if archaeological and Native American monitoring was undertaken.

MM CR-2 Throughout ground disturbing activities, the construction contractor shall ensure that treatment of human remains and any associated or unassociated funerary objects discovered during any soil-disturbing activity within the project site shall complies with applicable State laws. This shall include immediate notification of the Monterey County Sheriff's Office and the City of Seaside.

In the event of the coroner's determination that the human remains are Native American, the City of Seaside shall notify the Native American Heritage Commission. The Native American Heritage Commission shall appoint a Most Likely Descendant (MLD) (PRC Section 5097.98).

The City of Seaside, Professional Archaeologist and MLD shall make all reasonable efforts to develop an agreement for the treatment, with appropriate dignity, of human remains and associated or unassociated funerary objects (CEQA Guidelines Section 15064.5(d)). The agreement should take into consideration the appropriate excavation, removal, recordation, analysis, custodianship, curation, and final disposition of the human remains and associated or unassociated funerary objects. The California PRC allows 48 hours to reach agreement on these matters. If the MLD and the other parties do not agree on the reburial method, the project will follow PRC Section 5097.98(b) which states that ". . . the landowner or his or her authorized representative shall reinter the human remains and items associated with Native American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance."

Conclusion: The project would have a less-than-significant impact on cultural resources after incorporation of the mitigation measures identified above.

5.2.6 ENERGY

Setting

Beginning in 2018, all PG&E customers within Monterey, San Benito, and Santa Cruz Counties began to receive their electricity from Central Coast Community Energy (3CE) (previously known as Monterey Bay Community Power [MBCP]). 3CE is a community choice energy agency that has committed to providing its customers with 100 percent carbon-free energy by the year 2030 (3CE 2024). Community choice energy agencies allow local governments to procure power on behalf of their residents, businesses, and municipal accounts from an alternative supplier while still receiving transmission and distribution service from their existing utility provider (in this case, PG&E). This is typically an attractive option for communities that want more local control over their electricity sources, more clean energy than their default utility offers, and/or lower electricity prices. Per Public Utilities Code Section 366.2, customers have the right to opt-out of the community choice energy program and continue to receive service from the incumbent utility (PG&E) if they choose.

CEQA Thresholds

ENVIRONMENTAL IMPACTS	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
6. ENERGY. Would the project:					
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			X		1, 2, 8
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?			X		1, 2, 8

Explanation

a) **Less-Than-Significant Impact**. DD&A estimated the energy use during operation of the proposed project was estimated in the air quality modeling for the proposed project (**Appendix A**), as described below.

Operational Energy Usage

Operation of the proposed project would result in the consumption of approximately 279 kilowatt hours per year (kWH/yr). Energy use would occur associated with operating an educational facility, including but not limited to, operation of lights, ventilation systems, landscaping and maintenance equipment, and communication systems. The proposed project does not include natural gas infrastructure, so all energy use would occur through consumption of electricity.

The proposed project would be built to the specifications of the 2022 California Building Code standards and Title 24 energy efficiency standards (or subsequently adopted standards in effect at the time of building permit issuance), and CALGreen code, which includes insulation and design provisions to minimize wasteful energy consumption, thereby improving the efficiency of the overall project. In addition, the proposed project includes installation of photovoltaic energy systems (solar panels and associated infrastructure), which would offset energy use by utilizing solar energy captured on the site. With these energy offsets and adherence to applicable building codes, the proposed project would have a less-than-significant impact related to operational energy use.

Energy Used During Construction

The anticipated construction schedule assumes that the proposed project would be built-out over a period of approximately 18 months. The construction phase would require energy for the manufacture and transportation of building materials, preparation of the site (e.g., excavation, and grading), and the actual construction of the project. Petroleum-based fuels such as diesel fuel and gasoline would be the primary sources of energy for these tasks. The construction energy use has not been determined at this time. However, the proposed project would not cause inefficient, wasteful, or unnecessary consumption of energy as the construction schedule and process would be designed to be efficient in order to avoid excess monetary costs. That is because equipment and fuel are not typically used wastefully on the site due to the added expenses associated with renting, maintaining, and fueling the equipment. Hand tools would be used when possible in order to avoid use of heavy machinery. Furthermore, the energy use required to complete construction would be limited and short-term.

Based on the discussion above, the proposed project would not result in potentially significant environmental impact, during operation or construction, due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation.

b) **Less-Than-Significant Impact**. As stated above, the construction and operation of the proposed project would have a less-than-significant impact due to energy usage and efficiency and, thus, would not conflict with local or state plans for energy efficiency. The proposed project would also be required to build to 2022 California Building Code standards, Title 24 energy efficiency standards (or subsequently adopted standards in effect at the time of building permit issuance), and CALGreen code, which includes design provisions to minimize wasteful energy consumption, thereby improving the efficiency of the overall project. As a result, the proposed project would comply with existing state energy standards and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. This represents a less-than-significant impact.

Conclusion: The proposed project would have a less-than-significant impact related to energy use.

5.2.7 GEOLOGY AND SOILS

Setting

The following discussion describes the geological characteristics of the proposed project site based on the results of a Geologic Hazards Evaluation & Geotechnical Investigation prepared by Stevens, Ferrone, & Bailey Engineering Company (**Appendix D**). Additional information from the Phase I Environmental Site Assessment (ESA) prepared by EIS (**Appendix E**) is also discussed in this section.

Soil Conditions

The project site is a disturbed area with surface features including graded building pads, asphalt concrete paved driveways, and dirt parking lots (**Appendix D**). Test borings showed that the pavement was approximately five to six inches thick. This pavement is underlain by approximately six to seven inches of aggregate base.

Test borings indicated that the project site is underlain by man-made fills to a maximum depth of seven feet. In addition, deeper fills are present in the southern portion of the site associated with previous filling of a hillside drainage swell that occurred during use of the site for military housing. Medium dense to dense, slope wash silty sands were encountered beneath the fills with an approximate maximum depth of five feet, which are in turn underlain by medium dense to very dense, older dune sands to a depth exceeding 31 feet.

Groundwater

No groundwater was encountered within test borings to a depth of approximately 31 feet (**Appendix D**). Based on available records, groundwater is anticipated to occur at a depth of approximately 200 feet below ground surface (bgs) (**Appendix E**).

Assessment of Potential Geologic Hazards

Localized Faulting. The site is not located within a currently delineated State of California Alquist-Priolo Earthquake Fault Zone as shown on the Department of Conservation's (DOC's) online Earthquake Zones of Required Investigations GIS viewer (EQZapp) (DOC 2024b). The Reliz/Rinconada fault is the closest fault to the site, located approximately 3.7 miles northeast of the project site (**Appendix D**). No known active faults have been identified on the site or project towards the site; thus, the potential for future surface fault rupture at the site is considered to be low.

Flood Hazard. The Federal Emergency and Management Administration (FEMA) maintain a collection of Flood Insurance Rate Maps (FIRM), which cover the entire U.S. These maps identify those areas which may be subjected to 100-year and 500-year cycle floods. Based on review of these maps, the site is in an area zoned as Zone X (unshaded), which is considered to be outside the 500-year flood zone and protected by levee from the 100-year flood zone (FEMA 2017).

Landslides. Landslides are ground failures (several tens to hundreds of feet deep) in which a (mass of earth material, including debris and often portions of bedrock) large section of a slope detaches and slides downhill. Landslides are not to be confused with minor surficial slope failures (slumps), which are usually limited to the topsoil zone and can occur on slopes composed of almost any geologic material. Landslides can cause damage to structures both above and below the slide mass. The site is relatively flat. The County of Monterey's GIS viewer describes the site as having a low potential for landslides (County of Monterey 2024). No evidence of landsliding was found during geological site surveys (**Appendix D**).

Liquefaction and Seismic Settlement. The term liquefaction describes a phenomenon in which saturated, cohesionless or very low plasticity soils temporarily lose shear strength (liquefy) due to increased pore water pressures induced by strong, cyclic ground motions during an earthquake. Structures founded on or above potentially liquefiable soils may experience bearing capacity failures due to the temporary loss of foundation support, vertical settlements (both total and differential), and/or undergo lateral spreading. The factors known to influence liquefaction potential include age, soil type, relative density, grain size, plasticity, confining pressure, depth to groundwater, and the intensity and duration of the seismic ground shaking. Liquefaction is most prevalent in young loose to medium dense, non-plastic coarse-grained soils below the groundwater table. The County of Monterey's GIS viewer describes the site as having a low potential for liquefaction (County of Monterey 2024).

Expansive Soils. Expansive soils are characterized by their ability to undergo significant volume changes (shrink or swell) due to variations in moisture content. Changes in soil moisture content can result from precipitation, landscape irrigation, utility leakage, roof drainage, perched groundwater, drought, or other factors and may result in unacceptable settlement or heave of structures or concrete slabs supported on grade. The soils underlying the site consist of sandy man-made fills, slope wash sands, and older dune sands, which are considered non-plastic and have a low expansion potential (**Appendix D**).

CEQA Thresholds

ENVIRONMENTAL IMPACTS	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
GEOLOGY AND SOILS. Would the project:					
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 or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			X		12
ii) Strong seismic ground shaking?			X		12
iii) Seismic-related ground failure, including liquefaction?			X		12
iv) Landslides?				X	12
b) Result in substantial soil erosion or the loss of topsoil?			X		12
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?			X		12
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?			X		12
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?				X	1
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				X	1, 2, 3, 4

Explanation

ai) **Less-Than-Significant Impact**. The potential for surface rapture is low as no active faults cross the region and the proposed project site is located outside Alquist-Priolo Earthquake Zones as depicted on EQZapp (Department of Conservation 2024). The Proposed Project would be designed and constructed in accordance with standard engineering and seismic safety design techniques. This represents a less-than-significant impact.

aii) **Less-Than-Significant Impact**. The proposed project is located in a seismically active region. The nearest active fault is the San Andreas fault, located approximately 25 miles northeast of the proposed project area (Department of Conservation 2024). As a result, the proposed project could be subject to seismically induced hazards during its design lifetime. To minimize potential seismically induced hazards, the proposed project would be designed to comply with all standard engineering and seismic safety design requirements and guidelines contained in the Uniform Building Code and California Building Code. However, the proposed project is a water system consolidation project and does not include the addition of any new habitable structures. Additionally, the final design of the proposed project would be required to comply with the recommendations of a design-level geotechnical analysis anticipated to be required as part of the grading permit application. The proposed project would be designed and constructed in accordance with standard engineering and seismic safety design techniques of the 2022 California Building Code adopted by the City of Seaside. Compliance with existing building code requirements, standard engineering and seismic safety design techniques, as well as the recommendations of a design-level geotechnical report would ensure that potential impacts would be minimized. The proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death from strong seismic ground shaking. This represents a less-than-significant impact.

aiii) **Less-Than-Significant Impact**. According to the County of Monterey GIS Viewer (County 2024), subsurface soils at the site are not considered susceptible to liquefaction or significant seismically-induced settlement due to the depth of groundwater and density of the soils at depth. As described above, the project site may be subject to strong ground shaking in the event of a major earthquake. The City would issue a grading permit as part of the proposed project approval. As part of the grading permit (pursuant to City Municipal Code Section 15.32.090) final design of the project would be required to be in conformance with the recommendations outlined in a design-level engineering report that would be prepared for the proposed project. Furthermore, the project would be constructed to standard engineering and seismic safety design techniques pursuant the California Building Code. The project would be designed and constructed in accordance with all state, federal, and other laws, rules, regulations to avoid or minimize potential direct or indirect damage from seismic related ground failure, including liquefaction. Therefore, this would be considered a less-than-significant impact.

aiv) **No Impact**. The project site is relatively flat and as a result there is no potential for landslides. Therefore, the potential for landslides is considered low. No impact would occur. See also impact aiii) above.

b) **Less-Than-Significant Impact**. Development of the proposed project would require grading of up to one acre, which could result in a temporary increase in erosion. As described in impact aiii) above, the proposed project would be required to obtain a grading permit from the City which would require submittal of an erosion control plan and drainage plan prior to issuance of a grading permit.

Furthermore, the proposed project would also be subject to the requirements of the NPDES Program General Storm Water Permit, which includes the preparation of a SWPPP, as outlined in *Section 5.2.10 Hydrology and Water Quality* for construction activities disturbing one acre or more. Any temporary erosion related to construction would be minimized through the implementation of standard construction phase BMPs related to erosion. Erosion control measures and associated BMPs would be consistent with the recommended measures contained in the California Stormwater BMP Handbooks. Applicable measures may include the following:

- Stockpiling and disposing of demolition debris, concrete, and soil.
- Protecting existing storm drain inlets and stabilizing disturbed areas.

- Hydroseeding/re-vegetating disturbed areas.
- Minimizing areas of impervious surfaces.
- Implementing runoff controls (e.g., percolation basins and drainage facilities).
- Properly managing construction materials.
- Managing waste, aggressively controlling litter, and implementing sediment controls.
- Limiting grading to the minimum area necessary for construction and operation of the project.

Compliance with City and state requirements, and the above BMPs would ensure that construction activities associated with the project would not cause substantial soil erosion under CEQA and potential erosion related impacts would be reduced to a less-than-significant level.

c) **Less-Than-Significant Impact**. As stated above, the project site does not contain soil and geologic hazards that could result in lateral spreading, subsidence, or liquefaction, which could damage proposed structures. Further, impacts associated with these soil and geotechnical hazards would be minimized by applying the recommendations outlined in a design-level engineering report that would be prepared for the proposed project. Therefore, this represents a less-than-significant impact.

d) **Less-Than-Significant Impact**. According to the Geologic Hazards Evaluation & Geotechnical Investigation (**Appendix D**) prepared for the proposed project, soils underlying the site consist of sandy man-made fills, slope wash sands, and older dune sands. The sandy fills and soils are considered to be generally non-plastic. These soils are considered to have a low expansion potential. Further, impacts associated with these soil and geotechnical hazards would be minimized by applying the design recommendations outlined in **Appendix D**. Therefore, this represents a less-than-significant impact.

e) **No Impact**. The project does not include the installation of any septic tanks or alternative wastewater disposal systems. No impact would occur.

f) **No Impact**. Significant paleontological resources are fossils or assemblages of fossils that are unique, unusual, rare, uncommon, and diagnostically or stratigraphically important, as well as those that add to an existing body of knowledge in specific areas, stratigraphically, taxonomically, or regionally. They include fossil remains of large to very small aquatic and terrestrial vertebrates, remains of plants and animals previously not represented in certain portions of the stratigraphy and assemblages of fossils that might aid stratigraphic correlations – particularly those offering data for the interpretation of tectonic events, geomorphologic evolution, paleoclimatology, and the relationships of aquatic and terrestrial species. Most of the fossils found in Monterey County are of marine life forms and form a record of the region's geologic history of advancing and retreating sea levels. A review of nearly 700 known fossils localities in the County was conducted in 2001; 12 fossil sites were identified as having outstanding scientific value. The proposed project site is not located on or near any of those sites based on GIS data provided by the County (Rosenberg 2001). The proposed project would not directly or indirectly destroy a paleontological resource or site or unique geologic feature, as none exist within the proposed project area. No impact would occur.

Conclusion: The proposed project would have a less-than-significant impact on geology and soils with implementation of identified standard permit conditions and BMPs.

5.2.8 GREENHOUSE GAS EMISSIONS

Setting

Global temperatures are affected by naturally occurring and anthropogenic-generated atmospheric gases, such as water vapor, carbon dioxide, methane, and nitrous oxide (Intergovernmental Panel on Climate Change 2007). Gases that trap heat in the atmosphere are called greenhouse gases (GHGs). Solar radiation enters the earth's atmosphere from space, and a portion of the radiation is absorbed at the surface. The earth emits this radiation back toward space as infrared radiation. Greenhouse gases, which are mostly transparent to incoming solar radiation, are effective in absorbing infrared radiation and redirecting some of this back to the earth's surface. As a result, radiation that otherwise would have escaped back into space is retained, resulting in a warming of the atmosphere. This process is known as the greenhouse effect. The greenhouse effect helps maintain a habitable climate. Emissions of GHGs from human activities, such as electricity production, motor vehicle use, and agriculture, are elevating the concentration of GHGs in the atmosphere. GHG emissions from Anthropogenic sources are causing a trend of unnatural warming of the earth's climate, known as global warming or global climate change.

Climate change has a cumulative impact; a project contributes to this impact through its incremental contribution of GHG emissions combined with the cumulative increase of all other sources of GHGs. MBARD defines their GHG threshold in terms of carbon dioxide equivalent (CO_2e), a metric that accounts for emissions from various GHGs based on their global warming potential. If annual emissions of GHGs exceed these threshold levels, the Proposed Project would result in a cumulatively considerable contribution of GHG emissions and must implement mitigation measures (MBARD 2018). MBARD has not yet adopted a threshold for construction-related GHG emissions but recommends utilizing thresholds set by neighboring districts (e.g., Sacramento Metropolitan Air Quality Management District [SMAQMD]). SMAQMD adopted an updated threshold based on the 2030 target year in April 2020. Based on correspondence with MBARD staff, utilizing this threshold would be appropriate. Therefore, the Proposed Project would result in a significant construction GHG related impact if the Proposed Project would emit more than 1,100 metric tons of CO_2e ($MTCO_2e$) per year (SMAQMD 2020). Conversely, if a project emits less than 1,100 $MTCO_2e$, the Proposed Project would have a less than significant GHG related impact. The Proposed Project would result in a significant operational GHG related impact if the Proposed Project would emit more than 10,000 $MTCO_2e$.

CEQA Thresholds

ENVIRONMENTAL IMPACTS	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
GREENHOUSE GAS EMISSIONS. Would the project:					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X		8
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X		8

Explanation

a) **Less-Than-Significant Impact**.

Short-term Construction

The proposed project is in the NCCAB, where MBARD regulates air quality. For the purposes of this analysis, the SMAQMD's threshold of 1,100 $MTCO_2e$ is being utilized given the fact that MBARD has not yet adopted construction thresholds for GHG emissions. As discussed above, if a project emits less than 1,100 $MTCO_2e$ per year, its GHG emissions impact would be less than significant. DD&A prepared an air quality evaluation was prepared for the proposed project based on the construction details described in **Chapter 2. Project Description** (see **Appendix A**). The proposed project would generate approximately 470 $MTCO_2e$ per year during construction (**Appendix A**), which is below the threshold of 1,110 $MTCO_2e$ per year. This represents a less-than-significant impact.

Long-term Operation

The proposed project would be considered to result in an operational GHG impact if operation of the proposed project would result in GHG emissions exceeding MBARD's established threshold of 10,000 $MTCO_2e$ per year. The proposed project is anticipated to generate 2,687 $MTCO_2e$ per year (**Appendix A**), which is below MBARD's threshold. This represents a less-than-significant impact.

b) **Less-Than-Significant Impact**. As described above, the proposed project is not expected to generate GHG emissions that would exceed applicable thresholds. Therefore, the proposed project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. This represents a less-than-significant impact.

Conclusion: The proposed project would have a less-than-significant impact related to GHG emissions.

5.2.9 HAZARDS AND HAZARDOUS MATERIALS

Setting

The School has commissioned a number of environmental investigations for the proposed project site, including a Phase I ESA (EIS 2022), a Phase II Subsurface Investigation Report (EIS 2023), and an Additional Site Characterization Report (EIS 2024). Copies of these documents are provided in **Appendix E**. Information contained in the section was derived from these investigations.

Background

The following is a summary of the site background information:

- The School and proposed project is located within the City and consists of approximately 15.16 acres of land across three parcels identified by the County Assessor as APNs 031-151-022-000, 031-151-060-000, and 031-151-061-000. Based on information obtained from the County Assessor, the site has an address of 2511 Numa Watson Road, Seaside, California for all three parcels.
- The site was previously undeveloped until at least 1949. By 1956, four buildings were constructed on the western portion of the site, and by 1968, an additional three buildings were

constructed on the eastern portion of the site. The site was repurposed for use by the School in 2016, around which time the existing buildings were demolished.

<u>Phase I Findings:</u>

The following is a summary of findings and opinions for the project site identified in the Phase I:

- Two underground storage tanks (USTs) were removed from the subject property area between former buildings 4361 and 4362 in 1990.[2] An estimated 1,500-gallons of diesel fuel leaked from one of the USTs. Contaminated soil was left in place beneath former building 4362 as it could not be removed without posing a threat to the building's structural integrity. The presence of diesel-contaminated soil at the subject property represents a recognized environmental condition (REC).
- Several buildings previously located on the site contained abundant asbestos containing materials (ACMs) prior to their demolition. No asbestos abatement reports for the building demolitions or documents with post-demolition asbestos sample results were made available during preparation of the Phase I. The documented presence of ACMs with no record of asbestos abatement represents a potential environmental concern.
- A total of 12 soil samples (from the ground surface to a depth of approximately two-inches) were collected from the perimeter of each of the seven former buildings following demolition. Sample results for building 4365 indicated that lead was detected in one soil sample at a concentration of 92 milligrams per kilogram (mg/kg), which was above the established screening criteria of 80 mg/kg. A second round of confirmation sampling near the original location indicated a lead concentration below the screening criteria. Waste soil generated during demolition and sampling activities were sampled and disposed of as nonhazardous waste, with the exception of waste soils in the vicinity of former building 4363. Waste soils from this area were disposed of as hazardous waste, apparently due to their detected lead concentration. MCDEH issued "No Further Action" letters dated 2022 for all seven former buildings, stating that "corrective action was complete and no further action was necessary pertaining to known lead contamination in soil at the site." However, the extent of soil sampling conducted for lead was based on guidance to attain closure for a former commercial building and is not necessarily sufficient for redevelopment as a school. The historical presence of lead-based paints and historical detections of lead in soil is considered an HREC. Additionally, the lack of documented soil sampling regarding possible organo-chlorine pesticides in areas of former buildings is a potential environmental concern.
- At least 72 cubic yards of soil were removed from the site following building demolition. There is no record of the quantity or source of fill used to replace this soil. The use of unknown fill at the subject property represents a potential environmental concern.

The Phase I report contained the following recommendations based on the findings above:

- The presence of diesel-contaminated soil at the subject property represents an REC.
- The documented presence of ACMs with no record of asbestos abatement represents a potential environmental concern.
- The use of unknown fill at the subject property represents a potential environmental concern.

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[2] These buildings have been removed from the site.

- The historical detection of lead in soil samples in the area of the former buildings is considered an HREC. Since these areas are planned for school use the lead detected in soil is also considered a potential environmental concern.
- The lack of documented soil sampling regarding possible organo-chlorine pesticides in areas of former buildings is a potential environmental concern.

Phase II Findings:

The following is a summary of findings and opinions for the project site identified in the Phase II:

- Soils and sediments encountered in the borings generally consisted of very strong brown to yellowish brown silty sand with clays to silty sands with gravels. There was visual evidence of contamination as well as a strong petroleum odor in SBT-1 at approximately 16-ft bgs. Groundwater was not encountered in any of the borings advanced during this investigation.
- Petroleum hydrocarbons from diesel fuel (TPH-d) were detected in five of the analyzed samples at concentrations ranging from 9.3 mg/kg to 2,100 mg/kg. The detected concentrations in samples SBT-1-14 and SBT-1-24 exceed the applied ESL of 260 mg/kg. TPH-d was not detected above its ESL in soil samples collected from borings SBT-2 or SBT-3. These results indicated that residual diesel contamination related to the former UST "Tank 1" remains present in the subsurface in the vicinity of boring SBT-1.
- The relatively uniform arsenic concentrations detected in both soil samples above the residential and construction worker ESLs appear typical of background arsenic concentrations in the region. One study analyzed regional soils in the San Francisco Bay Area, and the upper range of arsenic in soils was reported at 11 mg/kg. It should additionally be noted that the California Environmental Protection Agency (CalEPA) and other agencies within California typically do not require cleanup of naturally occurring chemicals or metal species to less than background concentrations. EIS concluded that the above-ESL arsenic detections are typical of background concentrations in the region and do not represent a significant environmental concern.
- Benzene was detected above the applicable ESL in one of the soil vapor samples (SBT-3) collected during this investigation. Benzene was not detected in any other soil vapor samples collected during this investigation, indicating it may be limited to the area of SBT-3. EIS concluded that this lone elevated concentration is not consistent with a widespread release and is not typical of those that would generally require active remediation or represent a significant environmental risk to the property.
- OCPs were not detected above ESLs in any of the analyzed soil samples. These results indicated that significant OCP impacts to shallow soil from former military use do not exist at the Site. EIS concluded that these results, combined with the PCB results from the Phase I investigation and the lead results from this investigation and PCEI's 2022 investigation, fulfill the relevant DTSC sampling requirements for these analytes at school sites.
- Hexavalent chromium was initially detected in each of the three soil samples (SB3-6-0.5, SBS-3-0.5, and SB6-3-0.5) submitted for analysis at concentrations exceeding the applied residential ESL of 0.30 mg/kg. These results indicated that hexavalent chromium is present in shallow soils in these areas. In an attempt to determine the extent of these impacts, EIS submitted an additional 15 samples collected from various depths and locations across the site for hexavalent chromium analysis. Each of the additional samples also found concentrations (up to 2.1 mg/Kg) of hexavalent chromium in excess of the designated ESL. This indicated that the soils across the site appear to be adversely impacted with hexavalent chromium and represents an environmental

concern. The source and full extent of these impacts was unknown as hexavalent chromium is not known to have been historically used or stored on-site. However, shallow soils across large portions of the site consist of imported fill material and it is therefore possible these impacts have been imported to the site in the fill from an unknown off-site source. Further investigations were recommended to determine the full extent of impacts.

The Phase II report contained the following recommendations based on the findings above:

- EIS concluded that further investigations and research were warranted to determine both the source and full extent of identified hexavalent chromium impacts to subsurface soils. Additionally, EIS recommended that the results of the Phase II investigation be submitted to an oversight agency, such as the Department of Toxic Substance Control (DTSC), for further guidance and oversight.
- Soil testing detected Benzene at a concentration exceeding applicable ESLs in one of the soil vapor samples collected during the investigation. EIS concluded that the lone elevated concentration is not typical of those that would generally require active remediation. However, additional vapor intrusion investigations may be warranted prior to redevelopment to ensure the safety of future occupants due to the proposed educational facility.
- EIS obtained a drilling permit from the Monterey County Health Department (MCHD) as part of the Phase II report. EIS forwarded the findings of the Phase II report to the MCHD for review due to the elevated concentrations of TPH-d (up to 2,100 mg/Kg) found in subsurface soils during the investigation.

Additional Site Characterization Report:

The following is a summary of findings and opinions for the project site identified in the Additional Site Characterization Report:

- EIS analyzed two soil samples collected from boring S8T-18 for TPH and VOCs. TPH-d, TPH-mo, and benzene were detected in samples S8T-18-30 and S8T-18-36 at concentrations well below all applicable screening levels. The results indicated that the previously identified petroleum impacts to soil in the vicinity of S8T-1/S8T-18 related to the former UST "Tank 1" are limited in depth and do not significantly affect soils at or below 30-feet bgs. The lateral extent of petroleum impacts to soil were determined to be restricted to the area around boring SBT-1/S8T-18 during the previous investigation (EIS 2023). EIS concluded that the spatial extent of these impacts is now adequately defined.
- EIS analyzed a total of 178 soil samples collected during the Additional Site Characterization Report for hexavalent chromium. 148 of these soil samples were collected from depths of 0-6" bgs, 2-2.5 feet bgs, or 3.5-4 feet bgs from borings located in grids across areas of the site previously developed with buildings or currently developed with roads (disturbed areas). The remaining 30 soil samples were collected from depths of 0-6" bgs, 2-2.5 feet bgs, or 3.5-4 feet bgs from the undisturbed perimeter of the site. Hexavalent chromium was detected in 156 of these 178 analyzed soil samples at concentrations ranging from 0.12 to 5 mg/kg. Hexavalent chromium was detected in 146 soil samples at concentrations that exceed the applied RWQCB ESL and USEPA RSL for residential use (both 0.3 mg/kg). EIS contracted with Intrinsik Ltd. (Intrinsik), an environmental health consultant, to prepare a technical memorandum which documents in-depth statistical analysis comparing cumulative soil data from the disturbed and undisturbed areas of the Site. Intrinsik compared the soil data from the disturbed and undisturbed Site areas to establish potential site-specific background threshold values (BTVs) following guidance issued

by the CalEPA and the United States EPA. This analysis indicated that the soil datasets from the disturbed and undisturbed areas of the site "are not statistically significantly different, indicating that the Site hexavalent chromium concentrations are within the local background level". Calculated potential site-specific BTVs range from 2.081 mg/kg (Kaplan-Meier [KM] method 95th percentile) to 3.076 mg/kg (KM method 95-99 upper tolerance limit). Of the 197 total soil samples analyzed for hexavalent chromium to date, only samples SB3-6-2.5 (2.1 mg/kg), SB-87 A-2.5 (2.1 mg/kg), SB-95A-4.0 (2.7 mg/kg), and SB-49-2.5 (5 mg/kg) exceed one or more potential site-specific BTV for hexavalent-chromium. These results appear to indicate that the concentrations of hexavalent chromium detected in Site soils are generally within the local background level and that a significant source of anthropogenic hexavalent chromium is not present onsite. CalEPA and other California agencies typically do not require cleanup of naturally occurring chemicals to less than background concentrations. Therefore, EIS concluded that they do not require further investigation or action.

- As requested by DTSC, EIS analyzed fourteen surface soil samples collected during this investigation for arsenic. Four of these soil samples were collected from borings located in the disturbed areas of the Site. The remaining ten soil samples were collected from the undisturbed perimeter of the Site. Arsenic was detected in all 14 analyzed soil samples at concentrations ranging from 0.65 to 2.0 mg/kg, all of which exceed one or more applicable screening levels. Intrinsik utilized cumulative soil analytical data to compare arsenic concentrations in the disturbed and undisturbed areas of the Site. Intrinsik's analysis indicated that the soil datasets from the disturbed and undisturbed areas of the Site are statistically significantly different from one another, however the small sample size of this dataset makes the statistics somewhat unreliable. Calculated potential site-specific BTVs range from 1.33 mg/kg (95 percent upper confidence limit) to 2.473 mg/kg (KM method 95-99 upper tolerance limit). All detected concentrations of arsenic are well below the established California background levels of 11-12 mg/kg. The cumulative soil analytical results indicate that the concentrations of arsenic detected in Site soils are generally within the local background level and are well below widely applied regional background levels. EIS concluded that there does not appear to be a significant source of anthropogenic arsenic on the site.
- As requested by DTSC, EIS analyzed 40 soil samples collected from 2-2.5 feet bgs from the graded former building areas of the Site for OCPs. The OCPs DOD, DOE, DDT, endosulfan 11, endrin, endrin aldehyde, and endrin ketone were detected in soil sample SB-23-2.5 at concentrations well below their respective most conservative applied screening levels. OCPs were not detected in any of the other 39 analyzed soil samples collected during this investigation. This result, combined with the previous OCP analytical results of 44 surface soil samples, indicated that significant OCP impacts to shallow soil from former military use do not exist at the Site. These results fulfilled the relevant DTSC sampling requirements for OCPs at school sites.
- EIS collected eight soil vapor samples (plus one duplicate sample) from depths of five and 15 feet bgs for analysis for VOCs. Soil vapor samples were collected from borings advanced to the northwest, northeast, east, and south of previous boring SBT-3 in an attempt to define the spatial extent of previously identified benzene impacts to soil vapor. Benzene was detected in four of the eight collected soil vapor samples at concentrations ranging from 2.7 to 21 $\mu g/m^3$. The detected concentrations of benzene in soil vapor samples SV-5-15, SV-6-15, SV-8-5, and SV-8-15 exceed the applicable RWQCB ESL and DTSC SL. Benzene was not detected in the shallow (five-foot depth) soil vapor samples collected from SBT-5, SBT-6, or SBT-7 but was detected above applicable screening levels in the deeper (15-foot) soil vapor samples from SBT-5 and SBT-6. Benzene was detected above applicable screening levels in both soil vapor samples (five and 15-

foot depths) collected from SBT-8. These results appear to indicate that benzene impacts to soil vapor are concentrated near boring SBT-3 and decline in all directions. Soil vapor impacts generally appear to increase with depth to at least 15-feet bgs. Remedial excavation work conducted in 1990 removed contaminated soil associated with the former USTs to depths up to 20 to 24-feet bgs, although contaminated soil was left in place beneath former building 4362. EIS determined that the documented residual contaminated soil is considered the most likely source of detected benzene in soil vapor and that the increase in benzene soil vapor concentration with depth is likely attributable to the removal of the shallow source during the previous remedial excavation. The full spatial extent of benzene impacts to soil vapor remained undefined to the northwest, northeast, and southeast of the area sampled during the investigation.

- Several other VOCs were detected in soil vapor samples collected during this investigation at concentrations below all applicable screening levels. EIS concluded that this finding did not represent a significant environmental concern.

The Additional Site Characterization Report contained the following recommendations based on the findings above:

- The detected concentrations of hexavalent chromium and arsenic in soil are now considered adequately defined and are generally consistent with site-specific background concentrations. As such, no further action is recommended.
- The spatial extent of diesel-contaminated soil in the vicinity of the former USTs is now considered adequately defined. Given their depth and limited lateral extent, these impacts do not present a significant exposure risk beyond vapor intrusion (discussed below). As such, no further action is recommended.
- As stated in the previous section, benzene has been detected in several soil vapor samples at concentrations exceeding applicable screening levels. Because the Site is slated for redevelopment as an education facility, further vapor intrusion assessment is recommended prior to redevelopment to ensure the safety of future occupants.

CEQA Thresholds

ENVIRONMENTAL IMPACTS	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
HAZARDS AND HAZARDOUS MATERIALS. Would the project:					
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X		1, 2, 13
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X		1, 2, 13
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			X		1, 2, 13

ENVIRONMENTAL IMPACTS		Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X	1, 2, 13
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?				X	1, 2, 3, 4
f)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X		1, 2, 3, 4
g)	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?			X		1, 2, 14

Explanation

a) **Less-Than-Significant Impact.** Construction and operation of the project would involve the routine transport, use, or disposal of hazardous materials on- and off-site as described below.

Construction

Construction activities would require the temporary use of hazardous substances, such as fuel, lubricants, and other petroleum-based products for operation of construction equipment as well as oil, solvents, or paints. As a result, the proposed project could result in the exposure of persons and/or the environment to an adverse environmental impact due to the accidental release of a hazardous material. However, the transportation, use, and handling of hazardous materials would be temporary and would coincide with the short-term project construction activities. Further, these materials would be handled and stored in compliance with all with applicable federal, state, and local requirements, any handling of hazardous materials would be limited to the quantities and concentrations set forth by the manufacturer and/or applicable regulations, and all hazardous materials would be securely stored in a construction staging area or similar designated location within the project site. In addition, the handling, transport, use, and disposal of hazardous materials must comply with all applicable federal, state, and local agencies and regulations, including the Department of Toxic Substances Control; Occupational Health and Safety Administration (OSHA); Caltrans; and the County Health Department - Hazardous Materials Management Services.

With compliance with the local, state, and federal regulations identified above, the project would have a less-than-significant impact related to the handling, transport, use, and disposal of hazardous materials during construction.

Operation

Operation of the proposed project would consist of educational uses. Small quantities of cleaners, fertilizers, and other chemicals may be utilized during operation of the project associated with routine maintenance of facilities and landscaping. However, all such materials would be applied, stored, transported, and disposed of in accordance with applicable regulations and manufacturers' recommendations. As a result, operation of the proposed project would not create a significant hazard to the public or environment through the routine transport, use or disposal of hazardous materials. This represents a less-than-significant impact.

b) **Less-Than-Significant Impact.** Construction of the project would involve the routine transport, use, or disposal of hazardous materials on- and off-site. These materials are anticipated to include, but are not limited to, petroleum and diesel fuels, solvents, and paints, which may contain hazardous materials. However, all hazardous materials would be applied, stored, handled, transported, and disposed of in accordance with all applicable manufacturers' recommendations. Small quantities of hazardous materials would also be utilized during operation, primarily associated with routine maintenance of facilities and landscaping. These materials would be applied, stored, handled, transported, and disposed of in accordance with all applicable manufacturers' recommendations. This represents a less-than-significant impact.

c) **Less-Than-Significant Impact.** George C. Marshall Elementary School is located approximately 900 feet west of the proposed project site. Additionally, the proposed project site consists of the existing Chartwell School and would contain sensitive receptors, located immediately adjacent to construction activities (at the existing athletic fields) and 240 feet from educational buildings. Construction of the project may require the handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. Construction of the project would occur over 18 months. Operation of the proposed project may also require the handling, use, and disposal of small quantities of hazardous materials, primarily associated with landscaping and maintenance. However, all hazardous materials would be applied, handled, stored, transported, and disposed of in accordance with all applicable manufacturers' recommendations, which would reduce the risk of hazardous materials releases within a one-quarter mile of an existing school. This represents a less-than-significant impact.

d) **No Impact**. The project is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 (**Appendix E**). Therefore, there would be no impact in connection with the proposed project.

e) **No Impact**. The project site is located approximately 3.66 miles southwest of the Marina Municipal Airport and about four miles north of the Monterey Regional Airport. The Proposed Project would not result in a safety hazard or exposure to excessive noise for people residing or working in the proposed project area as there are no airports within two miles of the site. No impact would occur.

f) **Less-than-Significant Impact.** Figure 46 of the Safety Element of the City's 2040 General Plan shows designated evacuation routes in the event of an emergency. The City designates General Jim Moore Boulevard, located approximately 2,400 feet from the project site, as a City evacuation route. Construction of the proposed project is anticipated to require a maximum of 50-75 personnel on site, which would increase the amount of traffic on local and regional evacuation routes in the event of a local or regional emergency during construction. However, any site evacuation during construction would proceed according to a construction emergency action plan prepared and implemented by the construction contractor. In addition, the presence of this construction crew on the site would be temporary. The location of project construction at the end of Numa Watson Road and would not interfere with evacuation of the surrounding areas or passage of emergency response vehicles in the event of an emergency. In addition, Numa Watson Road would remain open throughout construction and evacuation of the School or emergency response access to the School would not be affected by construction of the proposed project in the event of an emergency. The proposed project would result in an increase in student enrollment and faculty that could place additional traffic burdens on this evacuation route in the event of a regional emergency. However, the School would be required to update their crisis plan (or equivalent emergency response document) prior to operation of the expanded project, which would include modified evacuation procedures, as required, for the expanded student population and faculty. This represents a less-than-significant impact.

g) **Less-Than-Significant Impact**. The project site is not located within a State Responsibility Area designated by the California Department of Forestry and Fire Protection (CAL FIRE 2024). The project is located adjacent to wooded areas and natural areas that could be susceptible to wildfire. Fire protection services are provided to the project site by the City of Seaside Fire Department. Although unlikely, construction activities involving use of mechanized equipment could potentially lead to wildland fire. However, use of heavy mechanized equipment would be confined to disturbed areas mostly devoid of vegetation that may act as wildfire fuel. Construction equipment would also be maintained and fitted with safety equipment (spark arrestors, mufflers, etc.) to reduce the risk of fire. In addition, the proposed project would comply with the applicable fire safety provisions of the California Building Code, thereby reducing the risk of damage from fire to the maximum extent possible. Operation of the proposed project does not include new uses that would increase the risk of wildfire. Also see *Section 5.2.20 Wildfire*; this would be a less-than-significant impact.

Conclusion: The project would have a less-than-significant impact related to hazards and hazardous materials.

5.2.10 HYDROLOGY AND WATER QUALITY

Setting

The site consists of two developed parcels and one undeveloped parcel located at the School campus. Runoff from the site flows into the surrounding pervious undeveloped land and into drainages along Numa Watson Road. The project site does not contain any natural drainages or waterways. A drainage swale appears to have been previously located on the south side of the site but was filled during prior use of the site as military housing. The Flood Insurance Rate Maps issued by the Federal Emergency Management Agency (FEMA) indicate the project site is located within Zone X (unshaded) (see **Figure 11**). Zone X (unshaded) is defined as an area of minimal flood hazard; the Zone is located outside of Special Flood Hazard Areas and is higher than the elevation of the 0.2-percent-annual-chance flood.

Source: FEMA, 2016

Title:

FEMA Flood Map

Date	7/11/2024
Scale	N/A
Project	2024.49

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Figure
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CEQA Thresholds

ENVIRONMENTAL IMPACTS		Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
HYDROLOGY AND WATER QUALITY. Would the project:						
a)	Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			X		1, 2, 3, 4, 5
b)	Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			X		1, 2, 3, 4, 5
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:			X		1, 2, 3, 4, 5
i)	Result in substantial erosion or siltation on- or off-site;			X		1, 2, 3, 4, 5
ii)	Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;			X		1, 2, 3, 4, 5
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			X		1, 2, 3, 4, 5
iv)	Impede or redirect flood flows?			X		1, 2, 3, 4, 5
d)	In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?			X		1, 2, 3, 4, 5
e)	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?			X		1, 2, 3, 4, 5

Explanation

a) **Less-Than-Significant Impact**.

Construction

Construction of the project would require grading activities that could result in a temporary increase in erosion affecting the quality of storm water runoff. The project would be required to obtain a grading permit through the City as well as comply with the Central Coast RWQCB's NPDES General Construction Activities Permit. The School would be required to develop, implement and maintain a SWPPP to control the discharge of stormwater pollutants including sediments associated with construction activities. This stormwater permit would be administered by the Central Coast RWQCB. Therefore, based on compliance with federal, state, and local regulations, the project would have a less-than-significant short-term construction-related impact associated with water quality.

Operational Impacts

No bodies of surface water are located within or immediately adjacent to the project site. The proposed project would include new impervious surfaces that could result in pollutant infiltration into groundwater. However, the proposed project includes drainage improvements to provide on-site treatment of stormwater runoff generated on the site. Drainage improvements would include six bioretention basins and five flow-through planters (see **Figure 7**). The storm drainage system would be designed in accordance with State of California BMPs for water quality treatment standards. Therefore, runoff generated on the project site would not result in pollutant infiltration into local and regional groundwater basins. The proposed project would have no impact related to violating water quality standards or waste discharge requirements during operation.

b) **Less-Than-Significant Impact**. No groundwater was encountered within test borings to a depth of approximately 31 feet (**Appendix D**). Based on available records, groundwater is anticipated to occur at a depth of approximately 200 feet bgs (**Appendix E**). While the proposed project includes excavation, this work would not require excavation deep enough to come into contact with groundwater. The proposed project includes new impervious surfaces, which could interfere with groundwater recharge on the site. However, the proposed project includes stormwater infrastructure and drainage improvements, including six bioretention basins and five flow-through planters (see **Figure 7** Drainage Plan). Stormwater collected in these systems would ultimately be returned to the groundwater basin underlying the project site. As a result, the proposed project would have no significant net reduction in groundwater recharge compared to existing conditions. This represents a less-than-significant impact.

ci) **Less-Than-Significant Impact**. The proposed project would create new impervious surfaces that could create new surface runoff and result in erosion or siltation on and off the site. Impacts could occur during both construction and operation of the proposed project, as described below.

Construction

Construction activities would involve the use of construction equipment that has the potential to result in on-site erosion and siltation. In addition, the proposed project includes the addition of new impervious surfaces that would generate additional stormwater runoff on the site that could result in off-site erosion and siltation. However, construction of the proposed project would require implementation of a SWPPP to fulfill the requirements of the NPDES General Construction Activities Permit, as well as a Grading Permit issued by the City for the project. The project shall incorporate BMPs during construction to control the discharge of stormwater pollutants including sediments associated with construction activities as part of compliance with the requirements of both the NPDES Permit and Grading Permit. Examples of BMPs include preventing spills and leaks, cleaning up spills immediately after they happen, storing materials under cover, and covering and maintaining dumpsters.

The School shall file a Notice of Termination (NOT) for the General Permit for Construction with the SWRCB upon completion of construction. The NOT shall document that all elements of the SWPPP have been executed, construction materials and waste have been properly disposed of, and a post-construction stormwater management plan is in place as described in the SWPPP for the site.

In conclusion, the project would not substantially alter existing drainage patterns, cause alteration of streams or rivers, or result in substantial erosion or siltation on- or off-site during construction by complying with the State's Construction Stormwater Permit and the City's Grading Ordinance. This represents a less-than-significant impact.

Operational Impacts

Once operational, the project would result in new impervious surfaces that could increase the rate of surface runoff on the site. However, the project includes new drainage improvements to manage increases in surface runoff. Stormwater runoff generated on the site would be directed to stormwater facilities constructed as part of the project, including six bioretention basins and five flow-through planters (see **Figure 7**). As a result, stormwater runoff generated on the site during operation would be captured using on site facilities and would not result in either on-site erosion or siltation. In addition, these facilities would ensure that stormwater runoff generated on site during operation would not travel offsite in sufficient quantities to result in off-site erosion or siltation. Therefore, the project would have a less-than-significant impact related to creating substantial on-site and off-site erosion and siltation during operation.

cii) **Less-Than-Significant Impact**. The project will create new impervious surfaces that could increase the rate of surface runoff on the site. However, the project includes new drainage improvements to manage increases in surface runoff as described under impact ci). In addition, the project would implement a stormwater control plan to manage runoff from the site. In addition, the project site is mapped by FEMA as being within Flood Zone X (unshaded) and is considered to be located outside the 100-year floodplain. As a result, the proposed project would have a less-than-significant impact associated with flooding on- or off-site due to increased surface runoff.

ciii) **Less-Than-Significant Impact**. The project site is mapped by FEMA as being within Flood Zone X (unshaded) and is considered to be located outside the 100-year floodplain. While the project would result in an increase in impervious surfaces, drainage improvements are included to manage on-site stormwater runoff. As a result, the proposed project would have a less-than-significant impact related to creating or contributing runoff water to existing or planned stormwater facilities.

civ) **Less-Than-Significant Impact**. The project site is mapped by FEMA as being within Flood Zone X (unshaded) and is considered to be located outside the 100-year floodplain. While the project includes new impervious surfaces, the project also includes drainage improvements to manage onsite flood flows. As a result, the project would not significantly impede or redirect flood flows. This represents a less-than-significant impact.

d) **Less-Than-Significant Impact**. As described above, the proposed project is not located within a 100-year floodplain or flood hazard zone. The project is not located near any surface bodies of water and is therefore not located in an area subject to seiche hazards. In addition, the project site is located in an inland area and is not located within a Tsunami inundation zone (DOC 2024a). The proposed project would have a less-than-significant impact related to the risk of release of pollutants due to project inundation in a flood zone, tsunamis, and seiches.

e) **Less-Than-Significant Impact**. The proposed project consists of the expansion of the existing School campus. The proposed project would be required to comply with the City Grading Permit standard permit conditions as well as standard BMPs during construction. In addition, the proposed project includes drainage improvements, including on-site stormwater treatment, to manage stormwater runoff generated by the proposed project. As described above, the proposed project would not result in significant water quality or groundwater quality impacts that would conflict or obstruct implementation of a water quality control or sustainable groundwater management plan; this represents a less-than-significant impact.

Conclusion: The proposed project would have a less-than-significant impact on hydrology and water quality.

5.2.11 LAND USE

Setting

The proposed project is located within the City limits. The proposed project site is currently disturbed, having previously been occupied by military housing. The proposed project site is surrounded by the following uses:

- North: Undeveloped land, Residential
- East: Undeveloped land, California Central Coast Veterans Cemetery
- South: Undeveloped land, Residential
- West: Undeveloped land, George C. Marshall Elementary

The applicable planning document for the proposed project is the City's General Plan (2024). The most recent General Plan, Seaside 2040, was adopted on May 16, 2024. The Seaside General Plan (2024) designates the proposed project area as Public/Institutional (PI) and the proposed project site is zoned Public/Institutional (PI). This designation is also consistent with the previous 2004 General Plan.

CEQA Thresholds

ENVIRONMENTAL IMPACTS	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
LAND USE AND PLANNING. Would the project:					
a) Physically divide an established community?				X	1, 2, 3, 4
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?			X		1, 2, 3, 4

Explanation

a) **No Impact**. The physical division of an established community typically refers to the construction of a linear feature, such as a major highway or railroad tracks, removal of a means of access, such as a local road or bridge, or construction of a large-scale development such as an industrial park or university campus, that would impair mobility within an existing community or between a community and outlying area. Under existing conditions, the project site is not used as a connection between established communities. The expanded school campus would be located adjacent to the existing campus, accessed from Numa Watson Road, and would not physically divide an established community. No impact would occur.

b) **Less-Than-Significant Impact**. The proposed project consists of the expansion of the existing Chartwell School campus on a site designated as Public/Institutional (PI) and zoned as Public/Institutional (PI). The proposed project is consistent with the City's 2040 General Plan (2024) Public/Institutional land use designation, which allows (among other things) private school uses. As a result, the project would not conflict with any policy adopted for the purposes of avoiding and/or mitigating an adverse environmental effect. Where appropriate, this IS/MND has identified mitigation measures to further reduce impacts to a less-than-significant level. As a result, the proposed project is not anticipated to conflict with any policies adopted for the purposes of avoiding and/or substantially lessening an adverse impact.

Conclusion: The project would have a less-than-significant impact on land use and planning.

5.2.12 MINERAL RESOURCES

Setting

In accordance with the Surface Mining and Reclamation Act of 1975 (SMARA), the California Geological Survey (CGS) maps the regional significance of mineral resources throughout the state, with priority given to areas where future mineral resource extraction could be precluded by incompatible land use or to mineral resources likely to be mined during the 50-year period following their classification. The CGS delineates Mineral Resource Zones (MRZs) based on their mineral resource potential.

The proposed project site is classified MRZ-3 which is defined by CGS as "areas containing known or inferred construction aggregate resources of undetermined mineral resource significance."

CEQA Thresholds

ENVIRONMENTAL IMPACTS	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
MINERAL RESOURCES. Would the project:					
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?			X		1, 2, 3, 4
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?			X		1, 2, 3, 4

Explanation

a, b) **Less-Than-Significant Impact**. Although the project site is classified MRZ-3 by the CGS, the proposed project is located in an already disturbed area. The property is not currently being used for mineral resource extraction, and mineral resource extraction would be an incompatible use with the site's current zoning and adjacent residential and institutional uses. Further, implementation of the proposed project would not result in any large-scale excavation or other activities resulting in significant removal of mineral deposits. This represents a less-than-significant impact.

Conclusion: The project would have a less-than-significant impact on mineral resources.

5.2.13 NOISE

Setting

Noise is generally defined as sound that is loud, disagreeable, or unexpected. Sound is mechanical energy transmitted in the form of a wave because of a disturbance or vibration. Sound levels are described in terms of both amplitude and frequency. Noise is commonly defined as unwanted sound. Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels ("dB") with 0 decibels corresponding to the threshold of hearing. **Table 6** contains definitions of key technical terms. Most sounds consist of a broad band of frequencies, with each frequency differing in sound level. The intensities of each frequency add together to generate a sound.

Table 6.
Definitions of Acoustical Terms Used in this Report

Term	Definitions
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro-Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micro-Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average A-weighted noise level during the measurement period. The hourly L_{eq} used for this report is denoted as dBA $L_{eq[h]}$.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 pm to 10:00 pm and after addition of 10 decibels to sound levels in the night between 10:00 pm and 7:00 am.
Day/Night Noise Level, Ldn or DNL	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.
Ln Values L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

The method commonly used to quantify environmental sounds consists of evaluating all the frequencies of a sound in accordance with a weighting that reflects the facts that human hearing is less sensitive at low frequencies and extreme high frequencies than in the frequency mid-range. This is called "A" weighting, and the decibel level measured is called the A-weighted sound level ("dBA"). Although the A-weighted noise level may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a conglomeration of noise from distant sources, which creates a relatively steady background noise in which no particular source is identifiable. To describe the time-varying character of environmental noise, the statistical noise descriptors, L01, L10, L50, and L90, are commonly used. They are the A-weighted noise levels equaled or exceeded during one (1) percent, 10 percent, 50 percent, and 90 percent of a stated time period. A single number descriptor called the L_{eq} is also widely used and represents the average, or a weighted noise level during a stated period of time.

The proposed project is not located in the vicinity of a private airstrip or an airport land use plan, or within two miles of a public airport or public use airport. The existing noise environment is characterized primarily by traffic along local roadways.

CEQA Thresholds

ENVIRONMENTAL IMPACTS	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
NOISE. Would the project result in					
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?		X			15
b) Generation of excessive groundborne vibration or groundborne noise levels?			X		16
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?				X	1, 2

Approach to Analysis

Short-Term Construction. Short-term noise impacts associated with construction activities were analyzed based on typical construction equipment noise levels and distances to the nearest noise-sensitive land usage. Noise levels were predicted based on representative off-road equipment noise levels derived from the Federal Highway Administration's (FHWA's) *Road Construction Noise Model* based on average equipment usage rates and assuming a noise-attenuation rate of six dB per doubling of distance from the source.

Long-Term Operation. Noise impacts were assessed by reviewing applicable City noise standards. The *CEQA Guidelines* do not define the levels at which temporary and permanent increases in ambient noise are considered "substantial." A noise level increase of three dBA is barely perceptible to most people, an increase of five dBA is readily noticeable, and a difference of 10 dBA would be perceived as a doubling of loudness. For purposes of this analysis, a significant increase in ambient noise levels would be defined as an increase of three dBA, or greater, at sensitive receptors and that would exceed the City's applicable noise standards. The City's applicable noise standards are summarized in **Table 7**. Noise standards for determination of land use compatibility are summarized in **Table 8**.

Table 7.
City of Seaside Interior and Exterior Noise Standards for New Development

Land Use	Exterior Noise Standards (dBA CNEL)	Interior Noise Standards (dBA CNEL)
Residential	65	45
Mixed-Use Residential	70	45
Commercial	70	-
Office	70	50
Industrial	75	55
Public Facilities	70	50
Schools	50	50

Source: City of Seaside 2024

Table 8.
City of Seaside Noise Standards for Land Use Compatibility (Exterior Ldn, dBA)

Land Use	55	60	65	70	75	80
Residential: Single Family, Multifamily, Duplex	A	B	B	C	-	-
Residential: Mobile Homes	A	B	C	C	-	-
Transient Lodging – Motels, Hotels	A	B	B	C	C	-
Schools, Libraries, Churches, Hospitals, Nursing Homes	A	B	C	C	-	-
Auditoriums, Concert Halls, Amphitheaters, Meeting Halls	B	C	C	-	-	-
Sports Arena, Outdoor Spectator Sports, Amusement Parks	A	A	B	B	-	-
Playgrounds, Neighborhood Parks	A	A	B	C	-	-
Golf Course, Riding Stable, Cemeteries	A	A	A	B	C	C
Office and Professional Buildings	A	A	B	B	C	-
Commercial Retail, Banks, Restaurants, Theaters	A	A	A	B	B	C
Industrial, Manufacturing, Utilities, Wholesale, Service Stations	A	A	A	B	B	B
Agriculture	A	A	A	A	A	A

A-Normally Acceptable- Specified land use is satisfactory based on the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
B- Conditionally Acceptable- New construction or development should be undertaken only after a detailed analysis of the noise requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
C- Normally Unacceptable- New construction or development should generally be discouraged. If it does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
- Clearly Unacceptable – New construction or development should generally not be undertaken.
Source: City of Seaside 2024

Groundborne Vibration. The *CEQA Guidelines* also do not define the levels at which groundborne vibration levels would be considered excessive. For this reason, Caltrans' recommended groundborne vibration thresholds were used for the evaluation of impacts based on increased potential for structural damage and human annoyance. For purposes of this analysis, risks of architectural damage (i.e., minor cracking of plaster walls and ceilings) would be considered potentially significant if construction-generated ground vibration levels at nearby structures would exceed 0.5 in/sec peak particle velocity

(PPV). Ground vibration in excess of 0.2 in/sec PPV would be expected to result in a potential for significant short-term increases in levels of annoyance for occupants of nearby buildings.

Explanation

a) **Less-Than-Significant Impact with Mitigation Incorporated**. The project's potential to result in substantial increases in ambient noise level during construction and operation is discussed below.

Construction Noise

Sensitive receptors in the area include on-site educational buildings and off-site residences and educational buildings. Project construction would generate a temporary increase in noise associated with the use of construction equipment. Noise generated by construction can vary greatly depending on the specific equipment selected by the construction contractor. Construction equipment may include excavators, loaders, dump trucks, hauling vehicles, truck mounted drill rig, forklift, and graders. Using guidance provided by the Federal Highway Administration, it is estimated that noise will reach a maximum of 85 decibels at a distance of 50 feet from construction.

Table 9 summarizes noise levels commonly associated with construction equipment. As noted in **Table 9**, instantaneous noise levels (in dBA L_{max}) generated by individual pieces of construction equipment typically range from approximately 80 dBA to 85 dBA L_{max} at 50 feet. Typical operating cycles may involve two minutes of full power, followed by three or four minutes at lower settings. Average-hourly noise levels (L_{eq}) for individual equipment range from 73 to 82 dBA L_{eq}. Based on typical off-road equipment usage rates and assuming multiple pieces of equipment operating simultaneously in a localized area, average-hourly noise levels could reach levels of approximately 80 dBA L_{eq} at roughly 100 feet.

Table 9.
Typical Construction Equipment Noise Levels(dBA) at 50 Feet from Source

Equipment	L_{max}	L_{eq}
Air Compressor	78	74
Backhoe	78	74
Concrete Mixer	79	75
Crane, Mobile	81	73
Dozer	82	78
Grader	85	81
Loader	79	71
Paver	77	74
Roller	80	73

Source: Based on measured data obtained from the FHWA Roadway Construction Noise Model (FHWA 2008).

As noted in **Table 9**, instantaneous noise levels generated by individual pieces of off-road equipment typically range from approximately 77 to 85 dBA L_{max} at 50 feet (FHWA 2008). Typical operating cycles may involve two minutes of full power, followed by three or four minutes at lower settings. Based on typical off-road equipment usage rates, average-hourly noise levels for individual equipment would be approximately 83 dBA L_{eq}, or less, at 50 feet. Assuming that multiple pieces of equipment could be operating simultaneously, predicted average-hourly noise levels could reach levels of approximately 85 dBA at 50 feet.

The City has not adopted noise standards that apply to short-term construction activities. However, based on screening noise criteria commonly recommended by federal agencies, construction activities would generally be considered to have a potentially significant impact if average-hourly daytime noise levels would exceed 80 dBA L_{eq} at noise-sensitive land uses, such as residential land uses (FTA 2018). While the majority of construction would occur approximately 590 feet from nearby sensitive residential receptors, some construction work and construction vehicle traffic would occur closer to the intersection of Numa Watson Road and Normandy Road, within about 115 feet from sensitive receptors. In addition, construction would occur immediately adjacent to the existing athletic fields and approximately 240 feet from sensitive educational receptors (classrooms) and George C. Marshall Elementary is located approximately 900 feet southwest of the project site. Construction activities in proximity to sensitive residential and educational receptors could exceed exterior noise standards. For these reasons, this impact would be considered potentially significant and can be reduced to a less-than-significant level with the incorporation of **Mitigation Measure NSE-1**.

Mitigation Measure

NSE-1 The following measures shall be implemented by the construction contractor to reduce construction-generated noise levels:

a. Construction activities (excluding activities that would result in a safety concern to the public or construction workers) shall be limited to between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday, and between the hours of 9:00 a.m. and 5:00 p.m. on weekends and legal holidays.

b. Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.

c. When not in use, all construction equipment shall be turned off and shall not be allowed to idle. Clear signage shall be posted that states this requirement for workers at the entrances to the site.

d. Construction equipment and haul trucks shall be turned off when not in use.

e. Construction equipment and material staging areas shall be located at the furthest distance possible from nearby residential land uses.

f. To the extent possible, heavy-duty haul truck trips required for project construction should be scheduled during the non-peak hours of the day.

Implementation of the above mitigation measures would limit construction activities to the less noise-sensitive periods of the day. The use of mufflers would reduce construction equipment noise levels by approximately 10 dBA. With the implementation of **Mitigation Measure NSE-1**, this would represent a less-than-significant impact.

Operational Noise

The Proposed Project would generate noise during project operation associated with additional vehicle traffic, outdoor sports and activities, and educational uses. However, the outdoor sports and activities and educational uses would be located approximately 650 feet from the nearest sensitive residential receptor and 900 feet from the nearest off-site educational receptor (George C. Marshall Elementary School). Operation of the proposed project would not result in substantial noise at these offsite receptors. While the expanded School campus would be located closer to existing sensitive residential receptors, noise producing activities would be lessened at nearby receptors due to existing site topography and vegetation. In addition, noise-producing activities at the school would be limited to regular operating hours, with occasional evening events finishing no later than 9:00 P.M. This end time for events would comply with Section 9.12.030.B of the City's municipal code, which prohibits excessive noise after 10:00 P.M. Vehicle traffic accessing the school via Numa Watson Road would be located within 75 feet of residential receptors. The proposed project would generate new vehicle trips compared to existing conditions. However, the project does not include any roadway widening that could accommodate additional vehicle traffic, so while the number of vehicle trips would increase during student drop-off and pick-up times or during evening events, the overall noise level is not anticipated to increase at existing sensitive receptors during operation. As a result, operational noise would not significantly increase at nearby sensitive receptors. This represents a less-than-significant impact.

b) **Less-Than-Significant Impact**. Construction of the proposed project would result in temporary, short-term increases in groundborne vibration levels due to ground disturbing activities. Construction equipment is anticipated to include excavators, rubber tired dozers, tractors, loaders, backhoes, cranes, pavers, rollers, air compressors. Construction activities may generate groundborne vibration within 300 feet of existing educational buildings and immediately adjacent to educational receptors (students utilizing the existing athletic fields). A vibration impact could occur where noise-sensitive land uses are exposed to excessive vibration levels. Sensitive receptors within or adjacent to the proposed project area could be exposed to temporary groundborne vibration or groundborne noise levels. The Federal Transit Authority has published standard vibration levels and PPV for construction equipment. Groundborne vibration levels associated with typical construction equipment in **Table 10**.

Table 10.
Vibration Velocities for Construction Equipment

Equipment	PPV at 25 feet (inches/second)	Approximate Velocity (L_V) at 25 feet
Pile Driver (impact)	1.518	112
Pile Driver (sonic)	0.734	105
Clam shovel drop (slurry wall)	0.202	94
Hydromill (slurry wall)	0.017	75
Vibratory Roller	0.21	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drilling	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

Note: Data reflects typical vibration level. Source: (Federal Transit Administration, September 2018)

For purposes of this analysis, excessive groundborne vibration would be 0.2 inches per second (as derived from the U.S. Department of Transportation, Earthborne Vibrations Technical Advisory equation for attenuation of vibration) which is the level at which vibration could cause damage to masonry and wood buildings. The nearest existing structures located adjacent to intensive construction are educational uses (i.e., classrooms) located approximately 240 feet from the proposed project site. In addition, athletic fields would be located immediately adjacent to intensive construction activities; however, there are no structures in this area. In addition, vibratory producing construction activities, including grading, would be limited to the summer months when students are not present on campus to the extent feasible. The nearest residential land use is located approximately 115 feet from the northern portion of the project site near the intersection of Numa Watson Road and Normandy Road. However, use of heavy machinery is not anticipated within this area of the project site, and these residential receptors would be located approximately 590 feet from areas where intensive construction would occur. The nearest offsite educational sensitive receptors would be located at George C. Marshall Elementary School located approximately 900 feet southwest of the project site. Predicted construction vibration levels at nearby structures would not exceed the minimum recommended criteria for structural damage or human annoyance within nearby buildings (0.5 in/sec PPV and 0.2 in/sec PPV, respectively). The proposed project would not introduce any new land uses that would result in substantial groundborne vibration once operational. This represents a less-than-significant impact.

c) **No Impact**. The airports closest to the proposed project are the Marina Municipal Airport, which is located approximately 3.66 miles northeast of the project site, and the Monterey Regional Airport, located approximately four miles to the south. Aircraft using the Monterey Regional Airport takeoff and land over Monterey Bay to the west and rural land to the east (City of Seaside 2004). The proposed project is not located within the projected noise contours of these airports nor would the implementation of the proposed project affect airport operations. Students, faculty, and visitors to the school would not be subject to excessive noise levels from operation of regional airports. No impact would occur.

Conclusion: With incorporation of the identified mitigation measure above, the proposed project would have a less-than-significant noise impact.

5.2.14 POPULATION AND HOUSING

Setting

The proposed project consists of the expansion of the existing School campus through the construction of two new buildings in the mid-campus area, and three new buildings and various improvements in the new campus area. The School is an independent day school that provides specialized educational services to Kindergarten through Grade 12 students with learning differences, including dyslexia and other language-related learning difficulties. The proposed project is anticipated to increase the size of the student body from 205 to 400 students and increase the size of the faculty from 72 to 112 faculty/staff. The project is located in the existing School campus on developed parcels and would not displace any existing housing.

CEQA Thresholds

ENVIRONMENTAL IMPACTS	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
POPULATION AND HOUSING. Would the project:					
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?			X		1, 2
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				X	1, 2

Explanation

a) **Less-Than-Significant Impact**. The proposed project would expand the existing Chartwell School campus. No residential uses or other land uses typically associated with directly inducing population growth would be constructed as part of the proposed project. Given the relatively small project size and construction schedule, it is anticipated that the employees hired to construct or operate the project would come from the local labor pool. In addition, construction of the proposed project would be temporary and would not provide an ongoing source of employment for construction workers so that they would relocate to the region permanently. Therefore, it is not anticipated that any prospective construction workers would relocate to the area as a result of construction of the proposed project. The proposed project is an expansion of an existing educational use and the additional increase in student population is not anticipated to result in a permanent population increase in the area. Instead, new students would come from the area or commute from surrounding areas. However, the proposed project would increase the size of the school's staff from 72 employees to 112 employees, which could result in a population increase in the area. AMBAG forecasted a population increase of approximately 6,000 people throughout the County between 2020 and 2025 (AMBAG 2022), when the project would be operational. As a result, the potential growth associated with the increase of 40 faculty members was accounted for in AMBAG's population forecast. In addition, it is anticipated that some of the new jobs created by the proposed project would be filled by the existing local workforce.

The proposed project is an expansion of an existing educational use and would not construct new or extended utilities, infrastructure, or roadways with the potential to serve potential future residential development that could result in an increase in population. Moreover, the public/institutional use is consistent with local and regional plans, which means that any growth resulting from the proposed project was anticipated in local and regional plans and population estimates. As a result, the proposed project would not constitute a change which would induce substantial population growth in the area. This represents a less-than-significant impact.

b) **No Impact**. No residential uses are located on the project site. The proposed project would expand the existing School campus. No housing or people would be displaced and no impact would occur.

Conclusion: The project would have a less-than-significant impact on population and housing.

5.2.15 PUBLIC SERVICES

Setting

Fire Protection: Fire protection services are provided to the project site by the Seaside Fire Department. The City operates one fire station located at 1635 Broadway Avenue that is located approximately 3.3 miles from the project site by way of surface streets.

Police Protection: Police protection services are provided to the project site by the Seaside Police Department. The City operates one police station which is located at 440 Harcourt Avenue, which is located approximately five miles from the project site by way of surface streets.

Schools: The project is an expansion of the existing Chartwell School campus, a private educational facility specializing in providing instruction to students with dyslexia and associated learning differences. Public schools in the area are administered by the Monterey Peninsula Unified School District (MPUSD). The closest off-site school to the proposed site is George C. Marshall Elementary School located approximately 300 feet southwest of the proposed project site.

Parks: The City contains approximately 90 acres of parkland (City 2024). The closest park to the proposed project includes Soper Field Park which is located approximately three miles southwest of the project site by way of surface streets.

CEQA Thresholds

ENVIRONMENTAL IMPACTS	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or 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:					
a) Fire protection?			X		1, 2
b) Police protection?			X		1, 2
c) Schools?			X		1, 2
d) Parks?			X		1, 2
e) Other public facilities?			X		1, 2

Explanation

a, b) **Less-Than-Significant Impact**. The project site currently contains the Chartwell School campus which is currently served by existing public services including fire and police protection. While operation of the proposed project would result in increased students and faculty on the site, the project site is already developed and the proposed use is consistent with the existing use of the parcel. Any incremental increase in demand for fire or police services would be fulfilled by existing services and would not require the construction of new or remodeled police and fire facilities. As a result, the proposed project would have no post-construction impact on police or fire services. Although unlikely, City's Police Department and/or Fire Department could be required to respond to potential construction-related emergency. Construction is anticipated to occur over 18 months and would not significantly impact fire protection or police protection services or require the construction of new or remodeled facilities. This represents a less-than-significant impact.

c, d, e) **Less-Than-Significant Impact**. As previously discussed, the proposed project would not directly or indirectly result in a substantial increase in population. The School is an independent day school that provides specialized educational services. The increase in faculty members could potentially result in a slight population increase, including school-age dependents, who would likely attend either Chartwell school or public schools near the project site. Public schools within the project area are operated by MPUSD. Potential impacts from the proposed increase in student population at Chartwell school are analyzed throughout this document. MPUSD has reported declining enrollment in their schools in recent years (MPUSD 2020). Any increase in student enrollment at MPUSD schools would therefore be accommodated by existing school facilities. Any population increase resulting from the proposed project would not be substantial enough to increase deteriorate existing or require new or expanded libraries or other public facilities. This represents a less-than-significant impact.

Conclusion: The project would have a less-than-significant impact on public services.

5.2.16 RECREATION

Setting

Please refer to the discussion under *Section 5.12.5, Public Services*, above. The Fort Ord National Monument is located approximately one mile to the southeast of the proposed project site.

CEQA Thresholds

ENVIRONMENTAL IMPACTS	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
RECREATION.					
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?			X		1, 2
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?			X		1, 2

Explanation

a, b) **Less-than-Significant Impact**. The proposed project would not include any residential uses or other land uses typically associated with an increased usage of existing park and recreational facilities. However, the proposed project would increase the School's faculty from 72 to 112 employees. The new employees and/or their dependents could potentially utilize park resources and result in an increase in use of park facilities. However, any direct population increase as a result of the proposed project would be anticipated to be a maximum of 40 persons (assuming all new positions are filled by newly relocated workers). A population increase of this size would be served by existing City and regional park facilities and is not anticipated to generate a need for new or expanded recreational facilities. The proposed project also includes recreational facilities for students including a new outdoor soccer field and basketball court. Mitigation has been identified throughout this document as-needed to address potential impacts from these new recreational uses. This represents a less-than-significant impact.

Conclusion: The project would have a less-than-significant impact on recreational facilities.

5.2.17 TRANSPORTATION

Setting

A Vehicle Miles Traveled Analysis was prepared for the proposed project by Hexagon Transportation Consultants, Inc. (Hexagon) (September 2024) (**Appendix F**). Information contained in the section was derived from this report.

Vehicle Miles Traveled

Historically, transportation analysis has utilized delay and congestion on the roadway system as the primary metric for the identification of traffic impacts and potential roadway improvements to relieve traffic congestion that may result due to proposed/planned growth. However, the State of California has recognized the limitations of measuring and mitigating only vehicle delay at intersections, and in 2013, passed Senate Bill (SB) 743, which requires jurisdictions to stop using congestion and delay metrics, such as Level of Service (LOS), as the measurement for CEQA transportation analysis. With the adoption of SB 743 legislation, public agencies are now required to base the determination of transportation impacts on Vehicle Miles Traveled (VMT) rather than on LOS. The intent of this change is to shift the focus of transportation analysis under CEQA from vehicle delay and roadway auto capacity to a reduction in vehicle emissions and the creation of robust multimodal networks that support integrated land uses.

VMT is generally defined as the total miles of travel by personal motorized vehicles that a project is expected to generate in a day. VMT is calculated using the Origin-Destination VMT method, which measures the full distance of personal motorized vehicle trips, with one trip-end being the project.

AMBAG Travel Demand Model

The latest travel demand forecast model that represents travel within the City of Seaside is the Association of Monterey Bay Area Governments (AMBAG) Tri-County transportation model. This model serves as the primary forecasting tool for the City and is currently the best available analytical tool for VMT evaluations. The model is a mathematical representation of travel within the three counties in the Monterey Bay Region and is mainly composed of four main components: 1) trip generation, 2) trip distribution, 3) mode choice, and 4) trip assignment. The model uses socioeconomic inputs (i.e. households, number of jobs, hotel rooms) to estimate travel within Monterey County, Santa Cruz County, and San Benito County. Socioeconomic inputs are aggregated into geographic areas (transportation analysis zones). There are 1,673 traffic analysis zones (TAZs) within the model to represent the three counties, including 46 TAZs representing the City.

CEQA Thresholds

ENVIRONMENTAL IMPACTS	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
TRANSPORTATION. Would the project:					
a) Conflict with program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?			X		1, 2, 3, 4
b) Would the project conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?		X			17
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X		1, 2
d) Result in inadequate emergency access?			X		1, 2

Approach to Analysis

Thresholds of Significance

Pursuant to SB 743, the Office of Planning and Research (OPR) published the finalized Updates to the CEQA Guidelines in November 2017. The guidelines stated that Level of Service will no longer be considered an environmental impact under CEQA and consider VMT the most appropriate measure of transportation impact. The City has not formally adopted its own VMT policies. Therefore, project VMT was evaluated utilizing OPR's Technical Advisory on Evaluating Transportation Impacts in CEQA, published in December 2018, for the VMT analysis methodology and impact thresholds.

VMT Thresholds for Employees: The School will increase both staff and student enrollment. Staff are evaluated as employees for VMT purposes. Per OPR's technical advisory, for employment-generating projects, the project's home-to-work VMT is divided by the number of jobs to determine the VMT per job. As stated in the technical advisory, OPR recommends an impact threshold of 15 percent below the existing VMT levels for employment-generating developments. OPR allows the existing VMT to be defined as the regional average VMT per capita or the county average VMT per capita. For the purpose of this study, the VMT threshold is defined as 15 percent below the existing Monterey County average for employment land use.

The AMBAG model has an existing scenario only for year 2015. Therefore, existing VMT references AMBAG's year 2015 results. Based on the AMBAG model, the existing (year 2015) county average daily employment VMT per job is 11.0. The VMT threshold will thus be set at 9.4 daily VMT (15 percent below the average).

VMT Thresholds for Students: OPR's technical advisory does not provide guidance on evaluating VMT for student enrollment increases. For the purpose of this analysis, student enrollment VMT will be calculated as total VMT per student. The project will generate a potential significant VMT impact if its proposed students' VMT per student is greater than the school's existing VMT per student.

Explanation

a) **Less-Than-Significant Impact.** The following discussion analyzes the project's potential to conflict with a program, plan, ordinance, or policy addressing the circulation system.

Transit Facilities

Transit services in the project area are provided by Monterey Salinas Transit (MST). The bus routes operating closest to the project site include Line A, Line 18, and Line 17. The closest MST transit stop to the site is located 0.6 miles to the northeast near the intersection of Gigling Road and General Jim Moore Boulevard. The proposed project does not include new transit facilities or improvement to existing transit facilities. The majority of students and faculty under existing conditions are transported to and from school via automobile and do not utilize public transit. This is anticipated to be true for new students and faculty added as part of the proposed project given the distance to the nearest MST transit stop. Any increased demand on existing transit services would be incremental and would not conflict with any applicable programs, plans, ordinances, or policies addressing transit facilities. This represents a less-than-significant impact.

Roadway Network

The Mobility Element of the City's 2040 General Plan includes Goals M-1, M-2, and M-3, as well as related policies, for the intent of providing and maintaining adequate roadways within the City. The project would generate new trips associated with the increased student enrollment and faculty expansion. However, these trips would be accommodated by existing roadway infrastructure as maintained by the City in accordance with the Circulation Element of the General Plan. The proposed project does not include any new roadways that would directly impact the roadway network. The project does include installation of a prefabricated guard shack within Numa Watson Road to enhance site security, as well as lighting poles. These features have been designed so as not to interfere with roadway operation compared to existing conditions. This would be confirmed as part of final plan review by the City prior to construction. This represents a less-than-significant impact.

Bicycle Facilities

There are no dedicated bicycle facilities on Numa Watson Road or Normandy Road in the immediate vicinity of the project site. The nearest bicycle facilities are Class I Shared Use Paths located on General Jim Moore Boulevard approximately 0.5 miles west of the project site based on aerial views and the Transportation Agency of Monterey County's (TAMC's) Active Transportation Plan (TAMC 2018). The majority of students and faculty under existing conditions are transported to and from school via automobile and do not utilize public transit as stated above. While some students or faculty may access the site by bicycle under existing conditions or project conditions, any incremental increase in usage of existing bicycle facilities would be minimal and accommodated by existing dedicated bicycle facilities and roadways. TAMC identifies potential future installation of Class II Bike Lanes along Normandy Road (TAMC 2018). The project would not include off-site improvements that would interfere with future installation of these facilities. This represents a less-than-significant impact.

Pedestrian Facilities

There are no dedicated pedestrian facilities on Numa Watson Road. However, sidewalks are located on the north side of Normandy Road near the project site. The project includes new pedestrian facilities associated with the mid-campus expansion and the new high school to improve pedestrian circulation compared to existing conditions. However, the proposed project does not include the new pedestrian facilities along Numa Watson Road or any other off-site public roadways. TAMC's Active Transportation Plan does not identify any proposed pedestrian improvements within the vicinity of the project site (TAMC 2018). This represents a less-than-significant impact.

b) **Less-Than-Significant Impact with Mitigation Incorporated.** A VMT Analysis for the proposed project was prepared by Hexagon Transportation Consultants, Inc. (Hexagon 2024) and is provided as **Appendix F**.

Staff VMT

The proposed project is located in TAZ 787 according to the AMBAG model. Under existing conditions, the TAZ's employment VMT per job is 9.0, which is below the VMT impact threshold of 9.4 (15 percent below the County average). See **Table 11** below.

Table 11
Faculty and Staff VMT Analysis

Year 2015 Existing	**Employment VMT per Employee**[1]
Monterey County Average	11.0
Impact Threshold[2]	9.4
Project Site (TAZ 787)	9.0
VMT Impact?	No

Source: **Appendix F**
Notes:
Data referenced the AMBAG travel demand model.
1. Employment VMT per employee accounts only for home-based work VMT.
2. Neither the City of Seaside nor the County of Monterey have adopted VMT thresholds. Therefore, this impact threshold is calculated using OPR's technical advisory, which suggested 15 percent below the county average.

Student VMT

The VMT Analysis compared the School's existing VMT per student against the proposed increase in student enrollment. The VMT analysis included the following assumptions:

- Currently, 87 students (or 43.5 percent) carpool to the school. For the VMT analysis, this carpool rate is assumed for both existing conditions and conditions after implementation of the proposed project.
- Parents are assumed to make two round trips from home to school on a daily basis. One round trip in the morning and one round trip in the evening.

Existing Student VMT: The School provided zip code-level enrollment data for the 2024-2025 school year. As shown in **Table 12**, Approximately 60 percent of the school's existing students are from Monterey County, 29 percent from Santa Cruz County, and eight percent from Santa Clara County. Based on student zip code information provided by the School, Chartwell students travel, on average, 26.7 miles to the school. With the assumptions described above, Chartwell's existing student VMT would be 60.3 VMT per student[3].

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[3] 60.3 VMT per student = 26.7 miles per student * 43.5 percent carpool rate * four trips per day

Table 12
Existing Number of Students by County

County	Number of Students	Percentages
Monterey	120	60%
Santa Cruz	58	29%
Santa Clara	17	8%
San Benito	2	1%
Alameda	1	1%
Contra Costa	1	1%
San Mateo	1	0%
Total	**200**	**100%**

Source: **Appendix F**

Proposed Student VMT: The School's student enrollment is anticipated to increase by 195 students. There is no zip code-level data regarding these proposed students' home locations. However, it is expected that Chartwell would generally attract students from within the same geographic area as its existing student catchment area because the project is an expansion of the existing campus located at 2511 Numa Watson Road. Hexagon developed the following methodology to estimate these 195 students' VMT:

- The percentage of students generated from each County is assumed to be the same as Chartwell's existing students (see **Table 12** above).
- Within each County, the percentage of students coming from each City is estimated based on each City's population. It is assumed that cities with higher populations will likely have more students attending the school.

Using the above methodology, Hexagon estimated that the proposed enrollment increase of 195 students would generate 62.1 VMT per student, which is above the existing 60.3 VMT per student (see **Table 13**, below). As a result, the proposed student enrollment increase would generate a potentially significant VMT impact. The proposed project would need to include a three percent VMT reduction to reduce VMT impacts to a less-than-significant level.

Expanded School: VMT mitigation measures applied as part of the proposed project would be made available to all students at the School (including current students) and would not be limited to new students generated by the proposed project. Therefore, while the VMT analysis indicates that the project (for the projected additional 195 students) would require a three percent VMT mitigation, the mitigation measures would need to reduce the VMT of the total student population of the expanded School (anticipated to be 395 students at maximum capacity) by only 1.5 percent to achieve the same VMT mitigation effectiveness (see **Table 13**, below).

Table 13
Student VMT Analysis

Scenario	Number of Students	VMT per Student	Total VMT
Existing School	200	60.3	12,060
Proposed Enrollment Increase	195	62.1	12,110
Expanded School	395	61.2	24,170
Percent Changes vs Existing School			

Scenario	Number of Students	VMT per Student	Total VMT
Proposed Enrollment Increase	--	*3.0 percent*	--
Expanded School	--	*1.5 percent*	--

Source: **Appendix F**

The project would be required to reduce overall student VMT by a minimum of 1.5 percent to ensure that VMT per student remains at the pre-project level of 60.3 VMT per student. The project would therefore be required to increase the carpool rate from 43.5 percent to 45 percent (for a minimum total of 178 students participating at maximum enrollment) as described in **Appendix F**. The proposed project would have a less-than-significant impact related to VMT impacts with implementation of **Mitigation Measures TRA-1** through **TRA-3**.

Mitigation Measures

MM TRA-1 The School shall retain a qualified professional to prepare and implement a Travel Demand Management (TDM) plan prior to issuance of a Certificate of Occupancy. The TDM plan shall outline proposed strategies to reduce the School's VMT, including but not limited to, methods to facilitate increased carpooling participation. The TDM shall include a carpooling plan which shall be implemented at least one month prior to operation of the project. The School shall notify parents and staff members of carpooling opportunities and utilize a third-party application or other appropriate method to facilitate carpooling. In addition, the School shall establish a vanpool program for students. Student participation in the vanpool program would be counted towards the 45 percent carpool participation rate to reach the minimum 1.5 percent total VMT reduction for the project. Chartwell shall hire a licensed traffic engineer to perform annual monitoring to ensure the School is achieving the minimum 1.5 percent total VMT reduction to reduce VMT per student to or below pre-project conditions (please refer to **Mitigation Measure TRA-2**).

MM TRA-2 Beginning the first year the mid-campus and/or high school are operating and open to new students, the School shall conduct annual monitoring for at least two years to ensure that TDM implementation meets the anticipated primary performance standard (project generated VMT per student). An annual monitoring memorandum shall be submitted to City staff. The carpooling program (including participation in the vanpool program provided by the School) shall demonstrate a 45 percent participation rate (based on the enrollment at the time of the monitoring survey) between students and staff to be considered. If the carpooling program or other strategies contained in the TDM are found not to be effectively reducing the VMT per student by the required 1.5 percent, then additional travel reducing measures from the TDM plan shall be identified and implemented to achieve the performance standard, subject to approval by the City. The School may propose new strategies in consultation with a licensed traffic engineer to further reduce annual project generated VMT per student if substantial evidence is provided to support the efficacy of the strategy. The proposed alternative strategies would be subject to approval by the City.

c) **Less-Than-Significant Impact.** The proposed project would not substantially increase hazards due to a design feature (for example, sharp curves or dangerous intersections) or incompatible uses. The site would continue to be accessed from Numa Watson Road and no changes to existing intersections would occur as part of the project. The new high school would have its own parking and vehicle drop off areas and would allow for adequate circulation. No sharp curves are shown on the site plan, and speeds on the site would remain at 15 miles per hour (mph) to ensure safety. This represents a less-than-significant impact.

d) **Less-Than-Significant Impact.** The improvements to Numa Watson Road, as well as the new roadways for internal circulation, would be built in accordance with all applicable City standards allowing safe and efficient ingress and egress of emergency vehicles. The applicant would work with the City to assure that emergency vehicle and firefighter access are adequately addressed in the final project design. This represents a less-than-significant impact.

Conclusion: The project would have a less-than-significant impact on transportation after incorporation of the mitigation measures identified above.

5.2.18 TRIBAL CULTURAL RESOURCES

Setting

California Assembly Bill (AB) 52, in effect since July 2015, provides CEQA protections for tribal cultural resources. All lead agencies approving projects under CEQA are required, if formally requested by a culturally affiliated California Native American Tribe, to consult with such tribe regarding the potential impact of a project on tribal cultural resources before releasing an environmental document. Under California Public Resources Code § 21074, tribal cultural resources include site features, places, cultural landscapes, sacred places, or objects that are of cultural value to a tribe and that are eligible for or listed on the California Register of Historical Resources (CRHR) or a local historic register, or that the lead agency has determined to be of significant tribal cultural value.

Consultation Overview

The City sent out consultation request letters to all tribal groups and contacts identified by the NAHC on August 30, 2024. The City received requests to consult on the proposed project from the Costanoan Rumsen Carmel Tribe (on September 11, 2024) and the Amah Mutsun Tribal Band of San Juan Bautista (on September 26, 2024). The City held a consultation call with the Costanoan Rumsen Carmel Tribe on September 25, 2024. The Costanoan Rumsen Carmel Tribe identified concerns with potential tribal resources being present on the site, including the potential for culturally modified trees. Culturally modified trees consist of split-trunk trees modified to grow in a “wishbone” shape, which were used by to catch animals. There are five (5) trees on the site that are known to be old enough to potentially be considered culturally modified trees. As of this writing, the Amah Mutsun Tribal Band of San Juan Bautista has not responded to City requests to schedule a consultation call for the proposed project.

CEQA Thresholds

ENVIRONMENTAL IMPACTS	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
TRIBAL CULTURAL RESOURCES. Would the project cause a substantial adverse change in the significance of a tribal cultural resources, defined in Public Resources Code § 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:					
a) Listed or eligible for listing in the California Register of Historic Resources, or in a local register of historical resources as defined in Public Resources Code § 5020.1(k), or				X	1, 2, 11
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 § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.		X			1, 2, 11

Explanation

a) **No Impact**. There are no historical structures on the site that are either listed or eligible for listing in the California Register of Historic Resources, or in a local register of historical resources as defined in Public Resources Code § 5020.1(k). No impact would occur.

b) **Less-Than-Significant Impact with Mitigation Incorporated**. As stated above, the City received requests for consultation on the proposed project from the Costanoan Rumsen Carmel Tribe and the Amah Mutsun Tribal Band of San Juan Bautista. The City met with representatives of the Costanoan Rumsen Carmel Tribe to discuss their concerns with the proposed project. The City has not been able to coordinate a meeting with the Amah Mutsun Tribal Band of San Juan Bautista as of this writing, but did receive a letter recommending tribal monitoring if the City has received “any positive cultural or historic sensitivity within 1 mile of the project area.” The Costanoan Rumsen Carmel Tribe identified concerns with potential tribal cultural resources being present on the site. The Costanoan Rumsen Carmel Tribe recommended a site visit by tribal representatives to evaluate on-site trees and verify they are not culturally modified. In addition, the Costanoan Rumsen Carmel Tribe recommended use of their tribal monitors to address any finds of tribal cultural resources specific to the ancestors of the Costanoan Rumsen Carmel Tribe. Based on the consultation efforts described above, the City has included the following mitigation measures to address potential impacts to tribal cultural resources.

Mitigation Measure

MM TCR-1 Prior to issuance of the building permit for Phase 1, the School shall retain a qualified archaeologist and/or qualified tribal cultural resource monitor to perform a site survey for culturally modified trees within the project site. The archaeologist and/or tribe shall make written recommendations to the City and

School for avoiding culturally modified trees within the project site during ground disturbing activities. The School shall add recommendations to construction plans and other construction documents and provide to the City for review and approval as part of the building permit approval process.

MM TCR-2 Prior to construction, the School shall retain a qualified archaeologist and/or a tribal cultural resource monitor to provide monitoring for tribal cultural resources. Tribal Monitoring shall be required during all ground disturbing activities associated with the proposed project. Tribal Monitors would have the authority to halt work within 50 feet of a potential find until they have evaluated the potential find to be a tribal cultural resource under CEQA.

If the monitor determines that any cultural resources exposed during construction constitute a historical resource and/or unique archaeological resource or tribal cultural resource under CEQA, he/she shall notify the City of Seaside and other appropriate parties of the evaluation. Tribal monitors shall either review and provide edits to mitigation measures proposed by the project archaeologist or suggest alternate mitigation measures to reduce impacts to tribal cultural resources to less than significant.

The tribal monitor shall contribute to and review the *Monitoring Closure Report* prepared by the project archaeologist and submitted to the City at the conclusion of ground disturbing construction activities.

Conclusion: The project would have a less-than-significant impact on tribal cultural resources with incorporation of the mitigation identified.

5.2.19 UTILITIES AND SERVICE SYSTEMS

Setting

Utilities and services are furnished to the project site by the following providers:

- Wastewater Treatment:
  - Collection System: Marina Coast Water District (MCWD)
  - Treatment Plant: Monterey One Water (M1W)
- Water Service: Marina Coast Water District (MCWD)
- Storm Drainage: City of Seaside
- Solid Waste: GreenWaste Recovery
- Natural Gas & Electricity: 3CE and PG&E

CEQA Thresholds

ENVIRONMENTAL IMPACTS		Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
UTILITIES AND SERVICE SYSTEMS. Would the project:						
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?		X			1, 2, 3
b)	Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?		X			1, 2, 18
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?			X		1, 2
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?			X		1, 2
e)	Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?			X		1, 2

Explanation

a) **Less-Than-Significant Impact with Mitigation Incorporated**. The project includes connections to existing utilities that serve the School, as well as site improvements to the storm drainage system on the project site. As outlined in *Section 5.2.10 Hydrology and Water Quality*, the project would include construction of storm drainage and storm capture improvements, including six bioretention basins and five flow-through planters. The proposed project does not include new uses or activities that would require unique wastewater treatment processes. Further, the project would be required to comply with the applicable City and RWQCB permits for stormwater. The project does not include any extension of natural gas infrastructure. The extension of water, electrical, wastewater, and other utility services are included as part of the proposed project and mitigation measures are identified throughout this document to reduce impacts to a less-than-significant level. No additional mitigation is required. This represents a less-than-significant impact with mitigation incorporated.

b) **Less-Than-Significant Impact with Mitigation Incorporated**. The expanded School would continue to be served by MCWD. The School's total potable water allocation from MCWD is 6.4 AFY (Sherwood 2023). The estimated existing indoor water use is approximately 2.69 AFY, and estimated existing outdoor use is approximately 2.6 AFY. The existing turf lawn is in the process of being converted to synthetic turf, which would reduce irrigation water use by 2.5 AFY compared to existing conditions. Therefore, the total water use would be 0.1 AFY for outdoor use on the existing campus. The water demand under existing, turf conversion, and project conditions is shown in **Figure 12**.

New Water Demand

Mid-Campus

The Mid-Campus component included under Phase 1 of the proposed project is anticipated to result in an additional 0.37 AFY of water demand compared to existing conditions. The water demand for the Mid-Campus component is primarily a result of new sinks and restrooms installed in classrooms and makerspaces (Sherwood 2023). This 0.37 AFY of increased water demand would fit within the existing MCWD water allocation of 6.4 AFY (**Figure 12**).

Landscaping

The proposed project would result in a 0.57 AFY water demand related to irrigation for landscaping. The proposed soccer field would consist of artificial turf that would not require irrigation. The project would also install a 2,800 sf irrigated turf lawn. The turf lawn would require substantial on-going irrigation, and the proposed project would install an irrigation system that meets current state and local water efficiency standards. As described, the total 0.57 AFY required for the proposed outdoor irrigation would be provided under the School's existing allocation from MCWD. This 0.57 AFY of increased water demand would fit within the existing MCWD water allocation of 6.4 AFY (**Figure 12**).

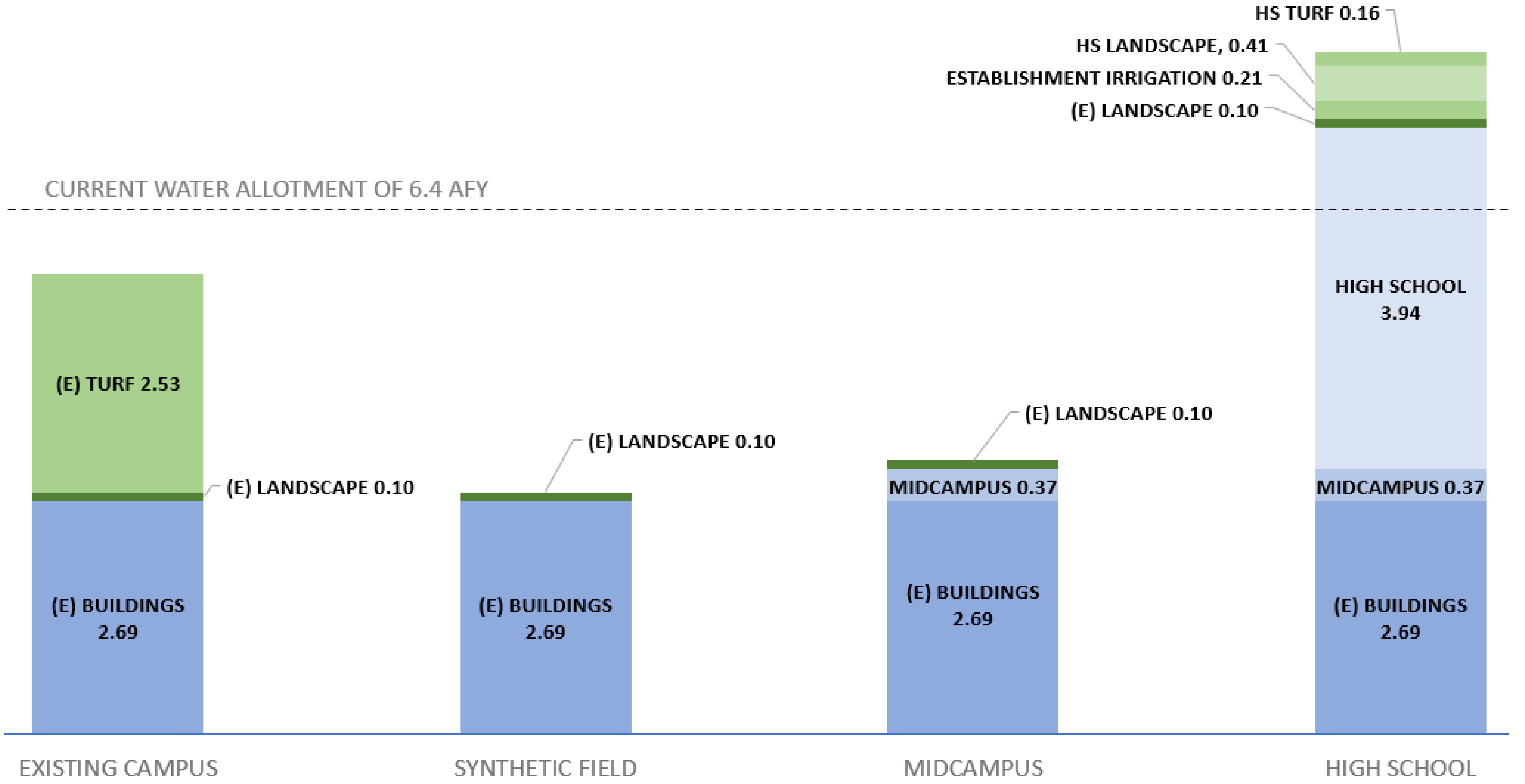
The project includes 4,400 sf of landscape with the intention of rewilding, which consists of planting native species that would not require further irrigation after a period of temporary establishment irrigation. Landscaping would be confined to the building perimeters and site perimeter. Establishment irrigation is anticipated to require 0.21 AFY and is not represented in the water calculations above as it is a temporary water use (anticipated to last one to three years). The School would prepare a temporary irrigation plan/program for the 0.21 AFY of establishment irrigation, to be reviewed by MCWD. This 0.21 AFY demand is temporary and is not considered under the project's water demand estimates (Sherwood 2023). Under this plan/program, the project can supply a hydrant meter (or other approved metering) and install temporary surface irrigation lines. The School can obtain a permit through the Seaside Fire Department for hydrant use if necessary upon application approval.

New High School

The water demand for the Phase 2 New High School component is projected to require 3.94 AFY, which would result in a total water demand for the project of 7.7 AFY (**Figure 12**). This is 1.3 AFY above the School's potable water allocation of 6.4 AFY (Sherwood 2023). This water demand is in exceedance of the water allocation provided by MCWD and would represent a potentially significant impact. This impact would be reduced to a less-than-significant level with incorporation of **Mitigation Measure UTL-1**.

Mitigation Measure

MM UTL-1 Prior to the issuance of a building permit for the New High School component of the project, the School shall demonstrate that they have acquired at least 1.3 AFY of potable water from a valid provider to cover the projected shortfall. The School shall provide the City with valid, binding documentation (such as a "Can-and-Will Serve" letter) from a water purveyor for review and approval.



Source: Sherwood, 2024

Title:

Water Demand Calculations

Date 12/6/2024

Scale N/A

Project 2024.49

Monterey | San Jose

Denise Duffy and Associates, Inc.

Environmental Consultants Resource Planners

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Figure
12

Conclusion

The School has sufficient remaining potable water allocation to cover the Phase 1 Mid-Campus component and the proposed landscaping components included in Phases 1 and 2 of the proposed project, which would require an additional water demand of 0.94 AFY (0.37 AFY for the Mid-Campus component and 0.57 AFY for landscaping) and a total water demand of 3.63 AFY. This increase in water demand would be provided within the School's existing water demand of 6.4 AFY. Therefore, construction of these components of the proposed project would not result in a potentially significant impact related to water supply.

While the water demand for the New High School would exceed the existing MCWD water allocation by 1.3 AFY, sufficient water supplies are expected to be available to serve the entire project (during normal, dry and multiple dry years) with incorporation of **Mitigation Measure UTL-1**. This represents a less-than-significant impact with incorporation of the mitigation identified.

c) **Less-Than-Significant Impact.** Wastewater from the School is collected by MCWD and carried to the M1W RTP. The RTP has an average dry weather design capacity of 29.6 million gallons per day (mgd) and a peak wet weather design capacity of 75.6 mgd. The RTP currently receives and treats approximately 18 mgd of wastewater, and therefore, has capacity to treat additional flows. While the proposed project would generate additional wastewater compared to existing conditions, this flow would be accommodated within the available treatment capacity of the M1W RTP. As a result, development of the project would have a less-than-significant impact on wastewater treatment capacity.

d, e) **Less-Than-Significant Impact**. The proposed project would generate solid waste during construction and operation. Any trash generated during construction would be hauled to the ReGen Monterey facility in Marina. The ReGen Monterey facility has a maximum remaining capacity of 48,560,000 cubic yards and a maximum daily throughput of 3,500 tons of solid waste (CalRecycle 2024a). Construction waste would be recycled or reused to the extent feasible to limit the amount of materials diverted to the ReGen facility. As a result, all waste disposal to landfills during construction would be minimized, and all waste would be properly disposed of in a safe, appropriate, and lawful manner in compliance with all applicable regulations of local (Monterey County's Integrated Waste Management Plan), state (California Integrated Waste Management Act of 1989 & California Green Building Standards), and federal regulations related to solid waste.

Operation of the proposed project would result in an increase solid waste generation compared to existing conditions. The project would generate approximately 3.55 pounds per day of solid waste per faculty member and 0.5 pounds per day of solid waste per student based on waste generation rates published by CalRecycle (CalRecycle 2024b). The project would add a maximum of 195 new students and 40 new faculty, resulting in an overall increase of 239.5 pounds of solid waste generated per day. This increase in solid waste would be accommodated by the existing overall and daily capacity of the ReGen Monterey facility. In addition, waste would be diverted to recycling and/or composting programs offered by ReGen to the extent feasible. Waste disposal during operation of the proposed project would be properly disposed of in a manner in compliance with all applicable regulations previously described. As a result, the proposed project would have a less-than-significant impact related to solid waste.

Conclusion: The project would have a less-than-significant impact on utilities and service systems with incorporation of the mitigation identified.

5.2.20 WILDFIRE

Setting

The project site is surrounded by residential and undeveloped land and is not located within a Moderate, High, or Very-High Fire Hazard Severity Zone in a State Responsibility Area for wildland fires, as designated by the California Department of Forestry and Fire Protection (CAL FIRE, Fire Hazard Severity Maps, 2024).

CEQA Thresholds

ENVIRONMENTAL IMPACTS	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
WILDFIRE. If located in or near State Responsibility Areas or lands classified as very high fire hazard severity zones, would the project:					
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?			X		1, 14
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?			X		1, 14
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?			X		1, 14
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?			X		1, 14

Explanation

a) **Less-Than-Significant Impact**. As stated above in *Section 5.2.9 Hazards and Hazardous Materials*, the proposed project would not create any barriers to emergency or other vehicle movement as it would not be part of vehicular transportation network used by emergency vehicles. Work within Numa Watson Road during construction would require traffic control and flagmen. Furthermore, the final design would incorporate all Fire Code requirements. The project would not substantially impair an adopted emergency response plan or emergency evacuation plan. This represents a less-than-significant impact.

b) **Less-than-Significant Impact**. The project site is located within a Local Responsibility Area. Fire response service to the project site is provided by the City. The project site is not located within an area of Moderate, High, or Very High Fire Hazard Severity within a Local Responsibility Area. However, the site is adjacent to vegetated areas that could be conducive to the spread of wildfire. The proposed project includes the extension of fire suppression lines and the addition of two fire hydrants to serve the expanded School. The proposed new buildings would be separated from vegetated areas by paved roadways that are not conducive to wildfire and would be built according to all applicable City setbacks. In addition, all buildings would be constructed in accordance with the 2022 California Fire Code. This represents a less-than-significant impact.

c) **Less-than-Significant Impact**. The proposed project is located adjacent to vegetated areas that could potentially be conducive to the spread of wildfire. The proposed project includes the extension of new utility infrastructure to connect the proposed project to the existing utility infrastructure serving the School. All new water (including potable water and fire suppression), wastewater, electrical, and communications infrastructure would be located underground. As a result, the proposed project would not include infrastructure that would exacerbate fire risk. The proposed project would also include two new fire hydrants to ensure that adequate fire suppression supplies are available in the event of a wildfire. All impacts related to extension of infrastructure included as part of the proposed project have been analyzed as part of this document and no additional mitigation is required. This represents a less-than-significant impact.

d) **Less-Than-Significant Impact**. The proposed project is located adjacent to vegetated areas that could be conducive to the spread of wildfire as described above. The project site is relatively flat and is unlikely to be impacted by slope instability as a result of post-fire conditions. The project site is not mapped as a landslide hazard zone (**Appendix D**). The project includes drainage improvements that would accommodate any drainage changes from off-site stormwater flows altered by post-fire conditions. As a result, the project would not expose people or structures to significant wildfire risks given its highly urban location away from natural areas susceptible to wildfire. This represents a less-than-significant impact.

Conclusion: The project would result in a less-than-significant impact related to wildfire.

5.2.21 MANDATORY FINDINGS OF SIGNIFICANCE

ENVIRONMENTAL IMPACTS	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
MANDATORY FINDINGS OF SIGNIFICANCE.					
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?		X			1-18

ENVIRONMENTAL IMPACTS	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Checklist Source(s)
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 the past projects, the effects of other current projects, and the effects of probable future projects.)		X			1-18
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?		X			1-18

Explanation

a) **Less-Than-Significant Impact with Mitigation Incorporated**. The proposed project would not 1) degrade the quality of environment, 2) substantially reduce the habitat of a fish or wildlife species, 3) cause a fish or wildlife population to drop below self-sustaining levels, 4) threaten or eliminate a plant or animal community, 5) reduce the number or restrict the range of a rare or endangered plant or animal, 6) eliminate important examples of major periods of California history or prehistory. The proposed project would result in temporary construction-related impacts that would be mitigated to a less-than-significant level through the incorporated of mitigation measures identified in this IS/MND. All operational impacts associated with the proposed project would also be reduced to less than significant though the incorporation and implementation of mitigation measures. This represents a less-than-significant impact with mitigation incorporated and no additional mitigation is necessary beyond the mitigation identified in each of the respective topical CEQA sections contained in this IS/MND.

b) **Less-Than-Significant Impact with Mitigation Incorporated**. The proposed project would not result in a cumulatively considerable adverse environmental effect. To determine whether a cumulative effect requires an Environmental Impact Report ("EIR"), the lead agency shall consider whether the impact is significant and whether the effects of the project are cumulatively considerable (CEQA Guidelines Section 15064(h)(1)). This IS/MND contains mitigation to ensure that all potential impacts are minimized to a less-than-significant level. CEQA allows a lead agency to determine that a project's contribution to a potential cumulative impact is not considerable and thus not significant when mitigation measures identified in the initial study will render those potential impacts less than considerable (CEQA Guidelines 15064(h)(2)). The project could result in impacts from additional light and glare, fugitive dust emissions, impacts to special-status species and habitat, tree removal, previously undiscovered archaeological resources, human remains interred outside of a formal cemetery, construction noise, population increases, increased demand on recreational facilities, increased demand on public services, increases in VMT, disturbance of tribal resources, and increased water use, wastewater and solid waste generation compared to existing conditions.

Mitigation measures and BMPs are identified discussed throughout this document to ensure that project-level impacts are reduced to a less than significant level. Project-level impacts from light and glare would be mitigated to a less than significant level with implementation of **Mitigation Measures AES-1** and **AES-2**. Project-level impacts from fugitive dust would be mitigated to a less than significant level with implementation of **Mitigation Measure AQ-1**. Project-level impacts to special-status species and habitat would be mitigated to a less than significant level with implementation of **Mitigation Measures BIO-1A** and **BIO-1H**. Project-level impacts from tree removal would be mitigated to a less than significant level with implementation of **Mitigation Measure BIO-2**. Project-level impacts due to potential disturbance of undiscovered archaeological resources would be mitigated to a less than significant level with implementation of **Mitigation Measure CR-1**. Project-level impacts from potential disturbance of human remains interred outside of a formal cemetery would be mitigated to a less than significant level with implementation of **Mitigation Measure CR-2**. Project-level impacts from construction-period noise would be mitigated to a less than significant level with implementation of **Mitigation Measure NSE-1**. Students for the expanded School are anticipated to originate within the surrounding Counties and would not result in a population increase. While increasing the faculty from 72 to 112 employees could result in a slight population increase, this would be accommodated within existing AMBAG population projections. The project would incrementally increase demand on public services compared to existing conditions. However, this project-level increase would not require new or remodeled public service facilities. The project would incrementally increase demand on recreational facilities compared to existing conditions. However, this project-level increase would not require new recreational facilities or result in the degradation of existing recreational facilities. Project-level impacts from increased VMT would be mitigated to a less than significant level with implementation of **Mitigation Measures TRA-1** and **TRA-2**. Project-level impacts from disturbance of tribal resources would be mitigated to a less than significant level with implementation of **Mitigation Measures TCR-1** and **TCR-2**. The project's increases in solid waste and wastewater generation would be accommodated within existing facilities and would not require the expansion of waste treatment facilities. Project-level impacts from exceeding potable water allocation would be mitigated to a less than significant level with implementation of **Mitigation Measure UTL-1**.

There are no nearby projects currently slated for approval that would combine with the proposed project to result in cumulative impacts due to light and glare, fugitive dust emissions, impacts to special-status species and habitat, tree removal, archaeological resources, human remains interred outside of a formal cemetery, construction noise, population increases, demand on recreational facilities, demand on public services, increases in VMT, disturbance of tribal resources, or increased water demand, wastewater generation, and solid waste generation. The project would therefore not be considered to have any impacts that are individually limited but considered cumulatively considerable. The project would have a less-than-significant cumulative impact with mitigation incorporated and no additional mitigation to address cumulative impacts is necessary beyond mitigation identified in each of the respective topical CEQA sections contained in this IS/MND.

c) **Less-Than-Significant Impact with Mitigation Incorporated**. The proposed project would not have a substantial adverse effect on human beings, either directly or indirectly. This IS/MND contains mitigation measures to ensure that all potential impacts would be minimized to a less-than-significant level. This represents a less-than-significant impact with mitigation incorporated and no additional mitigation is necessary beyond mitigation identified in each of the respective topical CEQA sections contained in this IS/MND.

Conclusion: The project would have a less-than-significant impact on the CEQA mandatory findings of significance with the incorporation of mitigation measures, compliance with City policies, compliance with applicable local, state, and federal regulations, and adherence to standard BMPs identified in this document.

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CHAPTER 6. DOCUMENT PREPARATION & REFERENCES

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CHECKLIST SOURCES

1. CEQA Guidelines and professional expertise of consultant
2. Project Plan and site review
3. City 2040 General Plan & Final EIR, 2024
4. City General Plan & Final EIR, 2004
5. Seaside Municipal Code
6. Caltrans Scenic Highway Viewer, 2024
7. Monterey County Important Farmlands Map, 2024
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15. FHWA Roadway Construction Noise Model, 2008
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Appendix A

Air Quality Modeling

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Chartwell School Detailed Report

Table of Contents

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Chartwell School
Construction Start Date	5/1/2025
Operational Year	2026
Lead Agency	City of Seaside
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.80
Precipitation (days)	32.6
Location	36.634955703889844, -121.80053372138804
County	Monterey
City	Seaside
Air District	Monterey Bay ARD
Air Basin	North Central Coast
TAZ	3263
EDFZ	6
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.26

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
High School	254	1000sqft	5.82	62,231	62,421	62,421	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-4*	Use Local and Sustainable Building Materials
Construction	C-12	Sweep Paved Roads
Energy	E-2	Require Energy Efficient Appliances
Energy	E-7*	Require Higher Efficacy Public Street and Area Lighting
Energy	E-10-B	Establish Onsite Renewable Energy Systems: Solar Power
Water	W-1	Use Reclaimed Non-Potable Water
Water	W-4	Require Low-Flow Water Fixtures
Water	W-5	Design Water-Efficient Landscapes

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.50	3.85	28.4	40.6	0.05	1.16	44.2	45.3	1.07	7.32	8.39	—	7,322	7,322	0.33	0.18	7.19	7,391
Mit.	4.50	3.85	28.4	40.6	0.05	1.16	44.2	45.3	1.07	7.32	8.39	—	7,322	7,322	0.33	0.18	7.19	7,391
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.49	3.84	28.6	40.1	0.05	1.16	44.2	45.3	1.07	7.32	8.39	—	7,240	7,240	0.35	0.18	0.19	7,302

Mit.	4.49	3.84	28.6	40.1	0.05	1.16	44.2	45.3	1.07	7.32	8.39	—	7,240	7,240	0.35	0.18	0.19	7,302
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.73	1.47	11.0	15.3	0.02	0.44	15.8	16.2	0.41	2.63	3.04	—	2,811	2,811	0.13	0.07	1.21	2,836
Mit.	1.73	1.47	11.0	15.3	0.02	0.44	15.8	16.2	0.41	2.63	3.04	—	2,811	2,811	0.13	0.07	1.21	2,836
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.31	0.27	2.00	2.80	< 0.005	0.08	2.88	2.96	0.07	0.48	0.56	—	465	465	0.02	0.01	0.20	470
Mit.	0.31	0.27	2.00	2.80	< 0.005	0.08	2.88	2.96	0.07	0.48	0.56	—	465	465	0.02	0.01	0.20	470
% Reduced	—	—	—	—	—	—	< 0.5%	< 0.5%	—	< 0.5%	< 0.5%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	4.50	3.85	28.4	40.6	0.05	1.16	44.2	45.3	1.07	7.32	8.39	—	7,322	7,322	0.33	0.18	7.19	7,391
2026	1.80	1.54	10.6	17.4	0.03	0.38	18.5	18.9	0.35	1.94	2.30	—	3,351	3,351	0.15	0.09	3.30	3,384
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	4.49	3.84	28.6	40.1	0.05	1.16	44.2	45.3	1.07	7.32	8.39	—	7,240	7,240	0.35	0.18	0.19	7,302
2026	1.79	1.53	10.7	17.2	0.03	0.38	18.5	18.9	0.35	1.94	2.30	—	3,311	3,311	0.16	0.09	0.09	3,340
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2025	1.73	1.47	11.0	15.3	0.02	0.44	15.8	16.2	0.41	2.63	3.04	—	2,811	2,811	0.13	0.07	1.21	2,836
2026	0.98	0.84	6.02	9.44	0.01	0.22	8.57	8.79	0.20	0.90	1.11	—	1,806	1,806	0.08	0.05	0.73	1,823
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.31	0.27	2.00	2.80	< 0.005	0.08	2.88	2.96	0.07	0.48	0.56	—	465	465	0.02	0.01	0.20	470
2026	0.18	0.15	1.10	1.72	< 0.005	0.04	1.56	1.60	0.04	0.17	0.20	—	299	299	0.01	0.01	0.12	302

2.3. Construction Emissions by Year, Mitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	4.50	3.85	28.4	40.6	0.05	1.16	44.2	45.3	1.07	7.32	8.39	—	7,322	7,322	0.33	0.18	7.19	7,391
2026	1.80	1.54	10.6	17.4	0.03	0.38	18.5	18.9	0.35	1.94	2.30	—	3,351	3,351	0.15	0.09	3.30	3,384
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	4.49	3.84	28.6	40.1	0.05	1.16	44.2	45.3	1.07	7.32	8.39	—	7,240	7,240	0.35	0.18	0.19	7,302
2026	1.79	1.53	10.7	17.2	0.03	0.38	18.5	18.9	0.35	1.94	2.30	—	3,311	3,311	0.16	0.09	0.09	3,340
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.73	1.47	11.0	15.3	0.02	0.44	15.8	16.2	0.41	2.63	3.04	—	2,811	2,811	0.13	0.07	1.21	2,836
2026	0.98	0.84	6.02	9.44	0.01	0.22	8.57	8.79	0.20	0.90	1.11	—	1,806	1,806	0.08	0.05	0.73	1,823
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.31	0.27	2.00	2.80	< 0.005	0.08	2.88	2.96	0.07	0.48	0.56	—	465	465	0.02	0.01	0.20	470
2026	0.18	0.15	1.10	1.72	< 0.005	0.04	1.56	1.60	0.04	0.17	0.20	—	299	299	0.01	0.01	0.12	302

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	16.8	15.8	11.1	96.0	0.21	0.17	17.7	17.9	0.16	4.50	4.66	178	21,150	21,328	18.8	0.98	79.3	22,170
Mit.	16.8	15.8	11.1	96.0	0.21	0.17	17.7	17.9	0.16	4.50	4.66	178	—	—	—	—	79.3	—
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	16.2	15.1	13.1	95.0	0.20	0.17	17.7	17.9	0.16	4.50	4.66	178	20,226	20,403	18.9	1.09	2.29	21,204
Mit.	16.2	15.1	13.1	95.0	0.20	0.17	17.7	17.9	0.16	4.50	4.66	178	—	—	—	—	2.29	—
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	12.7	11.9	9.28	69.4	0.15	0.13	13.1	13.2	0.12	3.33	3.45	178	15,323	15,501	18.6	0.79	26.0	16,227
Mit.	12.7	11.9	9.28	69.4	0.15	0.13	13.1	13.2	0.12	3.33	3.45	178	—	—	—	—	26.0	—
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.32	2.17	1.69	12.7	0.03	0.02	2.39	2.42	0.02	0.61	0.63	29.4	2,537	2,566	3.08	0.13	4.31	2,687
Mit.	2.32	2.17	1.69	12.7	0.03	0.02	2.39	2.42	0.02	0.61	0.63	29.4	—	—	—	—	4.31	—
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.5. Operations Emissions by Sector, Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	14.9	13.9	11.1	93.3	0.21	0.17	17.7	17.9	0.16	4.50	4.66	—	21,139	21,139	1.02	0.98	79.1	21,537
Area	1.91	1.87	0.02	2.71	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.1	11.1	< 0.005	< 0.005	—	11.2
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.16	0.16	< 0.005	< 0.005	—	0.16
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	622
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.24	0.24
Total	16.8	15.8	11.1	96.0	0.21	0.17	17.7	17.9	0.16	4.50	4.66	178	21,150	21,328	18.8	0.98	79.3	22,170
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	14.8	13.7	13.1	95.0	0.20	0.17	17.7	17.9	0.16	4.50	4.66	—	20,225	20,225	1.19	1.09	2.05	20,582
Area	1.43	1.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.16	0.16	< 0.005	< 0.005	—	0.16
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	622
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.24	0.24
Total	16.2	15.1	13.1	95.0	0.20	0.17	17.7	17.9	0.16	4.50	4.66	178	20,226	20,403	18.9	1.09	2.29	21,204
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	10.9	10.2	9.26	67.6	0.15	0.13	13.1	13.2	0.12	3.33	3.44	—	15,316	15,316	0.84	0.79	25.8	15,598
Area	1.76	1.73	0.02	1.85	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.62	7.62	< 0.005	< 0.005	—	7.65
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.16	0.16	< 0.005	< 0.005	—	0.16
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	622
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.24	0.24
Total	12.7	11.9	9.28	69.4	0.15	0.13	13.1	13.2	0.12	3.33	3.45	178	15,323	15,501	18.6	0.79	26.0	16,227
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	2.00	1.86	1.69	12.3	0.03	0.02	2.39	2.41	0.02	0.61	0.63	—	2,536	2,536	0.14	0.13	4.27	2,582
Area	0.32	0.32	< 0.005	0.34	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.26	1.26	< 0.005	< 0.005	—	1.27
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.03	0.03	< 0.005	< 0.005	—	0.03
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	—	29.4	0.00	29.4	2.94	0.00	—	103
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	2.32	2.17	1.69	12.7	0.03	0.02	2.39	2.42	0.02	0.61	0.63	29.4	2,537	2,566	3.08	0.13	4.31	2,687

2.6. Operations Emissions by Sector, Mitigated

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

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	14.9	13.9	11.1	93.3	0.21	0.17	17.7	17.9	0.16	4.50	4.66	—	21,139	21,139	1.02	0.98	79.1	21,537
Area	1.91	1.87	0.02	2.71	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.1	11.1	< 0.005	< 0.005	—	11.2
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.15	0.15	< 0.005	< 0.005	—	0.15
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	NaN	NaN	NaN	NaN	—	NaN
Waste	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	622
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.24	0.24
Total	16.8	15.8	11.1	96.0	0.21	0.17	17.7	17.9	0.16	4.50	4.66	178	NaN	NaN	NaN	NaN	79.3	NaN
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	14.8	13.7	13.1	95.0	0.20	0.17	17.7	17.9	0.16	4.50	4.66	—	20,225	20,225	1.19	1.09	2.05	20,582
Area	1.43	1.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.15	0.15	< 0.005	< 0.005	—	0.15
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	NaN	NaN	NaN	NaN	—	NaN
Waste	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	622

Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.24	0.24
Total	16.2	15.1	13.1	95.0	0.20	0.17	17.7	17.9	0.16	4.50	4.66	178	NaN	NaN	NaN	NaN	2.29	NaN
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	10.9	10.2	9.26	67.6	0.15	0.13	13.1	13.2	0.12	3.33	3.44	—	15,316	15,316	0.84	0.79	25.8	15,598
Area	1.76	1.73	0.02	1.85	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.62	7.62	< 0.005	< 0.005	—	7.65
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.15	0.15	< 0.005	< 0.005	—	0.15
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	NaN	NaN	NaN	NaN	—	NaN
Waste	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	622
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.24	0.24
Total	12.7	11.9	9.28	69.4	0.15	0.13	13.1	13.2	0.12	3.33	3.45	178	NaN	NaN	NaN	NaN	26.0	NaN
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.00	1.86	1.69	12.3	0.03	0.02	2.39	2.41	0.02	0.61	0.63	—	2,536	2,536	0.14	0.13	4.27	2,582
Area	0.32	0.32	< 0.005	0.34	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.26	1.26	< 0.005	< 0.005	—	1.27
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.03	0.03	< 0.005	< 0.005	—	0.03
Water	—	—	—	—	—	—	—	—	—	—	—	0.00	NaN	NaN	NaN	NaN	—	NaN
Waste	—	—	—	—	—	—	—	—	—	—	—	29.4	0.00	29.4	2.94	0.00	—	103
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	2.32	2.17	1.69	12.7	0.03	0.02	2.39	2.42	0.02	0.61	0.63	29.4	NaN	NaN	NaN	NaN	4.31	NaN

3. Construction Emissions Details

3.1. Mobilization, Grading (2025) - Unmitigated

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

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

Off-Roa Equipment	2.07	1.74	16.3	17.9	0.03	0.72	—	0.72	0.66	—	0.66	—	2,959	2,959	0.12	0.02	—	2,970
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	0.01	0.01	0.19	0.12	< 0.005	< 0.005	2.95	2.95	< 0.005	0.30	0.30	—	52.2	52.2	0.01	0.01	0.07	54.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.07	1.74	16.3	17.9	0.03	0.72	—	0.72	0.66	—	0.66	—	2,959	2,959	0.12	0.02	—	2,970
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	0.01	0.01	0.20	0.12	< 0.005	< 0.005	2.95	2.95	< 0.005	0.30	0.30	—	52.5	52.5	0.01	0.01	< 0.005	55.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.75	0.63	5.89	6.48	0.01	0.26	—	0.26	0.24	—	0.24	—	1,070	1,070	0.04	0.01	—	1,074
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.24	1.24	—	—	—	—	—	—	—
Onsite truck	0.01	< 0.005	0.07	0.04	< 0.005	< 0.005	0.97	0.97	< 0.005	0.10	0.10	—	18.9	18.9	< 0.005	< 0.005	0.01	19.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.12	1.07	1.18	< 0.005	0.05	—	0.05	0.04	—	0.04	—	177	177	0.01	< 0.005	—	178

Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.23	0.23	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.13	3.13	< 0.005	< 0.005	< 0.005	3.29
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.51	0.47	0.33	4.53	0.00	0.00	14.6	14.6	0.00	1.55	1.55	—	723	723	0.04	0.03	2.99	736
Vendor	0.02	0.01	0.29	0.14	< 0.005	< 0.005	0.94	0.94	< 0.005	0.10	0.11	—	197	197	0.01	0.03	0.51	206
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	20.6	20.6	< 0.005	< 0.005	0.04	21.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.50	0.47	0.43	4.30	0.00	0.00	14.6	14.6	0.00	1.55	1.55	—	681	681	0.05	0.03	0.08	692
Vendor	0.02	0.01	0.30	0.15	< 0.005	< 0.005	0.94	0.94	< 0.005	0.10	0.11	—	197	197	0.01	0.03	0.01	206
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	20.6	20.6	< 0.005	< 0.005	< 0.005	21.6
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.17	0.14	1.48	0.00	0.00	4.82	4.82	0.00	0.51	0.51	—	248	248	0.02	0.01	0.47	252
Vendor	0.01	< 0.005	0.11	0.05	< 0.005	< 0.005	0.31	0.31	< 0.005	0.03	0.04	—	71.3	71.3	< 0.005	0.01	0.08	74.5
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	7.44	7.44	< 0.005	< 0.005	0.01	7.81
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.27	0.00	0.00	0.88	0.88	0.00	0.09	0.09	—	41.0	41.0	< 0.005	< 0.005	0.08	41.7
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	11.8	11.8	< 0.005	< 0.005	0.01	12.3
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	1.23	1.23	< 0.005	< 0.005	< 0.005	1.29

3.2. Mobilization, Grading (2025) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.07	1.74	16.3	17.9	0.03	0.72	—	0.72	0.66	—	0.66	—	2,959	2,959	0.12	0.02	—	2,970
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	0.01	0.01	0.19	0.12	< 0.005	< 0.005	2.95	2.95	< 0.005	0.30	0.30	—	52.2	52.2	0.01	0.01	0.07	54.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.07	1.74	16.3	17.9	0.03	0.72	—	0.72	0.66	—	0.66	—	2,959	2,959	0.12	0.02	—	2,970
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	0.01	0.01	0.20	0.12	< 0.005	< 0.005	2.95	2.95	< 0.005	0.30	0.30	—	52.5	52.5	0.01	0.01	< 0.005	55.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.75	0.63	5.89	6.48	0.01	0.26	—	0.26	0.24	—	0.24	—	1,070	1,070	0.04	0.01	—	1,074
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.24	1.24	—	—	—	—	—	—	—

Onsite truck	0.01	< 0.005	0.07	0.04	< 0.005	< 0.005	0.97	0.97	< 0.005	0.10	0.10	—	18.9	18.9	< 0.005	< 0.005	0.01	19.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.12	1.07	1.18	< 0.005	0.05	—	0.05	0.04	—	0.04	—	177	177	0.01	< 0.005	—	178
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.23	0.23	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.13	3.13	< 0.005	< 0.005	< 0.005	3.29
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.51	0.47	0.33	4.53	0.00	0.00	14.6	14.6	0.00	1.55	1.55	—	723	723	0.04	0.03	2.99	736
Vendor	0.02	0.01	0.29	0.14	< 0.005	< 0.005	0.94	0.94	< 0.005	0.10	0.11	—	197	197	0.01	0.03	0.51	206
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	20.6	20.6	< 0.005	< 0.005	0.04	21.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.50	0.47	0.43	4.30	0.00	0.00	14.6	14.6	0.00	1.55	1.55	—	681	681	0.05	0.03	0.08	692
Vendor	0.02	0.01	0.30	0.15	< 0.005	< 0.005	0.94	0.94	< 0.005	0.10	0.11	—	197	197	0.01	0.03	0.01	206
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	—	20.6	20.6	< 0.005	< 0.005	< 0.005	21.6
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.17	0.14	1.48	0.00	0.00	4.82	4.82	0.00	0.51	0.51	—	248	248	0.02	0.01	0.47	252
Vendor	0.01	< 0.005	0.11	0.05	< 0.005	< 0.005	0.31	0.31	< 0.005	0.03	0.04	—	71.3	71.3	< 0.005	0.01	0.08	74.5
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	7.44	7.44	< 0.005	< 0.005	0.01	7.81
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.27	0.00	0.00	0.88	0.88	0.00	0.09	0.09	—	41.0	41.0	< 0.005	< 0.005	0.08	41.7

Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	11.8	11.8	< 0.005	< 0.005	0.01	12.3
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	1.23	1.23	< 0.005	< 0.005	< 0.005	1.29

3.3. Building Construction (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.01	0.01	0.19	0.12	< 0.005	< 0.005	2.95	2.95	< 0.005	0.30	0.30	—	52.2	52.2	0.01	0.01	0.07	54.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.01	0.01	0.20	0.12	< 0.005	< 0.005	2.95	2.95	< 0.005	0.30	0.30	—	52.5	52.5	0.01	0.01	< 0.005	55.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.47	4.37	5.46	0.01	0.18	—	0.18	0.17	—	0.17	—	1,004	1,004	0.04	0.01	—	1,008
Onsite truck	0.01	< 0.005	0.08	0.05	< 0.005	< 0.005	1.13	1.13	< 0.005	0.11	0.11	—	21.9	21.9	< 0.005	< 0.005	0.01	23.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.10	0.09	0.80	1.00	< 0.005	0.03	—	0.03	0.03	—	0.03	—	166	166	0.01	< 0.005	—	167
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.21	0.21	< 0.005	0.02	0.02	—	3.63	3.63	< 0.005	< 0.005	< 0.005	3.81
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.51	0.47	0.33	4.53	0.00	0.00	14.6	14.6	0.00	1.55	1.55	—	723	723	0.04	0.03	2.99	736
Vendor	0.02	0.01	0.29	0.14	< 0.005	< 0.005	0.94	0.94	< 0.005	0.10	0.11	—	197	197	0.01	0.03	0.51	206
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.50	0.47	0.43	4.30	0.00	0.00	14.6	14.6	0.00	1.55	1.55	—	681	681	0.05	0.03	0.08	692
Vendor	0.02	0.01	0.30	0.15	< 0.005	< 0.005	0.94	0.94	< 0.005	0.10	0.11	—	197	197	0.01	0.03	0.01	206
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.19	0.16	1.71	0.00	0.00	5.59	5.59	0.00	0.59	0.59	—	287	287	0.02	0.01	0.54	291
Vendor	0.01	< 0.005	0.12	0.06	< 0.005	< 0.005	0.36	0.36	< 0.005	0.04	0.04	—	82.6	82.6	< 0.005	0.01	0.09	86.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.31	0.00	0.00	1.02	1.02	0.00	0.11	0.11	—	47.5	47.5	< 0.005	< 0.005	0.09	48.2
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.07	0.07	< 0.005	0.01	0.01	—	13.7	13.7	< 0.005	< 0.005	0.02	14.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Building Construction (2025) - Mitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.01	0.01	0.19	0.12	< 0.005	< 0.005	2.95	2.95	< 0.005	0.30	0.30	—	52.2	52.2	0.01	0.01	0.07	54.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.01	0.01	0.20	0.12	< 0.005	< 0.005	2.95	2.95	< 0.005	0.30	0.30	—	52.5	52.5	0.01	0.01	< 0.005	55.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.47	4.37	5.46	0.01	0.18	—	0.18	0.17	—	0.17	—	1,004	1,004	0.04	0.01	—	1,008
Onsite truck	0.01	< 0.005	0.08	0.05	< 0.005	< 0.005	1.13	1.13	< 0.005	0.11	0.11	—	21.9	21.9	< 0.005	< 0.005	0.01	23.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.80	1.00	< 0.005	0.03	—	0.03	0.03	—	0.03	—	166	166	0.01	< 0.005	—	167
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.21	0.21	< 0.005	0.02	0.02	—	3.63	3.63	< 0.005	< 0.005	< 0.005	3.81
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.51	0.47	0.33	4.53	0.00	0.00	14.6	14.6	0.00	1.55	1.55	—	723	723	0.04	0.03	2.99	736
Vendor	0.02	0.01	0.29	0.14	< 0.005	< 0.005	0.94	0.94	< 0.005	0.10	0.11	—	197	197	0.01	0.03	0.51	206
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.50	0.47	0.43	4.30	0.00	0.00	14.6	14.6	0.00	1.55	1.55	—	681	681	0.05	0.03	0.08	692
Vendor	0.02	0.01	0.30	0.15	< 0.005	< 0.005	0.94	0.94	< 0.005	0.10	0.11	—	197	197	0.01	0.03	0.01	206
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.19	0.16	1.71	0.00	0.00	5.59	5.59	0.00	0.59	0.59	—	287	287	0.02	0.01	0.54	291
Vendor	0.01	< 0.005	0.12	0.06	< 0.005	< 0.005	0.36	0.36	< 0.005	0.04	0.04	—	82.6	82.6	< 0.005	0.01	0.09	86.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.31	0.00	0.00	1.02	1.02	0.00	0.11	0.11	—	47.5	47.5	< 0.005	< 0.005	0.09	48.2
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.07	0.07	< 0.005	0.01	0.01	—	13.7	13.7	< 0.005	< 0.005	0.02	14.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405

Onsite truck	0.01	0.01	0.18	0.12	< 0.005	< 0.005	2.95	2.95	< 0.005	0.30	0.30	—	51.1	51.1	0.01	0.01	0.07	53.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.01	0.01	0.20	0.12	< 0.005	< 0.005	2.95	2.95	< 0.005	0.30	0.30	—	51.5	51.5	0.01	0.01	< 0.005	54.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.61	0.51	4.71	6.19	0.01	0.18	—	0.18	0.17	—	0.17	—	1,145	1,145	0.05	0.01	—	1,149
Onsite truck	0.01	< 0.005	0.09	0.06	< 0.005	< 0.005	1.28	1.28	< 0.005	0.13	0.13	—	24.5	24.5	< 0.005	< 0.005	0.01	25.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.86	1.13	< 0.005	0.03	—	0.03	0.03	—	0.03	—	190	190	0.01	< 0.005	—	190
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.23	0.23	< 0.005	0.02	0.02	—	4.05	4.05	< 0.005	< 0.005	< 0.005	4.26
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.48	0.46	0.30	4.23	0.00	0.00	14.6	14.6	0.00	1.55	1.55	—	709	709	0.04	0.03	2.77	722
Vendor	0.02	0.01	0.28	0.13	< 0.005	< 0.005	0.94	0.94	< 0.005	0.10	0.11	—	193	193	0.01	0.03	0.47	203
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.48	0.45	0.38	4.01	0.00	0.00	14.6	14.6	0.00	1.55	1.55	—	669	669	0.05	0.03	0.07	679
Vendor	0.02	0.01	0.29	0.14	< 0.005	< 0.005	0.94	0.94	< 0.005	0.10	0.11	—	194	194	0.01	0.03	0.01	202
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.21	0.17	1.83	0.00	0.00	6.37	6.37	0.00	0.68	0.68	—	321	321	0.02	0.01	0.57	326
Vendor	0.01	< 0.005	0.14	0.06	< 0.005	< 0.005	0.41	0.41	< 0.005	0.05	0.05	—	92.4	92.4	< 0.005	0.01	0.10	96.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.33	0.00	0.00	1.16	1.16	0.00	0.12	0.12	—	53.1	53.1	< 0.005	< 0.005	0.09	54.0
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.07	0.07	< 0.005	0.01	0.01	—	15.3	15.3	< 0.005	< 0.005	0.02	16.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Building Construction (2026) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.01	0.01	0.18	0.12	< 0.005	< 0.005	2.95	2.95	< 0.005	0.30	0.30	—	51.1	51.1	0.01	0.01	0.07	53.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.01	0.01	0.20	0.12	< 0.005	< 0.005	2.95	2.95	< 0.005	0.30	0.30	—	51.5	51.5	0.01	0.01	< 0.005	54.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.61	0.51	4.71	6.19	0.01	0.18	—	0.18	0.17	—	0.17	—	1,145	1,145	0.05	0.01	—	1,149
Onsite truck	0.01	< 0.005	0.09	0.06	< 0.005	< 0.005	1.28	1.28	< 0.005	0.13	0.13	—	24.5	24.5	< 0.005	< 0.005	0.01	25.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.86	1.13	< 0.005	0.03	—	0.03	0.03	—	0.03	—	190	190	0.01	< 0.005	—	190
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.23	0.23	< 0.005	0.02	0.02	—	4.05	4.05	< 0.005	< 0.005	< 0.005	4.26
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.48	0.46	0.30	4.23	0.00	0.00	14.6	14.6	0.00	1.55	1.55	—	709	709	0.04	0.03	2.77	722
Vendor	0.02	0.01	0.28	0.13	< 0.005	< 0.005	0.94	0.94	< 0.005	0.10	0.11	—	193	193	0.01	0.03	0.47	203
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.48	0.45	0.38	4.01	0.00	0.00	14.6	14.6	0.00	1.55	1.55	—	669	669	0.05	0.03	0.07	679
Vendor	0.02	0.01	0.29	0.14	< 0.005	< 0.005	0.94	0.94	< 0.005	0.10	0.11	—	194	194	0.01	0.03	0.01	202
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.21	0.17	1.83	0.00	0.00	6.37	6.37	0.00	0.68	0.68	—	321	321	0.02	0.01	0.57	326
Vendor	0.01	< 0.005	0.14	0.06	< 0.005	< 0.005	0.41	0.41	< 0.005	0.05	0.05	—	92.4	92.4	< 0.005	0.01	0.10	96.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.33	0.00	0.00	1.16	1.16	0.00	0.12	0.12	—	53.1	53.1	< 0.005	< 0.005	0.09	54.0
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.07	0.07	< 0.005	0.01	0.01	—	15.3	15.3	< 0.005	< 0.005	0.02	16.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Paving (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.07	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.01	0.01	0.18	0.12	< 0.005	< 0.005	1.48	1.48	< 0.005	0.15	0.15	—	51.1	51.1	0.01	0.01	0.07	53.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.07	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.01	0.01	0.20	0.12	< 0.005	< 0.005	1.48	1.48	< 0.005	0.15	0.15	—	51.5	51.5	0.01	0.01	< 0.005	54.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.86	1.20	< 0.005	0.04	—	0.04	0.04	—	0.04	—	182	182	0.01	< 0.005	—	183
Paving	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.16	0.16	< 0.005	0.02	0.02	—	6.18	6.18	< 0.005	< 0.005	< 0.005	6.49
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.16	0.22	< 0.005	0.01	—	0.01	0.01	—	0.01	—	30.1	30.1	< 0.005	< 0.005	—	30.3
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	1.02	1.02	< 0.005	< 0.005	< 0.005	1.08
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.05	0.63	0.00	0.00	2.19	2.19	0.00	0.23	0.23	—	106	106	0.01	< 0.005	0.42	108
Vendor	0.02	0.01	0.28	0.13	< 0.005	< 0.005	0.94	0.94	< 0.005	0.10	0.11	—	193	193	0.01	0.03	0.47	203
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.60	0.00	0.00	2.19	2.19	0.00	0.23	0.23	—	100	100	0.01	< 0.005	0.01	102
Vendor	0.02	0.01	0.29	0.14	< 0.005	< 0.005	0.94	0.94	< 0.005	0.10	0.11	—	194	194	0.01	0.03	0.01	202
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.24	0.24	0.00	0.03	0.03	—	12.1	12.1	< 0.005	< 0.005	0.02	12.3
Vendor	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	0.10	0.10	< 0.005	0.01	0.01	—	23.3	23.3	< 0.005	< 0.005	0.02	24.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	0.04	0.04	0.00	< 0.005	< 0.005	—	2.01	2.01	< 0.005	< 0.005	< 0.005	2.04
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	3.86	3.86	< 0.005	< 0.005	< 0.005	4.04
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Paving (2026) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.07	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.01	0.01	0.18	0.12	< 0.005	< 0.005	1.48	1.48	< 0.005	0.15	0.15	—	51.1	51.1	0.01	0.01	0.07	53.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.07	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.01	0.01	0.20	0.12	< 0.005	< 0.005	1.48	1.48	< 0.005	0.15	0.15	—	51.5	51.5	0.01	0.01	< 0.005	54.1

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.86	1.20	< 0.005	0.04	—	0.04	0.04	—	0.04	—	182	182	0.01	< 0.005	—	183
Paving	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.16	0.16	< 0.005	0.02	0.02	—	6.18	6.18	< 0.005	< 0.005	< 0.005	6.49
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.16	0.22	< 0.005	0.01	—	0.01	0.01	—	0.01	—	30.1	30.1	< 0.005	< 0.005	—	30.3
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	1.02	1.02	< 0.005	< 0.005	< 0.005	1.08
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.05	0.63	0.00	0.00	2.19	2.19	0.00	0.23	0.23	—	106	106	0.01	< 0.005	0.42	108
Vendor	0.02	0.01	0.28	0.13	< 0.005	< 0.005	0.94	0.94	< 0.005	0.10	0.11	—	193	193	0.01	0.03	0.47	203
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.60	0.00	0.00	2.19	2.19	0.00	0.23	0.23	—	100	100	0.01	< 0.005	0.01	102
Vendor	0.02	0.01	0.29	0.14	< 0.005	< 0.005	0.94	0.94	< 0.005	0.10	0.11	—	194	194	0.01	0.03	0.01	202
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.24	0.24	0.00	0.03	0.03	—	12.1	12.1	< 0.005	< 0.005	0.02	12.3
Vendor	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	0.10	0.10	< 0.005	0.01	0.01	—	23.3	23.3	< 0.005	< 0.005	0.02	24.4

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	0.04	0.04	0.00	< 0.005	< 0.005	—	2.01	2.01	< 0.005	< 0.005	< 0.005	2.04
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	3.86	3.86	< 0.005	< 0.005	< 0.005	4.04
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	14.9	13.9	11.1	93.3	0.21	0.17	17.7	17.9	0.16	4.50	4.66	—	21,139	21,139	1.02	0.98	79.1	21,537
Total	14.9	13.9	11.1	93.3	0.21	0.17	17.7	17.9	0.16	4.50	4.66	—	21,139	21,139	1.02	0.98	79.1	21,537
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	14.8	13.7	13.1	95.0	0.20	0.17	17.7	17.9	0.16	4.50	4.66	—	20,225	20,225	1.19	1.09	2.05	20,582
Total	14.8	13.7	13.1	95.0	0.20	0.17	17.7	17.9	0.16	4.50	4.66	—	20,225	20,225	1.19	1.09	2.05	20,582
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	2.00	1.86	1.69	12.3	0.03	0.02	2.39	2.41	0.02	0.61	0.63	—	2,536	2,536	0.14	0.13	4.27	2,582
Total	2.00	1.86	1.69	12.3	0.03	0.02	2.39	2.41	0.02	0.61	0.63	—	2,536	2,536	0.14	0.13	4.27	2,582

4.1.2. Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	14.9	13.9	11.1	93.3	0.21	0.17	17.7	17.9	0.16	4.50	4.66	—	21,139	21,139	1.02	0.98	79.1	21,537
Total	14.9	13.9	11.1	93.3	0.21	0.17	17.7	17.9	0.16	4.50	4.66	—	21,139	21,139	1.02	0.98	79.1	21,537
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	14.8	13.7	13.1	95.0	0.20	0.17	17.7	17.9	0.16	4.50	4.66	—	20,225	20,225	1.19	1.09	2.05	20,582
Total	14.8	13.7	13.1	95.0	0.20	0.17	17.7	17.9	0.16	4.50	4.66	—	20,225	20,225	1.19	1.09	2.05	20,582
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	2.00	1.86	1.69	12.3	0.03	0.02	2.39	2.41	0.02	0.61	0.63	—	2,536	2,536	0.14	0.13	4.27	2,582
Total	2.00	1.86	1.69	12.3	0.03	0.02	2.39	2.41	0.02	0.61	0.63	—	2,536	2,536	0.14	0.13	4.27	2,582

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16	< 0.005	< 0.005	—	0.16

Total	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16	< 0.005	< 0.005	—	0.16
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16	< 0.005	< 0.005	—	0.16
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16	< 0.005	< 0.005	—	0.16
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03	< 0.005	< 0.005	—	0.03
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03	< 0.005	< 0.005	—	0.03

4.2.2. Electricity Emissions By Land Use - Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	0.15	0.15	< 0.005	< 0.005	—	0.15
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.15	0.15	< 0.005	< 0.005	—	0.15
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	0.15	0.15	< 0.005	< 0.005	—	0.15
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.15	0.15	< 0.005	< 0.005	—	0.15
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03	< 0.005	< 0.005	—	0.03
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03	< 0.005	< 0.005	—	0.03

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.2.4. Natural Gas Emissions By Land Use - Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.33	1.33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.10	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.48	0.44	0.02	2.71	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.1	11.1	< 0.005	< 0.005	—	11.2
Total	1.91	1.87	0.02	2.71	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.1	11.1	< 0.005	< 0.005	—	11.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consum Products	1.33	1.33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.10	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1.43	1.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.24	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.02	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.06	0.06	< 0.005	0.34	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.26	1.26	< 0.005	< 0.005	—	1.27
Total	0.32	0.32	< 0.005	0.34	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.26	1.26	< 0.005	< 0.005	—	1.27

4.3.2. Mitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.33	1.33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.10	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landsca Equipment	0.48	0.44	0.02	2.71	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.1	11.1	< 0.005	< 0.005	—	11.2
Total	1.91	1.87	0.02	2.71	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.1	11.1	< 0.005	< 0.005	—	11.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.33	1.33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.10	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1.43	1.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.24	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.02	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.06	0.06	< 0.005	0.34	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.26	1.26	< 0.005	< 0.005	—	1.27
Total	0.32	0.32	< 0.005	0.34	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.26	1.26	< 0.005	< 0.005	—	1.27

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

4.4.2. Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	0.00	NaN	NaN	NaN	NaN	—	NaN
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	NaN	NaN	NaN	NaN	—	NaN
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	0.00	NaN	NaN	NaN	NaN	—	NaN

Total	—	—	—	—	—	—	—	—	—	—	—	0.00	NaN	NaN	NaN	NaN	—	NaN
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	0.00	NaN	NaN	NaN	NaN	—	NaN
Total	—	—	—	—	—	—	—	—	—	—	—	0.00	NaN	NaN	NaN	NaN	—	NaN

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	622
Total	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	622
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	622
Total	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	622
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	29.4	0.00	29.4	2.94	0.00	—	103
Total	—	—	—	—	—	—	—	—	—	—	—	29.4	0.00	29.4	2.94	0.00	—	103

4.5.2. Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	622
Total	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	622
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	622
Total	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	622
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	29.4	0.00	29.4	2.94	0.00	—	103
Total	—	—	—	—	—	—	—	—	—	—	—	29.4	0.00	29.4	2.94	0.00	—	103

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.24	0.24
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.24	0.24
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.24	0.24
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.24	0.24
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04

4.6.2. Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.24	0.24
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.24	0.24
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.24	0.24
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.24	0.24
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

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

4.7.2. Mitigated

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

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

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

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

4.8.2. Mitigated

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

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

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

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

4.9.2. Mitigated

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

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

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

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

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

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

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

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

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

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

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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

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

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

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

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

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

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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

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

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

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Mobilization, Grading	Grading	5/1/2025	11/1/2025	5.00	132	Mobilization, Site Preparation and Grading
Building Construction	Building Construction	6/1/2025	9/1/2026	5.00	327	Construction and Site Restoration
Paving	Paving	9/2/2026	11/2/2026	5.00	44.0	Paving roadway, parking, pedestrian

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Mobilization, Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40

Mobilization, Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Mobilization, Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Mobilization, Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Mobilization, Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Mobilization, Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Mobilization, Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Mobilization, Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36

Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Mobilization, Grading	—	—	—	—
Mobilization, Grading	Worker	100	9.47	LDA,LDT1,LDT2
Mobilization, Grading	Vendor	10.0	6.03	HHDT,MHDT
Mobilization, Grading	Hauling	0.29	20.0	HHDT
Mobilization, Grading	Onsite truck	10.0	1.00	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	100	9.47	LDA,LDT1,LDT2
Building Construction	Vendor	10.0	6.03	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	10.0	1.00	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	9.47	LDA,LDT1,LDT2
Paving	Vendor	10.0	6.03	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	10.0	1.00	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Mobilization, Grading	—	—	—	—
Mobilization, Grading	Worker	100	9.47	LDA,LDT1,LDT2
Mobilization, Grading	Vendor	10.0	6.03	HHDT,MHDT
Mobilization, Grading	Hauling	0.29	20.0	HHDT

Mobilization, Grading	Onsite truck	10.0	1.00	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	100	9.47	LDA,LDT1,LDT2
Building Construction	Vendor	10.0	6.03	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	10.0	1.00	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	9.47	LDA,LDT1,LDT2
Paving	Vendor	10.0	6.03	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	10.0	1.00	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Mobilization, Grading	0.00	300	132	0.00	—
Paving	0.00	0.00	0.00	0.00	2.00

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
High School	2.00	60%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005
2026	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
High School	3,568	1,009	0.00	982,785	25,083	7,095	0.00	6,909,514

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
High School	3,568	1,009	0.00	982,785	25,083	7,095	0.00	6,909,514

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	93,347	31,116	—

5.10.3. Landscape Equipment

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

5.10.4. Landscape Equipment - Mitigated

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

5.11. Operational Energy Consumption

5.11.1. Unmitigated

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

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
High School	279	204	0.0330	0.0040	0.00

5.11.2. Mitigated

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

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)

High School	274	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
High School	1,404,418	185,735

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
High School	1,258,920	-1,702,837

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
High School	330	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
High School	330	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

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

High School	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
High School	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
High School	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
High School	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
High School	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
High School	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
High School	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
High School	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

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

5.15.2. Mitigated

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

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

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

5.16.2. Process Boilers

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

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

5.18.2.2. Mitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	6.01	annual days of extreme heat
Extreme Precipitation	1.90	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	31.4	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	10.6
AQ-PM	1.61
AQ-DPM	19.9
Drinking Water	57.2
Lead Risk Housing	49.4
Pesticides	81.8
Toxic Releases	5.65
Traffic	67.0
Effect Indicators	—
CleanUp Sites	83.2
Groundwater	83.7
Haz Waste Facilities/Generators	31.4
Impaired Water Bodies	94.6
Solid Waste	83.3
Sensitive Population	—
Asthma	72.3
Cardio-vascular	46.9
Low Birth Weights	14.2

Socioeconomic Factor Indicators	—
Education	30.4
Housing	69.2
Linguistic	5.64
Poverty	46.2
Unemployment	44.4

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	39.98460157
Employed	2.502245605
Median HI	44.62979597
Education	—
Bachelor's or higher	66.94469396
High school enrollment	100
Preschool enrollment	28.89772873
Transportation	—
Auto Access	89.83703323
Active commuting	81.23957398
Social	—
2-parent households	88.00205312
Voting	47.42717824
Neighborhood	—
Alcohol availability	93.28884897
Park access	57.64147312
Retail density	11.48466573

Supermarket access	16.50198896
Tree canopy	86.19273707
Housing	—
Homeownership	4.465546003
Housing habitability	57.52598486
Low-inc homeowner severe housing cost burden	99.12742205
Low-inc renter severe housing cost burden	64.37828821
Uncrowded housing	62.77428461
Health Outcomes	—
Insured adults	63.35172591
Arthritis	0.0
Asthma ER Admissions	33.1
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	85.9
Cognitively Disabled	66.4
Physically Disabled	71.5
Heart Attack ER Admissions	61.0
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	40.6
Physical Health Not Good	0.0
Stroke	0.0

Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	0.1
Elderly	96.9
English Speaking	63.4
Foreign-born	18.1
Outdoor Workers	80.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	87.5
Traffic Density	56.6
Traffic Access	0.0
Other Indices	—
Hardship	42.1
Other Decision Support	—
2016 Voting	43.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	51.0
Healthy Places Index Score for Project Location (b)	46.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Disturbance: 253,571 sf. Lot Acreage: 58.65 ac. Building to be constructed: 62,231 sf. Area to be Landscaped: 62,421 sf.
Construction: Construction Phases	No Demolition required (already demolished). Mobilization and site preparation: 6 months. Construction: 15 months, overlapping with Mobilization and Site preparation. Site restoration: 2-3 months, overlapping with Construction.
Construction: Trips and VMT	A maximum of 50-75 construction personnel may be present with an estimated 30-50 daily trips for workers and equipment over the course of 18 months.
Operations: Vehicle Data	Operation 6 days per week, 8 hours per day.
Construction: On-Road Fugitive Dust	Existing paved Numa Watson Road would be maintained and used. Paving includes roadway, parking, pedestrian.
Operations: Road Dust	Existing paved Numa Watson Road would be maintained and used. Paving includes roadway, parking, pedestrian.
Operations: Energy Use	New buildings would not include natural gas connections
Operations: Water and Waste Water	0.37 AFY (120,564.8 gals/year) for Mid Campus buildings, 3.94 AFY (1,283,853 gals/year) for High School buildings, 0.57 AFY (185,735 gals/year) for High School irrigation per Water Use Projections Memo Dec 2023.
Construction: Off-Road Equipment	N
Construction: Paving	88,999 sq ft of paving

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Appendix B

Biological Assessment

Chartwell School
Biological Resources Report

January 2023

Prepared for

Dustin Bogue
Chartwell School
2511 Numa Watson Rd.
Seaside, California 93955

Prepared by

Denise Duffy & Associates, Inc.
947 Cass Street, Suite 5
Monterey, California 93940

Contact: Matt Johnson
(831) 373 – 4341

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1. INTRODUCTION

1.1 Project Description

Denise Duffy & Associates, Inc. (DD&A) was contracted by Chartwell School to prepare this Biological Resources Report for the Chartwell School Expansion Project (project), located at 2511 Numma Watson Road in the City of Seaside (City) in Monterey County (County), California (**Figure 1**). The project includes expansion of the existing Chartwell School campus, including construction of associated infrastructure. Site plans for the proposed expansion were not provided prior to general reconnaissance surveys and the development of this document; therefore, this document assumes all areas within the designated survey area (**Figure 2**) could be impacted by the project. The survey area was developed by DD&A in coordination with the project proponent. The survey area is approximately 13.1 acres and is located southeast of the existing campus.

DD&A completed a biological assessment of the survey area to determine if sensitive biological resources are present or have the potential to occur within and in the vicinity of the site. This report describes the existing biological resources within and adjacent to the survey area, including any special-status species or sensitive habitats which occur or have the potential to occur within and adjacent to the site. This report also assesses the potential impacts to biological resources that may result from full buildout of the project, and recommends appropriate avoidance, minimization, and mitigation measures necessary to reduce those impacts to a less than significant level in accordance with the California Environmental Quality Act (CEQA). In addition, this report includes an overview of applicable federal, state, and local regulations; regulatory and responsible agencies with jurisdiction over sensitive resources within the survey area; and the relevant permits for biological resources that may be required for the project.

1.2 Summary of Results

The majority of the survey area is comprised of ruderal/developed habitat; however, disturbed coast live oak woodland and disturbed scrub habitats also occur within the survey area. Potential wetlands or other waters of the U.S. and/or state which may be subject to the jurisdiction of the Army Corps of Engineers (ACOE) and the Regional Water Quality Control Board (RWQCB) under Sections 404 and 401 of the CWA occur within the survey area. Several special-status species are known to or have the potential to occur within or adjacent to the survey area based on observations, presence of suitable habitat, and documented occurrences within the vicinity. All other species evaluated have a low potential to occur, are assumed unlikely to occur, or were determined not present within the survey area for the species-specific reasons presented in **Appendix A.** Additionally, trees within and adjacent to the survey area may provide suitable nesting habitat for protected avian species and all trees within the survey area are protected under the City's tree removal ordinances.

The following special-status plant and wildlife species are known or have the potential to occur on the survey area:

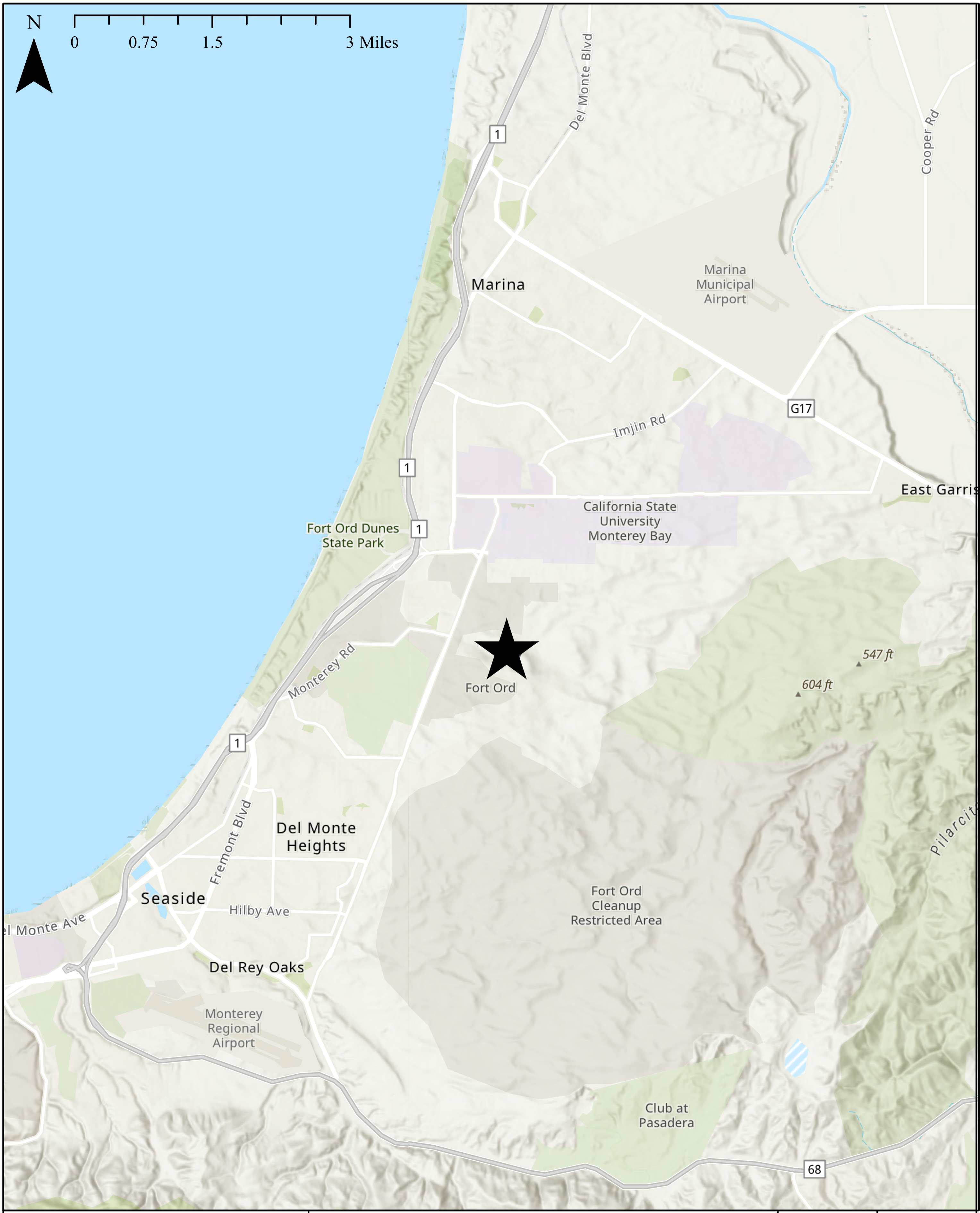
- Monterey dusky-footed woodrat (*Neotoma macrotis luciana)* – California Species of Special Concern (CSC)
- Northern California legless lizard (*Anniella pulchra)* – CSC
- Coast horned lizard (*Phrynosoma blainvillii)* – CSC

- Monterey spineflower (*Chorizanthe pungens* var. *pungens*) – federally Threatened and California Native Plant Society (CNPS) California Rare Plant Rank (CRPR) 1B
- City of Seaside Municipal Code Chapter 8.54

Avoidance, minimization, and mitigation measures are identified in this report to avoid or reduce potential impacts to these sensitive biological resources to a less than significant level under CEQA.

The following permits may be required dependent upon the presence of wetlands or other jurisdictional waters and the defined project impact area:

- CWA Section 404 and 401 Permits from the ACOE and RWQCB; and
- Lake and Streambed Alteration Agreement from the CDFW.



Denise Duffy & Associates, Inc.

Planning and Environmental Consulting

Project Vicinity

Date
12/22/2022

Scale
1:85,000

Figure
1

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Planning and Environmental Consulting

Survey Area

N

0 62.5 125 250 Feet

Date
12/22/2022

Scale
1:2,900

Figure
2

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2. METHODS

2.1 Personnel and Survey Methods

DD&A Assistant Environmental Scientist Kimiya Ghadiri conducted a survey of the survey area on September 1, 2022, to characterize habitats present within the survey area and to identify any special status plant or wildlife species or suitable habitat for these species within the site. Following the initial site visit the project proponent expanded the potential project site. DD&A Assistant Environmental Scientist Rikki Lougee conducted an additional survey on December 15, 2022, to evaluate the expanded survey area. As described above the survey area consists of all areas within the original survey area and the expanded survey area. Survey methods included walking the survey area to identify general habitat types and potential sensitive habitat types, conducting a reconnaissance-level wildlife habitat survey to identify any special-status wildlife species or suitable habitat for special-status plant and wildlife species occurring within the survey area, and conducting a focused survey for perennial or summer-blooming special-status plant species. The survey area was evaluated for botanical resources following the applicable guidelines outlined in *Guidelines for Conducting and Reporting Botanical Inventories for Federally listed, Proposed and Candidate Plants* (U.S. Fish and Wildlife Service [Service], 2000), *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (California Department of Fish and Wildlife [CDFW], 2018), and California Native Plant Society (CNPS) *Botanical Survey Guidelines* (CNPS, 2001).

Data collected during the survey were used to assess the environmental conditions of the survey area and its surroundings, evaluate environmental constraints within the survey area and the local vicinity, and provide a basis for recommendations to minimize and avoid impacts to biological resources.

2.2 Data Sources

Prior to the field survey, DD&A conducted a desktop literature review to determine the occurrence potential of special-status species and other sensitive biological resources within the survey area. Data sources include:

- Current agency status information from the Service and CDFW for species listed, proposed for listing, or candidates for listing as threatened or endangered under the Federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA), and those considered CDFW "species of special concern", including:
    - California Natural Diversity Database (CNDDB) occurrences reports from the Seaside, Marina, Monterey, Moss Landing, Prunedale, Salinas, and Spreckels quadrangles (**Appendix B**; CDFW, 2022a); and
    - The Service's Information for Planning and Consultation (IPaC) Resource List for the survey area (**Appendix C**; Service, 2022a);
- The CNPS *Inventory of Rare and Endangered Vascular Plants of California* (CNPS, 2022);
- The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA-NRCS, 2022);
- The Service's National Wetlands Inventory Wetlands Mapper (Service, 2022b),
- The National Hydrography Dataset (U.S. Geological Survey [USGS], 2022), and

2.2.1 Botany

Vegetation types identified in *A Manual of California Vegetation* (Sawyer et al., 2009) were utilized to determine if vegetation types identified as sensitive on CDFW's *California Natural Communities List* (CDFW, 2022b) are present within the survey area. Information regarding the distribution and habitats of local and state vascular plants was also reviewed (Howitt and Howell, 1964 and 1973; Munz and Keck, 1973; Baldwin et al., 2012; Matthews and Mitchell, 2015; Jepson Flora Project, 2022). All plants observed within the survey area during the evaluation were identified to species or intraspecific taxon necessary to eliminate them as being special-status species using keys and descriptions in *The Jepson Manual: Vascular Plants of California, Edition 2* (Baldwin et al., 2012) and *The Plants of Monterey County an Illustrated Field Key* (Matthews and Mitchell, 2015). Scientific nomenclature and common names for plant species identified within this document follow Matthews and Mitchell (2015). A full botanical inventory was not recorded for the survey area but the dominant species within each habitat are identified below. Dominant plant species are those which are more numerous than their competitors in an ecological community or makes up more of the biomass; generally, the species that are most abundant. Most ecological communities are defined by their dominant species. The California Invasive Plant Council (Cal-IPC) Inventory (Cal-IPC, 2022) was reviewed to determine if any invasive plant species were present within the survey area.

2.2.2 Wildlife

The following literature and data sources were reviewed: CDFW reports on special-status wildlife (Remsen, 1978; Williams, 1986; Thelander, 1994); California Wildlife Habitat Relationships Program species-habitat models (Zeiner et al., 1988 and 1990); and general wildlife references (Stebbins, 1972, 1985, and 2003).

2.3 Definitions

2.3.1 Sensitive Habitats

Sensitive habitats include riparian corridors, wetlands, habitats for legally protected species, areas of high biological diversity, areas supporting rare or special-status wildlife habitat, and unusual or regionally restricted vegetation types. Vegetation types considered sensitive include those listed on CDFW's *California Natural Communities List* (i.e., those habitats that are rare or endangered within the borders of California) (CDFW, 2022b), those that are occupied by species listed under the ESA or are critical habitat in accordance with the ESA, and those that are defined as Environmentally Sensitive Habitat Areas under the California Coastal Act. Specific habitats may also be identified as sensitive in city or county general plans or ordinances. Sensitive habitats are regulated under federal regulations (such as the Clean Water Act and Executive Order 11990 – Protection of Wetlands), state regulations (such as CEQA and the CDFW Streambed Alteration Program), or local ordinances or policies (such as city or county tree ordinances and general plan policies).

2.3.2 Special-Status Species

Special-status species are those plants and animals that have been formally listed or proposed for listing as endangered or threatened or are candidates for such listing under ESA or CESA. Listed species are afforded legal protection under ESA and CESA. Species that meet the definition of rare or endangered under the CEQA Guidelines Section 15380 are also considered special-status species. Animals on the CDFW's list of "species of special concern" (most of which are species whose breeding populations in California may face extirpation if current population trends continue) meet this definition and are typically provided management consideration through the CEQA process, although they are not legally protected under the

ESA or CESA. CDFW also includes some animal species that are not assigned any of the other status designations in the CNDDB "Special Animals" list; however, these species have no legal or protection status and are not analyzed in this document.

Plants listed as rare under the California Native Plant Protection Act (CNPPA) or included in CNPS CRPR (formerly known as CNPS Lists) 1A, 1B, 2A, and 2B are also treated as special-status species as they meet the definitions of Sections 2062 and 2067 of the CESA and in accordance with CEQA Guidelines Section 15380.[1] In general, CDFW requires that plant species on CRPR 1A (plants presumed extirpated in California and either rare or extinct elsewhere), CRPR 1B (plants rare, threatened, or endangered in California and elsewhere), CRPR 2A (plants presumed extirpated in California, but more common elsewhere); and CRPR 2B (plants rare, threatened, or endangered in California, but more common elsewhere) of the CNPS Inventory of Rare and Endangered Vascular Plants of California (CNPS, 2021) be fully considered during the preparation of environmental documents relating to CEQA. CNPS CRPR 4 species (plants of limited distribution) may, but generally do not, meet the definitions of Sections 2062 and 2067 of CESA, and are not typically considered in environmental documents relating to CEQA. While other species (i.e., CRPR 3 or 4 species) are sometimes found in database searches or within the literature, these do not meet the definitions of Section 2062 and 2067 of CESA and are not analyzed in this document.

Raptors (e.g., eagles, hawks, and owls) and their nests are protected under California Fish and Game Code Section 3503.5. Section 3503.5 states that it is "unlawful to take, possess, or destroy the nest or eggs of any such bird except otherwise provided by this code or any regulation adopted pursuant thereto." In addition, protected species under Fish and Game Code Section 3511 (birds), Section 4700 (mammals), Section 5515 (fish), and Section 5050 (reptiles and amphibians) are also considered special-status animal species. Species with no formal special-status designation but thought by experts to be rare or in serious decline may also be considered special-status animal species in some cases, depending on project-specific analysis and relevant, localized conservation needs or precedence.

2.4 Regulatory Setting

The following regulatory discussion describes the major federal, state, and local laws that may be applicable to the project.

2.4.1 Federal Regulations

Federal Endangered Species Act

Provisions of the ESA of 1973 (16 USC 1532 et seq., as amended) protect federally listed threatened or endangered species and their habitats from unlawful take. Listed species include those for which proposed and final rules have been published in the Federal Register. The ESA is administered by the Service or National Oceanic and Atmospheric Administration Marine Fisheries Service (NMFS). In general, the NMFS is responsible for the protection of ESA-listed marine species and anadromous fish, whereas other listed species are under Service jurisdiction.

Section 9 of ESA prohibits the take of any fish or wildlife species listed under ESA as endangered or threatened. Take, as defined by ESA, is "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Harm is defined as "any act that kills or injures the fish

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[1] CNPS initially created five CRPR to categorize degrees of concern; however, to better define and categorize rarity in California's flora, the CNPS Rare Plant Program and Rare Plant Program Committee have developed the new CRPR 2A and CRPR 2B.

or wildlife…including significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife." In addition, Section 9 prohibits removing, digging up, and maliciously damaging or destroying federally listed plants on sites under federal jurisdiction. Section 9 does not prohibit take of federally listed plants on sites not under federal jurisdiction. If there is the potential for incidental take of a federally listed fish or wildlife species, take of listed species can be authorized through either the Section 7 consultation process for federal actions or a Section 10 incidental take permit process for non-federal actions. Federal agency actions include activities that are on federal land, conducted by a federal agency, funded by a federal agency, or authorized by a federal agency (including issuance of federal permits).

Clean Water Act

The U.S. Army Corps of Engineers (ACOE) and U.S. Environmental Protection Agency (EPA) regulate discharge of dredged and fill material into waters of the U.S. under Section 404 of the Clean Water Act (CWA). Waters of the U.S. are defined broadly as waters susceptible to use in commerce (including waters subject to tides, interstate waters, and interstate wetlands) and other waters (such as interstate lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds) (33 CFR 328.3). Potential wetland areas are identified as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils conditions."

Under Section 401 of the CWA, any applicant receiving a Section 404 permit from the ACOE must also obtain a Section 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB). A Section 401 Water Quality Certification is issued when a project is demonstrated to comply with state water quality standards and other aquatic resource protection requirements.

2.4.2 State Regulations

California Native Plant Protection Act

The CNPPA of 1977 directed CDFW to carry out the legislature's intent to "preserve, protect and enhance rare and Endangered plants in the State." The CNPPA prohibits importing rare and Endangered plants into California, taking rare and Endangered plants, and selling rare and Endangered plants. The CESA and CNPPA authorized the Fish and Game Commission to designate endangered, threatened, and rare species and to regulate the taking of these species (§2050-2098, Fish and Game Code). Plants listed as rare under the CNPPA are not protected under CESA; however, these plants may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research.

California Fish and Game Code

Lake or Streambed Alteration*:* Sections 1600-1607 of the Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFW before beginning construction. If CDFW determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFW's jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider.

Birds. Section 3503 of the Fish and Game Code states that it is "unlawful to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.” Section 3503.5 prohibits the killing, possession, or destruction of any birds in the orders Falconiformes or Strigiformes (birds-of-prey). Section 3511 prohibits take or possession of fully protected birds. Section 3513 prohibits the take or possession of any migratory nongame birds designated under the federal Migratory Bird Treaty Act (MBTA). Section 3800 prohibits take of nongame birds.

Species of Special Concern. As noted above, the CDFW also maintains a list of wildlife “species of special concern.” Although these species have no legal status, the CDFW recommends considering these species during analysis of project impacts to protect declining populations and avoid the need to list them as endangered in the future.

2.4.3 Local Regulations

City of Seaside Municipal Code Chapter 8.54

City Municipal Code Chapter 8.54 (Trees) outlines the policies regarding tree removal and planting. The policies applicable to this project include Section 8.54.030 (Permit—Required for Certain Tree Removal, Alteration, or Planting) and Section 8.54.070 (Replacement of Trees). In accordance with Section 8.54.040, any person who wishes to remove, alter a tree, or plant a prohibited species of tree on private property in the City may apply in writing to do so. Trees are defined as woody perennial plants which usually but not necessarily have a single trunk and a height of ten feet or more or has a circumference of twenty inches measured at twenty-four inches above the ground. As outlined in Section 8.54.070, if removal of a tree from a site has been authorized on an undeveloped parcel, the developer shall replace the tree with a minimum five-gallon specimen tree of a species and in a location approved by the board of architectural review, if applicable, or other individual or body responsible for the approval of applicant's plans. This requirement may be modified or waived if it is determined that replacement on a one-for-one (1:1) basis constitutes an unreasonable hardship.

3. RESULTS

3.1 Habitat Types

A majority of the survey area is comprised of ruderal/developed habitat; however, disturbed coast live oak woodland and disturbed scrub habitats also occur within the survey area (**Figure 3**). The following section discusses these habitat types and their occurrence within the survey area.

3.1.1 Ruderal

- *A Manual of California Vegetation* classification(s): None
- *California Natural Communities List*: Not listed

Ruderal areas are those areas which have been subject to historic and ongoing disturbance by human activities and are devoid of vegetation or dominated by non-native and/or invasive weed species. Ruderal areas within the survey area include open sandy washes and landscaped areas. With the exception of landscaped areas, little to no vegetation is present within this habitat. Where vegetation occurs, dominant species include non-native species such as iceplant, thistles (*Carduus* sp., *Silybum* sp.), coastal heron's bill (*Erodium cicutarium*), and annual grasses (*Bromus* sp., *Avena* sp.). Scattered coast live oaks and Monterey cypress (*Hesperocyparis* macrocarpa) trees occur within this habitat throughout the survey area. Landscaped areas are dominated by Monterey cypress planted along roadsides with an understory dominated by non-native species. Approximately 6.5 acres of ruderal habitat is present within the survey area.

Landscaped and ruderal areas are considered to have low biological value as they are generally dominated by non-native plant species and consist of relatively low-quality habitat from a wildlife perspective. However, common wildlife species which do well in urbanized and disturbed areas, such as the America crow (*Corvus brachyrhynchos*), California ground squirrel (*Otospermophilus beecheyi*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), western scrub jay (*Aphelocoma californica*), European starling (*Sturnus vulgaris*), coast range fence lizard (*Sceloporus occidentalis bocourtii*), and rock pigeon (*Columba livia*) may forage within these areas. However, several special-status species have the potential to occur in open sandy areas of the survey area including Monterey spineflower, coast horned lizard, and California legless lizard.

3.1.2 Developed

- *A Manual of California Vegetation* classification(s): None
- *California Natural Communities List*: Not listed

Developed habitat within the survey area includes paved roads and parking areas. Generally, no vegetation is present within these areas, and they are considered to have little to no biological value. Approximately 3.2 acres of developed habitat is present within the survey area.

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Habitat Types

N
0 125 250 500 Feet

Date
12/22/2022

Scale
1:1,850

Figure
3

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3.1.3 Disturbed Coast Live Oak Woodland

- *A Manual of California Vegetation* classification(s): Coast live oak woodland (*Quercus agrifolia* woodland alliance)
- *California Natural Communities List*: Not sensitive

Coast live oak woodlands occur in the more mesic areas of coastal California from Sonoma County south into Baja California. They are dominated by open to nearly closed canopies of coast live oak. The oak woodland habitat within the survey area is highly disturbed due to the dominance of iceplant (*Carpobrotus edulis*) in the understory. Non-dominant plant species present within this habitat include coyote brush (*Baccharis pilularis*) and poison oak (*Toxicodendron diversilobum*). The canopy within the survey area is relatively open, dominated by coast live oak. Approximately 1.6 acres of disturbed coast live oak woodland is present within the survey area. The survey area is surrounded by dense coast live oak woodland habitat on all sides.

Coast live oak woodland is an important habitat to many wildlife species. Oaks provide nesting sites for many avian species and cover for a variety of mammals. Acorns provide an important food source for acorn woodpecker (*Melanerpes formicivorus*), western scrub jay (*Aphelocoma californica*), and black-tailed deer (*Odocoileus hemionus columbianus*). Other common wildlife species found in coast live oak woodland are Monterey dusky-footed woodrat, Nuttall's woodpecker (*Picoides nuttallii*), northern flicker (*Colaptes auratus*), bobcat (*Lynx rufus*), and coyote (*Canis latrans*).

3.1.4 Disturbed Scrub

- *A Manual of California Vegetation classification(s):* Coyote brush scrub (*Baccharis pilularis* shrubland alliance)
- *California Natural Communities List:* Not sensitive

The structure of plant associations that comprise scrub habitat typically consist of low to moderate-sized shrubs with sclerophyllous leaves, flexible branches, semi-woody stems growing from a woody base, and a shallow root system. The scrub habitat within the survey area is highly disturbed due to the presence of non-native species, primarily iceplant and jubata grass (*Cortaderia jubata*). Non-dominant species present within this habitat type include coyote brush, California sagebrush (*Artemisia californica*), and poison oak. The southeast portion of this habitat type is situated in a topographical bowl which is lower than the surrounding topography on the southern, eastern, and western sides and tapers into the existing topography on the northern side. This area is dominated by jubata grass and supports two clusters of arroyo willow (*Salix lasiolepis*) (**Figure 4**). The remaining vegetation within this area is consistent with the scrub vegetation described above. Approximately 1.9 acres of disturbed scrub habitat occur within the survey area (**Figure 3**).

Though vegetative productivity is lower in scrub habitat than in adjacent chaparral habitats associated with it, scrub habitat appears to support roughly the same number of vertebrate species (Gray, 1982; Stebbins, 1978). One woodrat nest was observed within scrub habitat during the December 2022 reconnaissance level survey. Additionally, the sandy soils and presence of leaf litter in this habitat may also support the Northern California legless lizard and coast horned lizard.

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Planning and Environmental Consulting

Arroyo Willow Patches

Date
12/22/2022

Scale
1:800

Figure
4

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3.2 Sensitive Habitats

The arroyo willow patches may be considered wetlands or other waters of the U.S. and/or state subject to the jurisdiction of the ACOE and the RWQCB under Sections 404 and 401 of the CWA. Arroyo willow is a facultative wetland plant, meaning it usually occurs in wetlands but may occur in non-wetlands. All other surrounding vegetation consists of upland plant species including iceplant, coyote brush, and California sagebrush. There was no surface water present at the time of the December 2022 reconnaissance-level survey. Additionally, this area does not contain bed or bank features and there was no apparent connection to or from other surface water sources. The NWI and NHD do not identify any water bodies within or adjacent to the survey area. Therefore, this area likely does not constitute jurisdictional wetlands or waters; however, a wetland delineation would be required to determine jurisdictional status.

No other sensitive habitat types are present within or adjacent to the survey area.

3.3 Special-Status Species

Published occurrence data within the survey area and surrounding quadrangles were evaluated to compile a table of special-status species known to occur in the vicinity of the survey area (see *Section 2. Methods*). Each of these species was evaluated for their likelihood to occur within and immediately adjacent to the survey area. The special-status species that are known to or have been determined to have a moderate or high potential to occur within or immediately adjacent to the survey area are discussed below. All other species, which are assumed unlikely to occur or to have a low potential to occur based on the species-specific reasons presented in **Appendix A**, are therefore unlikely to be impacted by the project, and are not discussed further.

3.3.1 Special-Status Plants

Monterey Spineflower

Monterey spineflower (*Chorizanthe pungens* var. *pungens*) is a federally Threatened and CNPS CRPR 1B species in the Polygonaceae family. It is a small, prostrate annual herb which blooms from April through July. Monterey spineflower typically occurs on open sandy or gravelly soils on relic dunes in coastal dune, coastal scrub, and maritime chaparral habitats, though it can also be associated with cismontane woodlands and valley and foothill grasslands, at elevations of three to 450 meters.

Suitable habitat for Monterey spineflower occurs in open areas of sandy habitat throughout the survey area. The CNDDB reports 34 occurrences of this species within the quadrangles reviewed, with one occurrence overlapping the northeastern portion of the survey area. This occurrence is mapped generally and encompasses most of the Former Fort Ord. In addition, DD&A biologists have observed this species throughout the adjacent former Fort Ord; therefore, this species has moderate potential to occur within the survey area.

3.3.2 Special-Status Wildlife

Monterey Dusky-Footed Woodrat

The Monterey dusky-footed woodrat *(Neotoma macrotis luciana*; MDFW) is a CDFW species of special concern. This is a subspecies of the dusky-footed woodrat (*Neotoma macrotis*), which is common to oak woodlands and other forest types throughout California. Dusky-footed woodrats are frequently found in forest habitats with moderate canopy cover and a moderate to dense understory, including riparian forests;

however, they may also be found in chaparral communities. Relatively large nests are constructed of grass, leaves, sticks, and feathers and are built in protected spots, such as rocky outcrops or dense brambles of blackberry and/or poison oak. Typical food sources for this species include leaves, flowers, nuts, berries, and truffles. Dusky-footed woodrats may be a significant food source for small- to medium-sized predators. Populations of this species may be limited by the availability of nest material. Within suitable habitat, nests are often found in close proximity to each other.

The CNDDB reports one occurrence of MDFW within the quadrangles reviewed, located approximately 8.5 miles east of the survey area from 2017. Two MDFW nests were observed within the survey area during the reconnaissance-level surveys conducted in September and December 2022 and several other nests were observed adjacent to the survey area. Therefore, this species is known to be present within and adjacent to the survey area.

Northern California Legless Lizard

The northern California legless lizard (*Anniella pulchra*) is a CDFW species of special concern. This fossorial (burrowing) species typically inhabits sandy or loose (friable) soils. Habitats known to support northern California legless lizard include (but are not limited to) coastal dunes, valley and foothill grasslands, chaparral, and coastal scrub at elevations from near sea level to approximately 1800 meters (6000 feet). The northern California legless lizard forages on invertebrates beneath the leaf litter or duff layer at the base of bushes and trees or under wood, rocks, and slash in appropriate habitats. The diet of this species likely overlaps to some extent with that of juvenile alligator lizards and perhaps some other salamanders. This species may be preyed upon by alligator lizards, snakes, birds, and small mammals. Little is known about the specific habitat requirements for courtship and breeding; however, the mating season for this species is believed to begin late spring or early summer, with one to four live young born between September and November.

Suitable habitat for the northern California legless lizard is present within sandy soils of the survey area. The CNDDB reports 56 occurrences of this species within the quadrangles reviewed, the nearest located approximately two miles northwest of the survey area from 2009. Therefore, this species has moderate potential to occur within the survey area.

Coast Horned Lizard

The coast horned lizard (*Phrynosoma blainvillii*) is a CDFW species of special concern. Horned lizards occur in valley-foothill hardwood, conifer, and riparian habitats, as well as in pine-cypress, juniper, chaparral, and annual grass habitats. This species generally inhabits open country, especially sandy areas, washes, flood plains, and wind-blown deposits in a wide variety of habitats. Coast horned lizards rely on camouflage for protection and will often lay motionless when approached. Horned lizards often bask in the early morning on the ground or on elevated objects such as low boulders or rocks. Predators and extreme heat are avoided by burrowing into loose soil. Periods of inactivity and winter hibernation are spent burrowed into the soil or under surface objects. Little is known about the habitat requirements for breeding and egg-laying of this species. Prey species include ants, beetles, wasps, grasshoppers, flies, and caterpillars.

Suitable habitat for coast horned lizard is present within sandy soils of the survey area. The CNDDB reports five occurrences of this species within the quadrangles reviewed, the nearest located approximately three miles north of the survey area from 1992. In addition, DD&A biologists have observed this species throughout the adjacent former Fort Ord; therefore, this species has moderate potential to occur within the survey area.

Raptors and Other Protected Avian Species

Raptors, their nests, and other nesting birds are protected under California Fish and Game Code. While the life histories of these species vary, overlapping nesting and foraging similarities allow for their concurrent discussion. Most raptors are breeding residents throughout most of the wooded portions of the state. Stands of live oak, riparian deciduous, or other forest habitats, as well as open grasslands, are used most frequently for nesting. Breeding occurs February through September, with peak activity May through July. Prey for these species include small birds, small mammals, and some reptiles and amphibians. Many raptor species hunt in open woodland and habitat edges.

Various species of raptors and other nesting birds, such as red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus),* American kestrel (*Falco sparverius*), great horned owl (*Bubo virginianus*), and turkey vulture (*Cathartes aura*), have a potential to nest within any of the large trees present within and adjacent to the survey area.

3.4 Protected Trees

As described in *Section 2.4 Regulatory Setting*, the City Municipal Code Chapter 8.54 regulates the removal or damage of trees over ten feet or more or with a circumference of twenty inches or more within the city limits. Multiple trees within the survey area meet this criterion. Removal of these trees would require a tree removal permit from the City and replacement at a minimum ratio of 1:1.

4. IMPACTS AND MITIGATION

The following section describes potential impacts that may result from the project. Mitigation measures are recommended, as needed, to avoid, minimize, or mitigate impacts to sensitive biological resources to a less than significant level under CEQA.

Potential Impact 1. Special-status wildlife species including MDFW, coast horned lizard, California legless lizard, and nesting birds have the potential to occur within the survey area. Construction activities may result in direct mortality of individuals and/or loss of habitat for these species. This is a potentially significant impact that can be reduced to a less than significant level with implementation of the mitigation measures recommended below.

> ***Mitigation Measure 1a***. A qualified biologist will conduct an Employee Education Program for the construction crew prior to any construction activities. The qualified biologist will meet with the construction crew at the onset of construction at the survey area to educate the construction crew on the following: 1) the identification of special status species that may be present; 2) the specific mitigation measures that will be incorporated into the construction effort; 3) the general provisions and protections afforded; 4) the proper procedures if a special status species is encountered within the survey area to avoid impacts; and 5) how a biological monitor will examine the area and agree upon a method which will ensure the safety of the monitor during monitoring.
>
> ***Mitigation Measure 1b***. To avoid or minimize impacts to MDFW, the project applicant will retain a qualified biologist to conduct pre-construction surveys in suitable habitat proposed for construction. Surveys for MDFW nests will be conducted within three days prior to construction within the survey area. All MDFW nests identified will be flagged for avoidance. Nests that cannot be avoided will be manually deconstructed prior to land clearing activities to allow animals to escape harm. If a litter of young is found or suspected, nest material will be replaced, and the nest will be left alone for two to three weeks before a re-check to verify that young are capable of independent survival before proceeding with nest dismantling.
>
> ***Mitigation Measure 1c:*** A qualified biologist shall be on-site for all vegetation removal and initial ground disturbing activities. After ground disturbing and vegetation removal activities are complete, or earlier if deemed appropriate by the qualified biologist, the biologist shall designate a construction personnel as the construction monitor to oversee on-site compliance with all avoidance and minimization measures. The biologist shall ensure that the construction monitor receives sufficient training in the identification of special-status species which have the potential to occur within the survey area. The qualified biologist and the construction monitor shall be authorized to stop work to ensure that avoidance and minimization measures are implemented. The qualified biologist or the construction monitor shall complete a daily log summarizing activities and environmental compliance throughout the duration of the project.
>
> ***Mitigation Measure 1d:*** If northern California legless lizard or coast horned lizard are observed within the survey area during construction, they shall be allowed to move out of the site unimpeded and of their own volition. If this is not feasible, they shall be captured by a qualified biologist and relocated out of harm's way to the nearest suitable habitat at least 100 feet from the survey area. Work shall halt where the animal is until the animal has left or been removed from the survey area.

> ***Mitigation Measure 1e:*** To prevent inadvertent entrapment of animals during project construction, all excavated, steep-walled holes or trenches more than two feet deep will be covered at the close of each working day with plywood or similar materials. Alternatively earthen ramps with a slope no greater than 2:1 can be installed for all trenches that exceed two feet deep. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals.
>
> ***Mitigation Measure 1f:*** Only tightly woven fiber netting or similar material may be used for erosion control at the survey area. Coconut coir matting is an acceptable erosion control material. No plastic mono-filament matting will be used for erosion control, as this material may ensnare wildlife.
>
> ***Mitigation Measure 1g:*** All trash that may attract predators shall be properly contained, removed from the construction site, and disposed of on a weekly basis, at a minimum. Following construction, all trash and construction debris shall be removed from work areas.
>
> ***Mitigation Measure 1h***. Construction activities that may affect nesting raptors and other protected avian species can be timed to avoid the avian nesting season (February 1 through September 15). Specifically, vegetation and/or tree removal can be scheduled between September 16 and January 31. If this is not possible, pre-construction surveys for protected avian species shall be conducted by a qualified biologist within 15 days prior to the commencement of construction activities in all areas that may provide suitable nesting habitat that exist in or within 300 feet of the project boundary. If nesting birds are identified during pre-construction surveys, an appropriate buffer shall be imposed within which no construction activities or disturbance will take place (generally 300 feet in all directions). A qualified biologist shall be on-site during work re-initiation in the vicinity of the nest offset to ensure that the buffer is adequate and that the nest is not stressed and/or abandoned. No work shall proceed in the vicinity of an active nest until such time as all young are fledged, as determined by the qualified biologist, or until after September 1 (when young are assumed fledged).

Potential Impact 2: Monterey spineflower has the potential to occur within the survey area. Construction activities may result in direct mortality of individuals, if present within the site. This is a potentially significant impact that can be reduced to a less than significant level with implementation of the Mitigation Measure 2.

> ***Mitigation Measure 2***. Prior to ground-disturbing activities, the project proponent shall retain a qualified biologist to conduct a focused botanical survey of the survey area for Monterey spineflower. The survey shall be conducted during the appropriate blooming periods for this species, as determined by the biologist (approximately April or May), in areas that offer suitable habitat. If no Monterey spineflower populations are documented no further mitigation is required.
>
> If Monterey spineflower populations are documented, they shall be flagged for avoidance by a qualified biologist.
>
> If documented Monterey spineflower populations cannot be avoided the project proponent will develop a plan to collect seed or soil containing seedbank (dependent upon the construction schedule) from Monterey spineflower plants that will be impacted during construction for redistribution within a mitigation area. A Rare Plant Restoration Plan, prior to the start of construction on the component site upon which Monterey spineflower would be impacted, shall be

prepared and implemented by a qualified biologist. At a minimum, the project proponents will create and maintain suitable habitat using a 1:1 ratio and will monitor the area for a three-year period to ensure success of the restoration effort. The plan shall include, but is not limited to, the following:

a. A detailed description of on-site and/or off-site mitigation areas, salvage of seed and/or soil bank, plant salvage, seeding and planting specifications, including, if appropriate, increased planting ratio to ensure the applicable success ratio.

b. A description of a 3-year monitoring program, including specific methods of vegetation monitoring, data collection and analysis, restoration goals and objectives, success criteria, adaptive management if the criteria are not met, reporting protocols, and a funding mechanism.

Potential Impact 3: The City regulates the removal or damage of all protected trees within city limits, including the survey area; a tree removal permit would be required for damage to or removal of one or more protected trees. Multiple species of protected trees occur within and adjacent to the survey area. If the project would result in removal of protected trees, the project proponent would acquire a tree removal permit from the City prior to construction. Implementation of any measures required by the permit would ensure that potential impacts to protected trees are reduced to a less-than-significant level under CEQA. In addition, City requirements for tree protection ensure that protected trees removed are mitigated for by replanting at a 1:1 ratio (see *Section 2.4 Regulatory Setting*).

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APPENDIX A

Special Status Species Table

Special-Status Species Table

Seaside, Marina, Monterey, Moss Landing, Prunedale, Salinas, and Spreckels Quadrangles

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey area
MAMMALS			
Corynorhinus townsendii Townsend's big-eared bat	-- / CSC / --	Found primarily in rural settings from inland deserts to coastal redwoods, oak woodland of the inner Coast Ranges and Sierra foothills, and low to mid-elevation mixed coniferous-deciduous forests. Typically roost during the day in limestone caves, lava tubes, and mines, but can roost in buildings that offer suitable conditions. Night roosts are in more open settings and include bridges, rock crevices, and trees.	**Low** Poor quality foraging and night roost habitat present in the survey area. No maternity roosting habitat present within the survey area. The nearest CNDDB occurrence is approximately five miles east of the survey area from 2013.
Neotoma macrotis luciana **Monterey dusky-footed woodrat**	-- / CSC / --	Forest and oak woodland habitats of moderate canopy with moderate to dense understory. Also occurs in chaparral habitats.	**Present** Woodrat nests were observed within and adjacent to the survey area. The nearest CNDDB occurrence is approximately 8.5 miles east of the survey area from 2017.
Sorex ornatus salarius Monterey ornate shrew	-- / CSC / --	Mostly moist or riparian woodland habitats and within chaparral, grassland, and emergent wetland habitats where there is a thick duff or downed logs.	**Unlikely** No suitable habitat is present within the survey area. The nearest CNDDB occurrence is approximately 8.5 miles north of the survey area from 1939.
Taxidea taxus American badger	-- / CSC / --	Dry, open grasslands, fields, pastures savannas, and mountain meadows near timberline are preferred. The principal requirements seem to be sufficient food, friable soils, and relatively open, uncultivated grounds.	**Low** Poor quality habitat is present within the survey area. No burrows of suitable size were observed within the survey area. The nearest CNDDB occurrence is 2 miles north of the survey area from 1992.
BIRDS			
Agelaius tricolor Tricolored blackbird (nesting colony)	-- / ST&CSC / --	Nest in colonies in dense riparian vegetation, along rivers, lagoons, lakes, and ponds. Forages over grassland or aquatic habitats.	**Unlikely** No suitable habitat is present within the survey area. The nearest CNDDB occurrence is approximately 4.5 miles north of the survey area from 2001.

Species	**Status** (Service/CDFW/CNPS)	**General Habitat**	**Potential Occurrence within Survey area**
Asio flammeus Short-eared owl (nesting)	-- / CSC / --	Usually found in open areas with few trees, such as annual and perennial grasslands, prairies, meadows, dunes, irrigated lands, and saline and freshwater emergent marshes. Dense vegetation is required for roosting and nesting cover. This includes tall grasses, brush, ditches, and wetlands. Open, treeless areas containing elevated sites for perching, such as fence posts or small mounds, are also needed. Some individuals breed in northern California.	**Unlikely** No suitable habitat is present within the survey area. There is one CNNDB occurrence of this species within the quadrangles reviewed located approximately ten miles north of the survey area from 1989.
Athene cunicularia Burrowing owl (burrow sites & some wintering sites)	-- / CSC / --	Year-round resident of open, dry grassland and desert habitats, and in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats. Frequent open grasslands and shrublands with perches and burrows. Use rodent burrows (often California ground squirrel) for roosting and nesting cover. Pipes, culverts, and nest boxes may be substituted for burrows in areas where burrows are not available.	**Unlikely** No suitable habitat is present within the survey area. The nearest CNDDB occurrence is approximately three miles north of the survey area from 1965.
Brachyramphus marmoratus Marbled murrelet	FT / SE / --	Occur year-round in marine subtidal and pelagic habitats from the Oregon border to Point Sal. Partial to coastlines with stands of mature redwood and Douglas-fir. Requires dense mature forests of redwood and/or Douglas-fir for breeding and nesting.	**Unlikely** No suitable habitat is present within the survey area. There are no CNDDB occurrences of this species within the quadrangles reviewed.
Buteo regalis Ferruginous hawk (wintering)	-- / WL / --	An uncommon winter resident and migrant at lower elevations and open grasslands in the Modoc Plateau, Central Valley, and Coast Ranges and a fairly common winter resident of grassland and agricultural areas in southwestern California. Frequent open grasslands, sagebrush flats, desert scrub, low foothills surrounding valleys, and fringes of pinyon-juniper habitats. Does not breed in California.	**Unlikely** No suitable habitat is present within the survey area. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately five miles north of the survey area in 2004.
Charadrius alexandrinus nivosus Western snowy plover	FT / CSC / --	Sandy beaches on marine and estuarine shores, also salt pond levees and the shores of large alkali lakes. Requires sandy, gravelly or friable soil substrate for nesting.	**Unlikely** No suitable habitat within the survey area. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately 15 miles north of the survey area in 1986.
Coturnicops noveboracensis Yellow rail	-- / CSC / --	Wet meadows and coastal tidal marshes. Occurs year round in California, but in two primary seasonal roles: as a very local breeder in the northeastern interior and as a winter visitor (early Oct to mid-Apr) on the coast and in the Suisun Marsh region	**Unlikely** No suitable habitat is present within the survey area. The nearest CNDDB occurrence of this species within the quadrangles reviewed is located approximately nine miles east of the survey area in 2017.

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey area
Cypseloides niger Black swift	-- / CSC / --	Regularly nests in moist crevice or cave on sea cliffs above the surf, or on cliffs behind, or adjacent to, waterfalls in deep canyons. Forages widely over many habitats.	**Unlikely** No suitable habitat is present within the survey area. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately 20 miles southwest of the survey area in 1995.
Elanus leucurus White-tailed kite (nesting)	-- / CFP / --	Open groves, river valleys, marshes, and grasslands. Prefer such areas with low roosts (fences etc.). Nest in shrubs and trees adjacent to grasslands.	**Unlikely** Poor quality nesting and foraging habitat is present within the survey area. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately 15 miles north of the survey area in 2002.
Empidonax traillii extimus Southwestern willow flycatcher	FE / SE / --	Breeds in riparian habitat in areas ranging in elevation from sea level to over 2,600 meters. Builds nest in trees in densely vegetated areas. This species establishes nesting territories and builds, and forages in mosaics of relatively dense and expansive areas of trees and shrubs, near or adjacent to surface water or underlain by saturated soils. Not typically found nesting in areas without willows (*Salix sp*.), tamarisk (*Tamarix ramosissima*), or both.	**Unlikely** No suitable habitat is present within the survey area. There are no CNDDB occurrences of this species within the quadrangles reviewed.
Eremophila alpestris actia California horned lark	-- / WL / --	Variety of open habitats, usually where large trees and/or shrubs are absent. Found from grasslands along the coast to deserts at sea-level and alpine dwarf-shrub habitats are higher elevations. Builds open cup-like nests on the ground.	**Low** Low quality nesting and foraging habitat is present within the open ruderal area of the survey area. The nearest CNDDB occurrence is approximately 4 miles north the survey area from 2004.
Falco mexicanus Prairie falcon (nesting)	-- / WL / --	Associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas. Uses open terrain for foraging; nests in open terrain with canyons, cliffs, escarpments, and rock outcrops.	**Unlikely** No suitable habitat is present within the survey area. There is one CNDDB occurrence of this species within the quadrangles reviewed from 1997.
Falco peregrinus anatum American peregrine falcon (nesting)	-- / CFP / --	Forages for other birds over a variety of habitats. Breeds primarily on rocky cliffs.	**Unlikely** No suitable habitat is present within the survey area. There is one CNDDB occurrence of this species within the quadrangles reviewed from 2016.
Gymnogyps californianus California condor	FE / SE /--	Roosting sites in isolated rocky cliffs, rugged chaparral, and pine covered mountains 2000-6000 feet above sea level. Foraging area removed from nesting/roosting site (includes rangeland and coastal area - up to 19-mile commute one way). Nest sites in cliffs, crevices, potholes.	**Unlikely** No suitable habitat is present within the survey area. There are no CNDDB occurrences of this species within the quadrangles reviewed.

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey area
Laterallus jamaicensis coturniculus California black rail	-- / ST&CFP / --	Inhabits freshwater marshes, wet meadows & shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that does not fluctuate during the year & dense vegetation for nesting habitat.	**Unlikely** No suitable habitat is present within the survey area. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately ten miles southwest of the survey area in 2007.
Pelecanus occidentalis californicus California brown pelican	-- / CFP / --	Found in estuarine, marine subtidal, and marine pelagic waters along the California coast. Usually rests on water or inaccessible rocks, but also uses mudflats, sandy beaches, wharfs, and jetties.	**Unlikely** No suitable habitat is present within the survey area. There nearest CNDDB occurrence of this species within the quadrangles reviewed is located approximately 20 miles southwest of the survey area in 2009.
Rallus obsoletus obsoletus California Ridgway's rail	FE / SE&CFP / --	Salt and brackish marshes.	**Unlikely** No suitable habitat is present within the survey area. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately ten miles north of the survey area in 2005.
Riparia riparia Bank swallow (nesting)	-- / ST / --	Nest colonially in sand banks. Found near water; fields, marshes, streams, and lakes.	**Unlikely** No suitable habitat is present within the survey area. The nearest CNDDB occurrence is approximately 2 miles west the survey area from 2013.
Sterna antillarum browni California least tern	FE / SE / --	Prefers undisturbed nest sites on open, sandy/gravelly shores near shallow-water feeding areas in estuaries. Sea beaches, bays, large rivers, bars.	**Unlikely** No suitable habitat is present within the survey area. There are no CNDDB occurrences of this species within the quadrangles reviewed.
Vireo bellii pusillus Least Bell's Vireo	FE / SE / --	Riparian areas and drainages. Breed in willow riparian forest supporting a dense, shrubby understory. Oak woodland with a willow riparian understory is also used in some areas, and individuals sometimes enter adjacent chaparral, coastal sage scrub, or desert scrub habitats to forage.	**Unlikely** No suitable habitat is present within the survey area. There are no CNDDB occurrences of this species within the quadrangles reviewed.
REPTILES AND AMPHIBIANS			
Ambystoma californiense California tiger salamander	FT / ST /--	Annual grassland and grassy understory of valley-foothill hardwood habitats in central and northern California. Need underground refuges and vernal pools or other seasonal water sources.	**Low** No suitable upland habitat is present within the survey area, the closest suitable breeding habitat is over 1.24 miles from the survey area. Outside of the accepted dispersal distance for this species. The nearest CNDDB occurrence is approximately two miles east of the survey area from 2003.

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey area
Ambystoma macrodactylum croceum Santa Cruz long-toed salamander	FE / SE&CFP /--	Preferred habitats include ponderosa pine, montane hardwood-conifer, mixed conifer, montane riparian, red fir, and wet meadows. Occurs in a small number of localities in Santa Cruz and Monterey Counties. Adults spend the majority of the time in underground burrows and beneath objects. Larvae prefer shallow water with clumps of vegetation.	**Unlikely** No suitable habitat is present within the survey area. The survey area is south of the known dispersal range. The nearest CNDDB occurrence is approximately 03 miles north of the survey area from 2006.
Anniella pulchra **Northern California legless lizard**	-- / CSC / --	Requires moist, warm habitats with loose soil for burrowing and prostrate plant cover, often forages in leaf litter at plant bases; may be found on beaches, sandy washes, and in woodland, chaparral, and riparian areas.	**Moderate** Low quality habitat is present within the survey area. The nearest CNDDB occurrence is two miles northwest of the survey area from 2009.
Emys marmorata Western pond turtle	-- / CSC / --	Associated with permanent or nearly permanent water in a wide variety of habitats including streams, lakes, ponds, irrigation ditches, etc. Require basking sites such as partially submerged logs, rocks, mats of vegetation, or open banks.	**Unlikely** No suitable habitat is present within the survey area. The nearest CNDDB occurrence is approximately five miles north of the survey area from 1992.
Phrynosoma blainvillii **Coast horned lizard**	-- / CSC / --	Associated with open patches of sandy soils in washes, chaparral, scrub, and grasslands.	**Moderate** Suitable habitat is present within the survey area. The nearest CNDDB occurrence is 3 miles north of the survey area from 1992.
Rana boylii Foothill yellow-legged frog	-- / SE&CSC / --	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats, including hardwood, pine, and riparian forests, scrub, chaparral, and wet meadows. Rarely encountered far from permanent water.	**Unlikely** No suitable habitat is present within the survey area. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately ten miles south of the survey area in 1903.
Rana draytonii California red-legged frog	FT / CSC / --	Lowlands and foothills in or near permanent or late-season sources of deep water with dense, shrubby, or emergent riparian vegetation. During late summer or fall adults are known to utilize a variety of upland habitats with leaf litter or mammal burrows.	**Unlikely** No suitable breeding or upland habitat is present within the survey area. The survey area is outside of the known dispersal range of any known or potential breeding resources. The nearest CNDDB occurrence is approximately 6.5 miles south of the survey area from 2006.

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey area
Spea hammondii Western spadefoot	-- / CSC / --	Grasslands with shallow temporary pools are optimal habitats for the western spadefoot. Occur primarily in grassland habitats but can be found in valley and foothill woodlands. Vernal pools are essential for breeding and egg laying.	**Unlikely** Marginally suitable upland habitat is present within the survey area; however, no aquatic habitat is present. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately nine miles east of the survey area in 2019.
Taricha torosa Coast range newt (Monterey County south only)	-- / CSC / --	Occurs mainly in valley-foothill hardwood, valley-foothill hardwood-conifer, coastal scrub, and mixed chaparral but is known to occur in grasslands and mixed conifer types. Seek cover under rocks and logs, in mammal burrows, rock fissures, or man-made structures such as wells. Breed in intermittent ponds, streams, lakes, and reservoirs.	**Low** Poor quality upland habitat is present within the survey area. The nearest CNDDB occurrence is 9 miles east of the survey area from 2017.
Thamnophis hammondii Two-striped garter snake	-- / CSC / --	Associated with permanent or semi-permanent bodies of water bordered by dense vegetation in a variety of habitats from sea level to 2400m elevation.	**Unlikely** No suitable habitat is present within the survey area. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately 12 miles east of the survey area in 2001.
FISH			
Eucyclogobius newberryi Tidewater goby	FE / -- / --	Brackish water habitats, found in shallow lagoons and lower stream reaches. Tidewater gobies appear to be naturally absent (now and historically) from three large stretches of coastline where lagoons or estuaries are absent and steep topography or swift currents may prevent tidewater gobies from dispersing between adjacent localities. The southernmost large, natural gap occurs between the Salinas River in Monterey County and Arroyo del Oso in San Luis Obispo County.	**Not Present** No suitable habitat is present within the survey area. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately 14 miles north of the survey area in 2006.
Lavinia exilicauda harengus Monterey hitch (Pajaro/Salinas hitch)	-- / CSC / --	Found only within the Pajaro and Salinas River systems. Can occupy a wide variety of habitats, however, they are most abundant in lowland areas with large pools or small reservoirs that mimic such conditions. May be found in brackish water conditions within the Salinas River lagoon during the early summer months when the sandbar forms at the mouth of the river.	**Not Present** No suitable habitat is present within the survey area. There are two CNDDB occurrences within the quadrangles review mapped as non-specific locations along the length of the Salinas and Pajaro Rivers in 2020.
Oncorhynchus mykiss irideus Steelhead (south-central California coast DPS)	FT / -- / --	Cold headwaters, creeks, and small to large rivers and lakes; anadromous in coastal streams.	**Not Present** No suitable habitat is present within the survey area. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately nine miles south of the survey area in 2001.

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey area
Spirinchus thaleichthys Longfin smelt	FC / ST / --	Euryhaline, nektonic & anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefers salinities of 15-30 PPT, but can be found in completely freshwater to almost pure seawater.	**Not Present** No suitable habitat is present within the survey area. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately 15 miles north of the survey area in 2013.
INVERTEBRATES			
Bombus caliginosus Obscure bumble bee	-- / SC / --	Native to the West Coast of the United States. Occurs primarily along the coast in grassy prairies and meadows within the Coast Range. This species can nest both under and above ground. When nesting above ground the species may utilize abandoned bird nests. Found in areas that are relatively humid including areas that are frequently foggy.	**Unlikely** No suitable habitat is present within the survey area. The nearest CNDDB occurrence is 9 miles southwest of the survey area from 2015.
Bombus crotchii Crotch bumble bee	-- / SC / --	Occurs in open grassland and scrub at relatively warm and dry sites. Requires plants that bloom and provide adequate nectar and pollen throughout the colony's life cycle, which is from early February to late October. Generally nests underground, often in abandoned mammal burrows. Within California this species is known to occur in the Mediterranean, Pacific Coast, Western Desert, as well as Great Valley and adjacent foothill regions.	**Low** Poor quality habitat is present within the survey area. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately 20 miles north of the survey area in 2020.
Bombus occidentalis Western bumble bee	-- / SC / --	Occurs in open grassy areas, urban parks, urban gardens, chaparral, and meadows. This species generally nest underground.	**Low** Poor quality habitat is present within the survey area. The nearest CNDDB occurrence is nine miles south of the survey area from 2016.
Branchinecta lynchi Vernal pool fairy shrimp	FT / -- / --	Require ephemeral pools with no flow. Associated with vernal pool/grasslands from near Red Bluff (Shasta County), through the central valley, and into the South Coast Mountains Region. Require ephemeral pools with no flow.	**Not Present** No suitable habitat is present within the survey area. There are no CNDDB occurrences of this species within the quadrangles reviewed.
Danaus plexippus Monarch butterfly	-- / SC / --	Overwinters in coastal California using colonial roosts generally found in Eucalyptus, pine and acacia trees. Overwintering habitat for this species within the Coastal Zone represents ESHA. Local ordinances often protect this species as well.	**Unlikely** No suitable habitat is present within the survey area. Populations of this species have not been observed overwintering within the survey area. The nearest CNDDB occurrence is approximately seven miles southwest of the survey area from 2015.

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey area
Euphilotes enoptes smithi Smith's blue butterfly	FE / --/ --	Most commonly associated with coastal dunes and coastal sage scrub plant communities in Monterey and Santa Cruz Counties. Plant hosts are *Eriogonum latifolium* and *E. parvifolium*.	**Unlikely** No suitable habitat is present within the survey area. The nearest CNDDB occurrence is approximately two miles west of the survey area from 2011.
Linderiella occidentalis California linderiella (fairy shrimp)	-- / CNDDB / --	Ephemeral ponds with no flow. Generally associated with hardpans.	**Not Present** No suitable habitat within the survey area. The nearest CNDDB occurrence is approximately two miles east of the survey area from 1995.
PLANTS			
Agrostis lacuna-vernalis Vernal pool bent grass	-- / -- / 1B	Vernal pool Mima mounds at elevations of 115-145 meters. Annual herb in the Poaceae family; blooms April-May. Known only from Butterfly Valley and Machine Gun Flats of Ft. Ord National Monument.	**Unlikely** No suitable habitat within the survey area. The nearest CNDDB occurrence is approximately three miles east of the survey area from 2012.
Allium hickmanii Hickman's onion	-- / -- / 1B	Closed-cone coniferous forests, maritime chaparral, coastal prairie, coastal scrub, and valley and foothill grasslands at elevations of 5-200 meters. Bulbiferous perennial herb in the Alliaceae family; blooms March-May.	**Not Present.** No suitable habitat present within the survey area. The nearest CNDDB occurrence is approximately five miles east of the survey area from 2000.
Arctostaphylos hookeri ssp. *hookeri* Hooker's manzanita	-- / --/ 1B	Closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub on sandy soils at elevations of 85-536 meters. Evergreen shrub in the Ericaceae family; blooms January-June.	**Not Present** Suitable habitat is present within the survey area. Not observed within the survey area during the biological survey in September 2022. The nearest CNDDB occurrence is approximately 0.5 miles west of the survey area from 2016.
Arctostaphylos montereyensis Toro manzanita	-- / -- / 1B	Maritime chaparral, cismontane woodland, and coastal scrub on sandy soils at elevations of 30-730 meters. Evergreen shrub in the Ericaceae family; blooms February-March.	**Not Present** Suitable habitat is present within the survey area. Not observed within the survey area during the biological survey in September 2022. The nearest CNDDB occurrence is approximately two miles south of the survey area from 1992.
Arctostaphylos pajaroensis Pajaro manzanita	-- / -- / 1B	Chaparral on sandy soils at elevations of 30-760 meters. Evergreen shrub in the Ericaceae family; blooms December-March.	**Not Present** Not observed within the survey area during the biological survey in September 2022. The nearest CNDDB occurrence is approximately one mile west of the survey area from 2000.
Arctostaphylos pumila Sandmat manzanita	-- / -- / 1B	Openings of closed-cone coniferous forests, maritime chaparral, cismontane woodland, coastal dunes, and coastal scrub on sandy soils at elevations of 3-205 meters. Evergreen shrub in the Ericaceae family; blooms February-May.	**Not Present** Not observed within the survey area during the biological survey in September 2022. The nearest CNDDB occurrence is approximately two miles north of the survey area from 2013.

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey area
Arenaria paludicola Marsh sandwort	FE / SE / 1B	Known from only two natural occurrences in Black Lake Canyon and at Oso Flaco Lake. Sandy openings of freshwater of brackish marshes and swamps at elevations of 3-170 meters. Stoloniferous perennial herb in the Caryophyllaceae family; blooms May-August.	**Not Present** No suitable habitat within the survey area. The survey area is outside of the currently known range for this species. There are no CNDDB occurrences of this species within the quadrangles reviewed.
Astragalus tener var. *tener* Alkali milk-vetch	-- / -- / 1B	Playas, valley and foothill grassland on adobe clay, and vernal pools on alkaline soils at elevations of 1-60 meters. Annual herb in the Fabaceae family; blooms March-June.	**Unlikely** No suitable habitat within the survey area. Survey area is above the known elevation range for this species. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately ten miles east of the survey area in 2013.
Astragalus tener var. *titi* Coastal dunes milk-vetch	FE / SE / 1B	Sandy soils in coastal bluff scrub, coastal dunes, coastal prairie (mesic); elevation 3-164 feet. Annual herb in the Fabaceae family; blooms March-May.	**Unlikely** No suitable habitat present. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately 15 miles southwest of the survey area in 2017.
Castilleja ambigua var. insalutata Pink Johnny-nip	-- / -- / 1B	Coastal prairie and coastal scrub at elevations of 0-100 meters. Annual herb in the Orobanchaceae family; blooms May-August.	**Unlikely** No suitable habitat within the survey area. The nearest CNDDB occurrence is approximately six miles southwest of the survey area from 1962.
Centromadia parryi ssp. *congdonii* Congdon's tarplant	-- / -- / 1B	Valley and foothill grassland on heavy clay, saline, or alkaline soils at elevations of 0-230 meters. Annual herb in the Asteraceae family; blooms May-November.	**Not Present** No suitable habitat within the survey area. The nearest CNDDB occurrence is approximately four miles east of the survey area from 1994.
Chorizanthe minutiflora Fort Ord spineflower	-- / -- / 1B	Sandy openings of maritime chaparral and coastal scrub at elevations of 55-150 meters. Only known occurrences on Fort Ord National Monument. Annual herb in the Polygonaceae family; blooms April-July.	**Low** Poor quality habitat present within the survey area. The nearest CNDDB occurrence is two miles east of the survey area from 2014.
Chorizanthe pungens* var. *pungens **Monterey spineflower**	FT / -- / 1B	Maritime chaparral, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grassland on sandy soils at elevations of 3-450 meters. Annual herb in the Polygonaceae family; blooms April-July.	**Moderate** Suitable habitat is present within the survey area. One CNDDB occurrence overlaps the northeastern portion of the survey area; however, this occurrence is mapped generally and encompasses most of the Former Fort Ord.
Chorizanthe robusta var. *robusta* Robust spineflower	FE / -- / 1B	Openings in cismontane woodland, coastal dunes, maritime chaparral, and coastal scrub on sandy or gravelly soils at elevations of 3-300 meters. Annual herb in the Polygonaceae family; blooms April-September.	**Low** Poor quality habitat is present within the survey area. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately 20 miles north of the survey area in 2015.

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey area
Clarkia jolonensis Jolon clarkia	-- / --/ 1B	Cismontane woodland, chaparral, riparian woodland, and coastal scrub at elevations of 20-660 meters. Annual herb in the Onagraceae family; blooms April-June.	**Low** Poor quality habitat is present within the survey area. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately five miles south of the survey area in 1936 which may be based on misidentification.
Collinsia multicolor San Francisco collinsia	-- / --/ 1B	Closed-cone coniferous forest and coastal scrub, sometimes on serpentinite soils, at elevations of 30-250 meters. Annual herb in the Plantaginaceae family; blooms March-May.	**Unlikely** No suitable habitat within the survey area. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately six miles south of the survey area with no collection date. This occurrence is labeled as extirpated.
Cordylanthus rigidus ssp. *littoralis* Seaside bird's-beak	-- / SE / 1B	Closed-cone coniferous forests, maritime chaparral, cismontane woodlands, coastal dunes, and coastal scrub on sandy soils, often on disturbed sites, at elevations of 0-425 meters. Annual hemi-parasitic herb in the Orobanchaceae family; blooms April-October.	**Not Present** No suitable habitat present within survey area. The nearest CNDDB occurrence is approximately 1.5 miles south of the survey area from 1992.
Delphinium californicum ssp. *interius* Hospital Canyon larkspur	-- / -- / 1B	Openings in chaparral, coastal scrub, and mesic areas of cismontane woodland at elevations of 230-1095 meters. Perennial herb in the Ranunculaceae family; blooms April-June.	**Not present** The survey area is below the known elevation range for this species. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately nine miles south of the survey area in 1988.
Delphinium hutchinsoniae Hutchinson's larkspur	-- / --/ 1B	Broadleaved upland forest, chaparral, coastal scrub, and coastal prairie at elevations of 0-427 meters. Perennial herb in the Ranunculaceae family; blooms March-June.	**Not present** No suitable habitat within the survey area. The nearest CNDDB occurrence is approximately ten miles east of the survey area from 1962.
Delphinium umbraculorum Umbrella larkspur	-- / -- / 1B	Cismontane woodland at elevations of 400-1600 meters. Perennial herb in the Ranunculaceae family; blooms April-June.	**Not present** No suitable habitat within the survey area. The survey area is below the known elevation range for this species. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately ten miles east of the survey area in 2014.
Ericameria fasciculata Eastwood's goldenbush	-- / -- / 1B	Openings in closed-cone coniferous forest, maritime chaparral, coastal dunes, and coastal scrub on sandy soils at elevations of 30-275 meters. Evergreen shrub in the Asteraceae family; blooms July-October.	**Not Present** Not observed within the survey area during the biological survey in September 2022. The nearest CNDDB occurrence is approximately two miles north of the survey area from 2003.

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey area
Eriogonum nortonii Pinnacles buckwheat	-- / -- / 1B	Chaparral and valley and foothill grassland on sandy soils, often on recent burns, at elevations of 300-975 meters. Annual herb in the Polygonaceae family; blooms May-September.	**Not present** No suitable habitat within the survey area. The survey area is below the known elevation range for this species. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately 11 miles east of the survey area in 2008.
Erysimum ammophilum Sand-loving wallflower	-- / -- / 1B	Openings in maritime chaparral, coastal dunes, and coastal scrub on sandy soils at elevations of 0-60 meters. Perennial herb in the Brassicaceae family; blooms February-June.	**Unlikely** No suitable habitat within the survey area. The closest CNDDB occurrence is 1.5 miles east of the survey area.
Erysimum menziesii Menzies' wallflower	FE / SE / 1B	Coastal dunes at elevations of 0-35 meters. Perennial herb in the Brassicaceae family; blooms March-September.	**Unlikely** No suitable habitat. Survey area is above the known elevation range for this species. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately 12 miles east of the survey area in 2018.
Fritillaria liliacea Fragrant fritillary	-- / -- / 1B	Cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grassland, often serpentinite, at elevations of 3-410 meters. Bulbiferous perennial herb in the Liliaceae family; blooms February-April.	**Not present** No suitable habitat within survey area. The nearest CNDDB occurrence is located approximately 12 miles southwest of the survey area in 1940.
Gilia tenuiflora ssp. *arenaria* Monterey gilia	FE / ST / 1B	Openings in maritime chaparral, cismontane woodland, coastal dunes, and coastal scrub on sandy soils at elevations of 0-45 meters. Annual herb in the Polemoniaceae family; blooms April-June.	**Low** Poor quality habitat is present within the survey area. Survey area is above the known elevation range for this species. The closest CNDDB occurrence is 1.5 miles east of the survey area.
Hesperocyparis goveniana Gowen cypress	FT / -- / 1B	Closed-cone coniferous forest and maritime chaparral at elevations of 30-300 meters. Evergreen tree in the Cupressaceae family. Natively occurring only at Point Lobos near Gibson Creek and the Huckleberry Hill Nature Preserve near Highway 68.	**Not Present** No suitable habitat within the survey area. Survey area is outside of the currently known range for this species. The nearest CNDDB occurrence is approximately nine miles southwest of the survey area from 2003.
Hesperocyparis macrocarpa Monterey cypress	-- / -- / 1B	Closed-cone coniferous forest at elevations of 10-30 meters. Evergreen tree in the Cupressaceae family. Natively occurring only at Cypress Point in Pebble Beach and Point Lobos State Park; widely planted and naturalized elsewhere.	**Not Present** Several Monterey cypress trees are present within the survey area; however, the survey area is outside of the currently known native range of this species. Individuals are from planted stock are therefore not considered special-status species.
Holocarpha macradenia Santa Cruz tarplant	FT / SE / 1B	Coastal prairies and valley foothill grasslands, often clay or sandy soils, at elevations of 10-220 meters. Annual herb in the Asteraceae family; blooms June-October.	**Not Present** No suitable habitat within the survey area. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately 20 miles north of the survey area in 1993.

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey area
Horkelia cuneata ssp. *sericea* Kellogg's horkelia	-- / -- / 1B	Openings of closed-cone coniferous forests, maritime chaparral, coastal dunes, and coastal scrub on sandy or gravelly soils at elevations of 10-200 meters. Perennial herb in the Rosaceae family; blooms April-September.	**Not Present** Poor quality habitat is present within the survey area. The nearest CNDDB occurrence is approximately two miles east of the survey area from 1992.
Horkelia marinensis Point Reyes horkelia	-- / -- / 1B	Coastal dunes, coastal prairie, and coastal scrub on sandy soils at elevations of 5-350 meters. Perennial herb in the Rosaceae family; blooms May-September.	**Not present** Poor quality habitat is present within the survey area. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately five miles north of the survey area in 2015.
Lasthenia conjugens Contra Costa goldfields	FE / -- / 1B	Mesic areas of valley and foothill grassland, alkaline playas, cismontane woodland, and vernal pools at elevations of 0-470 meters. Annual herb in the Asteraceae family; blooms March-June.	**Unlikely** No suitable habitat within the survey area. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately 1.5 miles east of the survey area in 1998.
Layia carnosa Beach layia	FT / SE / 1B	Coastal dunes and coastal scrub on sandy soils at elevations of 0-60 meters. Annual herb in the Asteraceae family; blooms March-July.	**Unlikely** The survey area is above the known elevation range for this species. No suitable habitat within the survey area. The nearest CNDDB occurrence is approximately nine miles southwest of the survey area from 2017.
Legenere limosa Legenere	--/ -- / 1B	Vernal pools and wetlands at elevations of 1-880 meters. Annual herb in the Campanulaceae family; blooms April- June.	**Unlikely** No suitable habitat within the survey area. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately four miles east of the survey area in 2009.
Lupinus tidestromii Tidestrom's lupine	FE / SE / 1B	Coastal dunes at elevations of 0-100 meters. Perennial rhizomatous herb in the Fabaceae family; blooms April-June.	**Not present** No suitable habitat within the survey area. The nearest CNDDB occurrence is approximately 12 miles southwest of the survey area from 2011.
Malacothamnus palmeri var. *involucratus* Carmel Valley bush-mallow	-- / -- / 1B	Chaparral, cismontane woodland, and coastal scrub at elevations of 30-1100 meters. Perennial deciduous shrub in the Malvaceae family; blooms May-October.	**Not present** No suitable habitat within survey area. The nearest CNDDB occurrence is approximately six miles south of the survey area from 2003.
Malacothrix saxatilis var. *arachnoidea* Carmel Valley malacothrix	-- / -- / 1B	Chaparral and coastal scrub on rocky soils at elevations of 25-1036 meters. Perennial rhizomatous herb in the Asteraceae family; blooms June-December.	**Not present** No suitable habitat within the survey area. The nearest CNDDB occurrence is approximately nine miles south of the survey area from 1977.

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey area
Meconella oregana Oregon meconella	-- / -- / 1B	Coastal prairie and coastal scrub at elevations of 250-620 meters. Annual herb in the Papaveraceae Family; blooms March-April.	**Unlikely** The survey area is below the known elevation range for this species. No suitable habitat within the survey area. The nearest CNDDB occurrence is approximately four miles east of the survey area from 2014.
Microseris paludosa Marsh microseris	-- / --/ 1B	Closed-cone coniferous forest, cismontane woodland, coastal scrub, and valley and foothill grassland at elevations of 5-300 meters. Perennial herb in the Asteraceae family; blooms April-July.	**Not present** No suitable habitat within the survey area. The nearest CNDDB occurrence is approximately three miles east of the survey area from 2007.
Monardella sinuata ssp. *nigrescens* Northern curly-leaved monardella	-- / -- / 1B	Chaparral, coastal dunes, coastal scrub, and lower montane coniferous forest (ponderosa pine sandhills) on sandy soils at elevations of 0-300 meters. Annual herb in the Lamiaceae family; blooms April-September.	**Not present** No suitable habitat within the survey area. The nearest CNDDB occurrence is approximately three miles south of the survey area from 1992.
Monolopia gracilens Woodland wollythreads	-- / -- / 1B	Openings of broadleaved upland forest, chaparral, cismontane woodland, North Coast coniferous forest, and valley and foothill grassland on serpentinite soils at elevations of 100-1200 meters. Annual herb in the Asteraceae family; blooms February-July.	**Low** Poor quality habitat present within the survey area. The nearest CNDDB occurrence is mapped at a non-specific location in the vicinity of Monterey from 2010.
Pinus radiata Monterey pine	-- / --/ 1B	Closed-cone coniferous forest and cismontane woodland at elevations of 25-185 meters. Evergreen tree in the Pinaceae family. Only three native stands in CA at Ano Nuevo, Cambria, and the Monterey Peninsula; introduced in many areas.	**Not Present** This species was not observed during the reconnaissance-level survey conducted in September 2022. Regardless, the survey area is outside of the currently known native range of this species.
Piperia yadonii Yadon's rein orchid	FE / -- / 1B	Sandy soils in coastal bluff scrub, closed-cone coniferous forest, and maritime chaparral at elevations of 10-510 meters. Annual herb in the Orchidaceae family; blooms February-August.	**Low** Poor quality habitat present within the survey area. The nearest CNDDB occurrence is approximately three miles east of the survey area from 2014.
Plagiobothrys chorisianus var. *chorisianus* Choris' popcorn-flower	-- / -- / 1B	Mesic areas of chaparral, coastal prairie, and coastal scrub at elevations of 15-160 meters. Annual herb in the Boraginaceae family; blooms March-June.	**Unlikely** No suitable habitat within the survey area. The nearest CNDDB occurrence is approximately three miles east of the survey area from 2009.
Potentilla hickmanii Hickman's cinquefoil	FE / SE / 1B	Coastal bluff scrub, closed-cone coniferous forests, vernally mesic meadows and seeps, and freshwater marshes and swamps at elevations of 10-149 meters. Perennial herb in the Rosaceae family; blooms April-August.	**Unlikely** No suitable habitat within the survey area. The nearest CNDDB occurrence is approximately eight miles southwest of the survey area from 1992.

Species	Status (Service/CDFW/CNPS)	General Habitat	Potential Occurrence within Survey area
Ramalina thrausta Angel's hair lichen	-- / -- / 2B	North coast coniferous forest on dead twigs and other lichens. Epiphytic fructose lichen in the Ramalinaceae family. In northern CA it is usually found on dead twigs, and has been found on *Alnus rubra*, *Calocedrus decurrens*, *Pseudotsuga menziesii*, *Quercus garryana*, and *Rubus spectabilis*. In Sonoma County it grows on and among dangling mats of *R. menziesii* and *Usnea* spp.	**Not Present** No suitable habitat within the survey area. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately nine miles southwest of the survey area in 2014.
Rosa pinetorum Pine rose	-- / -- / 1B	Closed-cone coniferous forest at elevations of 2-300 meters. Perennial shrub in the Rosaceae family; blooms May-July. Possible hybrid of *R. spithamea*, *R. gymnocarpa*, or others; further study needed.	**Not Present** No suitable habitat within the survey area. The nearest CNDDB occurrence is approximately eight miles southeast of the survey area from 1941.
Stebbinsoseris decipiens Santa Cruz microseris	-- / -- / 1B	Broadleaved upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, and openings in valley and foothill grassland, sometimes on serpentinite, at elevations of 10-500 meters. Annual herb in the Asteraceae family; blooms April-May.	**Unlikely** No suitable habitat within the survey area. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately nine miles south of the survey area from 1978.
Sulcaria spiralifera Twisted horsetail lichen	-- / -- / 1B	California North Coast coniferous forest at elevations of 0–30 meters. Often found on conifers, including *Picea sitchensis*, *Pinus contorta* var. *contorta*, *Pseudotsuga menziesii*, *Abies grandis*, and *Tsuga heterophylla*. Fruticose lichen in the Parmeliaceae family.	**Unlikely** No suitable habitat within the survey area. The survey area is below the known elevation range for this species. There is one CNDDB occurrence of this species within the quadrangles reviewed located approximately 15 miles southwest of the survey area in 2014.
Trifolium buckwestiorum Santa Cruz clover	--/ -- / 1B	Gravelly margins of broadleaved upland forest, cismontane woodland, and coastal prairie at elevations of 105-610 meters. Annual herb in the Fabaceae family; blooms April-October.	**Not Present** No suitable habitat within the survey area. The nearest CNDDB occurrence is approximately four miles east of the survey area from 2010.
Trifolium hydrophilum Saline clover	-- / -- / 1B	Marshes and swamps, mesic and alkaline valley and foothill grassland, and vernal pools at elevations of 0-300 meters. Annual herb in the Fabaceae family; blooms April-June.	**Unlikely** No suitable habitat within the survey area. The nearest CNDDB occurrence is approximately 13 miles north of the survey area from 2005.
Trifolium polyodon Pacific Grove clover	-- / SR / 1B	Mesic areas of closed-cone coniferous forest, coastal prairie, meadows and seeps, and valley and foothill grassland at elevations of 5-120 meters. Annual herb in the Fabaceae family; blooms April-July.	**Unlikely** No suitable habitat within the survey area. The nearest CNDDB occurrence is approximately five miles east of the survey area from 2010.
Trifolium trichocalyx Monterey clover	FE / SE / 1B	Sandy openings and burned areas of closed-cone coniferous forest at elevations of 30-240 meters. Annual herb in the Fabaceae family; blooms April-June.	**Unlikely** No suitable habitat within the survey area. The nearest CNDDB occurrence is approximately nine miles southwest of the survey area from 1990.

STATUS DEFINITIONS

Federal

FE = listed as Endangered under the federal Endangered Species Act
FT = listed as Threatened under the federal Endangered Species Act
FC = Candidate for listing under the federal Endangered Species Act
-- = no listing

State
SE = listed as Endangered under the California Endangered Species Act
ST = listed as Threatened under the California Endangered Species Act
SC = Candidate for listing under California Endangered Species Act
SR = listed as Rare under the California Endangered Species Act
CFP = California Fully Protected Species
CSC = CDFW Species of Concern
WL = CDFW Watch List
CNDDB = This designation is being assigned to animal species that are not assigned any of the other status designations defined in this table. These animal species are included in CDFW's CNDDB "Special Animals" list (2010), which includes all taxa the CNDDB is interested in tracking, regardless of their legal or protection status. This list is also referred to as the list of "species at risk" or "special-status species." The CDFW considers the taxa on this list to be those of greatest conservation need.
-- = no listing

California Native Plant Society
1B = California Rare Plant Rank 1B species; plants rare, threatened, or endangered in California and elsewhere
2B = California Rare Plant Rank 2B species; plants rare, threatened, or endangered in California, but more common elsewhere
4 = California Rare Plant Rank 4 species; plants of limited distribution or infrequent throughout a broader area in California, and their status should be monitored regularly
-- = no listing

Bold font indicates Fort Ord HMP Species

POTENTIAL TO OCCUR
Present = known occurrence of species within the site; presence of suitable habitat conditions; or observed during field surveys
High = known occurrence of species in the vicinity from the CNDDB or other documentation; presence of suitable habitat conditions
Moderate = known occurrence of species in the vicinity from the CNDDB or other documentation; presence of marginal habitat conditions within the site
Low = species known to occur in the vicinity from the CNDDB or other documentation, lack of suitable habitat or poor quality
Unlikely = species not known to occur in the vicinity from the CNDDB or other documentation, no suitable habitat is present within the site
Not Present = species was not observed during surveys

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APPENDIX B

California Natural Diversity Database Report

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Moss Landing (3612177) OR Prunedale (3612176) OR Marina (3612167) OR Salinas (3612166) OR Monterey (3612158) OR Seaside (3612157) OR Spreckels (3612156))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
Agrostis lacuna-vernalis vernal pool bent grass	PMPOA041N0	None	None	G1	S1	1B.1
Allium hickmanii Hickman's onion	PMLIL02140	None	None	G2	S2	1B.2
Ambystoma californiense pop. 1 California tiger salamander - central California DPS	AAAAA01181	Threatened	Threatened	G2G3T3	S3	WL
Ambystoma macrodactylum croceum Santa Cruz long-toed salamander	AAAAA01082	Endangered	Endangered	G5T1T2	S1S2	FP
Anniella pulchra Northern California legless lizard	ARACC01020	None	None	G3	S3	SSC
Arctostaphylos hookeri ssp. hookeri Hooker's manzanita	PDERI040J1	None	None	G3T2	S2	1B.2
Arctostaphylos montereyensis Toro manzanita	PDERI040R0	None	None	G2?	S2?	1B.2
Arctostaphylos pajaroensis Pajaro manzanita	PDERI04100	None	None	G1	S1	1B.1
Arctostaphylos pumila sandmat manzanita	PDERI04180	None	None	G1	S1	1B.2
Asio flammeus short-eared owl	ABNSB13040	None	None	G5	S3	SSC
Astragalus tener var. tener alkali milk-vetch	PDFAB0F8R1	None	None	G2T1	S1	1B.2
Astragalus tener var. titi coastal dunes milk-vetch	PDFAB0F8R2	Endangered	Endangered	G2T1	S1	1B.1
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Bombus caliginosus obscure bumble bee	IIHYM24380	None	None	G2G3	S1S2	
Bombus crotchii Crotch bumble bee	IIHYM24480	None	None	G2	S1S2	
Bombus occidentalis western bumble bee	IIHYM24250	None	None	G2G3	S1	
Buteo regalis ferruginous hawk	ABNKC19120	None	None	G4	S3S4	WL
Castilleja ambigua var. insalutata pink Johnny-nip	PDSCR0D403	None	None	G4T2	S2	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Central Dune Scrub Central Dune Scrub	CTT21320CA	None	None	G2	S2.2	
Central Maritime Chaparral Central Maritime Chaparral	CTT37C20CA	None	None	G2	S2.2	
Centromadia parryi ssp. congdonii Congdon's tarplant	PDAST4R0P1	None	None	G3T2	S2	1B.1
Charadrius nivosus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2	SSC
Chorizanthe minutiflora Fort Ord spineflower	PDPGN04100	None	None	G1	S1	1B.2
Chorizanthe pungens var. pungens Monterey spineflower	PDPGN040M2	Threatened	None	G2T2	S2	1B.2
Chorizanthe robusta var. robusta robust spineflower	PDPGN040Q2	Endangered	None	G2T1	S1	1B.1
Clarkia jolonensis Jolon clarkia	PDONA050L0	None	None	G2	S2	1B.2
Coastal and Valley Freshwater Marsh Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	G3	S2.1	
Coastal Brackish Marsh Coastal Brackish Marsh	CTT52200CA	None	None	G2	S2.1	
Coelus globosus globose dune beetle	IICOL4A010	None	None	G1G2	S1S2	
Collinsia multicolor San Francisco collinsia	PDSCR0H0B0	None	None	G2	S2	1B.2
Cordylanthus rigidus ssp. littoralis seaside bird's-beak	PDSCR0J0P2	None	Endangered	G5T2	S2	1B.1
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
Coturnicops noveboracensis yellow rail	ABNME01010	None	None	G4	S1S2	SSC
Cypseloides niger black swift	ABNUA01010	None	None	G4	S2	SSC
Danaus plexippus plexippus pop. 1 monarch - California overwintering population	IILEPP2012	Candidate	None	G4T2T3	S2S3	
Delphinium californicum ssp. interius Hospital Canyon larkspur	PDRAN0B0A2	None	None	G3T3	S3	1B.2
Delphinium hutchinsoniae Hutchinson's larkspur	PDRAN0B0V0	None	None	G2	S2	1B.2
Delphinium umbraculorum umbrella larkspur	PDRAN0B1W0	None	None	G3	S3	1B.3
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eremophila alpestris actia California horned lark	ABPAT02011	None	None	G5T4Q	S4	WL
Ericameria fasciculata Eastwood's goldenbush	PDAST3L080	None	None	G2	S2	1B.1
Eriogonum nortonii Pinnacles buckwheat	PDPGN08470	None	None	G2	S2	1B.3
Erysimum ammophilum sand-loving wallflower	PDBRA16010	None	None	G2	S2	1B.2
Erysimum menziesii Menzies' wallflower	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
Eucyclogobius newberryi tidewater goby	AFCQN04010	Endangered	None	G3	S3	
Eumetopias jubatus Steller sea lion	AMAJC03010	Delisted	None	G3	S2	
Euphilotes enoptes smithi Smith's blue butterfly	IILEPG2026	Endangered	None	G5T1T2	S1	
Falco mexicanus prairie falcon	ABNKD06090	None	None	G5	S4	WL
Falco peregrinus anatum American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
Fritillaria liliacea fragrant fritillary	PMLIL0V0C0	None	None	G2	S2	1B.2
Gilia tenuiflora ssp. arenaria Monterey gilia	PDPLM041P2	Endangered	Threatened	G3G4T2	S2	1B.2
Hesperocyparis goveniana Gowen cypress	PGCUP04031	Threatened	None	G1	S1	1B.2
Hesperocyparis macrocarpa Monterey cypress	PGCUP04060	None	None	G1	S1	1B.2
Holocarpha macradenia Santa Cruz tarplant	PDAST4X020	Threatened	Endangered	G1	S1	1B.1
Horkelia cuneata var. sericea Kellogg's horkelia	PDROS0W043	None	None	G4T1?	S1?	1B.1
Horkelia marinensis Point Reyes horkelia	PDROS0W0B0	None	None	G2	S2	1B.2
Lasiurus cinereus hoary bat	AMACC05030	None	None	G3G4	S4	
Lasthenia conjugens Contra Costa goldfields	PDAST5L040	Endangered	None	G1	S1	1B.1
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3T1	S1	FP

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Lavinia exilicauda harengus Monterey hitch	AFCJB19013	None	None	G4T3	S3	SSC
Layia carnosa beach layia	PDAST5N010	Threatened	Endangered	G2	S2	1B.1
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Lupinus tidestromii Tidestrom's lupine	PDFAB2B3Y0	Endangered	Endangered	G1	S1	1B.1
Malacothamnus palmeri var. involucratus Carmel Valley bush-mallow	PDMAL0Q0B1	None	None	G3T2Q	S2	1B.2
Malacothrix saxatilis var. arachnoidea Carmel Valley malacothrix	PDAST660C2	None	None	G5T2	S2	1B.2
Meconella oregana Oregon meconella	PDPAP0G030	None	None	G2G3	S2	1B.1
Microseris paludosa marsh microseris	PDAST6E0D0	None	None	G2	S2	1B.2
Monardella sinuata ssp. nigrescens northern curly-leaved monardella	PDLAM18162	None	None	G3T2	S2	1B.2
Monolopia gracilens woodland woollythreads	PDAST6G010	None	None	G3	S3	1B.2
Monterey Cypress Forest Monterey Cypress Forest	CTT83150CA	None	None	G1	S1.2	
Monterey Pine Forest Monterey Pine Forest	CTT83130CA	None	None	G1	S1.1	
Monterey Pygmy Cypress Forest Monterey Pygmy Cypress Forest	CTT83162CA	None	None	G1	S1.1	
Neotoma macrotis luciana Monterey dusky-footed woodrat	AMAFF08083	None	None	G5T3	S3	SSC
Northern Bishop Pine Forest Northern Bishop Pine Forest	CTT83121CA	None	None	G2	S2.2	
Northern Coastal Salt Marsh Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
Oncorhynchus mykiss irideus pop. 9 steelhead - south-central California coast DPS	AFCHA0209H	Threatened	None	G5T2Q	S2	
Pelecanus occidentalis californicus California brown pelican	ABNFC01021	Delisted	Delisted	G4T3T4	S3	FP
Phrynosoma blainvillii coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC
Pinus radiata Monterey pine	PGPIN040V0	None	None	G1	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Piperia yadonii Yadon's rein orchid	PMORC1X070	Endangered	None	G1	S1	1B.1
Plagiobothrys chorisianus var. chorisianus Choris' popcornflower	PDBOR0V061	None	None	G3T1Q	S1	1B.2
Potentilla hickmanii Hickman's cinquefoil	PDROS1B370	Endangered	Endangered	G1	S1	1B.1
Rallus obsoletus obsoletus California Ridgway's rail	ABNME05011	Endangered	Endangered	G3T1	S1	FP
Ramalina thrausta angel's hair lichen	NLLEC3S340	None	None	G5?	S2S3	2B.1
Rana boylii foothill yellow-legged frog	AAABH01050	None	Endangered	G3	S3	SSC
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Reithrodontomys megalotis distichlis Salinas harvest mouse	AMAFF02032	None	None	G5T1	S1	
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Rosa pinetorum pine rose	PDROS1J0W0	None	None	G2	S2	1B.2
Sidalcea malachroides maple-leaved checkerbloom	PDMAL110E0	None	None	G3	S3	4.2
Sorex ornatus salarius Monterey shrew	AMABA01105	None	None	G5T1T2	S1S2	SSC
Spea hammondii western spadefoot	AAABF02020	None	None	G2G3	S3	SSC
Spirinchus thaleichthys longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	
Stebbinsoseris decipiens Santa Cruz microseris	PDAST6E050	None	None	G2	S2	1B.2
Sulcaria spiralifera twisted horsehair lichen	NLT0042560	None	None	G3G4	S2	1B.2
Taricha torosa Coast Range newt	AAAAF02032	None	None	G4	S4	SSC
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thamnophis hammondii two-striped gartersnake	ARADB36160	None	None	G4	S3S4	SSC
Trifolium buckwestiorum Santa Cruz clover	PDFAB402W0	None	None	G2	S2	1B.1
Trifolium hydrophilum saline clover	PDFAB400R5	None	None	G2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Trifolium polyodon Pacific Grove clover	PDFAB402H0	None	Rare	G1	S1	1B.1
Trifolium trichocalyx Monterey clover	PDFAB402J0	Endangered	Endangered	G1	S1	1B.1
Tryonia imitator mimic tryonia (=California brackishwater snail)	IMGASJ7040	None	None	G2	S2	
Valley Needlegrass Grassland Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	

Record Count: 107

APPENDIX C

IPaC Resource List

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Monterey County, California

Local office

Ventura Fish And Wildlife Office

☎ (805) 644-1766
📠 (805) 644-3958
✉ FW8VenturaSection7@FWS.Gov

2493 Portola Road, Suite B
Ventura, CA 93003-7726

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
California Condor *Gymnogyps californianus* There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/8193	Endangered
California Least Tern *Sterna antillarum browni* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered
Least Bell's Vireo *Vireo bellii pusillus* Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/5945	Endangered
Marbled Murrelet *Brachyramphus marmoratus* There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/4467	Threatened
Southwestern Willow Flycatcher *Empidonax traillii extimus* Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/6749	Endangered
Western Snowy Plover *Charadrius nivosus nivosus* There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/8035	Threatened

Yellow-billed Cuckoo Coccyzus americanus There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/3911	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander Ambystoma californiense There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Tidewater Goby Eucyclogobius newberryi Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/57	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate
Smith's Blue Butterfly Euphilotes enoptes smithi Wherever found There is **proposed** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/4418	Endangered

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

NAME	STATUS
Contra Costa Goldfields Lasthenia conjugens Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/7058	Endangered
Marsh Sandwort Arenaria paludicola Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2229	Endangered
Monterey Gilia Gilia tenuiflora ssp. arenaria Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/856	Endangered
Monterey Spineflower Chorizanthe pungens var. pungens Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/396	Threatened
Yadon's Piperia Piperia yadonii Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/4205	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Allen's Hummingbird Selasphorus sasin This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Belding's Savannah Sparrow Passerculus sandwichensis beldingi This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Black Oystercatcher Haematopus bachmani This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9591	Breeds Apr 15 to Oct 31
Black Swift Cypseloides niger This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10
Black Tern Chlidonias niger This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3093	Breeds May 15 to Aug 20
Black Turnstone Arenaria melanocephala This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere

Bullock's Oriole Icterus bullockii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 21 to Jul 25
California Thrasher Toxostoma redivivum This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Jul 31
Clark's Grebe Aechmophorus clarkii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31
Common Yellowthroat Geothlypis trichas sinuosa This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Lawrence's Goldfinch Carduelis lawrencei This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9464	Breeds Mar 20 to Sep 20
Marbled Godwit Limosa fedoa This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481	Breeds elsewhere
Nuttall's Woodpecker Picoides nuttallii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20

Oak Titmouse Baeolophus inornatus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9656	Breeds Mar 15 to Jul 15
Olive-sided Flycatcher Contopus cooperi This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Scripps's Murrelet Synthliboramphus scrippsi This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Feb 20 to Jul 31
Short-billed Dowitcher Limnodromus griseus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Tricolored Blackbird Agelaius tricolor This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10
Western Grebe aechmophorus occidentalis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31
Willet Tringa semipalmata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wrentit Chamaea fasciata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 10

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (🟩)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (🟨)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

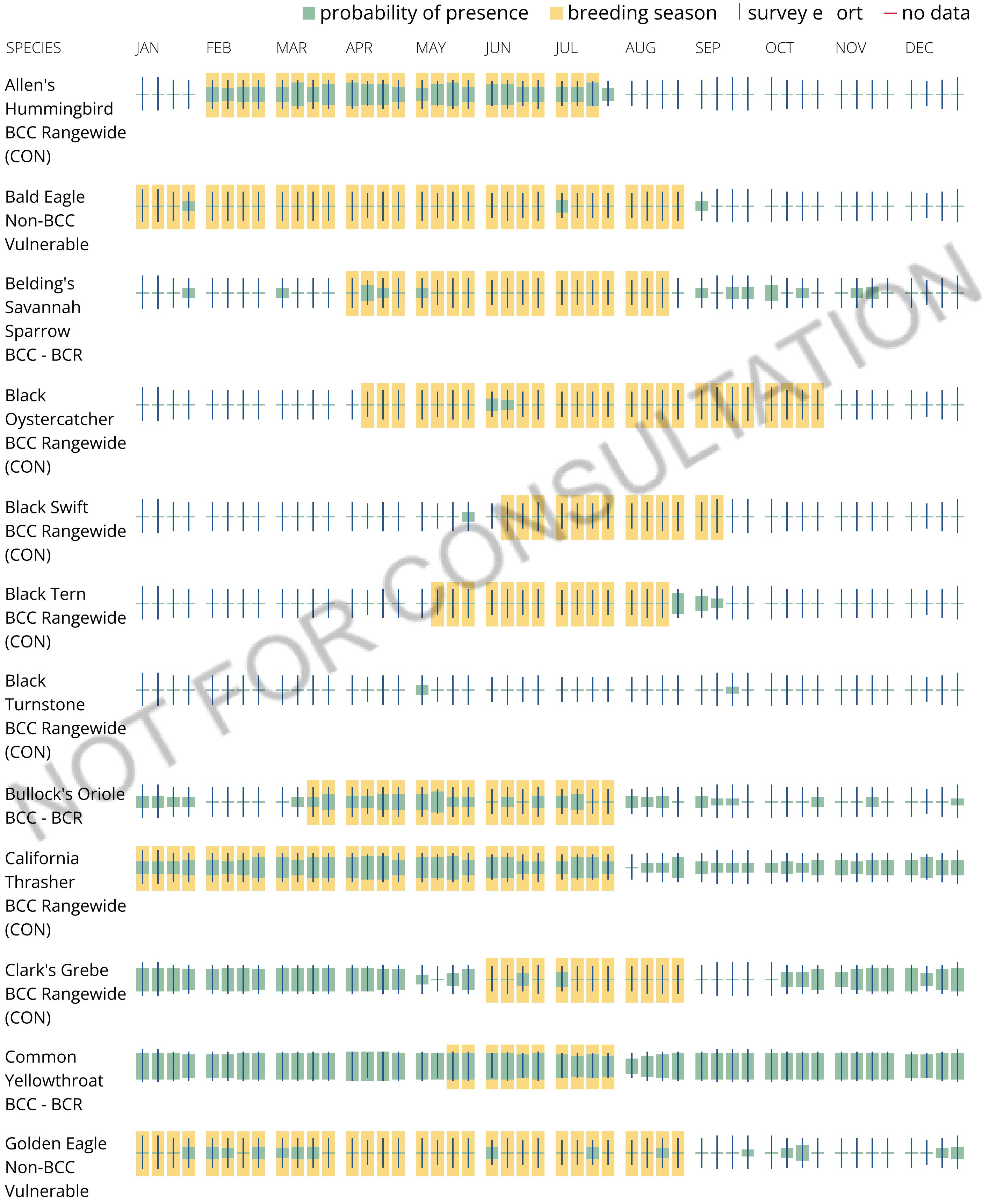
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

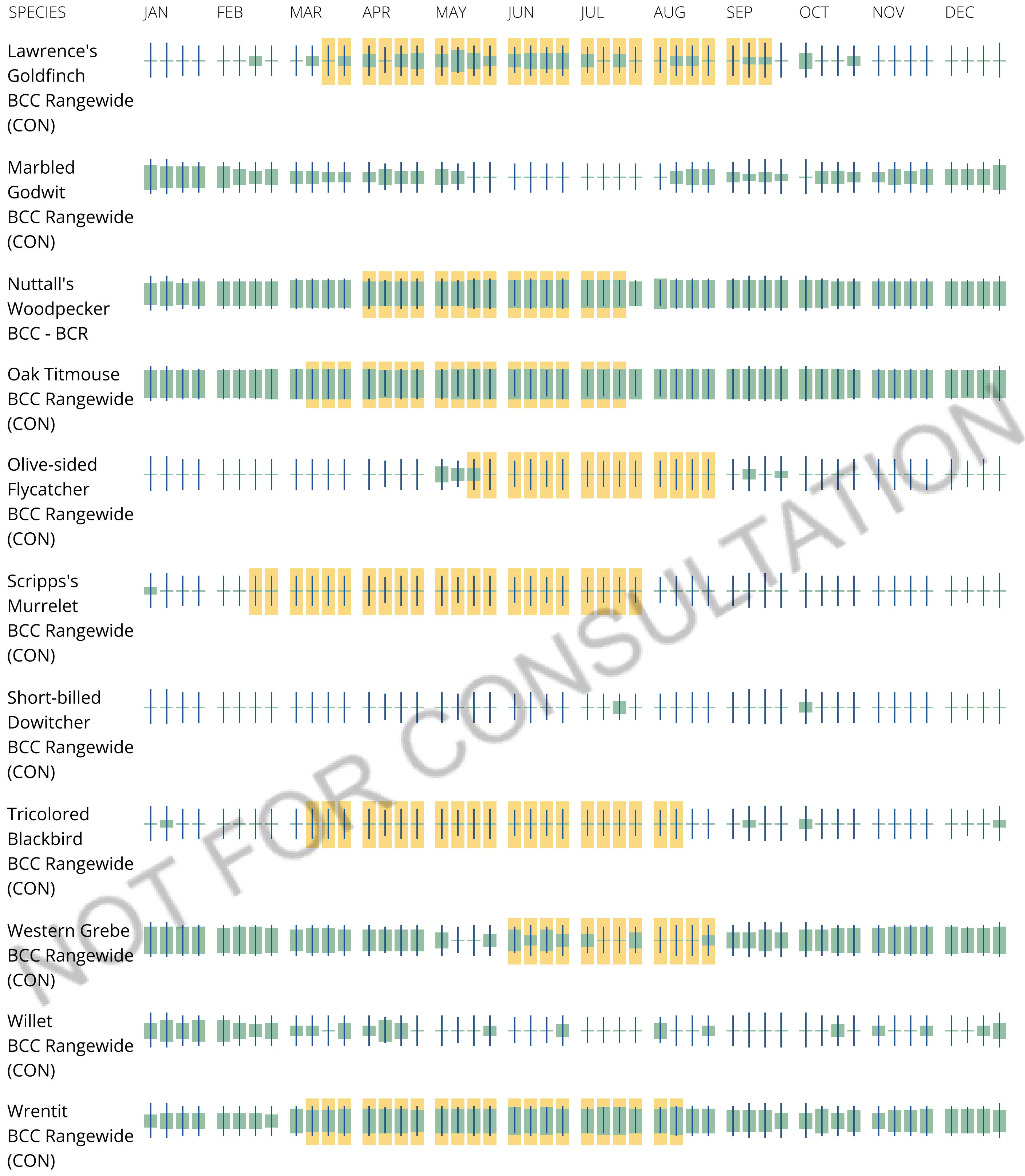
No Data (–)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure.

To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and

3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Coastal Barrier Resources System

Projects within the John H. Chafee Coastal Barrier Resources System (CBRS) may be subject to the restrictions on federal expenditures and financial assistance and the consultation requirements of the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.). For more information, please contact the local Ecological Services Field Office or visit the CBRA Consultations website. The CBRA website provides tools such as a flow chart to help determine whether consultation is required and a template to facilitate the consultation process.

There are no known coastal barriers at this location.

Data limitations

The CBRS boundaries used in IPaC are representations of the controlling boundaries, which are depicted on the official CBRS maps. The boundaries depicted in this layer are not to be considered authoritative for in/out determinations close to a CBRS boundary (i.e., within the "CBRS Buffer Zone" that appears as a hatched area on either side of the boundary). For projects that are very close to a CBRS boundary but do not clearly intersect a unit, you may contact the Service for an official determination by following the instructions here: https://www.fws.gov/service/coastal-barrier-resources-system-property-documentation

Data exclusions

CBRS units extend seaward out to either the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS data, therefore projects in the offshore areas of units (e.g., dredging, breakwaters, offshore wind energy or oil and gas projects) may be subject to CBRA even if they do not intersect the CBRS data. For additional information, please contact CBRA@fws.gov.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

This location did not intersect any wetlands mapped by NWI.

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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Appendix C

Botanical Survey Memorandum

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DENISE DUFFY & ASSOCIATES, INC.
PLANNING AND ENVIRONMENTAL CONSULTING

MEMORANDUM

Date:	August 19, 2024
To:	Beth Rocha, Senior Planner City of Seaside
From:	Erin Harwayne, AICP, Senior Project Manager Denise Duffy & Associates, Inc.
Subject:	**Monterey Spineflower Botanical Survey Results for the Chartwell School Expansion Project**

Denise Duffy & Associates, Inc. (DD&A) was contracted by the City of Seaside (City) to conduct focused botanical surveys for Monterey spineflower (*Chorizanthe pungens* var. *pungens*) for the Chartwell School Expansion Project (project or proposed project). The proposed project is located at 2511 Numma Watson Road within City limits in Monterey County, California (**Figure 1**). The project includes expansion of the existing Chartwell School campus, including construction of associated infrastructure.

In accordance with Mitigation Measure 2 of the Chartwell School Biological Resources Report (DD&A, 2023), DD&A conducted a focused botanical survey of the project site for Monterey spineflower on June 28, 2024. The methods and results of the survey are described below.

SURVEY METHODS

Special-status plant species are those plants that have been formally listed or are candidates for listing as endangered or threatened under the federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA), are listed as rare under the California Native Plant Protection Act (CNPPA), or are included in the California Native Plant Society (CNPS) California Rare Plant Ranks (CRPR) 1A (plants presumed extirpated in California and either rare or extinct elsewhere), 1B (plants rare, threatened, or endangered in California and elsewhere), 2A (plants presumed extirpated in California, but more common elsewhere), and 2B (plants rare, threatened, or endangered in California, but more common elsewhere).

Monterey spineflower is a federally threatened and CNPS CRPR 1B species. It is a small, prostrate annual herb in the Polygonaceae family that blooms from April to June. The white to rose floral tube of Monterey spineflower distinguishes it from the more common, but closely related diffuse spineflower (*Chorizanthe diffusa*), which has a lemon-yellow floral tube. Monterey spineflower typically occurs on open sandy or gravelly soils on relic dunes in coastal dune, coastal scrub, and maritime chaparral habitats, though it can also be associated with cismontane woodlands and valley and foothill grasslands, within a range of 3-450 meters in elevation.

Denise Duffy & Associates, Inc.
Planning and Environmental Consulting

Project Site

N

0 62.5 125 250 Feet

Date
12/22/2022

Scale
1:2,900

Figure
1

Path: C:\GIS\2022-63 Chartwell School Bio\Chartwell Bio\Chartwell Bio.aprx

To determine the presence or absence of Monterey spineflower within the project site, DD&A biologists Patric Krabacher and Rikki Lougee conducted a focused botanical survey of the project site on June 28, 2024. Survey methods included walking the site to identify and map populations of Monterey spineflower, if present. Surveys were conducted in accordance with the applicable guidelines outlined in the U.S. Fish and Wildlife Service (Service) *Guidelines for Conducting and Reporting Botanical Inventories for Federally listed, Proposed and Candidate Plants* (Service, 2000), the California Department of Fish and Wildlife (CDFW) *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW, 2018), and the CNPS *Botanical Survey Guidelines* (CNPS, 2001).

SURVEY RESULTS AND DISCUSSION

DD&A did not observe Monterey spineflower within the project site. This memorandum satisfies the requirements of Mitigation Measure 2 of the Chartwell School Biological Resources Report, and no additional mitigation for Monterey spineflower is required. Please contact Erin Harwayne (eharwayne@ddaplanning.com) or Rikki Lougee (rlougee@ddaplanning.com) if you have any questions regarding this memorandum.

REFERENCES

California Department of Fish and Wildlife. 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities.

California Native Plant Society. 2001. Botanical Survey Guidelines.

Denise Duffy & Associates, Inc. 2023. Chartwell School Biological Resources Report.

U.S. Fish and Wildlife Service. 2000. Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants.

Appendix D

Geologic Hazards Evaluation & Geotechnical Investigation

Stevens
Ferrone &
Bailey
Engineering Company, Inc

Geotechnical Engineering
Engineering Geology
Storm Water Management
Construction Observation & Testing Services

March 18, 2024

GEOLOGIC HAZARDS EVALUATION & GEOTECHNICAL INVESTIGATION
HIGH SCHOOL CAMPUS
CHARTWELL SCHOOL, SEASIDE, CALIFORNIA
SFB PROJECT NO. 169-4

Prepared For:

Chartwell School
2511 Numa Watson Road
Seaside, CA93955

Prepared By:

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APPENDICES

1.0 INTRODUCTION

This report presents the results of our geologic hazards evaluation and geotechnical investigation for the proposed new high school campus project at Chartwell School in Seaside, California. The project site location (approximate latitude 36.635067°N and longitude 121.800133°W) is shown on the **Vicinity Map, Figure 1**, and **Site Plan and Engineering Geology Map, Figure 2**. The purpose of our investigation was to evaluate the geologic and geotechnical conditions at the site and provide recommendations regarding the geologic and geotechnical engineering aspects of the project.

Based on the information indicated on the preliminary project plan received from the project architect, EHDD, on January 30, 2024, the initial phase of the new campus development will include three new buildings (Admin/Library/Classroom, Science, and Athletic Center) with an outdoor basketball court and a soccer field. The planned footprints of these buildings vary from about 4,000 to 18,500 square feet. Building construction details are to be determined. Cut and fill grading of a few feet and installation of new underground utilities are anticipated for the new project. New retaining walls up to about 3 to 5 feet high are also planned along the northeastern and southwestern boundaries of the eastern development area.

The site was previously occupied by a former Fort Ord development. Previous military buildings at the site were demolished and removed in 2021 or 2022. The remaining asphalt concrete paved driveways and parking lots will be removed or reconfigured for the new development.

The conclusions and recommendations provided in this report are based upon the information presented above; Stevens, Ferrone & Bailey Engineering Company, Inc. (SFB) should be consulted if any changes to the project occur to assess if the changes affect the validity of this report.

2.0 SCOPE OF WORK

This investigation included the following scope of work:

- Reviewing published and unpublished geotechnical and geological literature relevant to the site;
- Reviewing historical aerial photographs and topographic maps of the site and surrounding area;
- Reviewing the previous geotechnical investigation reports we prepared for the existing campus development areas (SFB, 2002, 2004, and 2024)[1,2,3], including the results of previous exploratory borings to a maximum depth of about 40 feet;
- Performing reconnaissance and geologic mapping of the site and surrounding area;
- Performing eighteen exploratory borings to a maximum depth explored of about 31-1/2 feet;
- Performing laboratory testing of soil samples retrieved from the borings;
- Performing engineering analysis of the field and laboratory data; and
- Preparing this report.

The data obtained and the analyses performed were for the purpose of providing geotechnical design and construction criteria for site earthwork, underground utility, drainage, building foundation, retaining wall, and flatwork. Toxicity potential assessment of onsite materials or groundwater (including mold) were beyond our scope of work.

---

[1] SFB, 2002, Geologic Hazards and Geotechnical Investigation, Proposed Chartwell School, Seaside, California, February 21, SFB Project No. 169-1.

[2] SFB, 2004, Supplemental Geotechnical Investigation for Storm Water Discharge Sites, Chartwell School, Seaside, California, August 30, SFB Project No. 169-1A.

[3] SFB, 2024, Geologic Hazards Evaluation and Geotechnical Investigation, Middle School Expansion, Chartwell School, Seaside, California, March 11, SFB Project No. 169-3.

3.0 SITE INVESTIGATION

3.1 Field Exploration

Our geotechnical field exploration program for the project consisted of performing 18 exploratory borings to a maximum depth explored of about 31-1/2 feet on February 13 and 14, 2024. The approximate locations of the borings are shown on the **Site Plan and Engineering Geology Map, Figure 2**. The borings were performed by West Coast Exploration, Inc. of Escalon, California, using a truck-mounted Mobile B-24 drill rig equipped with 4-inch diameter, continuous flight, solid stem augers. In addition, our Certified Engineering Geologist performed a reconnaissance and mapping of the site and surrounding area on February 23, 2024. The results of the mapping are shown on **Figure 2**.

Our field engineer continuously logged the soils encountered in the borings. The soils were classified in general accordance with the Unified Soil Classification System (ASTM D2487 and D2488). Logs of the borings as well as a key for the classification of the soil (**Figure A-1**) are included in **Appendix A**. Upon completion of our field exploration, the borings were backfilled with cement grout in accordance with Monterey County Environmental Health permit requirements.

The approximate locations of our borings were determined by pacing, measurements, and/or alignment from landmark references. Latitude and longitude of exploration locations shown on the exploration logs are estimated from online map data from Microsoft; actual locations were not surveyed.

Representative samples were obtained from our exploratory borings at selected depths appropriate to the investigation. Relatively undisturbed samples were obtained using a 3-inch O.D. Modified California split barrel sampler with liners, and disturbed samples were obtained using a 2-inch O.D. Standard Penetration Test (SPT) split spoon sampler without liners. All samples were transported to our geotechnical laboratory for evaluation and appropriate testing. Both sampler types are indicated in the “Sampler” column of the exploration logs as designated in **Figure A-1**.

Resistance blow counts were obtained in our borings with the samplers by dropping a 140-pound safety hammer through a 30-inch fall with rope and cathead. The sampler was driven 18 inches and the number of blows were recorded as field blow counts for each 6 inches of penetration. The SPT N-value shown on the boring logs represent the accumulated number of blows that were required to drive the last 12 inches, or the number of inches indicated where hard resistance was encountered. A sampler barrel size correction factor of 0.6 was applied to the blow counts from the Modified California sampler. The recorded blow counts have not been corrected for other factors, such as hammer efficiency, borehole diameter, rod length, overburden pressure, and fines content.

Previously, several exploratory borings to a maximum depth of about 31 feet were performed by SFB in 2002, 2004, and 2024 in the site vicinity. The locations of these previous borings are also shown on **Figure 2**. Logs of the previous explorations and associated laboratory testing results of retrieved soil samples are provided in **Appendix C** for reference. These previous field and lab results have been incorporated into our geotechnical engineering analyses for the project.

It should be noted that changes in the surface and subsurface conditions can occur over time as a result of either natural processes or human activity and may affect the validity of the conclusions and recommendations in this report. In addition, our attached exploration logs and related information show our interpretation of the subsurface conditions at the dates and locations indicated, and it is not warranted that they are representative of subsurface conditions at other locations and times.

3.2 Laboratory Testing

Our laboratory testing program for the project was directed toward a quantitative and qualitative evaluation of the physical and mechanical properties of the soils underlying the site. This program included the following testing:

- Fifteen moisture content and dry unit weight determinations per ASTM D2116 and D2937;
- Six sieve analyses per ASTM C136, D422, and/or D1140; and
- An R-value test per Caltrans Test 301.

All tests were performed by our geotechnical laboratory in Concord, California and Construction Materials Testing, Inc. (CMT) laboratory in Livermore, California. The results of the testing are included on the exploration logs and plotted laboratory results are also included in **Appendix B**.

Five selected onsite soil samples were tested by CERCO Analytical, Inc. in Concord, California for pH (ASTM D4972), chlorides (ASTM D4327), sulfates (ASTM D4327), sulfides (ASTM D4658M), resistivity at 100% saturation (ASTM G57), and Redox potential (ASTM D1498). The test results and a brief evaluation summary report prepared by CERCO regarding the onsite soils' potential for corrosion of concrete and buried metal such as utilities and reinforcing steel are included in **Appendix B**. We recommend these corrosion test results be forwarded to the project's underground contractors, pipeline designers, concrete contractors, and foundation designers and contractors.

3.3 Surface Conditions and Site Development History

At the time of our investigation and as shown on **Figure 2**, the proposed new development site was located to the southeast of the existing school campus. A northwesterly flowing, gentle, natural hillside drainage swale was located to the northwest of the site. A relatively low basin area was located to the southeast of the site.

The site consisted of several previously mass-graded level building pads. The existing site grade elevations were at about 380 to 390 feet (datum unknown). The surrounding hillside slopes had inclinations varying from about 2:1 (horizontal to vertical) to about 10:1. At the time of our field exploration, the building pads were vacant and surrounded by the remaining asphalt concrete paved driveways and dirt parking lots. According to our boring results (from Borings EB-11 and EB-13), the existing parking lot pavement consisted of about 5 to 6 inches of asphalt concrete and about 6 to 7 inches of aggregate base. The existing pavement was generally in a poor condition.

Portions of the ground surface were covered with low to moderate growths of weeds and grasses. Small diameter trees were generally located around the pads. Dense trees and shrubs covered the hillside drainage swale and slopes surrounded the site.

Based on our review of historical topographic maps and aerial photographs of the site and vicinity, cut and fill grading had been performed in the past at the site to create the existing level pads. Grading of unknown extent also appeared to have performed at the basin area. The site was previously occupied by several military buildings built in the 1950s and 1960s. These buildings were demolished and removed in 2021 or 2022.

3.4 Subsurface Conditions

Based on the results of the borings and field mapping, we estimate the site is generally underlain by man-made fills (Qaf) of about 2 to 7 feet deep. It appears the deeper fills are located within the southern portion of the site where a previous hillside drainage swale likely existed before the military development. This previous drainage swale connected the basin area at the southeast of the site to the drainage swale at the northwest of the site. Deeper fills also possibly exist on the slope along the northeast boundary of the eastern development area. These fills may be heterogenous, weak, and compressible if they were not placed in accordance with acceptable geotechnical engineering standards. In addition, demolition of the previous military buildings (and their associated foundations) and improvements may have disturbed and weakened the upper 2 to 3 feet of surface fills and soils.

Below the surficial fill layers, medium dense to dense, slope wash silty sands of about 2 to 5 feet thick generally overlay medium dense to very dense, older dune sands (Qod) that extend to the maximum depth explored of about 31-1/2 feet at the site. Our estimated geologic contacts between the various materials are shown on **Figure 2**. Our interpreted subsurface soil conditions are shown on **Figures 5 and 6**.

The onsite sandy fills and soils are generally non-plastic and have a low expansion. Detailed information of soils encountered by our exploration are indicated on the exploration logs in **Appendix A**. Results of laboratory testing of onsite soils are included in **Appendix B**. Logs of the previous explorations and laboratory testing results are provided in **Appendix C.**

3.5 Groundwater

No groundwater was encountered in our borings to the maximum depth explored of about 31-1/2 feet. It should be noted that our borings might not have been left open for a sufficient period of time to establish equilibrium groundwater conditions.

Fluctuations in the groundwater level could occur due to change in seasons, variations in rainfall, hillside seepage, and other factors. It is likely that during rainfall events, localized groundwater or seepage may develop within the fills and soils below the site and on the hillside slopes, and will seep toward lower elevations.

3.6 Hydrologic Soil Group

The surface soils at the site have been mapped by the USDA Natural Resource Conservation Services (NRCS) Web Soil Survey (WSS)[4] and categorized as Oceano loamy sand, 2 to 15 percent slope (Uni OaD). This map unit was assigned to Hydrologic Soil Group A by USDA and was estimated to have high to very high transmission rates (approximately 6 to 20 inches per hour). Group A soils are defined as having a high infiltration rate (low runoff potential) when thoroughly wet and consist mainly of deep, well drained to excessively drained sands or gravelly sands.

Actual field infiltration rates will depend on the in-situ soil type, moisture, relative density, gradation, and fines content of soils, whether any water impeding clay layers exist at shallow depth, and proper and regular maintenance of the infiltration facilities. If needed, we recommend field Double Ring Infiltrometer Tests (ASTM D3385) be performed at the potential infiltration depths to evaluate the field infiltration rates.

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[4] USDA NRCS, https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx, accessed 3/4/2024.

4.0 GEOLOGIC CONDITIONS AND HAZARDS

4.1 Regional Geology and Faults

According to Wagner, et al (2002)[5] and as shown on **Figure 3, Regional Geologic Map**, the project site (below surficial fills and slope wash soils) is underlain by Pleistocene older dune sand. Rosenberg (2001)[6] further describes the onsite soils as Pleistocene eolian deposits consisting of weakly to moderately consolidated, moderately to well-sorted silt and fine-to medium-grained sands that have been deposited in extensive coastal dune fields. Rosenberg (2001)[7] also identifies these soils as being a moderate erosion hazard. These soils are part of the Salinian Block located west of the San Andreas fault and are estimated to be up to about 100 feet in thickness. The subsurface soil conditions encountered by the borings at the site are consistent with the regional geologic mapping.

The project site is located in the Monterey Bay area, which is considered one of the most seismically active regions in the United States. Significant earthquakes have occurred in the area in the past and are associated with crustal movements along a system of sub-parallel fault zones that generally trend in a north-westerly direction. The approximate distances from the site to the mapped seismic hazard fault sources within about 60 miles (100 kilometers) and the estimated fault seismicity from the USGS National Seismic Hazard Maps database (2008)[8] are summarized in the table below. In addition, locations of Quaternary faults and associated folds from the USGS database[9] are also shown on **Figure 4, Regional Fault and Seismicity Map**.

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[5] Wagner, Greene, Saucedo, and Pridmore, 2002, Geologic Map of the Monterey 30'x60' Quadrangle and Adjacent Areas, California, USGS Monterey Quadrangle Sheet.

[6] Rosenberg, 2001, Digital Geologic Map of Monterey County, California, Monterey County 21st Century General Plan Update, Sheets 1 and 2.

[7] Rosenberg, 2001, Digital Map Showing Relative Soil Erosion Hazards of Monterey County, California, Monterey County 21st Century General Plan Update, Sheet 6.

[8] Obtained from USGS, 2008. National Seismic Hazard Maps – Source Parameters website, https://earthquake.usgs.gov/cfusion/hazfaults_2008_search/query_main.cfm. Last accessed 3/4/2024.

[9] Obtained from U.S. Geological Survey and New Mexico Bureau of Mines and Mineral Resources, Quaternary fault and fold database for the United States, https://www.usgs.gov/natural-hazards/earthquake-hazards/faults. Last accessed 3/4/2024.

REGIONAL FAULT AND SISMICITY

Fault	**Approximate Closest Distance Between Site and Fault (Miles)**	**Direction from Site to Fault**	**Estimated Maximum Earthquake Moment Magnitude (M_w)**
Reliz/Rinconada	3.7	Northeast	7.5
Monterey Bay-Tularcitos	4.8	Southwest	7.3
San Gregorio	12.9	Southwest	7.5
Zayante-Vergeles	16.2	Northeast	7.0
San Andreas	20.7	Northeast	8.1
Calaveras	26.0	Northeast	7.0
Quien Sabe	31.3	Northeast	6.6
Hosgri	34.0	South	7.3
Monte Vista-Shannon	39.6	Northwest	6.5
Ortigalita	46.5	Northeast	7.1
Great Valley	54.9	Northeast	6.8
Hayward-Rodgers Creek	56.5	North	7.3

The site is not located within an Alquist-Priolo Earthquake Fault Zone as designated by the State of California (2018)[10]. Rosenberg (2001) [11] maps the site as having no known earthquake faults intersecting the site. Therefore, it is our opinion that the potential for ground surface rupture due to a fault crossing the site is low.

4.2 Seismicity

Major earthquakes have been recorded along the San Andreas Fault system since the mid-1500s. According to CGS Map 48 (2016)[12] and as shown on **Figure 4, Regional Fault and Seismicity Map**, from 1769 to 2015, about 16 past earthquake epicenters that caused earthquakes equal to or larger than magnitude 6.0 are located within about 60 miles (100 kilometers) of the site.

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[10] California Department of Conservation, Earthquake Fault Zones, CGS Special Publication 42, Revised 2018.

[11] Rosenberg, 2001, Digital Map Showing Relative Fault Hazards of Monterey County, California, Monterey County 21st Century General Plan Update, Sheet 8.

[12] California Geological Survey, Revised 2016, Earthquake Shaking Potential for California, Map Sheet 48.

The most significant recent seismic event occurred in the area was the October 17, 1989, Loma Prieta earthquake. The epicenter of this earthquake was located at about 28 miles northwest of the site. This moment magnitude 6.9 earthquake ruptured a 22-mile (35-km) section on a splay of the San Andreas fault. Peak ground accelerations of about 0.16g had been reported from a record station located at about 1-1/2 mile northeast of the site (based on USGS ShakeMap Record Station DeweyOBS_141, 93941 Fort Ord).

Earthquake intensities will vary throughout the region, depending upon numerous factors including the magnitude of earthquake, the distance of the site from the causative fault, and the type of materials underlying the site. The U.S. Geological Survey (2016)[13] indicated that there is a 72 percent chance of at least one magnitude 6.7 or greater earthquake striking the San Francisco Bay region between 2014 and 2043. Therefore, the site will be subjected to earthquakes that cause strong ground shaking.

According to 2022 CBC/ASCE 7-16, the site modified geometric mean peak ground acceleration (PGA_M) from a Maximum Considered Earthquake (MCE) event is estimated to be about 0.63 g based on a stiff soil condition (Site Class D). The MCE peak ground acceleration generally has a 2% probability of being exceeded in 50 years (a mean return period of 2,475 years) except where deterministically capped along highly active faults.

According to the U.S. Geological Survey's Unified Hazard Tool and applying the Dynamic: Conterminous U.S. 2014 model (v4.2.0)[14], the resulting deaggregation calculations indicate that the site has a 10% probability of exceeding a peak ground acceleration of about 0.42g in 50 years (a ground motion based on a Site Class D, with a mean return period of 475 years).

The actual ground surface acceleration might vary depending upon the local seismic characteristics of the underlying bedrock and the overlying soils.

4.3 Landsliding

Rosenberg (2001)[15] maps the site and vicinity as having low susceptibility to earthquake induced landsliding and the site is not in close proximity of areas having higher landslide susceptibility.

During our geologic reconnaissance, we did not observe evidence of landsliding and adverse drainage conditions within and near the site. It is our opinion that, based on the results of geologic

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[13] Aagaard, Blair, Boatwright, Garcia, Harris, Michael, Schwartz, and DiLeo, Earthquake Outlook for the San Francisco Bay Region 2014–2043, USGS Fact Sheet 2016–3020, Revised August 2016 (ver. 1.1).

[14] USGS Unified Hazard Tool, https://earthquake.usgs.gov/hazards/interactive/, accessed 3/4/2024.

[15] Rosenberg, 2001, Digital Map Showing Relative Earthquake-Induced Landslide Susceptibility of Monterey County, California, Monterey County 21st Century General Plan Update, Sheet 9.

literature review, geologic reconnaissance, and exploratory borings, the potential for landsliding at the site is low provided the recommendations contained in this report (which include removal and re-compaction of the existing historical fills and weak soils, and proper improvement setback from slopes) are implemented in the design and construction of the project.

4.4 Liquefaction

Soil liquefaction is a phenomenon primarily associated with saturated cohesionless soil layers. These soils can dramatically lose strength due to increased pore water pressure during cyclic loading, such as imposed by earthquakes. During the loss of strength, the soils acquire mobility sufficient to permit both horizontal and vertical movements. Soils that are most susceptible to liquefaction are clean, loose, uniformly graded, saturated sands that lie close to the ground surface; although, liquefaction can also occur in fine-grained soils, such as low-plasticity silts.

As of the date of this report, the liquefaction potential of the site and surrounding area has not been evaluated by the State of California[16]. Rosenberg (2001)[17] has mapped the site being located in an area having low liquefaction susceptibility. Based on our review of available literature and the results of field explorations at the site, it is our opinion that the potential for ground surface damage at the site resulting from liquefaction is low.

4.5 Tsunami

According to CGS Tsunami Hazard Area Map (2021)[18], the site is not located in a designated tsunami hazard area. In addition, the site is located at an elevation of about 380 feet (Based on 2021 USGS topographic map and the NAVD 88 datum) and about 1.7 miles from coast line. Therefore, it is our opinion that the potential for a tsunami to impact the site development is low.

4.6 Flooding and Dam Inundation

According to FEMA Flood Insurance Rate Map (2017)[19], the site is located outside a 100-year flood zone. According to the Department of Water Resources (DWR) Division of Safety of Dams (DSOD)[20] and its available dam breach inundation maps, the San Antonio Dam located in southern Monterey County and the Nacimiento Dam located in northern San Luis Obispo County, if they

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[16] Seismic Hazards Mapping Act, 1990.

[17] Rosenberg, 2001, Digital Map Showing Relative Liquefaction Susceptibility of Monterey County, California, Monterey County 21st Century General Plan Update, Sheet 10.

[18] California Geological Survey, 2021, Tsunami Hazard Area Map, County of Monterey, March 23.

[19] Federal Emergency Management Agency, 2017, Flood Insurance Rate Map (FIRM), Map No. 06053C0195H, June 21.

[20] Department of Water Resources, Division of Safety of Dams, https://fmds.water.ca.gov/webgis/?appid=dam_prototype_v2, accessed 3/4/2024.

were to breach, will release water through Salinas Valley toward the coast. However, the site is not located within the inundation area boundaries of these two dams. Therefore, the potential for flooding or inundation of the site due to dam failure is considered to be low.

4.7 Expansive Soils

The site is underlain by sandy man-made fills, slope wash sands, and older dune sands. The sandy fills and soils are generally non-plastic and have a low expansion potential. Therefore, the potential for an expansive soil hazard at the site is low.

4.8 Compressible Soils

Man-made fills of about 2 to 7 feet generally blanketed the site surface. It appears the deeper fills are located within the southern portion of the site where a previous hillside drainage swale likely existed before the military development. This previous drainage swale connected the basin area at the southeast of the site to the drainage swale at the northwest of the site. These fills may be heterogenous, weak, and compressible if they were not placed in accordance with acceptable geotechnical engineering standards. Demolition of the previous military buildings (and their associated foundations) and improvements may also have disturbed and weaken the upper 2 to 3 feet of surface fills and soils. In addition, portions of the underlying slope wash soils may be weak if they contain loose pockets.

In order to reduce the potential for damaging differential settlement of overlying improvements (such as new fills, building foundations, retaining walls, exterior flatwork, and pavements), we recommend these historical fills and weak soils be completely removed and re-compacted in accordance with the recommendations presented in this report. The over-excavation should extend to depths where competent native soils are encountered.

4.9 Corrosive Soils

Five soil samples were retrieved from the borings, tested for corrosion properties by CERCO Analytical, Inc., and a brief evaluation summary report was prepared by CERCO which is included in **Appendix B**. According to the report, the onsite near-surface soils should be considered as moderately corrosive based on resistivity and redox potential measurements. We recommend these corrosion test results be forwarded to the project's underground contractors, pipeline designers, concrete contractors, and foundation designers and contractors, and appropriate corrosion protection measures should be implemented for the project improvements if necessary.

4.10 Naturally Occurring Asbestos

Inhalation of asbestos fibers may cause cancer. Most commonly, asbestos occurrences are associated with serpentinite and partially serpentinized ultramafic rocks. Asbestos occurs naturally in certain geologic settings in California. Exposure and disturbance of rock and soil that contains asbestos can result in the release of fibers to the air and consequent exposure to the public. Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentinite and often contains chrysotile asbestos. In addition, tremolite, another form of asbestos, can be found associated with ultramafic rock, particularly near faults. Sources of asbestos emissions include unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present.

The older dune sand deposit underlying the site region is estimated to be on the order of 100 feet deep. Therefore, it is our opinion that the potential for naturally occurring asbestos occurring at the site is low.

5.0 CONCLUSIONS AND RECOMMENDATIONS

It is our opinion that the site is suitable for the proposed project from a geologic and geotechnical engineering standpoint. The conclusions and recommendations presented in this report should be incorporated in the design and construction of the project to reduce soil or foundation related issues. The following are the primary geotechnical considerations for development of the site.

WEAK FILLS AND SOILS: As described previously, the site is generally blanketed by man-made fills of about 2 to 7 feet deep. It appears the deeper fills are located within the southern portion of the site where a previous hillside drainage swale likely existed before the military development. This previous drainage swale connected the basin area at the southeast of the site to the drainage swale at the northwest of the site. Deeper fills also possibly exist on the slope along the northeast boundary of the eastern development area. These fills may be heterogenous, weak, and compressible if they were not placed in accordance with acceptable geotechnical engineering standards. Demolition of the previous military buildings (and their associated foundations) and improvements may have disturbed and weakened the upper 2 to 3 feet of surface fills and soils. In addition, portions of the underlying slope wash soils may be weak if they contain loose pockets.

In order to reduce the potential for damaging differential settlement of overlying improvements (such as new fills, building foundations, retaining walls, exterior flatwork, and pavements), we recommend these weak fills and soils be completely removed and re-compacted. There would be no need to over-excavate the soils within flat areas that do not support improvements, such as within landscaping areas located on flat ground. Deeper removal will be needed in areas where thicker weak fills and soils are encountered during grading. The over-excavation should extend to depths where competent soils are encountered. The over-excavation and re-compaction should also extend at least 5 feet beyond building footprints and at least 3 feet beyond exterior flatwork and pavement wherever possible.

Where the over-excavation limits abut adjacent, existing structures or improvements, SFB should be consulted to determine the actual vertical and lateral extent of over-excavation so that adjacent structures or improvements are not adversely impacted. Over-excavations should be performed so that no more than 5 feet of differential fill thickness exists below proposed building foundations. The extent of the removal and re-compaction may vary across the site and should be determined in the field by SFB at the time of the earthwork operation. The removed fills and soils can be used as new fill provided they are placed and compacted in accordance with the recommendations presented in this report.

SETBACKS FROM SLOPES: In order to reduce damage of buildings and improvements caused by potential slope erosion and slumping, appropriate slope setbacks should be used for the project.

We recommend setbacks be established by projecting a 2:1 (horizontal to vertical) line from the toe of the slopes upward toward the improvements. Where the projected line intersects the finished ground surface, we recommend improvements (such as roadways, walkways, and patios) be setback at least 5 feet from the intersection or at least 5 feet from top of the slope, whichever is greater. Buildings and structures should be setback at least 10 feet from the intersection or at least 10 feet from top of the slope, whichever is greater. We should be further consulted to provide design alternatives if it is impractical to setback buildings and improvements. Where necessary, deepened edges or retaining structures can be used to support the buildings and improvements that are located adjacent to or near slopes.

We recommend the project Civil Engineer determine the actual improvement and building setback based upon the recommendations provided in this report, the California Building Code, and local ordinances, and any other restrictions. Improvements located between the setback line and the slope may experience movement as a result of slope erosion, localized slumping, earthquake shaking, and other factors.

CORROSION POTENTIAL: Five selected onsite soil samples were tested for pH (ASTM D4972), chlorides (ASTM D4327), sulfates (ASTM D4327), sulfides (ASTM D4658M), resistivity at 100% saturation (ASTM G57), and Redox potential (ASTM D1498) for use in evaluating the potential for corrosion on concrete and buried metal, such as utilities and reinforcing steel. The results of these tests and brief evaluation summary of the results are included in **Appendix B**. We recommend these test results and brief evaluation summary be forwarded to your concrete contractors, underground contractors, pipeline designers, and foundation designers and contractors so they can design and install corrosion protection measures.

Please be aware that we are not corrosion protection experts; we recommend corrosion protection measures be designed and constructed so that all concrete and metal, including foundation reinforcement, are protected against corrosion. We also recommend additional testing be performed if the test results are deemed insufficient by the designers and installers of the corrosion protection. Landscaping soils typically contain fertilizers and other chemicals that can be highly corrosive to metals and concrete; landscaping soils commonly are in contact with foundations. Consideration should be given to testing the corrosion potential characteristics of proposed landscaping soils and other types of imported or modified soils in order to design and provide protection against corrosion for the foundation and pipelines.

SEEPAGE, SURFACE, AND SUBSURFACE WATER: Water seepage will occur during and after periods of rainfall and as a result of irrigation by “upstream” neighbors. We recommend concrete v-ditches or earthen swales and subdrains be installed along the development boundaries where surface and subsurface water is directed toward the planned improvements from the open space hillside slopes. The collected surface water from the ditches or swales and subsurface water from subdrains should be discharged to appropriate locations, such as storm drain facilities. After construction is complete, seepage may occur below the ground surface resulting from irrigation and storm water flow develop over time. Surface water should not be allowed to flow over the top of slopes and retaining walls. The actual location and extent of subdrains should be assessed by SFB during the development of the grading and improvement plans, and determined in the field by SFB at the time of construction.

EROSION AND SLOPE MAINTENANCE: Drainage and erosion control measures should be maintained during and after construction. Short-term and long-term erosion control are critical for the stability of any exposed cut and fill slopes, and may be necessary for the natural slopes in order to reduce sediment accumulation in the drainage systems. We recommend all exposed cut and fill slopes be seeded or planted with appropriately designed erosion resistant vegetation and fertilizer. The vegetation should be appropriately irrigated in order to establish and maintain growth. Over-watering must be avoided in order to reduce surficial instability and erosion. Vegetation should be deeply rooted to aid in the interlocking of the near-surface soils. Additional seeding and planting may be necessary in localized areas if the initial seeding or planting is unsuccessful. After seeding, fertilizing, and planting, staked erosion control blankets might be necessary to further stabilize the surficial soils.

Additional erosion control measures will need to be designed and implemented prior to the rainy season based upon the site's configuration. The measures could include straw wattles, silt fencing, hay bales, sediment collection basins, and filtration systems. Silt fencing should be designed for the site's soil type. Storm water discharge and release points from silt fencing should be designed to reduce erosion. In areas exposed to winter rains, we recommend an erosion control plan be prepared and implemented at least one month prior to the beginning of the rainy season. The erosion control measures will require inspection, modification, and re-mediation during the rainy season in order to comply with regulatory requirements.

ADDITIONAL RECOMMENDATIONS: Detailed earthwork, underground utility, drainage, building foundation, retaining wall, and flatwork recommendations for use in design and construction of the project are presented below. We recommend SFB review the design and specifications to verify that the recommendations presented in this report have been properly interpreted and implemented in the design, plans, and specifications. We also recommend SFB be retained to provide consulting services and to perform construction observation and testing services during the construction phase of the project to observe and test the implementation of our recommendations, and to provide supplemental or revised recommendations in the event conditions different than those described in this report are encountered. We assume no responsibility for misinterpretation of our recommendations.

It is the responsibility of the contractors to provide safe working conditions at the site at all times. We recommend all OSHA regulations be followed, and excavation safety be ensured at all times. It is beyond our scope of work to provide excavation safety designs.

5.1 Earthwork

5.1.1 Clearing and Site Preparation

The site should be cleared of all obstructions, including existing structures and their entire foundation systems (if any), existing utilities and pipelines and their associated backfill, designated trees and their associated entire root systems, and debris. Holes resulting from the removal of underground obstructions extending below the proposed finish grade should be cleared and backfilled with fill materials as specified in **Section 5.1.4, *Fill Material*,** and compacted to the requirements in **Section 5.1.5, *Compaction***. Tree roots may extend to depths of about 3 to 4 feet. Wells and septic systems, if they exist, should be abandoned in accordance with Monterey County standards.

From a geotechnical standpoint, any existing trench backfill materials, clay or concrete pipes, pavements, baserock, and concrete that are removed can be used as new fill onsite provided debris is removed and it is broken up to meet the size requirement for fill material in **Section 5.1.4, *Fill Material***. We recommend fill materials composed of broken up concrete or asphalt concrete not be located within 3 feet of the ground surface in yard areas. Consideration should be given to placing these materials below pavements, directly under building footprints, or in deeper excavations. We recommend backfilling operations for any excavations be performed under the observation and testing of SFB. Crushed concrete materials from concrete demolition can be re-used onsite as aggregate base or subbase if they meet current Caltrans specifications for aggregate base or subbase based on laboratory testing results.

Portions of the site containing surface vegetation should be stripped to an appropriate depth to remove these materials. The amount of actual stripping should be determined in the field by SFB at the time of construction. Stripped materials should be removed from the site or stockpiled for later use in landscaping, if desired.

5.1.2 Weak Fill and Soil Re-Compaction

As described previously, the site is generally blanketed by man-made fills of about 2 to 7 feet deep. It appears the deeper fills are located within the southern portion of the site where a previous hillside drainage swale likely existed before the military development. This previous drainage swale connected the basin area at the southeast of the site to the drainage swale at the northwest of the site. Deeper fills also possibly exist on the slope along the northeast boundary of the eastern development area. These fills may be heterogenous, weak, and compressible if they were not placed in accordance with acceptable geotechnical engineering standards. Demolition of the previous military buildings (and their associated foundations) and improvements may also have disturbed and weaken the upper 2 to 3 feet of surface fills and soils. In addition, portions of the underlying slope wash soils may be weak if they contain loose pockets

In order to reduce the potential for damaging differential settlement of overlying improvements (such as new fills, building foundations, retaining walls, exterior flatwork, and pavements), we recommend these weak fills and soils be completely removed and re-compacted. There would be no need to over-excavate the soils within flat areas that do not support improvements, such as within landscaping areas located on flat ground. Deeper removal will be needed in areas where thicker weak fills and soils are encountered during grading. The over-excavation should extend to depths where competent soils are encountered. The over-excavation and re-compaction should also extend at least 5 feet beyond building footprints and at least 3 feet beyond exterior flatwork and pavement wherever possible.

Where the over-excavation limits abut adjacent existing structures or improvements, SFB should be consulted to determine the actual vertical and lateral extent of over-excavation so that adjacent structures or improvements are not adversely impacted. Over-excavations should be performed so that no more than 5 feet of differential fill thickness exists below proposed building foundations. The extent of the removal and re-compaction may vary across the site and should be determined in the field by SFB at the time of the earthwork operation.

The removed fill and soil materials may be used as new fill onsite provided they satisfy the recommendations provided in **Section 5.1.4, *Fill Material***. Compaction should be performed in accordance with the recommendations in **Section 5.1.5, *Compaction***.

5.1.3 Subgrade Preparation

After the completion of clearing, site preparation, and weak fill and soil re-compaction, soil exposed in areas to receive improvements (such as structural fill, building foundations, retaining walls, exterior flatwork, and pavements) should be scarified to a depth of about 12 inches, moisture conditioned to approximately 1 to 3 percent over optimum water content, and compacted to the requirements for structural fill. Subgrade preparation would not be necessary in areas where over-excavation and re-compaction of the surface soils have occurred.

If completed building pads and pavement subgrades are allowed to remain exposed to sun, wind or rain for an extended period of time, are heavily disturbed by vehicle traffic or animal borrowing, or experience vegetation growth, the exposed pads and subgrades may need to be reconditioned (moisture conditioned and/or scarified and recompacted) prior to foundation or pavement construction. SFB should be consulted on the need for pad and subgrade reconditioning.

5.1.4 Fill Material

From a geotechnical and mechanical standpoint, onsite soil and fill materials having an organic content of less than 3 percent by volume can be used as fill. Fill should not contain rocks or lumps larger than 6 inches in greatest dimension with not more than 15 percent larger than 2.5 inches. Larger sized rock may be used as fill onsite provided it is closely monitored, placed properly to achieve compaction, and are located at depths below anticipated, future excavations; SFB should be consulted regarding the use of larger rock pieces in fill materials. Imported fill should have a plasticity index of 12 or less and have a significant amount of cohesive fines.

In addition to the mechanical property specifications, all imported fill material should have a resistivity (100% saturated) no less than the resistivity for the onsite soils, a pH of between approximately 6.0 and 8.5, a total water-soluble chloride concentration less than 300 ppm, and a total water-soluble sulfate concentration less than 500 ppm. We recommend import samples be submitted for corrosion and geotechnical testing at least two weeks prior to being brought onsite.

5.1.5 Compaction

We recommend structural fills that consist of onsite sandy soils be compacted to at least 95 percent relative compaction, as determined by ASTM D1557 (latest edition). We recommend the new fills be moisture conditioned approximately 1 to 3 percent over optimum water content. The upper 6 inches of subgrade soils beneath pavements should be compacted to at least 95 percent relative compaction. Fill materials should be spread and compacted in lifts not exceeding approximately 8 to 12 inches in un-compacted thickness.

5.1.6 Utility Trench Backfill

Pipeline trenches should be backfilled with fill placed in lifts of approximately 8 inches in un-compacted thickness. Thicker lifts can be used provided the method of compaction is approved by SFB and the required minimum degree of compaction is achieved. Backfill should be placed by mechanical means only. Jetting is not permitted.

Onsite trench backfill should be compacted to at least 95 percent relative compaction. Imported sand trench backfill should be also compacted to at least 95 percent relative compaction and sufficient water is added during backfilling operations to prevent the soil from "bulking" during compaction. The upper 3 feet of trench backfill in foundation, slab, and pavement areas should be entirely compacted to at least 95 percent relative compaction. To reduce piping and settlement of overlying improvements, we recommend rock bedding and rock backfill (if used) be completely surrounded by a filter fabric such as Mirafi 140N (or equivalent); alternatively, filter fabric would not be necessary if Caltrans Class 2 permeable material is used in lieu of rock bedding and rock backfill.

Sand or gravel backfilled trench laterals that extend toward driveways, exterior slabs-on-grade, or under the building foundations, and are located below irrigated landscaped areas such as lawns or planting strips, should be plugged with onsite clays, low strength concrete, or sand/cement slurry. The plug for the trench laterals should be located below the edge of pavement or slabs, and under the perimeter of the foundation. The plug should be at least 24 inches thick, extend across the entire width of the trench, and extend from the bottom of the trench to the top of the sand or gravel backfill.

Where the bottoms of trenches are sloped steeper than 5 percent, we recommend a low permeability plug composed of low strength concrete or sand/cement slurry be installed in the utility trenches every 50 feet on-center. The plug will reduce piping/consolidation from water seepage that may cause roadway and trench surface settlement. The plug should be at least 12 inches thick and extend to within 1 foot of the finished ground surface or to the base of the pavement section.

5.1.7 Exterior Flatwork

We recommend that exterior slabs (including such as driveways, sidewalks, patios, exterior flatwork, etc.) be placed directly on the properly compacted fills. If imported granular materials are placed below these elements, subsurface water can seep through the granular materials and cause the underlying soils to saturate, pipe, and/or heave upward. Prior to placing concrete, subgrade soils should be moisture conditioned to increase their moisture content to approximately 1 to 3 percent above laboratory optimum moisture (ASTM D-1557).

The soils at the site could be subjected to volume changes during fluctuations in moisture content. As a result of these volume changes, some vertical movement of exterior slabs should be anticipated. This movement could result in damage to the exterior slabs and might require periodic maintenance or replacement. Adequate clearance should be provided between the exterior slabs and building elements that overhang these slabs, such as window sills or doors that open outward.

We recommend reinforcing exterior slabs with steel bars in lieu of wire mesh. To reduce potential crack formation, the installation of #4 bars spaced at approximately 24 inches on center in both directions should be installed. Score joints and expansion joints should be used to control cracking and allow for expansion and contraction of the concrete slab. We recommend appropriate flexible, relatively impermeable fillers be used at all cold/expansion joints. The installation of dowels at all expansion and cold joints will reduce differential slab movements; the dowels should be at least 30 inches long and should be spaced at a maximum lateral spacing of 24 inches. Although exterior slabs that are adequately reinforced will still crack, trip hazards requiring replacement of the slabs will be reduced if the slab are properly reinforced.

We do not recommend the use of flatwork having permeable joints (such as pavers or tiles with sand or gravel infilled joints) unless the underlying soil subgrade is protected against water seepage or ponding. If not protected, the underlying subgrade will heave, settle, and/or pipe and cause damage to the overlying improvements.

5.1.8 Construction During Wet Weather Conditions

If construction proceeds during or shortly after wet weather conditions, the moisture content of onsite soils could be significantly above optimum. Consequently, subgrade preparation, placement and/or reworking of onsite soil or fills as structural fill might not be possible. Alternative wet weather construction recommendations can be provided by our representative in the field at the time of construction, if appropriate. All the drainage measures recommended in this report should be implemented and maintained during and after construction, especially during wet weather conditions.

5.1.9 Surface Drainage, Irrigation, and Landscaping

Ponding of surface water must not be allowed on pavements, adjacent to foundations, at the top or bottom of slopes, and at the top or adjacent to retaining walls. Ponding of water should also not be allowed on the ground surface adjacent to or near exterior slabs, including walkways and driveways. Surface water should not be allowed to flow over the top of slopes, down slope faces, or over retaining walls. We recommend concrete v-ditches or earthen swales and subdrains be installed along the development boundaries where surface and subsurface water is directed toward the planned improvements from the open space hillside slopes. The collected surface and subsurface water should be discharged to appropriate locations, such as storm drain facilities.

We recommend positive surface gradients of at least 2 percent be provided adjacent to foundations to direct surface water away from the foundations and toward suitable discharge facilities. Roof downspouts and landscaping drainage inlets should be connected to solid pipes that discharge the collected water into appropriate water collection facilities. We recommend the surface drainage be designed in accordance with the latest edition of the California Building Code.

In order to reduce differential foundation movements, landscaping (where used) should be placed uniformly adjacent to foundations and exterior slabs. We recommend trees be no closer to structures or exterior slabs than half the mature height of the tree; in no case should tree roots be allowed to extend near or below foundations or exterior slabs.

Drainage inlets should be provided within enclosed planter areas and collected water should be discharged onto pavement, into drainage swales, or into storm water collection systems. In order to reduce the potential for water seepage, consideration should be given to lining planting areas and collecting the accumulated water in subdrain pipes that discharge to appropriate collection facilities. The drainage should be designed and constructed so that the moisture content of the soils surrounding the foundations do not become elevated and no ponding of water occurs. The inlets should be kept free of debris and be lower in elevation than the adjacent ground surface.

We recommend regular maintenance of the drainage systems be performed, including maintenance prior to rainstorms. The inspection should include checking drainage patterns to make sure they are performing properly, making sure drainage systems and inlets are functional and not clogged, and checking that erosion control measures are adequate for anticipated storm events. Immediate repairs should be performed if any of these measures appears to be inadequate.

Irrigation should be performed in a uniform, systematic manner as equally as possible on all sides of the foundations and exterior slabs to maintain moist soil conditions. Over-watering must be avoided. To reduce moisture changes in the natural soils and fills in landscaped areas, we recommend that drought resistant plants and low flow watering systems be used. All irrigation systems should be regularly inspected for leakage.

5.1.10 Subsurface Drainage

In order to reduce the potential for subsurface water related issues, we recommend subdrains be installed where open space areas direct subsurface water toward improvements, such as along the development boundaries at base of open space hillside slopes. During the earthwork operations, additional subdrains may be necessary in areas of encountered or anticipated seepage. We recommend a subdrain be located below lined ditches or earthen swales. The location and extent of subdrains should be assessed by SFB during the development of the grading and improvement plans, and determined in the field by SFB at the time of construction.

Where used, subdrains should consist of a 4-inch diameter, rigid perforated pipe (perforations down) surrounded by free draining, uniformly graded, 1/2- to 3/4-inch crushed gravel wrapped in filter fabric such as Mirafi 140N or equivalent. The pipe should be underlain by about 1/2 to 1 inch of gravel, and on the sides by at least 4 inches of gravel. The filter fabric should overlap approximately 12 inches or more at joints. Subdrains should be connected to a solid, rigid, collector pipe with a minimum diameter of 4 inches. Subdrain pipes should consist of rigid PVC SDR-35 or PVC A-2000 (or equal) for fills less than 20 feet in height, PVC SDR-23.5 or PVC Schedule 40 (or equal) for fills 20 to 50 feet in height, and PVC SDR-15.3 or PVC Schedule 80 (or equal) for fill greater than 50 feet in height. Collector pipes should be connected to appropriate discharge facilities such as storm drains, drainage inlets, or storm drain manholes. Subdrain clean-outs should be provided. The clean-out locations should be based upon the reach of the rotary cleaning systems and the restrictions of pipe bends. Caltrans Class 2 permeable material may be used in lieu of gravel and filter fabric.

Where used, subdrain trenches should be at least 12 inches wide and about 4 feet deep below adjacent ground surface. If a subdrain trench extends to the ground surface and is not covered with concrete lined ditch or concrete flatwork, we recommend the subdrain trench be covered with a 12-inch thick cap consisting of native soil compacted to at least 90 percent relative compaction.

5.1.11 Engineered Slopes

5.1.11.1 General

We recommend proposed cut and non-reinforced fill slopes not exceed an inclination of 2:1 (horizontal to vertical) when they are no more than 10 feet high. Slopes higher than 10 feet should not exceed an inclination of 3:1 unless we are further consulted to evaluate the slope stability. Steeper fill slopes are feasible provided they are mechanically reinforced with geogrid; if requested, SFB can provide detailed designs of slope reinforcing if needed. We recommend all cut and fill slopes be constructed with surface drainage collection and discharge facilities. Shallow slope movements such as surficial sloughing, toppling, and flows, could still occur as a result of erosion and unanticipated water infiltration. To decrease the potential for shallow slope movement, the drainage and erosion control recommendations presented in this report should be implemented in the design and construction of the site. The implemented drainage and erosion control measures should be maintained during and after construction. Slope benches should be constructed in accordance with the latest edition of the California Building Code. Slope maintenance may include re-establishing drainage patterns, controlling water infiltration, and repairing shallow slope movements.

5.1.11.2 Fill Slopes

We recommend proposed fill slopes be built using well blended, moisture conditioned, engineered fill to reduce the potential for slope expansion and creeping. We also recommend that fill slopes be over-built approximately 2 feet horizontally and then trimmed back to finished grades.

Where fills are placed on slopes steeper than 6:1 (horizontal to vertical), fills should be keyed at least 5 feet into competent native soils. Keyways should be at least 10 feet wide and a subdrain should be placed at the bottom and to the rear of each keyway. The keyway should be sloped toward the back of the key at 2 percent or steeper. A subgrade bench and subdrain should be provided for approximately every 10 feet of vertical elevation gain, and the bench should extend at least one foot into competent soils. Subdrain construction is described in **Section 5.1.10, *Subsurface Drainage***.

If requested, SFB can prepare a geotechnical improvement plan to indicate the estimated locations of keyways and subdrains once the project grading plans are developed. The actual extent of the keying, benching, and subdrainage should be verified by SFB during earthwork operations.

5.1.11.3 Unstable Cut Slopes

Where cut slopes expose unstable soils, the unstable materials should be removed in accordance with the recommendations provided in **Section 5.1.2, *Weak Fill and Soil Re-Compaction***. Cut slopes may need to be buttressed with engineered fill. Cut slopes should be observed by SFB at the time of grading to determine the actual extent of over-excavation and to assess the need for any additional remedial work.

5.1.12 Setbacks

In order to reduce damage of buildings and improvements caused by potential slope erosion and slumping, appropriate slope setbacks should be used for the project. We recommend setbacks be established by projecting a 2:1 (horizontal to vertical) line from toe of the upward toward the improvements. Where the projected line intersects the finished ground surface, we recommend improvements (such as roadways, walkways, and patios) be setback at least 5 feet from the intersection or at least 5 feet from top of the slope, whichever is greater. Buildings and structures should be setback at least 10 feet from the intersection or at least 10 feet from top of the slope, whichever is greater. We should be further consulted to provide design alternatives if it is impractical to setback buildings and improvements. Where necessary, deepened edges or retaining structures can be used support the buildings and improvements that are located adjacent to or near slopes.

We recommend the project Civil Engineer determine the actual improvement and building setback based upon the recommendations provided in this report, the California Building Code, and local ordinances, and any other restrictions. Improvements located between the setback line and the slope may experience movement as a result of slope erosion, localized slumping, earthquake shaking, and other factors.

5.1.13 Storm Water Treatment Facilities

To satisfy local and state permit requirements, most new development projects must control pollutant sources and reduce, detain, retain, and/or treat specified amounts of storm water runoff. The intent of these types of storm water treatment facilities is to conserve and incorporate on-site natural features, together with constructed hydrologic controls, to more closely mimic pre-development hydrology and watershed processes. These facilities include bio-retention swales and basins, porous paver and pavement, water detention basins, and any proprietary underground storage and treatment systems.

In general, we recommend the portion of the storm water treatment facilities that are within 10 feet of structure foundations and improvements (such as building foundations, exterior flatwork, and pavements) be lined with a relatively impermeable membrane to reduce water seepage and the potential for damage and distress to the adjacent structures and improvements. The lining can consist of a relatively impermeable membrane such as STEGO Wrap 15-mil or equivalent. The membrane should be lapped and sealed in accordance with the manufacturer's specifications, including taping joints where pipes penetrate the membrane.

Soil filter/bio-mix materials within basins and swales will consolidate over time causing long-term ground surface settlement. Additional filling within the basins and swales over time will be needed to maintain design surface elevations. The soil filter/bio-mix materials, infiltration testing and procedures, and associated compaction requirements should be specified by the Civil Engineer and shown in detail on the grading and improvement plans.

Soil filter/bio-mix materials provide little to no lateral restraint of excavation side walls. Sidewalls of bio-retention swale and basin excavations (excavations made prior to the installation of the soil filter/bio-mix) steeper than 2:1 (horizontal to vertical) will experience downward and lateral movements that can cause distresses to adjacent improvements such as foundations, utilities, pavements, driveways, walkways, and curbs and gutters. The magnitude and rate of movement depend upon the swale and basin backfill material type and compaction. To reduce the potential for damaging movements, we recommend 2:1 or flatter excavation sidewall slopes be used for bio-retention swales and basins, sidewalks be setback at least 3 feet from the top of slopes, and creep sensitive improvements (such as roadway curbs) be setback at least 5 feet from the top of slopes. If the above sidewall slope and setback distance cannot be met, considerations should be given to using below-grade concrete sidewalls that are designed and constructed as retaining walls. Alternatively, deepened sidewalk slab edge or roadway curbs can be used and designed to resist lateral earth pressures and act as a retaining wall. SFB should be consulted to evaluate the need for sidewall restraint when swales or basins are planned. We also recommend SFB observe and document the installation of liners, subdrain pipes, and soil filter/bio-mix materials during construction for conformance to the recommendations in this report and the development's plans and specifications.

Where used, proprietary underground storage and treatment systems should be installed and maintained in accordance with the manufacturer's specifications. In addition, the manufacturer should be consulted for vertical and lateral bearing capacities and anticipated deformations of these systems if they will also support exterior slabs and pavements that are subjected to vehicular traffic.

5.1.14 Future Maintenance

In order to reduce water related issues, we recommend regular inspection and maintenance of the site be performed, including maintenance prior to rainstorms. Inspections should include checking drainage patterns, making sure drainage systems are functional and not clogged, and erosion control measures are adequate for anticipated storm events. Immediate repair should be performed if any of these measures appears to be inadequate. Temporary and permanent erosion and sediment control measures should be installed over any exposed soils immediately after repairs are made. Maintenance should include the re-compaction of loosened soils, collapsing and infilling holes with compacted soils or low strength sand/cement grout, removal and control of digging animals, modifying storm water drainage patterns to allow for sheet flow into drainage inlets or ditches rather than concentrated flow or ponding, removal of debris within drainage ditches and inlets, and immediately repairing any erosion or soil flow.

Differential movement of exterior slabs can occur over time as a result of numerous factors. We recommend development owners perform inspections and maintenance of the slabs, including infilling significant cracks, providing fillers at slab offsets, and replacing slabs if severely damaged.

5.1.15 Additional Recommendations

We recommend that the drainage, irrigation, landscaping, and maintenance recommendations provided in this report be forwarded to your designers and contractors, and we recommend they be also included in disclosure statements given to the owners and their maintenance groups.

5.2 Foundation Support

5.2.1 Footing Foundations

The new buildings can be supported on conventional continuous and isolated spread footings that bear on engineered fills and/or competent native soils. Recommendations for building pad preparation are described previously in **Sections 5.1.2, *Weak Fill and Soil Re-Compaction***, and **5.1.3, *Subgrade Preparation***. Prior to the concrete pour, we recommend the moisture content of subgrade materials be approximately 1 to 3 percent above laboratory optimum moisture. If the building pad is left exposed for an extended period of time prior to constructing foundations, we recommend SFB be contacted for recommendations to re-condition the pads in order provide adequate building support.

Footings should be embedded at least 18 inches below the lowest adjacent finished grade. The footing dimension and reinforcement should be designed by the Structural Engineer; however, continuous and isolated spread footings should have minimum widths of 12 and 18 inches, respectively. The portion of the foundations located within 10 feet (as measured laterally) of the nearest slope face should be neglected in the vertical bearing and lateral resistance analyses. Also, the portions of the foundations located above an imaginary 1:1 (horizontal to vertical) plane extending upward from the bottom edges of any adjacent footings and utility trenches should also be neglected in the vertical bearing and lateral resistance analyses. Alternatively, the foundation reinforcing could be increased to span the area defined above assuming no soil support is provided or the bottom of foundation could be deepened to bear below the area defined above.

Our recommended allowable spread footing bearing pressures are provided below. These allowable bearing pressures are net values; therefore, the weight of the footing can be neglected for design purposes.

ALLOWABLE SPREAD FOOTING BEARING PRESSURES

Load Condition	Allowable Bearing Pressures (psf)	Factor of Safety
Dead Load	2,000	3.0
Dead plus Live Loads	3,000	2.0
Total Loads (including Wind or Seismic)	4,000	1.5

We estimate maximum total settlement of foundations under the above recommended allowable bearing pressures to be on the order of 1 inch or less. Differential static settlement between similarly loaded footings is estimated to be approximately 1/2 inch.

Lateral loads may be resisted by a combination of friction between the foundation bottoms and the supporting subgrade and by passive resistance acting against the vertical faces of the foundations. A coefficient of sliding friction of 0.3 is considered applicable. In addition, an equivalent fluid weight of 300 pounds per cubic foot (pcf) acting against the side of the foundation may be used where the foundation concrete is poured neat against undisturbed subgrade. This passive resistance assumes a deflection of approximately 1/2 inch in order to fully mobilize the passive resistance. Passive resistance in the upper 18 inches of the footing as measured from finished grade should be neglected unless the area in front of the footing is protected by concrete or pavement from disturbance. The allowable friction coefficient and passive resistance may be used concurrently without reduction.

Any visible cracks in the bottoms of the footing excavations should be closed by wetting prior to construction of the footing foundations. We should observe the footing excavations prior to placing reinforcing steel or concrete to check that footings are founded on appropriate materials. All foundation excavations should be cleaned of loose materials and should be free of water. The footing excavations should be kept moist prior to concrete placement. Additional design and construction details and recommendations regarding slab subgrade and underlayment, concrete construction, curing, and corrosion protection are included in the section below. Raised wood floors, if used, should be structurally supported by the footings.

5.2.2 Interior Slabs-On-Grade

We recommend interior slabs-on-grade be at least 5 inches thick and be reinforced with a minimum of #4 bars on 18-inch centers (both ways). Slab-on-grade subgrade surfaces should be proof-rolled to provide a smooth, unyielding surface for slab support. Floor slab control joints should be used to control cracking due to concrete shrinkage.

We recommend a vapor retarder and an underlying 4-inch layer of 3/4-inch, clean, crushed, uniformly graded gravel/drain rock be placed between the bottom of the slabs and the supporting subgrade. Where the slabs will be subjected to vehicular loading, a 6-inch layer of Caltrans Class 2 aggregate base should be used instead of the 4-inch layer of gravel/drain rock.

A vapor retarder must be placed between the gravel/drain rock/aggregate base layer and the bottom of the slabs. We recommend the vapor retarder consist of a single layer of Stego Wrap Vapor Barrier 15 mil Class A or equivalent provided the equivalent satisfies the following criteria: a permeance as tested before and after mandatory conditioning of less than 0.01 Perms and strength of Class A as determined by ASTM E 1745 (latest edition), and a thickness of at least 15 mils. Installation of the vapor retarder should conform to the latest edition of ASTM E 1643 (latest edition) and the manufacturers requirements, including lapping and all joints at least 6 inches and sealing with Stego Tape or equal in accordance with the manufacturer's specifications. Protrusions where pipes or conduit penetrate the membranes should be sealed with either one or a combination of Stego Tape, Stego Mastic, Stego Pipe Boots, or a product of equal quality as determined by the manufacturer's instructions and ASTM E 1643. Care must be taken to protect the membrane from tears and punctures during construction. We do not recommend placing sand or gravel over the membrane. We recommend the vapor retarded membrane extend 12 inches into the grade beam or footing excavations prior to the concrete pour.

Concrete slabs retain moisture and often take many months to dry. Any water added during the concrete pour further increases the curing time. If the slabs are not allowed to completely cure prior to constructing the super-structure, the concrete slabs will expel water vapor which will be trapped under impermeable flooring. The concrete mix design for slabs should have a maximum water/cement ratio of 0.45; the actual water/cement ratio may need to be reduced if the concentration of soluble sulfates or chlorides in the supporting subgrade is detrimental to the concrete. If a higher water/cement ratio is being considered, we recommend higher vapor transmission be taken into account in the design and construction of the buildings.

We recommend the foundation designer determine if corrosion protection is needed for the foundation concrete and reinforcing steel. The results of sulfate and chloride testing of onsite soil and rock samples are included in **Appendix B**; the foundation designer should determine if additional testing is needed. In addition, we recommend you consult with your concrete slab designers and concrete contractors regarding methods to reduce the potential for differential concrete curing.

During the curing process, concrete slabs will shrink in volume resulting in cracks developing in the slab. Curing of concrete can take many months (or possibly longer) to complete. These concrete cracks may be visible on the surface of the slab during and after the curing process. In order to reduce the potential for crack propagation through overlying brittle surfaces such as tile or stone flooring, we recommend appropriate crack isolation measures be used between the concrete slab and flooring to reduce the potential for slab cracks to propagate into these brittle flooring surfaces.

We recommend that the interior slabs-on-grade (other than vehicular slabs) be poured monolithically with the grade beam or footing. The edge of the vehicular slabs should be structurally separated (disconnected) from the surrounding grade beams; a relatively impermeable and flexible filler should be used in the joint between the garage/vehicular slabs and the surrounding grade beams. We recommend a grade beam be provided directly below the door opening. Both the driveway and slabs should be doweled to the grade beam below the opening with rebars to reduce the potential for differential movements.

5.2.3 Pier Foundations

Alternatively, the new buildings can be supported on drilled, cast-in-place, straight shaft friction piers that develop their load carrying capacity in the materials underlying the site. The piers should have a minimum diameter of 12 inches and a center-to-center spacing of at least three times the shaft diameter. We recommend that piers be at least 8 feet long. Pier reinforcing should be based on structural requirements, but in no case should less than two #4 bars for the entire length of the piers be used.

Additional design and construction recommendations regarding interior slab-on-grade subgrade and underlayment are included in **Section 5.2.2, *Interior Slab-on-Grade***. Raised wood floors, if used, should be structurally supported by the piers.

The actual design depth of the piers should be determined using an allowable skin friction of 500 pounds per square foot (psf) for dead plus live loads, with a one-third increase for all loads including wind or seismic. We estimate maximum total and differential settlements of foundations under the above recommended allowable skin friction to be less than 1/2 inch.

Eighty percent of the skin friction value can be used to resist uplift. Lateral load resistance can be developed in passive resistance for pier foundations. We recommend an allowable soil passive resistance (which includes a factor of safety of 1.5) equal to an equivalent fluid weighing 300 pounds per cubic foot be used for pier foundations. This value can be used up to a maximum value of 3,600 psf. The passive resistance can be applied against twice the projected diameter of pier shaft if the piers are spaced center-on-center at least 3 times of the pier shaft diameter.

The upper 18 inches of pier embedment should be neglected in the vertical and passive resistance design as measured from finished grade. The portion of the pier shaft located within 10 feet (as measured laterally) of the nearest slope face or above an imaginary 1:1 (horizontal to vertical) plane extending upward from the bottom of any adjacent walls or utility trenches should also be ignored in both the vertical bearing and passive resistance designs.

Grade beams should be designed to span between the piers in accordance with the structural requirements. Grade beams should be reinforced with steel both top and bottom to provide structural continuity and permit spanning of irregularities. We recommend grade beams extend at least 12 inches into the subgrade to reduce the potential for surface water to flow below the grade beams.

The bottom of pier excavations should be relatively dry and free of all loose cuttings or slough prior to placing reinforcing steel and concrete. Any accumulated water in pier excavations should be removed prior to placing concrete. We recommend that the excavation of all piers be performed under the direct observation of SFB to confirm that the pier foundations are founded in suitable materials and constructed in accordance with the recommendations presented herein. Preliminarily, we recommend concrete pour of pier excavations be performed within 24 hours of excavation and prior to any rainstorms. Where caving or high groundwater conditions exist, additional measures such as using dewatering, casing, slurry, tremie methods, and/or pouring concrete immediately after excavating may be necessary. SFB should be consulted for additional measures for pier construction as needed during construction.

5.2.5 Retaining Walls

If segmental block walls with geogrid will be used at the site, SFB should be contacted to provide block wall and geogrid designs and specifications. The onsite sandy soils are suitable for use as geogrid reinforced fills.

Any walls that retain soils should be designed to resist both lateral earth pressures and any additional lateral loads caused by roadway surcharging, earthquake loading, and hydrostatic pressure if wall back-drainage is not provided. The global stability of the walls should also be evaluated where the walls will be located on slopes or where multi-tiered walls will be used.

If walls are allowed to deflect or rotate (unrestrained walls), they can be designed to resist active pressures. If no movement is allowed at the top of walls (restrained walls), at-rest pressures should be used in wall design. The recommended active and at-rest lateral earth pressures under both drained and undrained conditions are provided in the table below.

LATERAL EARTH PRESSURES FOR RETAINING STRUCTURES

Wall Condition	Backfill Condition	Drained Equivalent Fluid Pressure (pcf)	Undrained Equivalent Fluid Pressure (pcf)	Incremental Seismic Pressure (pcf)
Unrestrained (Active Pressure)	Level	40	80	30
Restrained (At-Rest Pressure)		60	90	60*

*Note: For restrained walls, use the static active pressure and seismic increment in the seismic design.

For retaining walls that need to resist earthquake induced lateral loads from nearby foundations, walls that retain buildings, walls that are to be designed to resist earthquake loads, and any retaining walls that are higher than 6 feet (as required by the 2022 CBC), we recommend the walls be designed to also resist an incremental seismic lateral earth pressure listed in the above table, using a triangular fluid pressure distribution (not inverted). This seismic induced earth pressure is in addition to the active pressures listed above. The seismic lateral earth pressures were estimated based on the half of the peak ground acceleration from a Maximum Considered Earthquake (MCE) earthquake per ASCE 7-16/2022 CBC (0.5 x PGA_M). Due to the transient nature of the seismic loading, a factor of safety of at least 1.1 can be used in the design of the walls when they resist seismic lateral loads. Some movement of the walls may occur during moderate to strong earthquake shaking and may result in distress as is typical for all structures subjected to earthquake shaking.

Walls with inclined backfill should be designed for an additional equivalent fluid pressure of 1 pound per cubic foot for every 2 degrees of slope inclination. Any surcharge loads located within an imaginary 1:1 (horizontal to vertical) plane projected upward from the base of the walls will increase the lateral earth pressures on the wall. Walls subjected to surcharge loads should be designed for an additional uniform lateral pressure (rectangular distribution) equal to one-third (0.33) and one-half (0.5) the anticipated surcharge load for unrestrained and restrained walls, respectively. Walls adjacent to areas subject to vehicular traffic should be designed for a 2-foot equivalent soil surcharge (250 psf). We should be consulted to provide load contributions from other particular surcharges located behind walls if needed.

It should be noted the lateral earth pressures depend upon the moisture content of the retained soils to be constant over time; if the moisture content of the retained soils will fluctuate or increase compared to the moisture content at time of construction, then SFB should be consulted and provide written modifications to this design criteria.

The above recommended drained lateral earth pressures assume walls are fully back drained to prevent the build-up of hydrostatic pressures. If drainage behind the wall is omitted, the wall should be designed for undrained condition. Wall back-drainage can be accomplished by using 1/2- to 3/4-inch crushed, uniformly graded gravel entirely wrapped in filter fabric, such as Mirafi 140N or equal (an overlap of at least 12 inches should be provided at all fabric joints). The gravel and fabric should be at least 12 inches wide and extend from the base of the wall to within about 1 foot of the finished grade at the top (Class 2 permeable material per Caltrans Specification Section 68 may be used in lieu of gravel and filter fabric). The upper 1 foot of cover backfill should consist of relatively impervious material.

Where wall back-drainage is used, a 4-inch diameter, perforated, PVC SDR-35 pipe should be installed at the base and centered within the gravel. The perforated pipe should be connected to a solid collector pipe that transmits the water directly to suitable discharge facilities. If weep holes are used in the wall, the perforated pipe within the gravel is not necessary provided the weep holes are kept free of animals and debris, are located no higher than approximately 6 inches from the lowest adjacent grade and are able to function properly. Weepholes can be spaced at about 10 to 15 feet apart. As an alternative to using gravel, pre-fabricated drainage panels (such as AWD SITEDRAIN Sheet 94 for walls or equal) may be used behind the walls in conjunction with perforated pipe (connected to solid collector pipe), weep holes, or strip drains (such as SITEDRAIN Strip 6000 or equal).

If heavy compaction equipment is used behind the walls, the walls should be appropriately designed to withstand loads exerted by the heavy equipment and/or temporarily braced. Fill placed behind walls should conform to the recommendations provided in **Section 5.1.5, *Fill Material***, and **Section 5.1.6, *Compaction***.

Retaining walls can be supported on either pier or footing foundations designed in accordance with the recommendations presented in this report.

5.3 Seismic Design Criteria

Based on the site geology and subsurface soil conditions encountered at the site, we recommend the site be characterized as Site Class “D”, a “stiff soil” profile. For seismic designs using the 2022 CBC and ASCE 7-16, we recommend the following seismic design parameters be used. These parameters were calculated using the ASCE 7 Hazard Tool online program[21], and are based on the site being located at approximate latitude 36.635067°N and longitude 121.800133°W. We assumed the proposed project structures are categorized as Risk Category II, and the *Exception Number (2) of ASCE 7-16 Section 11.4.8 – Site Specific Ground Procedure* will be taken by the Structural Engineer for the project. We should be contacted if any of these assumptions are incorrect or a site-specific ground motion hazard analysis is required.

SEISMIC PARAMETER	**DESIGN VALUE**
Site Class	D
S_S	1.378
S_1	0.501
F_a	1.000
F_v	See Section 11.4.8 of ASCE 7-16*
S_{MS}	1.378
S_{M1}	See Section 11.4.8 of ASCE 7-16*
S_{DS}	0.919
S_{D1}	See Section 11.4.8 of ASCE 7-16*
SDC	See Section 11.4.8 of ASCE 7-16*
PGA	0.573
F_{PGA}	1.1
PGA_M	0.631
T_L	12

*Note: The values of F_v, S_{M1}, S_{D1}, and Seismic Design Category (SDC) should be determined by the Structural Engineer based on the ASCE 7-16 Section 11.4.8 requirements.

5.4 Pavements

5.4.1 Asphalt Concrete Pavement

Based on the results of borings and laboratory testing, we recommend that an R-value of 50 be used in preliminary asphalt concrete pavement design. We recommend additional R-value tests be performed once the pavement subgrade is established to confirm the R-value used in the design if necessary.

We developed the following alternative preliminary pavement sections using Topic 608 of the State of California Department of Transportation Highway Design Manual, the recommended R-

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[21] ASCE, https://asce7hazardtool.online/, accessed 3/4/2024.

value, and typical traffic indices for proposed development. The project's Civil Engineer or appropriate public agency should determine actual traffic indices. The pavement thicknesses shown below are SFB's recommended minimum values; governing agencies may require pavement thicknesses greater than those shown.

PRELIMINARY PAVEMENT DESIGN ALTERNATIVES
SUBGRADE R-VALUE = 50

Location	Pavement Components		Total Thickness (inches)
	Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)	
T.I. = 4.5 (auto & light truck parking)	2.5	6.0*	8.5
T.I. = 5.0 (access ways/courts)	3.0	6.0*	9.0
T.I. = 6.0 (heavy truck and school bus access ways)	3.5	6.0*	9.5

*Note: Recommended Minimum.

If the pavements are planned to be placed prior to or during construction, the traffic indices and pavement sections may not be adequate for support of what is typically more frequent and heavier construction traffic. If the pavement sections will be used for construction access by heavy trucks or construction equipment (especially fork lifts with outriggers), SFB should be consulted to provide recommendations for alternative pavement sections capable of supporting the heavier use and heavier loads. If requested, SFB can provide recommendations for a phased placement of the asphalt concrete to reduce the potential for mechanical scars caused by construction traffic in the finished grade. Preliminary pavement sections should be revised, if necessary, when actual traffic indices are known and pavement subgrade elevations are determined.

We recommend the pavement materials and construction conform to Caltrans Standard Specifications. Pavement aggregate base and asphalt concrete should be compacted to at least 95 percent relative compaction as determined by ASTM D1557 or Caltrans Test Method 375. The asphalt concrete compacted unit weight should be determined using Caltrans Test Method 308-A or ASTM Test Method D1188. Asphalt concrete should also satisfy the S-value requirements by Caltrans.

We recommend regular maintenance of the asphalt concrete be performed at approximately five-year intervals. Maintenance may include sand slurry sealing, crack filling, and chip seals as necessary. If regular maintenance is not performed, the asphalt concrete layer could experience premature degradation requiring more extensive repairs.

5.4.2 Rigid Concrete Pavement

The analytical procedure used in our design of the rigid vehicular concrete pavement for driveway and trash enclosure was based on the method published by the Portland Cement Association. A modulus of subgrade reaction of 150 pounds per cubic inch was assigned to represent the engineered fill subgrade overlain by 6 inches of Class 2 aggregate base. The modulus of rupture for concrete was assumed to be 550 pounds per square inch.

Based on our analysis, we recommend the concrete pavement consist of 6 inches of concrete slab overlying 6 inches of Caltrans Class 2 aggregate base. The concrete and aggregate base should be constructed in accordance with the appropriate specifications for pavements. To reduce potential crack and slab offset formation, we recommend the slabs be reinforced with a minimum of #4 bars spaced at approximately 18 inches on center in both directions. The actual thickness and reinforcing of the slabs should be designed based on the anticipated traffic loads. We recommend deep score joints and expansion joints be used to control cracking and allow for expansion and contraction of the concrete slabs. Appropriate flexible, relatively impermeable fillers should be used at all cold/expansion joints. Dowels should also be used at all expansion and cold joints to reduce differential slab movements; we recommend the dowels be at least 30 inches long and spaced at approximately 18 inches on-center.

6.0 CONDITIONS AND LIMITATIONS

SFB is not responsible for the validity or accuracy of information, analyses, test results, or designs provided to SFB by others or prepared by others. The analysis, designs, opinions, and recommendations submitted in this report are based in part upon the data obtained from our field work and upon information provided by others. Site exploration and testing characterize subsurface conditions only at the locations where the explorations or tests are performed; actual subsurface conditions between explorations or tests may be different than those described in this report. Variations of subsurface conditions from those analyzed or characterized in this report are not uncommon and may become evident during construction. In addition, changes in the condition of the site can occur over time as a result of either natural processes (such as earthquakes, flooding, or changes in ground water levels) or human activity (such as construction adjacent to the site, dumping of fill, or excavating). If changes to the site's surface or subsurface conditions occur since the performance of the field work described in this report, or if differing subsurface conditions are encountered, we should be contacted immediately to evaluate the differing conditions to assess if the opinions, conclusions, and recommendations provided in this report are still applicable or should be amended.

We recommend SFB be retained to provide geotechnical services during design, reviews, earthwork operations, paving operations, and foundation installation to confirm and observe compliance with the design concepts, specifications and recommendations presented in this report. Our presence will also allow us to modify design if unanticipated subsurface conditions are encountered or if changes to the scope of the project, as defined in this report, are made.

This report is a design document that has been prepared in accordance with generally accepted geological and geotechnical engineering practices for the exclusive use of Chartwell School and their consultants for specific application to the proposed new high school campus project located in Seaside, California, and is intended to represent our design recommendations to Chartwell School for specific application to the proposed project. The conclusions and recommendations contained in this report are solely professional opinions. It is the responsibility of Chartwell School to transmit the information and recommendations of this report to those designing and constructing the project. We will not be responsible for the misinterpretation of the information provided in this report. We recommend SFB be retained to review geological and geotechnical aspects of construction calculations, specifications, and plans; we should also be retained to participate in pre-bid and pre-construction conferences to clarify the opinions, conclusions, and recommendations contained in this report.

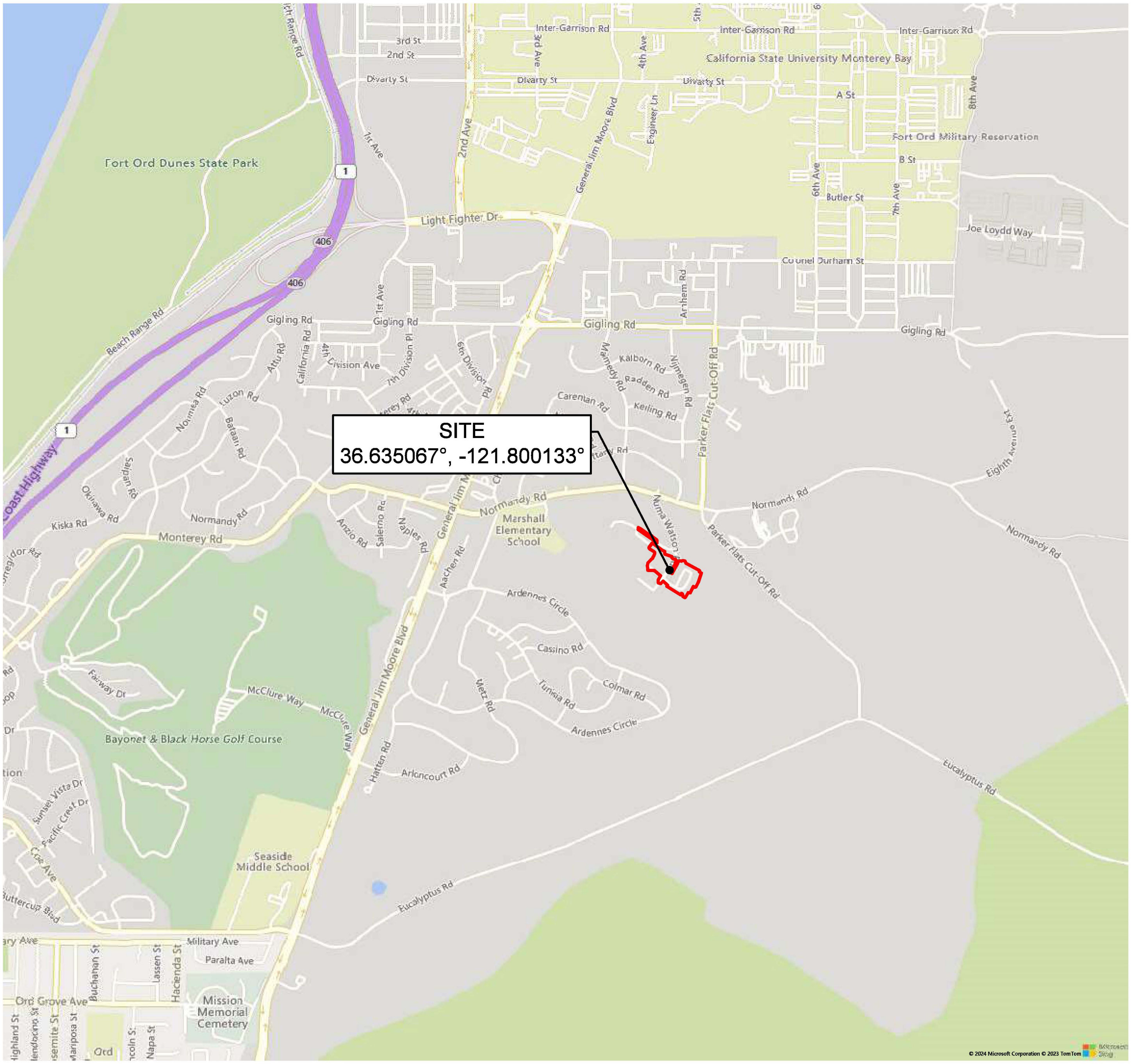
It should be understood that advancements in the practice of geotechnical engineering and engineering geology, or discovery of differing surface or subsurface conditions, may affect the validity of this report and are not uncommon. SFB strives to perform its services in a proper and professional manner with reasonable care and competence but we are not infallible. Geological engineering and geotechnical engineering are disciplines that are far less exact than other engineering disciplines; therefore, we should be consulted if the limitations to using this are not completely understood.

In the event that there are any changes in the nature, design or location of the project, as described in this report, or if any future additions are planned, the conclusions and recommendations contained in this report shall not be considered valid unless we are contacted in writing, the project changes are reviewed by us, and the conclusions and recommendations presented in this report are modified or verified in writing. The opinions, conclusions, and recommendations contained in this report are based upon the description of the project as presented in the introduction section of this report.

This report does not necessarily represent all of the information that has been communicated by us to Chartwell School and their consultants during the course of this engagement and our rendering of professional services to Chartwell School. Reliance on this report by parties other than those described above must be at their own risk unless we are first consulted as to the parties' intended use of this report and only after we obtain the written consent of Chartwell School to divulge information that may have been communicated to Chartwell School. We cannot accept consequences for use of segregated portions of this report.

Please refer to **Appendix D** for Geoprofessional Business Association (GBA) guidelines regarding use of this report.

FIGURES



N

SCALE: 1" = 2,000'

0 2,000' 4,000'

NOTE: Basemap from Microsoft 2024/TomTom 2023.

DATE

March 2024

PROJECT NO.

169-4

Stevens
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Bailey
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VICINITY MAP

CHARTWELL HIGH SCHOOL

Seaside, California

FIGURE

1

169-4, Chartwell School Seaside - March 2024.dwg
Printed: 3/12/2024

KEY

●	Exploratory Boring by SFB (2/13/2024 & 2/14/2024)
●	Exploratory Boring by SFB (2/12/2024)
●	Previous Exploratory Boring by SFB (6/28/2004)
●	Previous Exploratory Boring by SFB (1/24/2002)
▭	Proposed New Building
—	Proposed New Retaining Wall
A A'	Location of Cross-Section (See Figures 5 & 6 for the Sections)
—	Approximate Project Limits
Qaf	Man-made Fill
Qod	Pleistocene Older Dune Sand
■ ■ ■	Geologic Contact

NOTE: All locations shown are approximate.

NOTE: Topographic basemap and site plan received from EHDD on 1/30/2024. Aerial photo imagery from Google Earth and dated 9/22/2022.

SCALE: 1" = 50'
0 50' 100'

DATE
March 2024
PROJECT NO.
169-4

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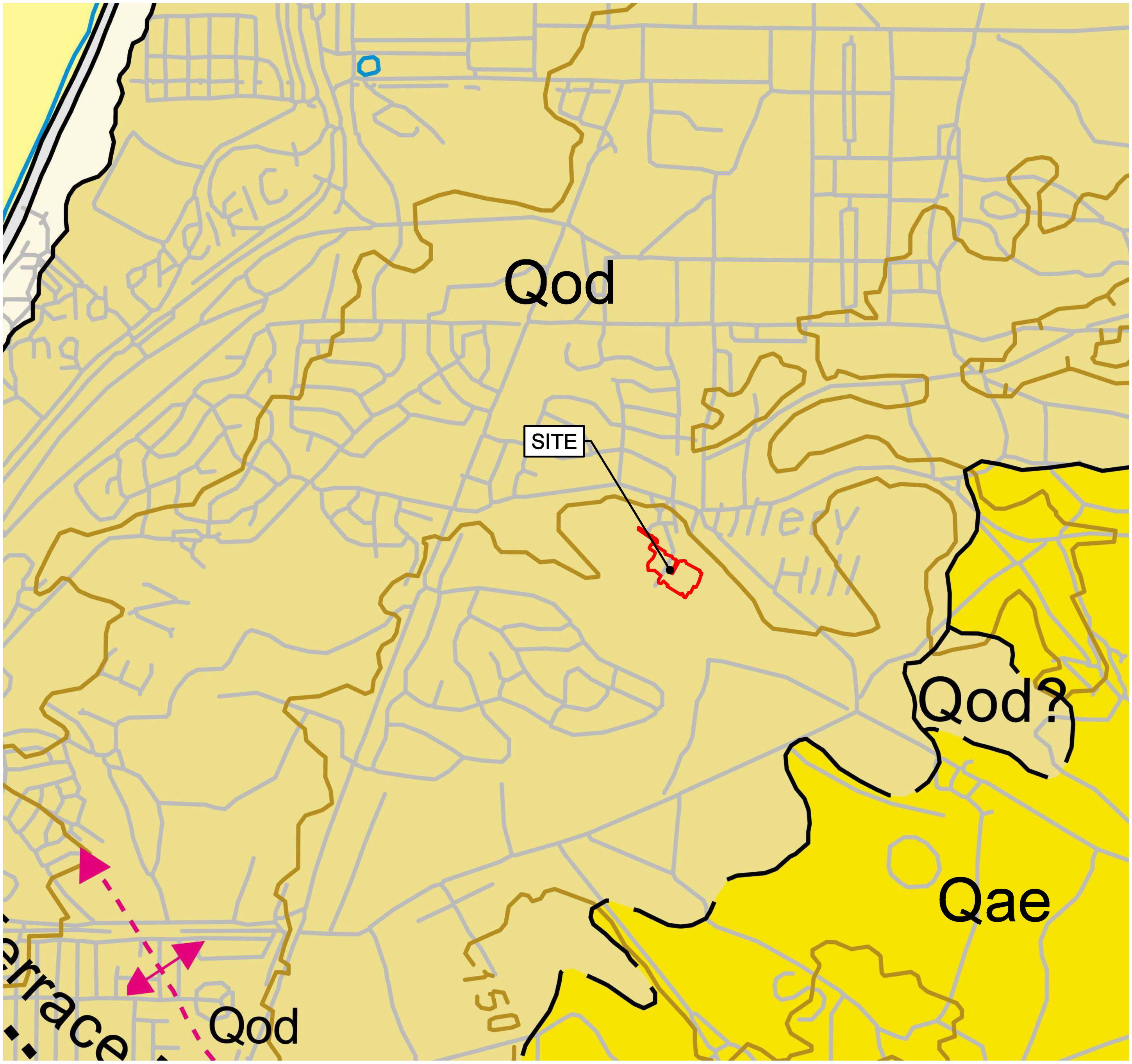
SITE PLAN AND ENGINEERING GEOLOGY MAP

CHARTWELL HIGH SCHOOL
Seaside, California

FIGURE
2

169-4, Chartwell School Seaside - March 2024.dwg
Printed: 3/14/2024



KEY

Qod	Pleistocene Older Dune Sand
Qae	Pleistocene Aromas Eolian Sand

N

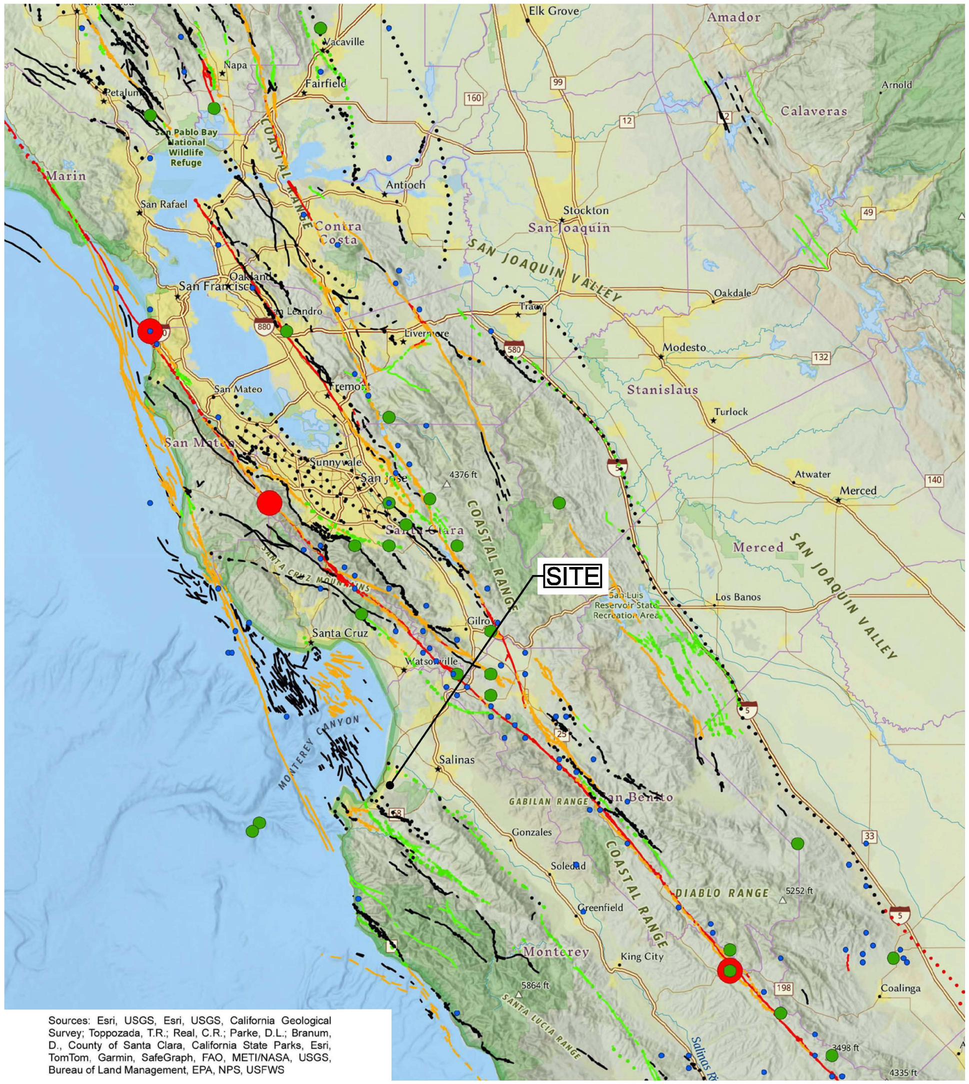
SCALE: 1" = 2,000'

0 2,000' 4,000'

NOTE: Basemap from Geologic Map of the Monterey 30'x60' Quadrangle and Adjacent Areas, California, compiled by Wagner, Greene, Saucedo, and Pridmore, 2002.

DATE		REGIONAL GEOLOGIC MAP	FIGURE
March 2024	Stevens Ferrone & Bailey Engineering Company, Inc 1600 Willow Pass Court Concord, CA 94520 Tel 925.688.1001 Fax 925.688.1005 www.SFandB.com	CHARTWELL HIGH SCHOOL Seaside, California	3
PROJECT NO.			
169-4			

169-4, Chartwell School Seaside - March 2024.dwg
Printed: 3/12/2024



Sources: Esri, USGS, Esri, USGS, California Geological Survey; Toppozada, T.R.; Real, C.R.; Parke, D.L.; Branum, D., County of Santa Clara, California State Parks, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS

KEY

CGS Map Sheet 48:

Historic Earthquakes, 1769-2015 - California (Magnitude 5.0 Plus)

- ● 7+
- ● 6 - 7
- ● 5 - 6

Fault Areas

- ▨ Class B
- ▨ historic
- ▨ late Quaternary
- ▨ latest Quaternary
- ▨ middle and late Quaternary

National Database

- — Historic (< 150 years), well constrained location
- - - Historic (< 150 years), moderately constrained location
- ··· Historic (< 150 years), inferred location
- — Latest Quaternary (<15,000 years), well constrained location
- - - Latest Quaternary (<15,000 years), moderately constrained location

NOTE: Base map from USGS Quaternary Fault and Fold Database of the United States; last accessed 3/4/2024.

APPROXIMATE SCALE: 1" = 20 Miles

0 20 mi 40 mi

DATE
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PROJECT NO.
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REGIONAL FAULT AND SEISMICITY MAP

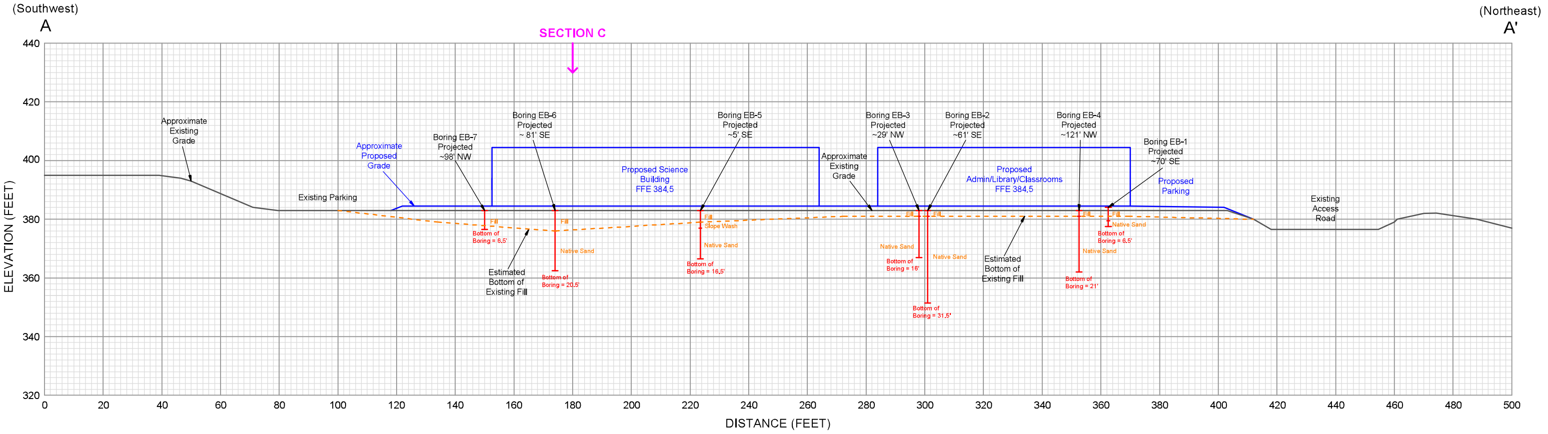
CHARTWELL HIGH SCHOOL

Seaside, California

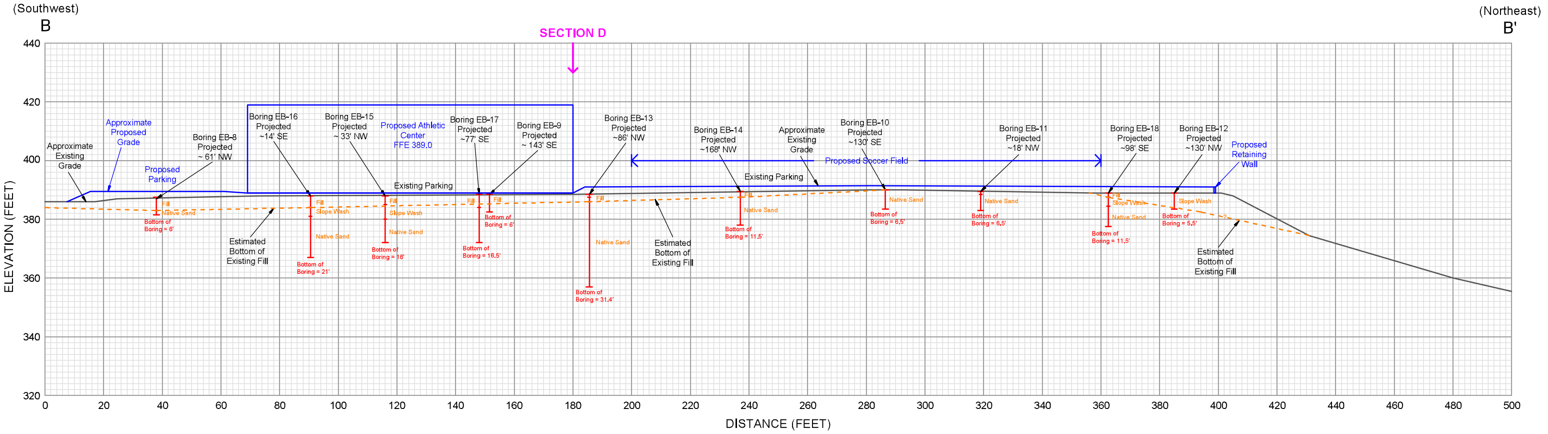
FIGURE

4

169-4, Chartwell School Seaside - March 2024.dwg
Printed: 3/12/2024



CROSS-SECTION A - A'



CROSS-SECTION B - B'

NOTES:
1. See Figure 2 for location of section and improvement information.
2. All locations, elevations, and profiles shown are approximate.
3. Proposed buildings and improvements are from topographic basemap and site plan received from EHDD on 1/30/2024.
4. Exploratory borings are projected onto cross-section. Refer to exploration boring logs for more details.
5. See SFB report for additional conditions and limitations.

169-4_Chartwell School Seaside - March 2024.dwg
Printed: 3/14/2024

HORIZONTAL & VERTICAL SCALE: 1" = 20'
0 20' 40'

DATE
March 2024
PROJECT NO.
169-4

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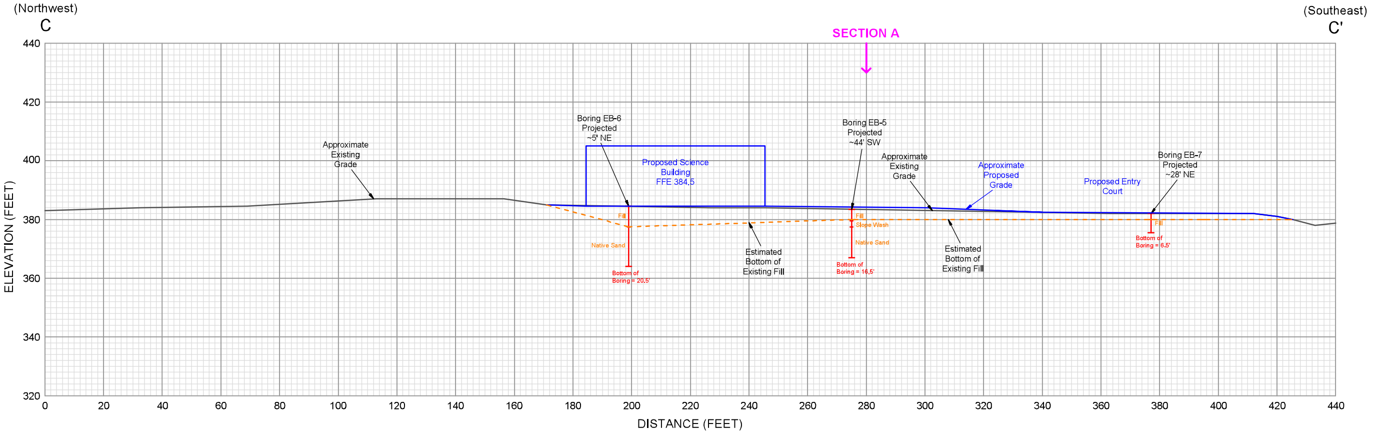
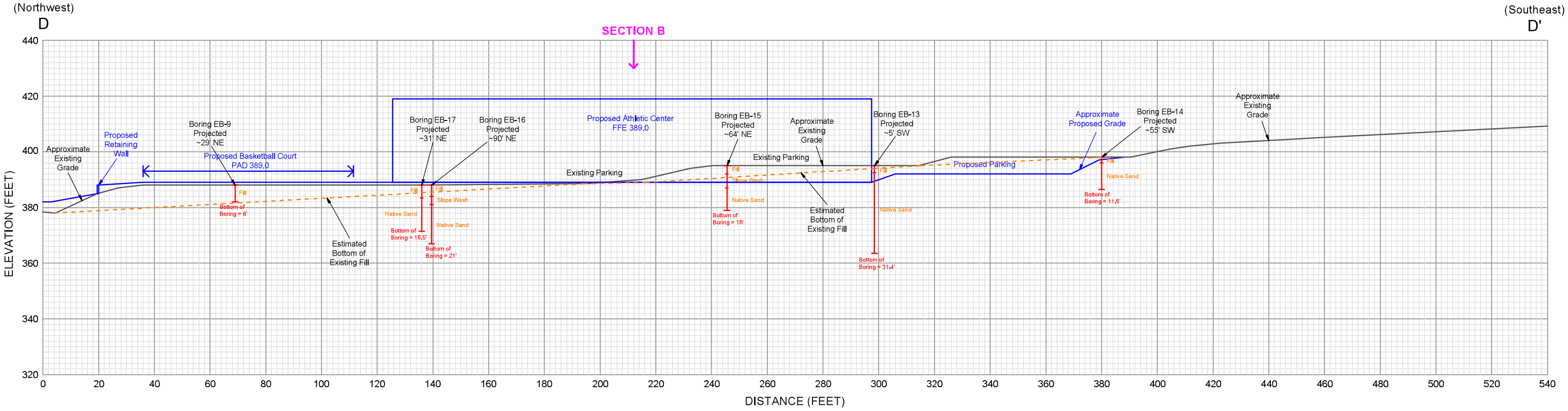
CROSS-SECTIONS A - A' and B - B'

CHARTWELL HIGH SCHOOL
Seaside, California

FIGURE
5



CROSS-SECTION C - C'



CROSS-SECTION D - D'

NOTES:
1. See Figure 2 for location of section and improvement information.
2. All locations, elevations, and profiles shown are approximate.
3. Proposed buildings and improvements are from topographic basemap and site plan received from EHDD on 1/30/2024.
4. Exploratory borings are projected onto cross-section. Refer to exploration boring logs for more details.
5. See SFB report for additional conditions and limitations.

169-4, Chartwell School Seaside - March 2024.dwg
Printed: 3/14/2024

HORIZONTAL & VERTICAL SCALE: 1" = 20'
0 20' 40'

DATE
March 2024
PROJECT NO.
169-4

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CROSS-SECTIONS C - C' and D - D'

CHARTWELL HIGH SCHOOL
Seaside, California

FIGURE
6

APPENDIX A

Field Exploration

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KEY TO FIELD EXPLORATION LOGS

PROJECT:

CHARTWELL HIGH SCHOOL
Seaside, California

PROJECT NO: **169-4**

FIGURE NO: **A-1**

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2487 & D2488)

MAJOR DIVISIONS		GRAPHIC LOG	GROUP SYMBOL	TYPICAL DESCRIPTION
COARSE-GRAINED SOILS (More than 50% retained on #200 sieve)	CLEAN GRAVELS (Less than 5% fines)	▨	GW	Well-graded gravels, gravel-sand mixtures, trace or no fines
		▨	GP	Poorly-graded gravels, gravel-sand mixtures, trace or no fines
	GRAVELS WITH FINES (More than 12% fines)	▨	GM	Silty gravels, gravel-sand-silt mixtures
		▨	GC	Clayey gravels, gravel-sand-clay mixtures
	CLEAN SANDS (Less than 5% fines)	▨	SW	Well-graded sands, gravelly sands, trace or no fines
		▨	SP	Poorly-graded sands, gravelly sands, trace or no fines
	SANDS WITH FINES (More than 12% fines)	▨	SM	Silty sands, sand-silt mixtures
		▨	SC	Clayey sands, sand-clay mixtures

MAJOR DIVISIONS		GRAPHIC LOG	GROUP SYMBOL	TYPICAL DESCRIPTION
FINE-GRAINED SOILS (More than 50% passes #200 sieve)	SILTS AND CLAYS (Liquid Limit less than 50)	▥	ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands, clayey silts of low to medium plasticity
		▨	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		▤	OL	Organic silts and clays of low plasticity
	SILTS AND CLAYS (Liquid Limit 50 or more)	▥	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts of high plasticity
		▨	CH	Inorganic clays of high plasticity, fat clays
		▒	OH	Organic silts and clays of medium to high plasticity
HIGHLY ORGANIC SOILS		▒	PT	Peat and other highly organic soils

GRAIN SIZES

U.S. STANDARD SIEVE SIZE

12" 3" 3/4" #4 #10 #40 #200

BOULDERS	COBBLES	GRAVELS		SANDS			SILTS AND CLAYS
		Coarse	Fine	Coarse	Medium	Fine	

304.8 mm 76.2 mm 19.0 mm 4.75 mm 2.00 mm 0.425 mm 0.075 mm

RELATIVE DENSITY

SANDS AND GRAVELS	BLOWS/FOOT*
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Over 50

CONSISTENCY

SILTS AND CLAYS	BLOWS/FOOT*	UCS (KSF)**
Very Soft	0 - 2	0 - 1/2
Soft	2 - 4	1/2 - 1
Firm	4 - 8	1 - 2
Stiff	8 - 16	2 - 4
Very Stiff	16 - 32	4 - 8
Hard	Over 32	Over 8

*Number of blows for a 140-pound hammer falling 30 inches to drive a 2" O.D. (1-3/8" I.D.) split spoon sampler.

**UCS: Unconfined Compressive Strength.

SYMBOLS AND NOTES

▯ Standard Penetration Test (SPT) Sampler (2" O.D. Split Barrel)

☒ Modified California Sampler (3" O.D. Split Barrel)

◪ California Sampler (2.5" O.D. Split Barrel)

⧄ Shelby Tube

▩ Bulk Sample

▮ Core Barrel (See Log Notes)

▽ Groundwater Level During Drilling

▼ Groundwater Level at End of Drilling

INCREASING VISUAL MOISTURE CONTENT

↑ Wet
Moist
Dry

CONSTITUENT PERCENTAGE

trace	< 5%
few	5 - 15%
with	16 - 30%
-y	31 - 49%

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EXPLORATORY BORING EB-1

PROJECT NO: 169-4	SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen	DATE STARTED: 2/13/2024
DRILLER: West Coast Exploration	DATE FINISHED: 2/13/2024
DRILL RIG: Mobile B-24	DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger	DEPTH TO FINAL WATER: Not Encountered

HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches

BORING LOCATION: See Site Plan, Figure 2 (36.635741°; -121.800667°)

PROJECT:

CHARTWELL HIGH SCHOOL

Seaside, California

SUBSURFACE MATERIAL CLASSIFICATION			DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
DESCRIPTION	CONSIST	GRAPHIC LOG								
FILL: SAND (SM), mottled gray brown, fine- to medium-grained, trace coarse-grained, with silt, trace clay, moist.	medium dense	▨	0							
		▨		☒	12 18 20	23				
		▨		▯	12 15 15	30				
SAND (SM), brown, fine- to medium-grained, with silt, moist.	dense	▨	5	☒	24 25 25	30				
Bottom of Boring = 6.5 feet Notes: Stratification is approximate; variations must be expected. See report for additional details.										
			10							
			15							
			20							
			25							
			30							

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EXPLORATORY BORING EB-2

PROJECT NO: 169-4
SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen
DATE STARTED: 2/13/2024
DRILLER: West Coast Exploration
DATE FINISHED: 2/13/2024
DRILL RIG: Mobile B-24
DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger
DEPTH TO FINAL WATER: Not Encountered
HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches
BORING LOCATION: See Site Plan, Figure 2 (36.635578°; -121.800739°)

PROJECT:

CHARTWELL HIGH SCHOOL

Seaside, California

SUBSURFACE MATERIAL CLASSIFICATION			DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
DESCRIPTION	CONSIST	GRAPHIC LOG								
FILL: SAND (SP-SM), yellowish brown, fine-grained, few silt, dry to moist.	medium dense		0		22 20 35	33	3.9	93.2		
SAND (SM), yellowish brown, fine-grained, few to with silt, dry to moist.	dense				15 18 27	45				At 3.5 Feet: Corrosion Tests.
	very dense		5		32 50/6"	30/6"	7.0	101.0		At 5.5 Feet: Medium Sand = 3% Fine Sand = 82% Fines = 15%
Change color to brown.			10		30 35 50	85				
SAND (SP-SM), brown, fine- to medium-grained, some silt, moist.	very dense		15		32 50/6"	50/6"	7.6			At 15.5 Feet: Medium Sand = 15% Fine Sand = 74% Fines = 11%
With to silty.			20		50/6"	50/6"				
Change color to yellowish brown, dry to moist.			25		32 32 35	67	5.9			At 26 Feet: Medium Sand = 2% Fine Sand = 92% Fines = 6%
			30							

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EXPLORATORY BORING EB-2

PROJECT:

CHARTWELL HIGH SCHOOL

Seaside, California

PROJECT NO: 169-4	SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen	DATE STARTED: 2/13/2024
DRILLER: West Coast Exploration	DATE FINISHED: 2/13/2024
DRILL RIG: Mobile B-24	DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger	DEPTH TO FINAL WATER: Not Encountered
HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches	
BORING LOCATION: See Site Plan, Figure 2 (36.635578°; -121.800739°)	

SUBSURFACE MATERIAL CLASSIFICATION			DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
DESCRIPTION	CONSIST	GRAPHIC LOG								
SAND (SP-SM), continued, dry.	very dense	🟩		▯	32 35 35	70				
Bottom of Boring = 31.5 feet Notes: Stratification is approximate; variations must be expected. See report for additional details.										
			35							
			40							
			45							
			50							
			55							
			60							

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EXPLORATORY BORING EB-3

PROJECT:

CHARTWELL HIGH SCHOOL

Seaside, California

PROJECT NO: 169-4	SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen	DATE STARTED: 2/13/2024
DRILLER: West Coast Exploration	DATE FINISHED: 2/13/2024
DRILL RIG: Mobile B-24	DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger	DEPTH TO FINAL WATER: Not Encountered

HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches

BORING LOCATION: See Site Plan, Figure 2 (36.635455°; -121.800471°)

SUBSURFACE MATERIAL CLASSIFICATION			DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
DESCRIPTION	CONSIST	GRAPHIC LOG								
FILL: SAND (SP-SM), light yellowish brown, fine-grained, trace to few silt, dry to moist.	medium dense to dense	▨	0	☒	24 24 38	37	5.1	97.4		
SAND (SP-SM), yellowish brown, fine-grained, few silt, dry to moist.	dense	▨		▯	19 19 22	41				
	very dense	▨	5	☒	47 50/6"	30/6"				
SAND (SM), brown, fine-grained, with to silty, dry to moist.	very dense	▨	10	▯	27 30 36	66				
With silt, moist.		▨	15	▯	37 50/6"	50/6"				
Bottom of Boring = 16 feet Notes: Stratification is approximate; variations must be expected. See report for additional details.			20 25 30							

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EXPLORATORY BORING EB-4

PROJECT:
CHARTWELL HIGH SCHOOL
Seaside, California

PROJECT NO: 169-4
SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen
DATE STARTED: 2/13/2024
DRILLER: West Coast Exploration
DATE FINISHED: 2/13/2024
DRILL RIG: Mobile B-24
DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger
DEPTH TO FINAL WATER: Not Encountered
HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches
BORING LOCATION: See Site Plan, Figure 2 (36.635464°; -121.800109°)

SUBSURFACE MATERIAL CLASSIFICATION			DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
DESCRIPTION	CONSIST	GRAPHIC LOG								
FILL: SAND (SM), yellowish brown, fine-grained, with silt, moist.	medium dense	🟩	0							
SAND (SP), yellowish brown, fine-grained, trace silt, dry to moist.	medium dense	🟨		☒	11 14 17	19	7.4	100.9		At 2 Feet: Corrosion Tests.
				▯	14 18 20	38				
	dense									
SAND (SM), brown, fine-grained, with silt, dry to moist.	very dense	🟩	5	☒	30 50/6"	30/6"				
With to silty.			10	▯	20 22 30	52				
			15	▯	30 30 35	65				
Silty, moist.			20	▯	38 50/6"	50/6"				
Bottom of Boring = 21 feet Notes: Stratification is approximate; variations must be expected. See report for additional details.										
			25							
			30							

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EXPLORATORY BORING EB-5

PROJECT NO: 169-4	SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen	DATE STARTED: 2/13/2024
DRILLER: West Coast Exploration	DATE FINISHED: 2/13/2024
DRILL RIG: Mobile B-24	DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger	DEPTH TO FINAL WATER: Not Encountered

HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches

BORING LOCATION: See Site Plan, Figure 2 (36.635320°; -121.800695°)

PROJECT:

CHARTWELL HIGH SCHOOL

Seaside, California

SUBSURFACE MATERIAL CLASSIFICATION			DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
DESCRIPTION	CONSIST	GRAPHIC LOG								
FILL: SAND (SM), brown, fine- to medium-grained, with silt, trace gravel (fine, round), dry to moist.	medium dense	🟩	0	☒	27 50/6"	30/6"	5.8	110.9		
FILL: SAND (SP), light brownish gray, fine- to coarse-grained, few gravel (fine, subangular to subrounded), trace silt, trace granite fragments, dry.	very dense	🟨		▯	35 30 25	55				
SLOPE WASH: SAND (SM), grayish brown, fine- to medium-grained, few coarse-grained, with to silty, few gravel (fine to coarse, subangular to subrounded), dry.	very dense	🟩	5	☒	50/6"	30/6"				
SAND (SM), brown, fine-grained, with silt, dry to moist.	very dense	🟩	10	▯	20 32 45	77				
			15	▯	30 35 40	75				
Bottom of Boring = 16.5 feet Notes: Stratification is approximate; variations must be expected. See report for additional details.			20 25 30							

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EXPLORATORY BORING EB-6

PROJECT:

CHARTWELL HIGH SCHOOL

Seaside, California

PROJECT NO: 169-4	SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen	DATE STARTED: 2/13/2024
DRILLER: West Coast Exploration	DATE FINISHED: 2/13/2024
DRILL RIG: Mobile B-24	DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger	DEPTH TO FINAL WATER: Not Encountered
HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches	
BORING LOCATION: See Site Plan, Figure 2 (36.635300°; -121.801002°)	

SUBSURFACE MATERIAL CLASSIFICATION

DESCRIPTION	CONSIST	GRAPHIC LOG	DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
FILL: SAND (SM), light grayish brown, fine- to coarse-grained, with silt, trace gravel (fine, subangular), trace clay, dry to moist.	dense		0							
				☒	40 50/6"	30/6"				
Trace small granite fragments.	very dense			▯	30 35 25	60				At 3 Feet: Corrosion Tests.
	dense		5	☒	24 30 30	36				
SAND (SM), brown, fine-grained, with to silty, dry to moist.	dense									
	very dense		10	▯	19 27 27	54				
SAND (SP-SM), brown, fine-grained, few silt, dry.	very dense									
			15	▯	50/6"	50/6"				
Dry to moist.			20	▯	50/6"	50/6"				
Bottom of Boring = 20.5 feet Notes: Stratification is approximate; variations must be expected. See report for additional details.										
			25							
			30							

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EXPLORATORY BORING EB-7

PROJECT:

CHARTWELL HIGH SCHOOL
Seaside, California

PROJECT NO: 169-4	SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen	DATE STARTED: 2/13/2024
DRILLER: West Coast Exploration	DATE FINISHED: 2/13/2024
DRILL RIG: Mobile B-24	DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger	DEPTH TO FINAL WATER: Not Encountered

HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches

BORING LOCATION: See Site Plan, Figure 2 (36.635012°; -121.800505°)

SUBSURFACE MATERIAL CLASSIFICATION			DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
DESCRIPTION	CONSIST	GRAPHIC LOG								
FILL: SAND (SM), light grayish brown, fine-to coarse-grained, few silt, few gravel (fine to coarse, subangular to subrounded), dry.	medium dense	▨	0	☒	12 14 12	16				
FILL: SAND (SM), brown, fine- to medium-grained, trace coarse-grained, with silt, trace gravel (fine, subangular), dry to moist.	medium dense	▨		▯	5 5 5	10				
Change color to mottled light gray brown.		▨	5	☒	7 7 8	9				
Bottom of Boring = 6.5 feet Notes: Stratification is approximate; variations must be expected. See report for additional details.			10 15 20 25 30							

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EXPLORATORY BORING EB-8

PROJECT NO: 169-4	SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen	DATE STARTED: 2/13/2024
DRILLER: West Coast Exploration	DATE FINISHED: 2/13/2024
DRILL RIG: Mobile B-24	DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger	DEPTH TO FINAL WATER: Not Encountered

HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches

BORING LOCATION: See Site Plan, Figure 2 (36.634266°; -121.799607°)

PROJECT:

CHARTWELL HIGH SCHOOL

Seaside, California

SUBSURFACE MATERIAL CLASSIFICATION										
DESCRIPTION	CONSIST	GRAPHIC LOG	DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
FILL: SAND (SM), brown, fine- to medium-grained, with silt, trace gravel (fine, subrounded), dry to moist.	medium dense	▨	0							
		▨		☒	27 50/6"	30/6"	6.9	113.3		
Change color to mottled grayish brown.	dense	▨		▯	25 17 15	32				
SLOPE WASH: SAND (SM), dark grayish brown, fine-grained, with silt, trace roots & organics, dry to moist.	dense	▨	5	☒	17 50/6"	30/6"	9.1	118.9		
Bottom of Boring = 6 feet Notes: Stratification is approximate; variations must be expected. See report for additional details.										
			10							
			15							
			20							
			25							
			30							

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EXPLORATORY BORING EB-9

PROJECT NO: 169-4
SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen
DATE STARTED: 2/13/2024
DRILLER: West Coast Exploration
DATE FINISHED: 2/13/2024
DRILL RIG: Mobile B-24
DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger
DEPTH TO FINAL WATER: Not Encountered
HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches
BORING LOCATION: See Site Plan, Figure 2 (36.634808°; -121.800036°)

PROJECT:
CHARTWELL HIGH SCHOOL
Seaside, California

SUBSURFACE MATERIAL CLASSIFICATION			DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
DESCRIPTION	CONSIST	GRAPHIC LOG								
FILL: SAND (SM), mottled gray brown, fine- to medium-grained, with to silty, moist.	medium dense	▨	0							
		▨		☒	14 8 17	15				
	dense	▨		▯	10 14 18	32				
Change color to mottled red brown, dry.		▨	5	☒	27 50/6"	30/6"				
Bottom of Boring = 6 feet Notes: Stratification is approximate; variations must be expected. See report for additional details.										
			10							
			15							
			20							
			25							
			30							

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EXPLORATORY BORING EB-10

PROJECT NO: 169-4	SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen	DATE STARTED: 2/13/2024
DRILLER: West Coast Exploration	DATE FINISHED: 2/13/2024
DRILL RIG: Mobile B-24	DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger	DEPTH TO FINAL WATER: Not Encountered
HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches	
BORING LOCATION: See Site Plan, Figure 2 (36.635119°; -121.799775°)	

PROJECT:

CHARTWELL HIGH SCHOOL

Seaside, California

SUBSURFACE MATERIAL CLASSIFICATION			DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
DESCRIPTION	CONSIST	GRAPHIC LOG								
SAND (SM), brown, fine-grained, with silt, moist.	medium dense	🟩	0	☒ ▯	16 16 16 5 6 10	19 16				
SAND (SP), yellowish brown, fine-grained, trace silt, dry.	medium dense	🟨	5	☒	15 18 20	23				
Bottom of Boring = 6.5 feet Notes: Stratification is approximate; variations must be expected. See report for additional details.			10 15 20 25 30							

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EXPLORATORY BORING EB-11

PROJECT NO: 169-4	SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen	DATE STARTED: 2/13/2024
DRILLER: West Coast Exploration	DATE FINISHED: 2/13/2024
DRILL RIG: Mobile B-24	DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger	DEPTH TO FINAL WATER: Not Encountered
HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches	
BORING LOCATION: See Site Plan, Figure 2 (36.635001°; -121.799281°)	

PROJECT:

CHARTWELL HIGH SCHOOL

Seaside, California

SUBSURFACE MATERIAL CLASSIFICATION										
DESCRIPTION	CONSIST	GRAPHIC LOG	DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
Asphalt Concrete (AC) about 5" thick.			0							
Aggregate Base (AB) about 6" thick.										
SAND (SM), brown, fine- to medium-grained, with silt, dry to moist.	medium dense			☒	12 15 26	25				
Change color to yellowish brown.				▯	14 14 14	28				
	dense		5	☒	20 28 35	38				
Bottom of Boring = 6.5 feet Notes: Stratification is approximate; variations must be expected. See report for additional details.										
			10							
			15							
			20							
			25							
			30							

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EXPLORATORY BORING EB-12

PROJECT NO: 169-4
SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen
DATE STARTED: 2/13/2024
DRILLER: West Coast Exploration
DATE FINISHED: 2/13/2024
DRILL RIG: Mobile B-24
DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger
DEPTH TO FINAL WATER: Not Encountered
HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches
BORING LOCATION: See Site Plan, Figure 2 (36.635015°; -121.798840°)

PROJECT:

CHARTWELL HIGH SCHOOL
Seaside, California

SUBSURFACE MATERIAL CLASSIFICATION			DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
DESCRIPTION	CONSIST	GRAPHIC LOG								
SLOPE WASH: SAND (SM), mottled gray brown, fine- to medium-grained, with to silty, moist.	dense	▨	0							
		▨		☒	17 32 45	46				
	very dense	▨		◫	37 50/6"	50/6"				
Change color to grayish brown.		▨								
		▨	5	☒	50/6"	30/6"				
Bottom of Boring = 5.5 feet Notes: Stratification is approximate; variations must be expected. See report for additional details.										
			10							
			15							
			20							
			25							
			30							

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EXPLORATORY BORING EB-13

PROJECT NO: 169-4	SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen	DATE STARTED: 2/14/2024
DRILLER: West Coast Exploration	DATE FINISHED: 2/14/2024
DRILL RIG: Mobile B-24	DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger	DEPTH TO FINAL WATER: Not Encountered

HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches

BORING LOCATION: See Site Plan, Figure 2 (36.634589°; -121.799297°)

PROJECT:

CHARTWELL HIGH SCHOOL

Seaside, California

SUBSURFACE MATERIAL CLASSIFICATION										
DESCRIPTION	CONSIST	GRAPHIC LOG	DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
Asphalt Concrete (AC) about 6" thick.		■	0							
Aggregate Base (AB) about 7" thick.		▨								
FILL: SAND (SP-SM), grayish brown, fine- to medium-grained, few silt, moist.	medium dense	🟩		☒	20 18 18	22	5.9	102.0		At 2 Feet: Medium Sand = 34% Fine Sand = 58% Fines = 8% Corrosion Tests.
SAND (SP-SM), yellowish brown, fine- to medium-grained, few silt, dry to moist.	medium dense	🟩		☐	9 10 15	25				
With to silty, moist.	dense	🟩	5	☒	21 25 38	38				
		🟩	10	☐	17 20 27	47	10.0			At 11 Feet: Medium Sand = 20% Fine Sand = 73% Fines = 7%
Change color to brown, moist.	very dense	🟩	15	☐	20 28 36	64				
		🟩	20	☐	20 37 40	77	8.2			At 21 Feet: Medium Sand = 16% Fine Sand = 75% Fines = 9%
		🟩	25	☐	22 35 45	80				
			30							

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EXPLORATORY BORING EB-13

PROJECT NO: 169-4	SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen	DATE STARTED: 2/14/2024
DRILLER: West Coast Exploration	DATE FINISHED: 2/14/2024
DRILL RIG: Mobile B-24	DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger	DEPTH TO FINAL WATER: Not Encountered

HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches

BORING LOCATION: See Site Plan, Figure 2 (36.634589°; -121.799297°)

PROJECT:

CHARTWELL HIGH SCHOOL

Seaside, California

SUBSURFACE MATERIAL CLASSIFICATION			DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
DESCRIPTION	CONSIST	GRAPHIC LOG								
SAND (SP-SM), continued, change color to yellowish brown, few to with silt, dry.	very dense	▒		☐	25 45 50/5"	95/11"				
Bottom of Boring = 31.4 feet Notes: Stratification is approximate; variations must be expected. See report for additional details.										
			35							
			40							
			45							
			50							
			55							
			60							

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EXPLORATORY BORING EB-14

PROJECT NO: 169-4	SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen	DATE STARTED: 2/14/2024
DRILLER: West Coast Exploration	DATE FINISHED: 2/14/2024
DRILL RIG: Mobile B-24	DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger	DEPTH TO FINAL WATER: Not Encountered

PROJECT:

CHARTWELL HIGH SCHOOL

Seaside, California

HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches

BORING LOCATION: See Site Plan, Figure 2 (36.634602°; -121.798970°)

SUBSURFACE MATERIAL CLASSIFICATION			DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
DESCRIPTION	CONSIST	GRAPHIC LOG								
FILL: SAND (SM), grayish brown, fine- to medium-grained, with to silty, dry to moist.	dense	▨	0	☒	10 22 30	31				
SAND (SM), brown, fine- to medium-grained, silty, trace clay, moist.	dense	▨		☐	16 20 22	42				
	very dense	▨	5	☒	30 47 50/5"	58/11"				
		▨	10	☐	30 30 30	60				
Bottom of Boring = 11.5 feet Notes: Stratification is approximate; variations must be expected. See report for additional details.										
			15							
			20							
			25							
			30							

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EXPLORATORY BORING EB-15

PROJECT NO: 169-4	SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen	DATE STARTED: 2/14/2024
DRILLER: West Coast Exploration	DATE FINISHED: 2/14/2024
DRILL RIG: Mobile B-24	DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger	DEPTH TO FINAL WATER: Not Encountered
HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches	
BORING LOCATION: See Site Plan, Figure 2 (36.634492°; -121.799566°)	

PROJECT:

CHARTWELL HIGH SCHOOL

Seaside, California

SUBSURFACE MATERIAL CLASSIFICATION			DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
DESCRIPTION	CONSIST	GRAPHIC LOG								
FILL: SAND (SM), mottled gray brown, fine- to medium-grained, trace coarse-grained, with to silty, dry to moist.	medium dense	▨	0	☒	30 27 15	25	9.3	116.0		
SLOPE WASH: SAND (SM), grayish brown, fine- to medium-grained, silty, moist. Change color to light brown, moist to wet.	medium dense	▨	5	▯ ☒	5 6 10 15 12 10	16 13				
SAND (SM), yellowish brown, fine- to medium-grained, with silt, dry to moist.	very dense	▨	10	▯	20 24 32	56				
SAND (SP-SM), brown, fine- to medium-grained, few silt, dry to moist.	very dense	▨	15	▯	45 50/6"	50/6"				
Bottom of Boring = 16 feet Notes: Stratification is approximate; variations must be expected. See report for additional details.			20 25 30							

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EXPLORATORY BORING EB-16

PROJECT NO: 169-4
SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen
DATE STARTED: 2/14/2024
DRILLER: West Coast Exploration
DATE FINISHED: 2/14/2024
DRILL RIG: Mobile B-24
DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger
DEPTH TO FINAL WATER: Not Encountered
HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches
BORING LOCATION: See Site Plan, Figure 2 (36.634570°; -121.799927°)

PROJECT:

CHARTWELL HIGH SCHOOL

Seaside, California

SUBSURFACE MATERIAL CLASSIFICATION			DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
DESCRIPTION	CONSIST	GRAPHIC LOG								
FILL: SAND (SM), mottled gray brown, fine- to medium-grained, with silt, dry to moist.	dense	▨	0							
				☒	30 34 34	41	7.8	119.0		
Change color to brown.	loose			▯	10 5 4	9				At 3.5 Feet: Corrosion Tests.
SLOPE WASH: SAND (SM), mottled dark gray brown, fine- to medium-grained, silty, few clay, trace roots & organics, moist.	medium dense	▨	5	☒	12 10 10	12				
SAND (SM), yellowish brown, fine- to medium-grained, with silt, dry to moist.	medium dense	▨								
			10	▯	7 12 12	24				
Change color to brown.	very dense		15	▯	20 25 35	60				
Few to with silt.			20	▯	25 50/6"	50/6"				
Bottom of Boring = 21 feet Notes: Stratification is approximate; variations must be expected. See report for additional details.										
			25							
			30							

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EXPLORATORY BORING EB-17

PROJECT NO: 169-4
SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen
DATE STARTED: 2/14/2024
DRILLER: West Coast Exploration
DATE FINISHED: 2/14/2024
DRILL RIG: Mobile B-24
DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger
DEPTH TO FINAL WATER: Not Encountered
HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches
BORING LOCATION: See Site Plan, Figure 2 (36.634714°; -121.799840°)

PROJECT:

CHARTWELL HIGH SCHOOL

Seaside, California

SUBSURFACE MATERIAL CLASSIFICATION										
DESCRIPTION	CONSIST	GRAPHIC LOG	DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
FILL: SAND (SM), grayish brown, fine- to medium-grained, silty, trace clay, dry to moist.	medium dense	▨	0							At 0 to 5 Feet: R-value = 69
		▨		☒	20 18 15	20				
Moist to wet.		▨		▯	8 6 5	11				
SAND (SM), light brown, fine- to medium-grained, with silt, moist.	medium dense	▨	5	☒	7 8 12	12				
Change color to yellowish brown, dry.	dense	▨	10	▯	16 20 20	40				
Chnage color to brown, moist.	very dense	▨	15	▯	27 30 34	64				
Bottom of Boring = 16.5 feet Notes: Stratification is approximate; variations must be expected. See report for additional details.										
			20							
			25							
			30							

EXPLORATORY BORING LOG 169-4 EB-17.ldat8 STEVENS FERRONE & BAILEY 3/12/2024

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EXPLORATORY BORING EB-18

PROJECT NO: 169-4
SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen
DATE STARTED: 2/14/2024
DRILLER: West Coast Exploration
DATE FINISHED: 2/14/2024
DRILL RIG: Mobile B-24
DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger
DEPTH TO FINAL WATER: Not Encountered
HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches
BORING LOCATION: See Site Plan, Figure 2 (36.635258°; -121.799559°)

PROJECT:

CHARTWELL HIGH SCHOOL

Seaside, California

SUBSURFACE MATERIAL CLASSIFICATION										
DESCRIPTION	CONSIST	GRAPHIC LOG	DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
FILL: CLAY (CL), brown, silty, trace sand (fine- to medium-grained), moist to wet.	stiff	▨	0							
SLOPE WASH: SAND (SM), grayish brown, fine- to medium-grained, with to silty, moist.	medium dense	▒		☒	12 12 12	14	9.7	119.1		
Change color to brown, trace clay.		▒		☐	4 5 10	15				
SAND (SM), yellowish brown, fine-grained, with silt, moist.	medium dense	▒	5	☒	10 10 10	12				
Change color to brown.	very dense	▒	10	☐	20 32 35	67				
Bottom of Boring = 11.5 feet Notes: Stratification is approximate; variations must be expected. See report for additional details.										
			15							
			20							
			25							
			30							

EXPLORATORY BORING LOG 169-4 EB-18.ldat8 STEVENS FERRONE & BAILEY 3/12/2024

APPENDIX B

Laboratory Testing

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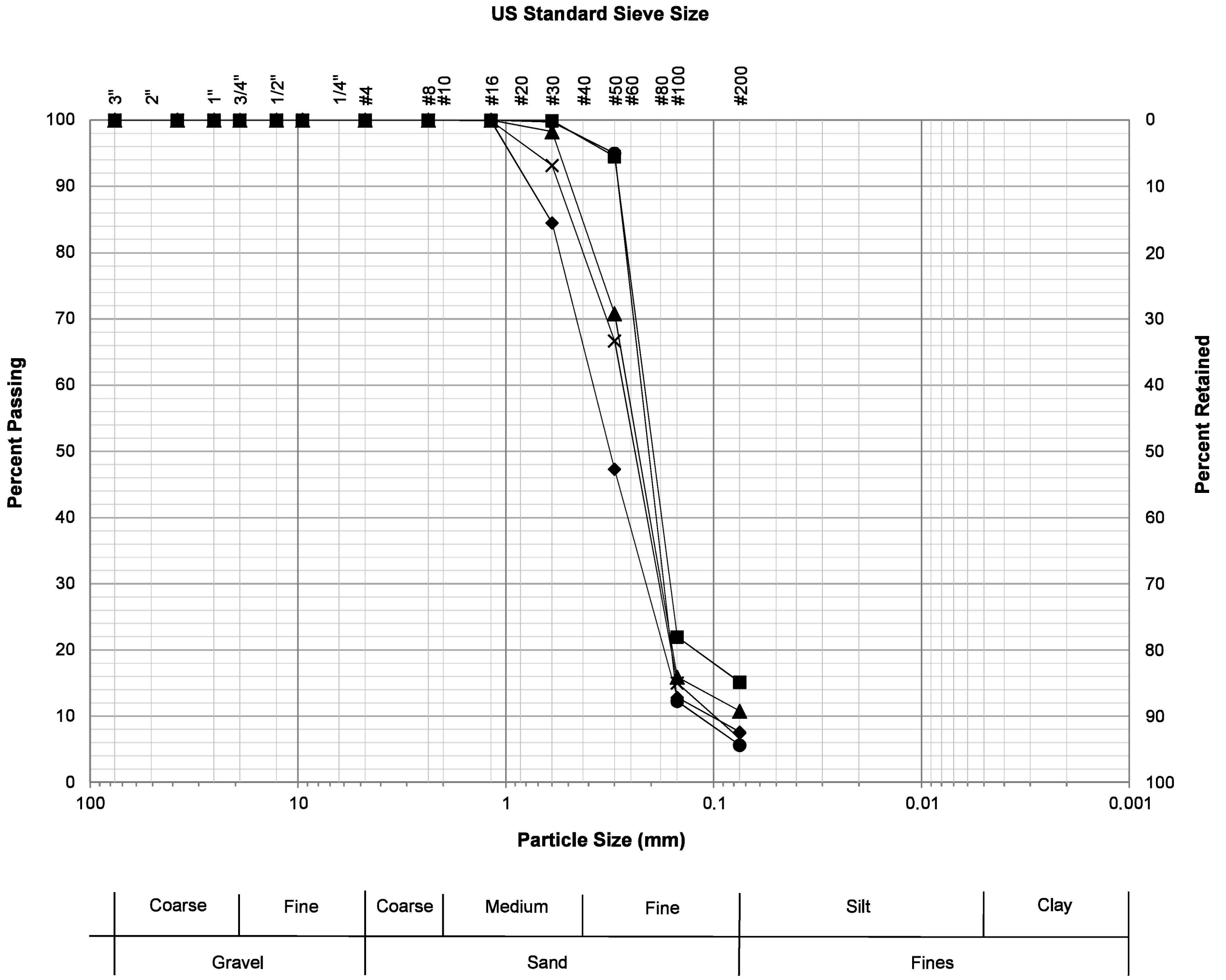
PARTICLE SIZE DISTRIBUTION

ASTM C136, D422 & D1140



Test Results

Symbol	% >3"	% Gravel		% Sand			% Fines		D_{60}	D_{30}	D_{10}	C_u	C_c
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay					
■	0.0	0.0	0.0	0.0	2.8	82.1	15.1		0.216	0.162			
▲	0.0	0.0	0.0	0.0	15.4	73.9	10.8		0.262	0.179			
●	0.0	0.0	0.0	0.0	2.6	91.8	5.6		0.224	0.174	0.119	1.882	1.139
◆	0.0	0.0	0.0	0.0	34.0	58.4	7.6		0.380	0.212	0.103	3.680	1.143
×	0.0	0.0	0.0	0.0	20.0	73.4	6.6		0.274	0.183	0.099	2.761	1.236

Sample Info

Symbol	Sample Source	Sample Description	USCS
■	Boring EB-2 at 5.5 ft.	Light red brown fine SAND some silt	SM
▲	Boring EB-2 at 15.5 ft.	Red brown fine SAND some silt	SP-SM
●	Boring EB-2 at 26 ft.	Light brown fine SAND some silt	SP-SM
◆	Boring EB-13 at 2 ft.	Light orange brown fine SAND some silt	SP-SM
×	Boring EB-13 at 11 ft.	Light brown fine SAND some silt	SP-SM

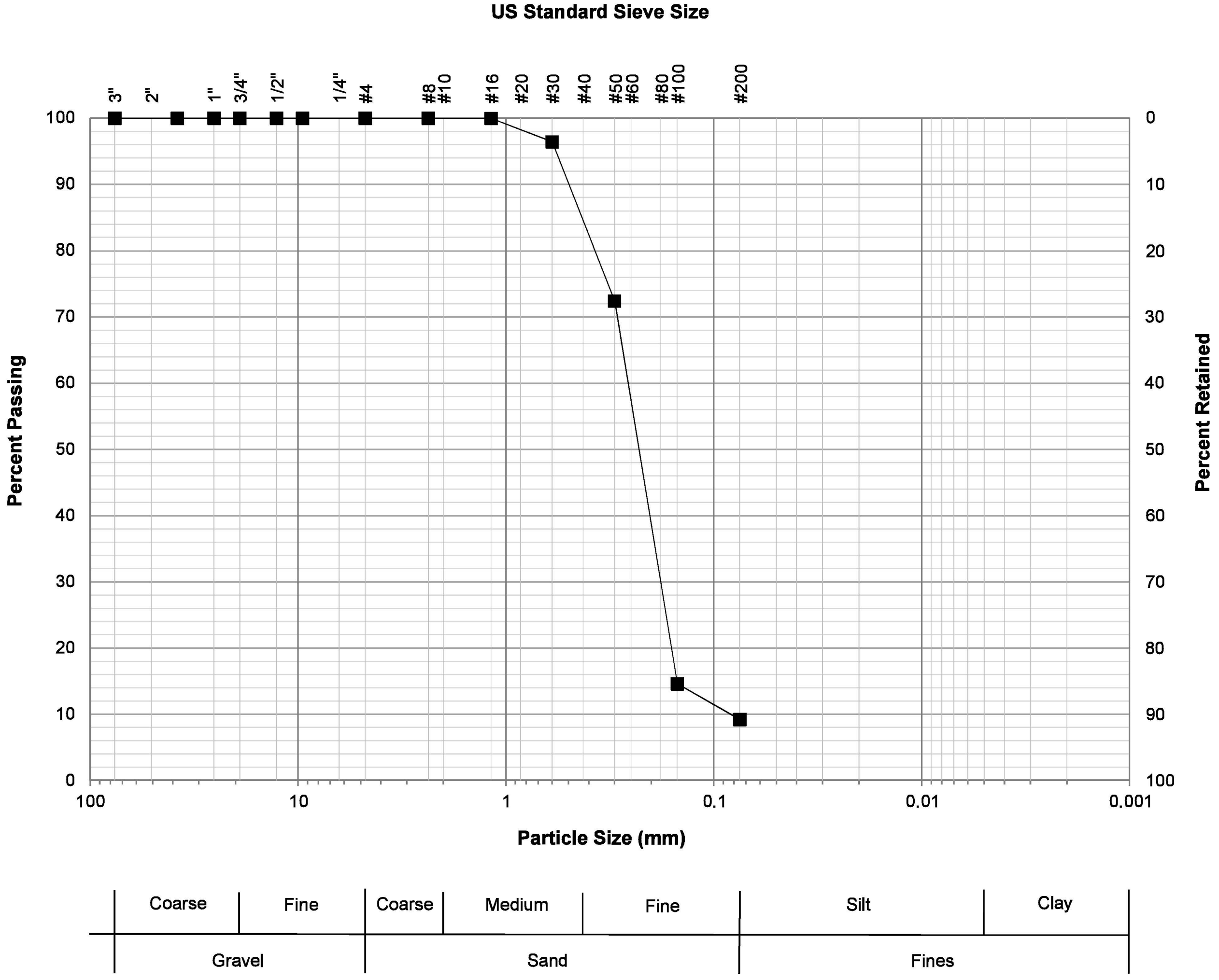
Project Info

Project Number:	169-4	Test Report Date:	3/1/2024
Project Name:	Chartwell High School		
Project Location:	Seaside, CA		
Tested by:	R. Tuazon		
Checked by:	T. Chen		

Stevens
Ferrone &
Bailey
Engineering Company, Inc

PARTICLE SIZE DISTRIBUTION

ASTM C136, D422 & D1140



Test Results

Symbol	% >3"	% Gravel		% Sand			% Fines		D_{60}	D_{30}	D_{10}	C_u	C_c
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay					
■	0.0	0.0	0.0	0.0	15.5	75.3	9.2		0.258	0.180	0.083	3.106	1.513

Sample Info

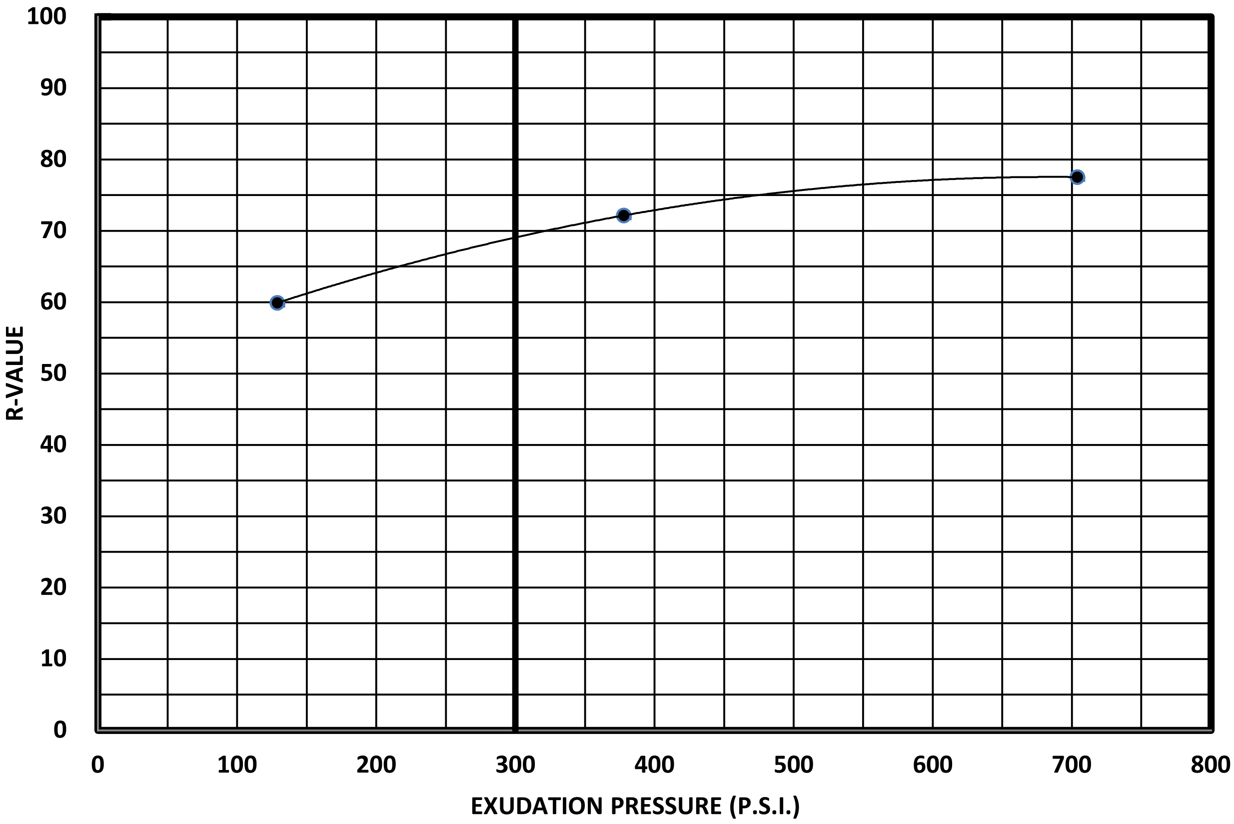
Symbol	Sample Source	Sample Description	USCS
■	Boring EB-13 at 21 ft.	Light red brown fine SAND some silt	SP-SM

Project Info

Project Number: 169-4
Test Report Date: 3/1/2024
Project Name: Chartwell High School
Project Location: Seaside, CA
Tested by: R. Tuazon
Checked by: T. Chen

Job Name: Chartwell High School
Job No: 99790
Sampled by: client
Tested by: MR
Date: 2/23/2024
Source: 0'-5'
Sample No: EB-17
Client Name & Job No.: Stevens, Ferrone & Bailey #169-4
Sample Description: Fine to coarse dark yellow-brown sand

R-VALUE CAL-TEST 301



Exudation (psi)	Compaction (psi)	Expansion (0.0001”)	Expansion (psf)	Moisture %	Dry Density	Resistance Value
704	350	5	22	9.0	124.4	78
378	350	0	0	9.2	124.8	72
129	350	0	0	10.1	124.1	60

Remarks:

Resistance Value
69

CERCO
analytical
1100 Willow Pass Court, Suite A
Concord, CA 94520-1006
925 462 2771 Fax. 925 462 2775
www.cercoanalytical.com

28 February, 2024

Job No. 2402048
Cust. No. 11486

Mr. John Harms
Stevens, Ferrone & Bailey
1600 Willow Pass Court
Concord, CA 94520

Subject: Project No.: 169-4
Project Name: Chartwell High School, Seaside CA
Corrosivity Analysis – ASTM Test Methods

Dear Mr. Harms:

Pursuant to your request, CERCO Analytical has analyzed the soil samples submitted on February 22, 2024. Based on the analytical results, this brief corrosivity evaluation is enclosed for your consideration.

Based upon the resistivity measurements, Sample No. 001 is classified as "moderately corrosive", Samples No. 003 and 005 are classified as "mildly corrosive", and Samples No. 002 and 004 are classified as "negligibly corrosive". All buried iron, steel, cast iron, ductile iron, galvanized steel and dielectric coated steel or iron should be properly protected against corrosion depending upon the critical nature of the structure. All buried metallic pressure piping such as ductile iron firewater pipelines should be protected against corrosion.

The chloride ion concentrations ranged from 18 mg/kg to 43 mg/kg and are determined to be insufficient to attack steel embedded in a concrete mortar coating.

The sulfate ion concentrations ranged from none detected to 19 mg/kg and are determined to be insufficient to damage reinforced concrete structures and cement mortar-coated steel at these locations.

The sulfide ion concentrations reflect none detected with a reporting limit of 50 mg/kg.

The pH of the soils ranged from 6.92 to 8.44, which does not present corrosion problems for buried iron, steel, mortar-coated steel and reinforced concrete structures.

The redox potentials ranged from 100-mV to 140-mV and are indicative of potentially "moderately corrosive" soils resulting from anaerobic soil conditions.

This corrosivity evaluation is based on general corrosion engineering standards and is non-specific in nature. For specific long-term corrosion control design recommendations or consultation, please call *JDH Corrosion Consultants, Inc. at (925) 927-6630.*

We appreciate the opportunity of working with you on this project. If you have any questions, or if you require further information, please do not hesitate to contact us.

Very truly yours,
CERCO ANALYTICAL, INC.

for

J. Darby Howard, Jr., P.E.
President

JDH/jdl
Enclosure

CERCO
analytical
1100 Willow Pass Court, Suite A
Concord, CA 94520-1006
925 **462 2771** Fax. 925 **462 2775**
www.cercoanalytical.com

Client:	Stevens, Ferrone & Bailey Engineering
Client's Project No.:	169-4
Client's Project Name:	Chartwell High School, Seaside CA
Date Sampled:	13-Feb-24 & 14-Feb-24
Date Received:	22-Feb-24
Matrix:	Soil
Authorization:	Signed Chain of Custody

Date of Report: 28-Feb-2024

Job/Sample No.	Sample I.D.	Redox (mV)	pH	Conductivity (umhos/cm)*	Resistivity (100% Saturation) (ohms-cm)	Sulfide (mg/kg)*	Chloride (mg/kg)*	Sulfate (mg/kg)*
2402048-001	EB-2 @ 3.5'	110	7.27	-	5,500	N.D.	43	19
2402048-002	EB-4 @ 2'	100	6.92	-	73,000	N.D.	18	N.D.
2402048-003	EB-6 @ 3'	110	8.44	-	12,000	N.D.	21	N.D.
2402048-004	EB-13 @ 2'	140	7.34	-	36,000	N.D.	19	N.D.
2402048-005	EB-16 @ 3.5'	140	7.67	-	14,000	N.D.	28	N.D.

Method:	ASTM D1498	ASTM D4972	ASTM D1125M	ASTM G57	ASTM D4658M	ASTM D4327	ASTM D4327
Reportring Limit:	-	-	10	-	50	15	15
Date Analyzed:	23-Feb-2024	26-Feb-2024	-	23-Feb-2024	23-Feb-2024	26-Feb-2024	26-Feb-2024

* Results Reported on "As Received" Basis

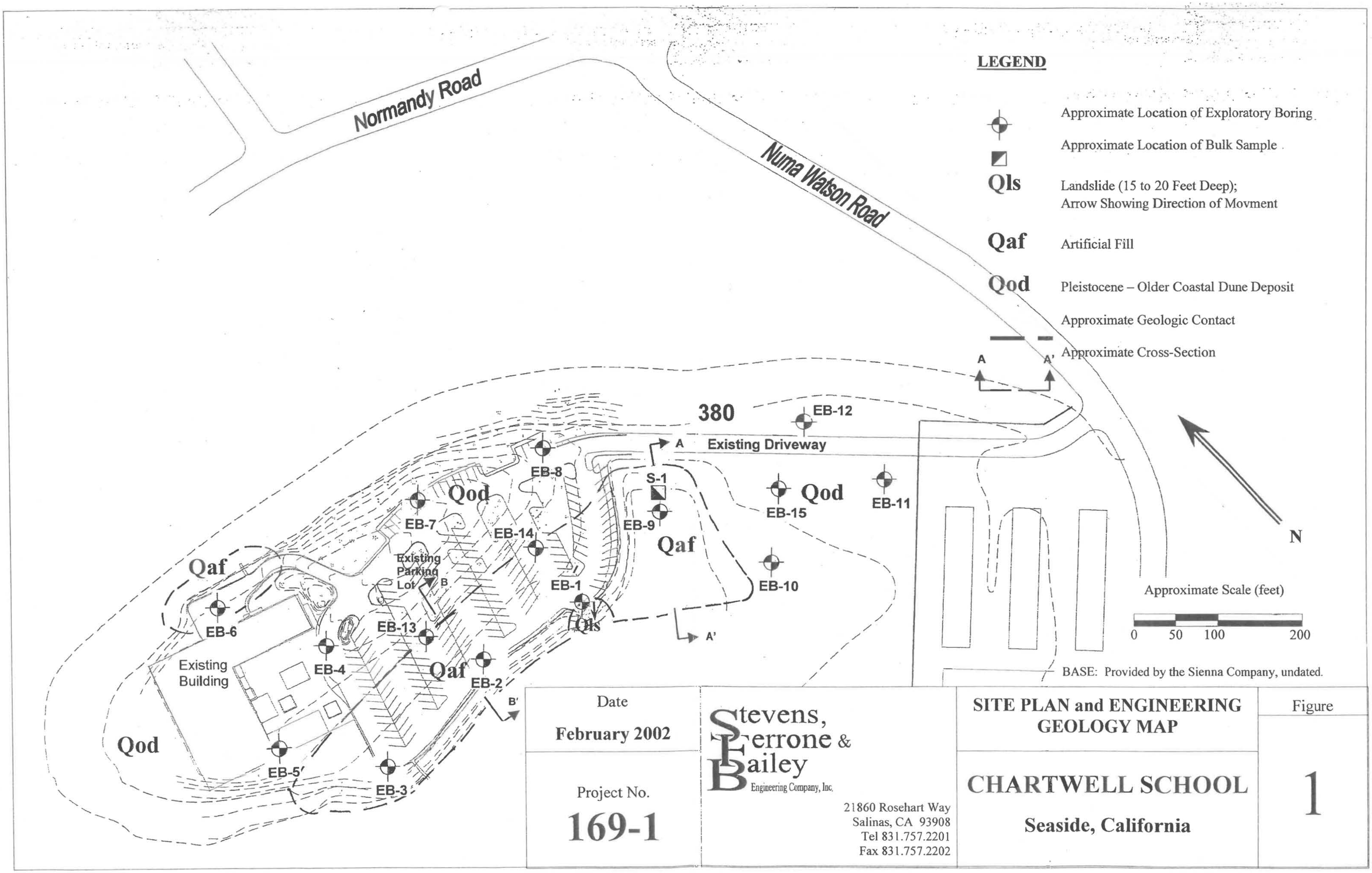
N.D. - None Detected

Julia Clauson
Chemist

<u>Quality Control Summary</u> - All laboratory quality control parameters were found to be within established limits

APPENDIX C

Previous Exploration Logs and Lab Testing Results



Date

February 2002

Project No.

169-1

Stevens,
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Bailey
Engineering Company, Inc.

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SITE PLAN and ENGINEERING GEOLOGY MAP

CHARTWELL SCHOOL

Seaside, California

Figure

1

FIGURE A-1, KEY TO EXPLORATION LOGS

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions		Ltr	Description
Coarse Grained Soils	Gravel and Gravelly Soils	GW	Well graded gravels or gravel sand mixtures, little or no fines
		GP	Poorly graded gravels or gravel sand mixtures, little to no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	Sand and Sandy Soils	SW	Well graded sands or gravelly sands, little to no fines
		SP	Poorly graded sands or gravelly sands, little to no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures

Major Divisions		Ltr	Description
Fine Grained Soils	Silts and 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 or low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silts-clays of low plasticity
	Silts and Clays LL>50	MH	Inorganic silts, micaceous or diatomaceous fine or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity
Highly Organic Soils		PT	Peat and other highly organic soils

GRAIN SIZES

U.S. STANDARD SERIES SIEVE — CLEAR SQUARE SIEVE OPENINGS

200 — 40 — 10 — 4 — ¾" — 3" — 12"

Silts and Clays	Sand			Gravel		Cobbles	Boulders
	Fine	Medium	Coarse	Fine	Coarse		

RELATIVE DENSITY

Sands and Gravels	N, Blows/Foot*
Very Loose	0 – 4
Loose	4 – 10
Medium Dense	10 – 30
Dense	30 – 50
Very Dense	Over 50

CONSISTENCY

Silts and Clays	N, Blows/Foot*	Strength (tsf)**
Very Soft	0 – 2	0 – ¼
Soft	2 – 4	¼ - ½
Firm	4 – 8	½ - 1
Stiff	8 – 16	1 – 2
Very Stiff	16 – 32	2 – 4
Hard	Over 32	Over 4

*Number of blows for a 140-lb. hammer falling 30 inches, driving a 2-inch O.D. (1-3/8") SPT sampler.
**Unconfined compressive strength.

SYMBOLS

│	Standard Penetration Sampler (SPT Sampler)
☒	3" O.D. Split Barrel Sampler w/ Liners
⧅	Shelby Tube Sample, 3" O.D.
◣	2½ " O.D. Split Barrel Sampler w/ Liners

Increasing Visual Moisture Content

Dry
Damp
Moist
Wet
↓

Stevens, Ferrone & Bailey Engineering Company, Inc.
SFB Fig.A-1KeytoLog
2/6/02

DRILL RIG CME 75, HSA	SURFACE ELEVATION ---	LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered	BORING DIAMETER 8 inch	DATE DRILLED 1-24-02

DESCRIPTION AND CLASSIFICATION			DEPTH	SAMPLER	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE	(FEET)						
			0						
2" AC and 6" Baserock									
FILL: SAND (SM), reddish brown, fine- to medium-grained, some silt, damp	Medium Dense				13				
						11	115		Passing #200 Sieve=24%
					13				
(brown, wet)									
			5						
(damp)									
					17	8			
			10						
					8				
			15						
(mottled reddish brown and grayish brown)	Loose								
SAND (SM), yellowish brown, fine- to medium-grained, silty, damp	Dense								
					36				
			20						
			25						
	Very Dense								
					88				
			30						
			35						

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EXPLORATORY BORING LOG

CHARTWELL SCHOOL
Seaside, CA

PROJECT NO.	DATE	BORING NO.
169-1	February 2002	**EB-1**

DRILL RIG CME 75, HSA	SURFACE ELEVATION —	LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered	BORING DIAMETER 8 inch	DATE DRILLED 1-24-02

DESCRIPTION AND CLASSIFICATION			DEPTH (FEET)	SAMPLER	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE							
SAND (SM), yellowish brown, fine- to medium-grained, silty, damp		▨	35						
		▨		☐	133				
Bottom of Hole = 40 feet. Notes: Stratification is approximate, variations must be expected. Blowcounts converted to SPT N-values. See Report for additional details.			40						
			45						
			50						
			55						
			60						
			65						
			70						

SuperLog V2.5 CivilTech Software, USA www.civiltech.com File: C:\Program Files\SuperLog\project\169-1.log Date: 2/6/2002

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EXPLORATORY BORING LOG

CHARTWELL SCHOOL

Seaside, CA

PROJECT NO.	DATE	BORING NO.
169-1	February 2002	**EB-1**

DRILL RIG CME 75, HSA
SURFACE ELEVATION ---
LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered
BORING DIAMETER 8 inch
DATE DRILLED 1-24-02

DESCRIPTION AND CLASSIFICATION			DEPTH (FEET)	SAMPLER	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE							
2" AC and 6" Baserock			0						
FILL: SAND (SM), mottled brown, fine- to medium-grained, trace to some silt, damp	Dense				45				
	Medium Dense		5						
(mottled brown, dark brown, grayish brown)	Very Loose				3				
			10						
SAND (SM), grayish brown, fine- to medium-grained, silty, damp	Very Dense				62				
			15						
Bottom of Hole = 15.5 feet. Notes: Stratification is approximate, variations must be expected. Blowcounts converted to SPT N-values. See Report for additional details.									
			20						
			25						
			30						
			35						

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EXPLORATORY BORING LOG

CHARTWELL SCHOOL
Seaside, CA

PROJECT NO.	DATE	BORING NO.
169-1	February 2002	**EB-2**

DRILL RIG CME 75, HSA	SURFACE ELEVATION ---	LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered	BORING DIAMETER 8 inch	DATE DRILLED 1-24-02

DESCRIPTION AND CLASSIFICATION			DEPTH (FEET)	SAMPLER	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE							
2" AC and 8" Baserock			0						
FILL: SAND (SM), mottled grayish and yellowish brown, fine- to medium-grained, some silt, damp	Medium Dense				27	8			Passing #200 Sieve =20%
			5						
	Loose								
(thin roots, mottled dark brown)					17				
SAND (SM), grayish brown to gray, fine- to medium-grained, silty, dry	Medium Dense		10						
	Dense								
	Very Dense		15		59				
Bottom of Hole = 15.5 feet. Notes: Stratification is approximate, variations must be expected. Blowcounts converted to SPT N-values. See Report for additional details.									
			20						
			25						
			30						
			35						

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EXPLORATORY BORING LOG

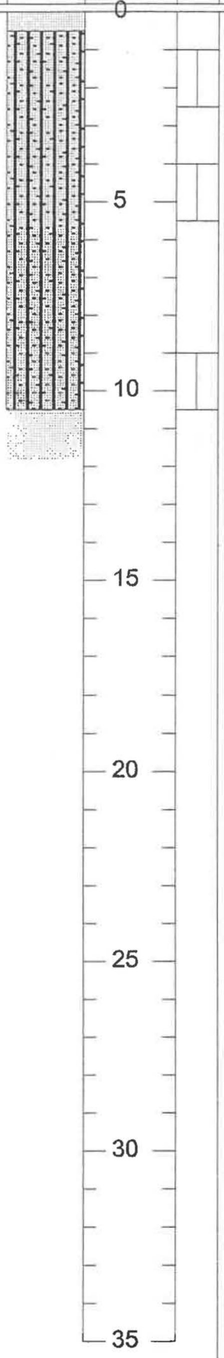
CHARTWELL SCHOOL

Seaside, CA

PROJECT NO.	DATE	BORING NO.
169-1	February 2002	**EB-3**

DRILL RIG CME 75, HSA	SURFACE ELEVATION —	LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered	BORING DIAMETER 8 inch	DATE DRILLED 1-24-02

DESCRIPTION AND CLASSIFICATION			DEPTH (FEET)	SAMPLER	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE							
4" AC and 6" Baserock			0						
SAND (SM), yellowish brown, fine- to medium-grained, trace to some silt, damp	Dense				31				
			5		32				
	Very Dense		10		50				
Bottom of Hole = 10.5 feet. Notes: Stratification is approximate, variations must be expected. Blowcounts converted to SPT N-values. See Report for additional details.			15						



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EXPLORATORY BORING LOG

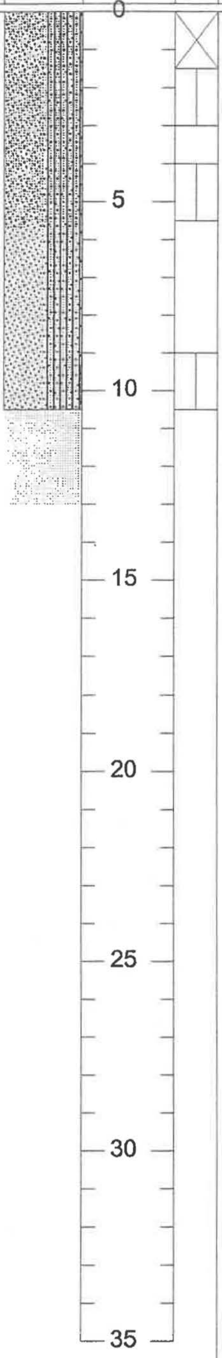
CHARTWELL SCHOOL

Seaside, CA

PROJECT NO.	DATE	BORING NO.
169-1	February 2002	EB-4

DRILL RIG CME 75, HSA	SURFACE ELEVATION —	LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered	BORING DIAMETER 8 inch	DATE DRILLED 1-24-02

DESCRIPTION AND CLASSIFICATION			DEPTH (FEET)	SAMPLER	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE							
SAND (SP/SM), brown, fine- to medium-grained, trace silt, damp (grass at surface)	Medium Dense		0		15				
					15	6	106		Passing #200 Sieve=9%
(yellowish brown at 2 feet)									
(moist)					20				
			5						
	Dense								
					41				
			10						
Bottom of Hole = 10.5 feet. Notes: Stratification is approximate, variations must be expected. Blowcounts converted to SPT N-values. See Report for additional details.									
			15						
			20						
			25						
			30						
			35						



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EXPLORATORY BORING LOG

CHARTWELL SCHOOL

Seaside, CA

PROJECT NO.	DATE	BORING NO.
169-1	February 2002	**EB-5**

DRILL RIG CME 75, CFA	SURFACE ELEVATION —	LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered	BORING DIAMETER 6 inch	DATE DRILLED 1-24-02

DESCRIPTION AND CLASSIFICATION			DEPTH (FEET)	SAMPLER	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE							
4" AC and 6" Baserock			0						
FILL: SAND (SM), mottled brown, fine- to medium-grained, trace to some silt, some angular gravel	Dense				35				
SAND (SM), grayish brown, fiine- to medium-grained, silty, dry	Dense				42				
			5						
(yellowish brown)									
					42				
			10						
Bottom of Hole = 10.5 feet. Notes: Stratification is approximate, variations must be expected. Blowcounts converted to SPT N-values. See Report for additional details.									
			15						
			20						
			25						
			30						
			35						

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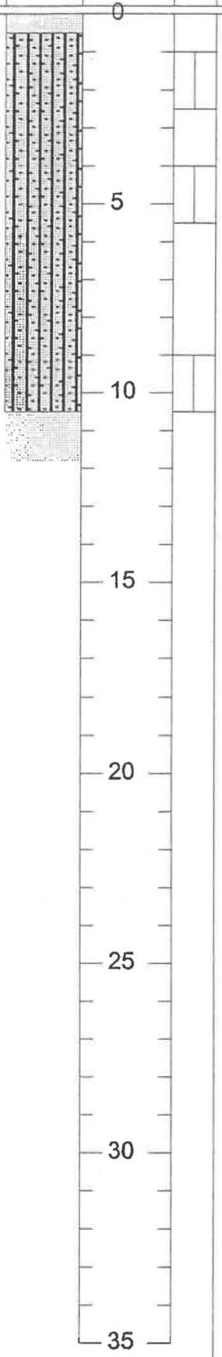
EXPLORATORY BORING LOG

CHARTWELL SCHOOL
Seaside, CA

PROJECT NO.	DATE	BORING NO.
169-1	February 2002	**EB-6**

DRILL RIG CME 75, CFA	SURFACE ELEVATION ---	LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered	BORING DIAMETER 6 inch	DATE DRILLED 1-24-02

DESCRIPTION AND CLASSIFICATION			DEPTH (FEET)	SAMPLER	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE							
2" AC and 4" Baserock			0						
SAND (SM), brown, fine- to medium-grained, trace to some silt, wet	Medium Dense				10				
(yellowish brown, dry at 4 feet)	Dense		5		45				
	Very Dense		10		70				



Bottom of Hole = 10.5 feet. Notes: Stratification is approximate, variations must be expected. Blowcounts converted to SPT N-values. See Report for additional details.

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EXPLORATORY BORING LOG

CHARTWELL SCHOOL

Seaside, CA

PROJECT NO.	DATE	BORING NO.
169-1	February 2002	**EB-7**

DRILL RIG CME 75, CFA	SURFACE ELEVATION ---	LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered	BORING DIAMETER 6 inch	DATE DRILLED 1-24-02

DESCRIPTION AND CLASSIFICATION			DEPTH (FEET)	SAMPLER	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE							
2" AC and 5" Baserock			0						
SAND (SM), dark reddish brown, fine- to medium-grained, some silt, damp	Medium Dense				18	3			Passing #200 Sieve=16%
(yellowish brown, dry at 3 feet)									
	Very Dense		5		55				
			10		74				
Bottom of Hole = 10.5 feet. Notes: Stratification is approximate, variations must be expected. Blowcounts converted to SPT N-values. See Report for additional details.									
			15						
			20						
			25						
			30						
			35						

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EXPLORATORY BORING LOG

CHARTWELL SCHOOL

Seaside, CA

PROJECT NO.	DATE	BORING NO.
169-1	February 2002	EB-8

DRILL RIG CME 75, CFA	SURFACE ELEVATION —	LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered	BORING DIAMETER 6 inch	DATE DRILLED 1-24-02

DESCRIPTION AND CLASSIFICATION			DEPTH (FEET)	SAMPLER	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE							
FILL: SAND (SM), reddish brown, fine- to medium-grained, trace silt, wet	Medium Dense		0		23	10	121		Passing #200 Sieve=14% Atterberg Limits, PI=NP, R=54
(lens of coarse sand at 2.5 feet)	Very Dense				53				
			5						
(mottled brown, trace angular gravel, damp)	Medium Dense								
(layered brown and dark brown, some silt)					13				Passing #200 Sieve=21%
			10						
SAND (SM), yellowish and reddish brown, fine- to medium-grained, silty, damp	Very Dense				57				
			15						
Bottom of Hole = 15.5 feet. Notes: Stratification is approximate, variations must be expected. Blowcounts converted to SPT N-values. See Report for additional details. PI=Plasticity Index, NP=Non-Plastic, R=Resistance Value.									
			20						
			25						
			30						
			35						

SuperLog V2.5 CivilTech Software, USA www.civiltech.com File: C:\Program Files\SuperLog\project\169-1.log Date: 2/6/2002

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EXPLORATORY BORING LOG

CHARTWELL SCHOOL

Seaside, CA

PROJECT NO.	DATE	BORING NO.
169-1	February 2002	EB-9

DRILL RIG CME 75, CFA	SURFACE ELEVATION ---	LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered	BORING DIAMETER 6 inch	DATE DRILLED 1-24-02

DESCRIPTION AND CLASSIFICATION			DEPTH (FEET)	SAMPLER	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE							
SAND (SM), brown, fine- to medium-grained, trace to some silt, damp (grass at surface)	Dense		0						
					32				
(yellowish brown)					35				
			5						
					49				
			10						
Bottom of Hole = 10.5 feet. Notes: Stratification is approximate, variations must be expected. Blowcounts converted to SPT N-values. See Report for additional details.									
			15						
			20						
			25						
			30						
			35						

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EXPLORATORY BORING LOG

CHARTWELL SCHOOL

Seaside, CA

PROJECT NO.	DATE	BORING NO.
169-1	February 2002	**EB-10**

DRILL RIG CME 75, CFA	SURFACE ELEVATION —	LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered	BORING DIAMETER 6 inch	DATE DRILLED 1-24-02

DESCRIPTION AND CLASSIFICATION			DEPTH (FEET)	SAMPLER	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE							
SAND (SP/SM), brown, fine- to medium-grained, trace silt, damp (ice plant at surface)	Very Loose	▨	0						
		▨		☐	3	7			Passing #200 Sieve=12%
(yellowish brown to tan at 3 feet)	Dense	▨							
		▨	5	☐	46	2			Passing #200 Sieve=7%
		▨		☐	62				
Bottom of Hole = 10 feet. Notes: Stratification is approximate, variations must be expected. Blowcounts converted to SPT N-values. See Report for additional details.			10						
			15						
			20						
			25						
			30						
			35						

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EXPLORATORY BORING LOG

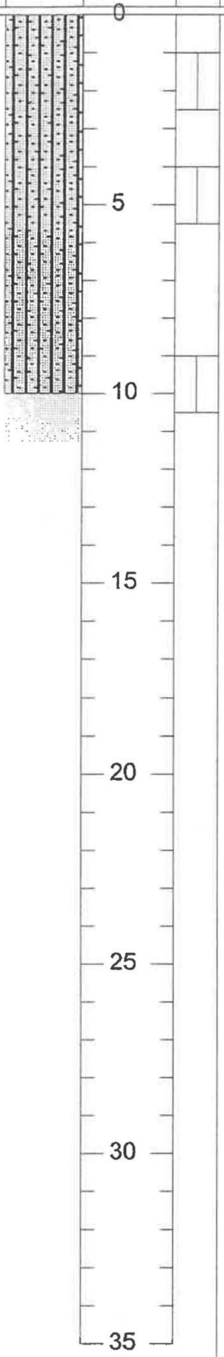
CHARTWELL SCHOOL

Seaside, CA

PROJECT NO.	DATE	BORING NO.
169-1	February 2002	**EB-11**

DRILL RIG CME 75, CFA
SURFACE ELEVATION ---
LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered
BORING DIAMETER 6 inch
DATE DRILLED 1-24-02

DESCRIPTION AND CLASSIFICATION			DEPTH (FEET)	SAMPLER	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE							
SAND (SM), brown, fine- to medium-grained, trace to some silt, damp to wet (grass at surface)	Loose		0		7				
(yellowish brown to tan, dry at 3 feet)	Medium Dense				57				
	Very Dense		5						
			10		78				
Bottom of Hole = 10 feet. Notes: Stratification is approximate, variations must be expected. Blowcounts converted to SPT N-values. See Report for additional details.									



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EXPLORATORY BORING LOG

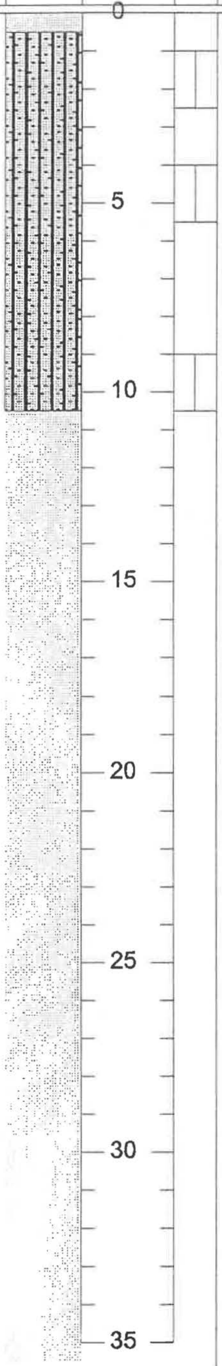
CHARTWELL SCHOOL

Seaside, CA

PROJECT NO.	DATE	BORING NO.
169-1	February 2002	**EB-12**

DRILL RIG CME 75, CFA	SURFACE ELEVATION ---	LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered	BORING DIAMETER 6 inch	DATE DRILLED 1-24-02

DESCRIPTION AND CLASSIFICATION			DEPTH (FEET)	SAMPLER	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE							
2" AC and 6" Baserock									
SAND (SM), yellowish brown, fine- to medium-grained, trace to some silt, damp	Very Dense				50				
(grayish brown)	Medium Dense				22				
(yellowish brown)	Dense				34				



Bottom of Hole = 10.5 feet. Notes: Stratification is approximate, variations must be expected. Blowcounts converted to SPT N-values. See Report for additional details.

SuperLog V2.5 CivilTech Software, USA www.civiltech.com File: C:\Program Files\SuperLog\project\169-1.log Date: 2/6/2002

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EXPLORATORY BORING LOG

CHARTWELL SCHOOL

Seaside, CA

PROJECT NO.	DATE	BORING NO.
169-1	February 2002	**EB-13**

DRILL RIG CME 75, CFA	SURFACE ELEVATION —	LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered	BORING DIAMETER 6 inch	DATE DRILLED 1-24-02

DESCRIPTION AND CLASSIFICATION			DEPTH (FEET)	SAMPLER	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE							
2" AC and 6" Baserock			0						
SAND (SM), grayish brown, fine- to medium-grained, trace to some silt, dry	Very Dense				74				
	Dense		5		39				
	Very Dense		10		66				
Bottom of Hole = 10 feet. Notes: Stratification is approximate, variations must be expected. Blowcounts converted to SPT N-values. See Report for additional details.			15						
			20						
			25						
			30						
			35						

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EXPLORATORY BORING LOG

CHARTWELL SCHOOL

Seaside, CA

PROJECT NO.	DATE	BORING NO.
169-1	February 2002	EB-14

DRILL RIG CME 75, CFA	SURFACE ELEVATION —	LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered	BORING DIAMETER 6 inch	DATE DRILLED 1-24-02

DESCRIPTION AND CLASSIFICATION			DEPTH (FEET)	SAMPLER	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE							
SAND (SM), brown, fine- to medium-grained, trace to some silt, damp	Loose	▨	0						
		▨		☐	6				
(yellowish brown at 3 feet)	Medium	▨							
(grayish brown at 4 feet)	Dense	▨		☐	29				
		▨	5						
	Dense	▨							
(yellowish brown at 8 feet)		▨							
	Very Dense	▨	10	☐	56				
Bottom of Hole = 10.5 feet. Notes: Stratification is approximate, variations must be expected. Blowcounts converted to SPT N-values. See Report for additional details.									
			15						
			20						
			25						
			30						
			35						

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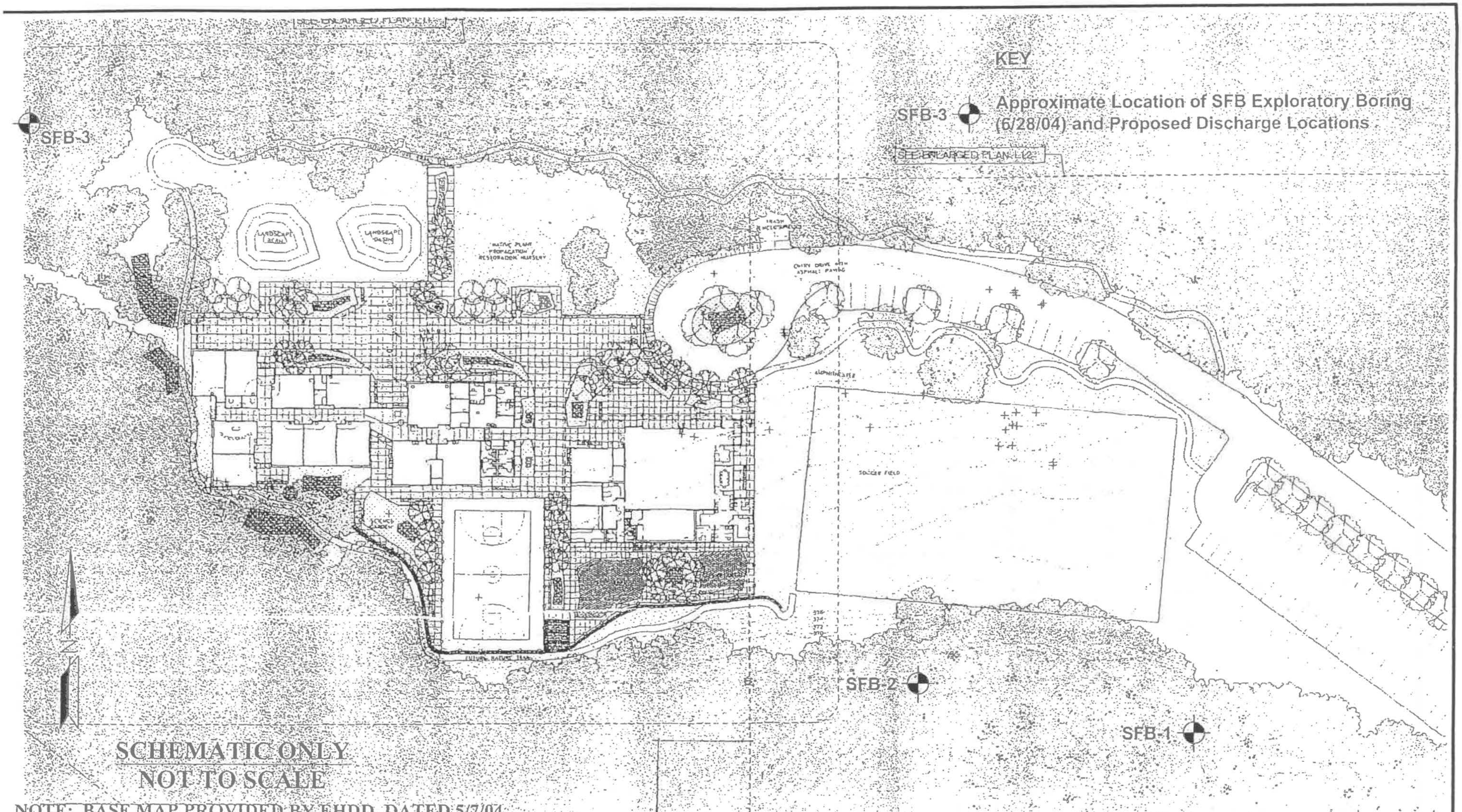
EXPLORATORY BORING LOG

CHARTWELL SCHOOL

Seaside, CA

PROJECT NO.	DATE	BORING NO.
169-1	February 2002	**EB-15**



SCHEMATIC ONLY
NOT TO SCALE

NOTE: BASE MAP PROVIDED BY EHDD, DATED 5/7/04.

Date	Stevens Ferrone & Bailey Engineering Company, Inc	1470 Enea Circle #1551 Concord, CA 94520 Tel 925.688.1001 Fax 925.688.1005	21860 Rosehart Way Salinas, CA 93908 Tel 831.757.2201 Fax 831.757.2202	SITE PLAN	Figure
JUNE 2004					
Project No.				CHARTWELL SCHOOL Seaside, California	1
169-1A					

DRILL RIG Mobile B24, CFA	SURFACE ELEVATION 371 Feet	LOGGED BY TC
DEPTH TO GROUNDWATER Not Encountered	BORING DIAMETER 5 Inches	DATE DRILLED 06/28/04

DESCRIPTION AND CLASSIFICATION			DEPTH (FEET)	SAMPLER	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE							
SAND (SM), mottled grayish brown, very fine- to medium-grained, silty, trace root, dry	Loose Medium Dense	▥	0		21				
SAND (SM), mottled pale gray tan, very fine- to fine- grained, very silty, dry hard drilling	Very Dense	▥	5		97				
SAND (SP), tan, fine- to medium- grained, trace silt, dry	Dense	▨	10		38				
Bottom of Boring = 11.5 feet Notes: Stratification is approximate, variations must be expected. Blowcounts converted to SPT N-values. See Report for additional details.			15 20 25 30 35						

SuperLog V2.8 CivilTech Software, USA www.civiltech.com File: F:\PROJECT DOCUMENTS\Master Boring Log File\project\169-1A.log Date: 8/30/2004

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EXPLORATORY BORING LOG

Chartwell School
Seaside, CA

PROJECT NO.	DATE	BORING NO.
169-1A	July 2004	**SFB-1**

DRILL RIG Minutemen, CFA, 70 lb. Hand Hammer	SURFACE ELEVATION 366 Feet	LOGGED BY TC
DEPTH TO GROUNDWATER Not Encountered	BORING DIAMETER 3.5 Inches	DATE DRILLED 06/28/04

DESCRIPTION AND CLASSIFICATION

DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE	DEPTH (FEET)	SAMPLER	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
SAND (SM), mottled tan brown, fine- to medium- grained, some to with silt, trace fine gravel and root, dry harder drilling at 4'	Loose	▥	0		8				
SAND (SM), mottled brown grayish tan, fine- to medium- grained, some to with silt, lightly cemented, trace root, dry increasing particle size	Dense	▥	5		38				
SAND (SP), tan, fine- to medium- grained, trace silt, dry to damp	Medium Dense	░	10		15				
change color to mottled tan brown, damp to moist	Dense	░	15		33				
			20						
			25						
			30						
			35						

Bottom of Boring = 16 feet Notes: Stratification is approximate, variations must be expected. Blowcounts converted to SPT N-values. See Report for additional details.

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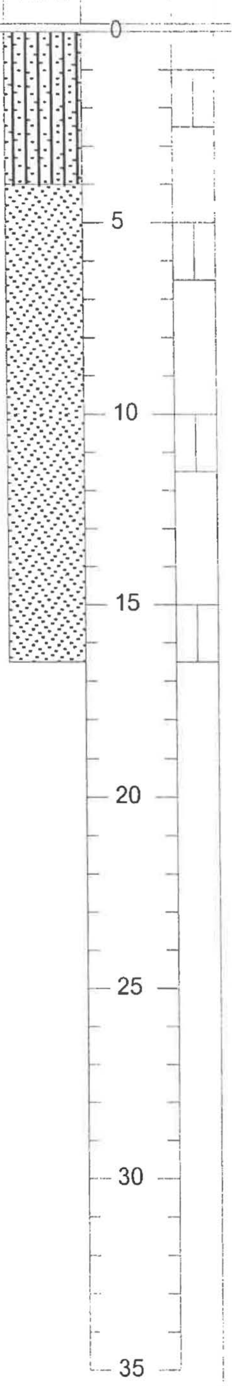
EXPLORATORY BORING LOG

Chartwell School

Seaside, CA

PROJECT NO.	DATE	BORING NO.
169-1A	July 2004	**SFB-2**

DRILL RIG Mobile B24, CFA	SURFACE ELEVATION 368 Feet	LOGGED BY TC
DEPTH TO GROUNDWATER Not Encountered	BORING DIAMETER 5 Inches	DATE DRILLED 06/28/04



DESCRIPTION AND CLASSIFICATION									
DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE	DEPTH (FEET)	SAMPLER	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	OTHER TESTS
SAND (SM), pale grayish brown, very fine- to fine- grained, very silty, dry	Loose Medium Dense		0		27				
SAND (SP), grayish tan, fine- to medium- grained, trace silt, dry	Dense		5		45				
change color to tan	Very Dense		10		51				
no recovery			15		73				

Bottom of Boring = 16.5 feet Notes: Stratification is approximate, variations must be expected. Blowcounts converted to SPT N-values. See Report for additional details.

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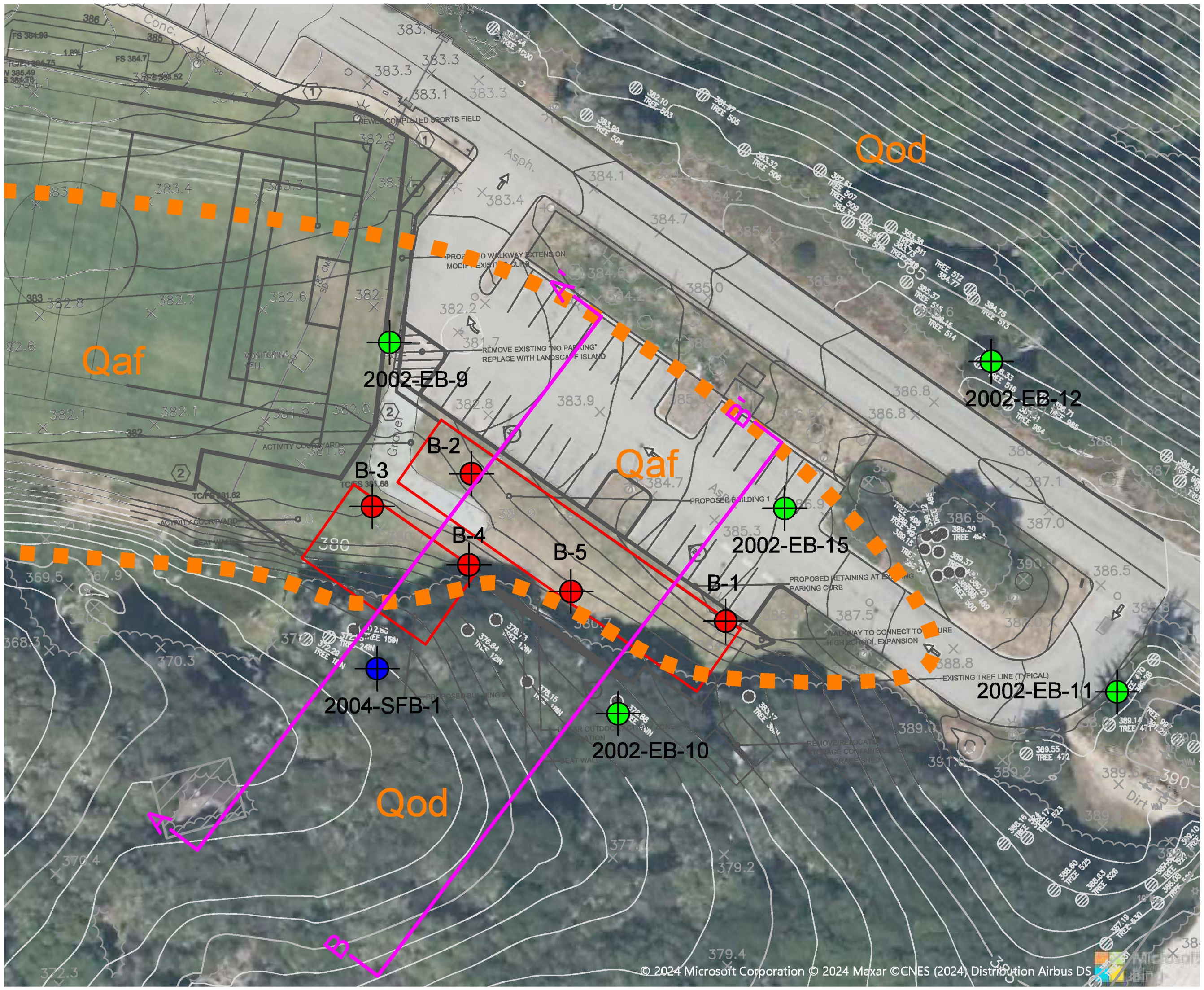
EXPLORATORY BORING LOG

Chartwell School
Seaside, CA

PROJECT NO.	DATE	BORING NO.
169-1A	July 2004	**SFB-3**



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KEY

● Exploratory Boring by SFB (2/12/2024)

● Previous Exploratory Boring by SFB (6/28/2004)

● Previous Exploratory Boring by SFB (1/24/2002)

▭ Proposed New Building

A A' Location of Cross-Section (See Figures 5 & 6 for the Sections)

Qaf Man-made fill

Qod Pleistocene Older Dune Sand

■ ■ Geologic Contact

NOTE: All locations shown are approximate.

NOTE: Base map from the project schematic site plan prepared by JD+A and dated 1/26/2024. Existing Topographic base from EHDD on 1/30/2024. Aerial photo imagery from Microsoft 2024.

SCALE: 1" = 40'

0 40' 80'

DATE	March 2024
PROJECT NO.	169-3

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SITE PLAN AND ENGINEERING GEOLOGY MAP

MID CAMPUS EXPANSION

Chartwell School, Seaside, California

FIGURE

2

169-3, Chartwell School Seaside - February 2024.dwg
Printed: 3/6/2024

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KEY TO FIELD EXPLORATION LOGS

PROJECT:

CHARTWELL MIDDLE SCHOOL
Seaside, California

PROJECT NO: **169-3**

FIGURE NO: **A-1**

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2487 & D2488)

MAJOR DIVISIONS		GRAPHIC LOG	GROUP SYMBOL	TYPICAL DESCRIPTION
COARSE-GRAINED SOILS (More than 50% retained on #200 sieve)	CLEAN GRAVELS (Less than 5% fines)	●	GW	Well-graded gravels, gravel-sand mixtures, trace or no fines
		○	GP	Poorly-graded gravels, gravel-sand mixtures, trace or no fines
	GRAVELS WITH FINES (More than 12% fines)	▥	GM	Silty gravels, gravel-sand-silt mixtures
		▨	GC	Clayey gravels, gravel-sand-clay mixtures
	CLEAN SANDS (Less than 5% fines)	⁘	SW	Well-graded sands, gravelly sands, trace or no fines
		⁘	SP	Poorly-graded sands, gravelly sands, trace or no fines
	SANDS WITH FINES (More than 12% fines)	▥	SM	Silty sands, sand-silt mixtures
		▨	SC	Clayey sands, sand-clay mixtures

MAJOR DIVISIONS		GRAPHIC LOG	GROUP SYMBOL	TYPICAL DESCRIPTION
FINE-GRAINED SOILS (More than 50% passes #200 sieve)	SILTS AND CLAYS (Liquid Limit less than 50)	▥	ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands, clayey silts of low to medium plasticity
		▨	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		▤	OL	Organic silts and clays of low plasticity
	SILTS AND CLAYS (Liquid Limit 50 or more)	▥	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts of high plasticity
		▨	CH	Inorganic clays of high plasticity, fat clays
		▤	OH	Organic silts and clays of medium to high plasticity
HIGHLY ORGANIC SOILS		⁘	PT	Peat and other highly organic soils

GRAIN SIZES

U.S. STANDARD SIEVE SIZE

12"	3"	3/4"	#4	#10	#40	#200
304.8 mm	76.2 mm	19.0 mm	4.75 mm	2.00 mm	0.425 mm	0.075 mm

BOULDERS	COBBLES	GRAVELS		SANDS			SILTS AND CLAYS
		Coarse	Fine	Coarse	Medium	Fine	

RELATIVE DENSITY

SANDS AND GRAVELS	BLOWS/FOOT*
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Over 50

CONSISTENCY

SILTS AND CLAYS	BLOWS/FOOT*	UCS (KSF)**
Very Soft	0 - 2	0 - 1/2
Soft	2 - 4	1/2 - 1
Firm	4 - 8	1 - 2
Stiff	8 - 16	2 - 4
Very Stiff	16 - 32	4 - 8
Hard	Over 32	Over 8

*Number of blows for a 140-pound hammer falling 30 inches to drive a 2" O.D. (1-3/8" I.D.) split spoon sampler.

**UCS: Unconfined Compressive Strength.

SYMBOLS AND NOTES

▯	Standard Penetration Test (SPT) Sampler (2" O.D. Split Barrel)
⊠	Modified California Sampler (3" O.D. Split Barrel)
◪	California Sampler (2.5" O.D. Split Barrel)
⍁	Shelby Tube
▩	Bulk Sample
▮	Core Barrel (See Log Notes)
▽	Groundwater Level During Drilling
▼	Groundwater Level at End of Drilling

INCREASING VISUAL MOISTURE CONTENT

↑
Wet
Moist
Dry

CONSTITUENT PERCENTAGE

trace	< 5%
few	5 - 15%
with	16 - 30%
-y	31 - 49%

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EXPLORATORY BORING B-1

PROJECT:
CHARTWELL MIDDLE SCHOOL
Seaside, California

PROJECT NO: 169-3	SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen	DATE STARTED: 2/12/2024
DRILLER: West Coast Exploration	DATE FINISHED: 2/12/2024
DRILL RIG: Mobile B-24	DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger	DEPTH TO FINAL WATER: Not Encountered

HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches

BORING LOCATION: See Site Plan, Figure 2 (36.636031°; -121.801305°)

SUBSURFACE MATERIAL CLASSIFICATION			DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
DESCRIPTION	CONSIST	GRAPHIC LOG								
FILL: SAND (SM), dark grayish brown, fine- to coarse-grained, silty, few to with gravel (fine to coarse, subangular to subrounded), trace clay, moist.	medium dense		0							
				☒	10 12 25	22	15.8	108.2		
Change color to brown, fine- to medium-grained, trace gravel (fine, subangular to subrounded), moist.				☐	10 8 4	12				At 3.5 Feet: Corrosion Tests.
SLOPE WASH: SAND (SM), light brown, fine-grained, few to with silt, dry to moist.	medium dense		5	☒	19 20 23	26	4.8	108.4		
SAND (SP), yellowish brown, fine-grained, trace silt, dry.	medium dense									
	dense		10	☐	15 18 30	48				
Dry.	very dense		15	☐	29 34 44	78				
Dry.			20	☐	30 50/6"	50/6"				
Bottom of Boring = 21 feet Notes: Stratification is approximate; variations must be expected. See report for additional details.										
			25							
			30							

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EXPLORATORY BORING B-2

PROJECT:
CHARTWELL MIDDLE SCHOOL
Seaside, California

PROJECT NO: 169-3
SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen
DATE STARTED: 2/12/2024
DRILLER: West Coast Exploration
DATE FINISHED: 2/12/2024
DRILL RIG: Mobile B-24
DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger
DEPTH TO FINAL WATER: Not Encountered
HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches
BORING LOCATION: See Site Plan, Figure 2 (36.636176°; -121.801616°)

SUBSURFACE MATERIAL CLASSIFICATION			DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
DESCRIPTION	CONSIST	GRAPHIC LOG								
FILL: CLAY (CL), mottled dark gray brown, silty, few sand (fine- to coarse-grained), few gravel (fine, subangular to subrounded), dry to moist.	very stiff	▨	0	☒	25 20 24	26	11.0	119.1		
FILL: SAND (SC), mottled gray brown, fine- to medium-grained, clayey and silty, trace gravel (fine, subangular), moist.	medium dense	▨		▯	8 9 11	20				
FILL: SAND (SM), brown, fine- to medium-grained, few clay and silt, trace gravel (fine, angular), moist.	dense	▥	5	☒	50/6"	30/6"				
SLOPE WASH: SAND (SM), grayish brown, fine- to medium-grained, silty, moist. Change color to brown at 11'.	dense	▥	10	▯	14 17 18	35				
SAND (SP), yellowish brown, fine-grained, trace silt, dry.	dense very dense	⁘	15	▯	20 20 30	50				
Bottom of Boring = 16.5 feet Notes: Stratification is approximate; variations must be expected. See report for additional details.			20 25 30							

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EXPLORATORY BORING B-3

PROJECT NO: 169-3	SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen	DATE STARTED: 2/12/2024
DRILLER: West Coast Exploration	DATE FINISHED: 2/12/2024
DRILL RIG: Mobile B-24	DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger	DEPTH TO FINAL WATER: Not Encountered
HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches	
BORING LOCATION: See Site Plan, Figure 2 (36.636144°; -121.801737°)	

PROJECT:

CHARTWELL MIDDLE SCHOOL

Seaside, California

SUBSURFACE MATERIAL CLASSIFICATION			DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
DESCRIPTION	CONSIST	GRAPHIC LOG								
FILL: CLAY (CL)/SAND (SC), mottled dark gray brown, silty, sandy (fine- to coarse-grained), few gravel (fine to coarse, subangular to subrounded), moist.	firm to very stiff	▨	0	☒	20 25 25	30	13.7	113.0		At 2 Feet: Liquid Limit = 24 Plasticity Index =10 Fine Gravel = 1% Coarse Sand = 2% Medium Sand = 12% Fine Sand = 33% Fines = 52% Corrosion Tests.
FILL: SAND (SM), brown, fine- to medium-grained, with silt, trace clay, moist.	very dense	🟩		☐	24 32 30	62				
	dense	🟩	5	☒	42 50/6"	30/6"	8.3	115.1		
SLOPE WASH: SAND (SM), dark grayish brown, fine- to medium-grained, trace coarse-grained, with silt and clay, with slight organic odor, trace roots & organics, moist.	dense	🟩								
Trace organics at 11'.		🟩	10	☐	10 8 30	38	15.0			At 11 Feet: Coarse Sand = 1% Medium Sand = 22% Fine Sand = 54% Fines = 23%
SAND (SP), yellowish brown, fine- to medium-grained, trace silt, dry to moist.	dense	🟨								
Dry.	very dense	🟨	15	☐	20 25 30	55				
Dry.	dense	🟨	20	☐	18 18 25	43				
Bottom of Boring = 21.5 feet Notes: Stratification is approximate; variations must be expected. See report for additional details.			25 30							

Stevens Ferrone Bailey Engineering
1600 Willow Pass Court
Concord, CA 94520
Tel: (925) 688-1001

EXPLORATORY BORING B-4

PROJECT:
CHARTWELL MIDDLE SCHOOL
Seaside, California

PROJECT NO: 169-3	SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen	DATE STARTED: 2/12/2024
DRILLER: West Coast Exploration	DATE FINISHED: 2/12/2024
DRILL RIG: Mobile B-24	DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger	DEPTH TO FINAL WATER: Not Encountered

HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches
BORING LOCATION: See Site Plan, Figure 2 (36.636087°; -121.801619°)

SUBSURFACE MATERIAL CLASSIFICATION			DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
DESCRIPTION	CONSIST	GRAPHIC LOG								
FILL: SAND (SM), brown, fine- to medium-grained, few coarse-grained, with silt and clay, trace gravel (fine, subangular), moist.	dense	🟩	0							
				☒	25 28 40	41	9.1	120.5		At 2 Feet: Fine Gravel = 5% Coarse Sand = 2% Medium Sand = 21% Fine Sand = 52% Fines = 20%
	very dense			☐	27 32 40	72				
SLOPE WASH: SAND (SM), dark grayish brown, fine- to medium-grained, with to silty, with slight organic odor, trace roots & organics, dry.	medium dense	🟩	5	☒	22 12 12	14	8.5	109.7		
SAND (SP-SM), yellowish brown, fine-grained, trace silt, dry.	medium dense	🟩								
	dense		10	☐	15 15 15	30				
SAND (SP), yellowish brown, fine-grained, trace silt, dry.	dense	🟨								
			15	☐	11 15 17	32				
SAND (SP-SM), yellowish brown, fine- to medium-grained, few silt, dry.	very dense	🟩								
			20	☐	18 26 40	66	3.7			At 21 Feet: Medium Sand = 10% Fine Sand = 83% Fines = 7%
SAND (SM), brown, fine- to medium-grained, with to silty, dry to moist.	very dense	🟩								
			25	☐	43 50/6"	50/6"				
			30							

Stevens Ferrone Bailey Engineering

1600 Willow Pass Court
Concord, CA 94520
Tel: (925) 688-1001

EXPLORATORY BORING B-4

PROJECT NO: 169-3
SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen
DATE STARTED: 2/12/2024
DRILLER: West Coast Exploration
DATE FINISHED: 2/12/2024
DRILL RIG: Mobile B-24
DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger
DEPTH TO FINAL WATER: Not Encountered
HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches
BORING LOCATION: See Site Plan, Figure 2 (36.636087°; -121.801619°)

PROJECT:

CHARTWELL MIDDLE SCHOOL

Seaside, California

SUBSURFACE MATERIAL CLASSIFICATION			DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
DESCRIPTION	CONSIST	GRAPHIC LOG								
SAND (SM), continued, dry to moist.	very dense	▨		▯	37 50/6"	50/6"				
Bottom of Boring = 31 feet Notes: Stratification is approximate; variations must be expected. See report for additional details.										
			35							
			40							
			45							
			50							
			55							
			60							

Stevens Ferrone Bailey Engineering
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Concord, CA 94520
Tel: (925) 688-1001

EXPLORATORY BORING B-5

PROJECT:
CHARTWELL MIDDLE SCHOOL
Seaside, California

PROJECT NO: 169-3	SURFACE ELEVATION: --
LOGGED / CHECKED BY: R. Ceraolo/ T. Chen	DATE STARTED: 2/12/2024
DRILLER: West Coast Exploration	DATE FINISHED: 2/12/2024
DRILL RIG: Mobile B-24	DEPTH TO INITIAL WATER: Not Encountered
DRILLING METHOD: 4" Solid Flight Auger	DEPTH TO FINAL WATER: Not Encountered

HAMMER TYPE / WEIGHT / DROP: Safety Hammer with Rope & Cathead / 140 pounds / 30 inches
BORING LOCATION: See Site Plan, Figure 2 (36.636060°; -121.801494°)

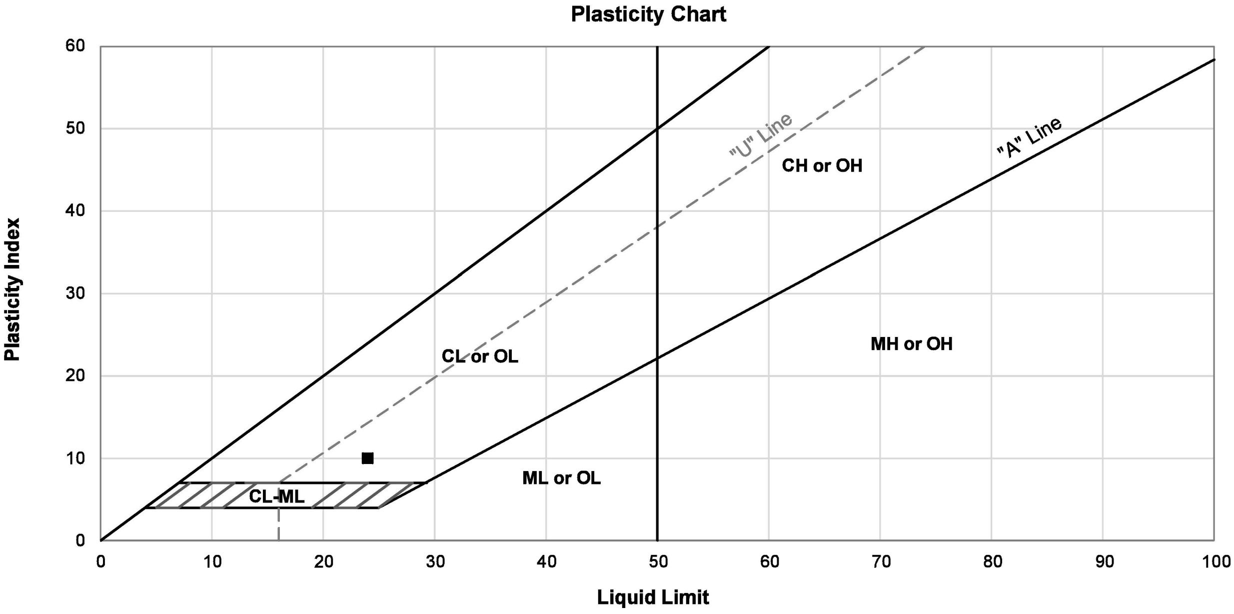
SUBSURFACE MATERIAL CLASSIFICATION			DEPTH (FEET)	SAMPLER	FIELD BLOW COUNT	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UCS (KSF)	OTHER TESTS NOTES AND REMARKS
DESCRIPTION	CONSIST	GRAPHIC LOG								
FILL: SAND (SM), grayish brown, fine- to medium-grained, with to silty, moist.	dense	▨	0							
		▨		☒	50/6"	30/6"	8.3	117.0		
Change color to brown, trace clay.	very dense	▨		☐	12 50/6"	50/6"				
Change color to grayish brown, dry to moist.		▨	5	☒	36 50/6"	30/6"	7.0	110.1		
SLOPE WASH: SAND (SP-SM), light brown, fine-grained, few silt, trace roots, dry.	medium dense	▨								
		▨	10	☐	12 12 15	27				
SAND (SP), yellowish brown, fine- to medium-grained, trace silt, dry.	medium dense	░								
	very dense	░	15	☐	28 30 50	80				
Bottom of Boring = 16.5 feet Notes: Stratification is approximate; variations must be expected. See report for additional details.										
			20							
			25							
			30							

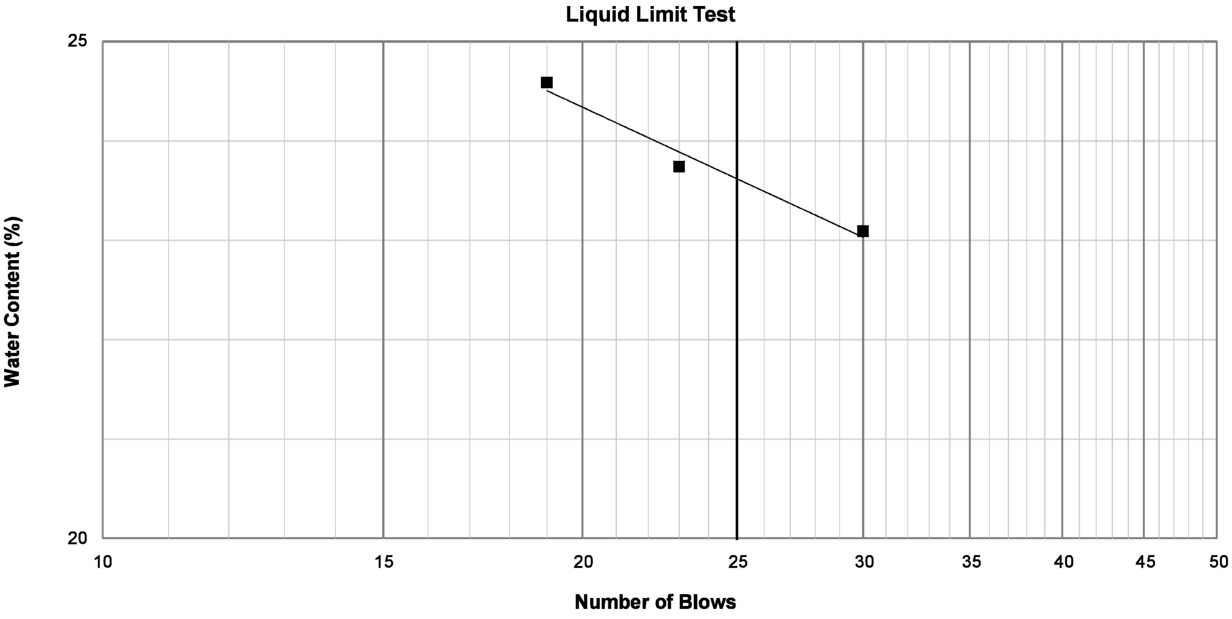
EXPLORATORY BORING LOG 169-3 B-5.ldat8 STEVENS FERRONE & BAILEY 3/6/2024

Stevens Ferrone & Bailey
Engineering Company, Inc

ATTERBERG LIMITS

ASTM D4318





Test Results

Symbol	Sample Source	Sample Description	LL	PL	PI	%≤ #200	USCS
■	Boring B-3 at 2 ft.	Dark brown sandy silty CLAY	24	14	10	52.1	CL

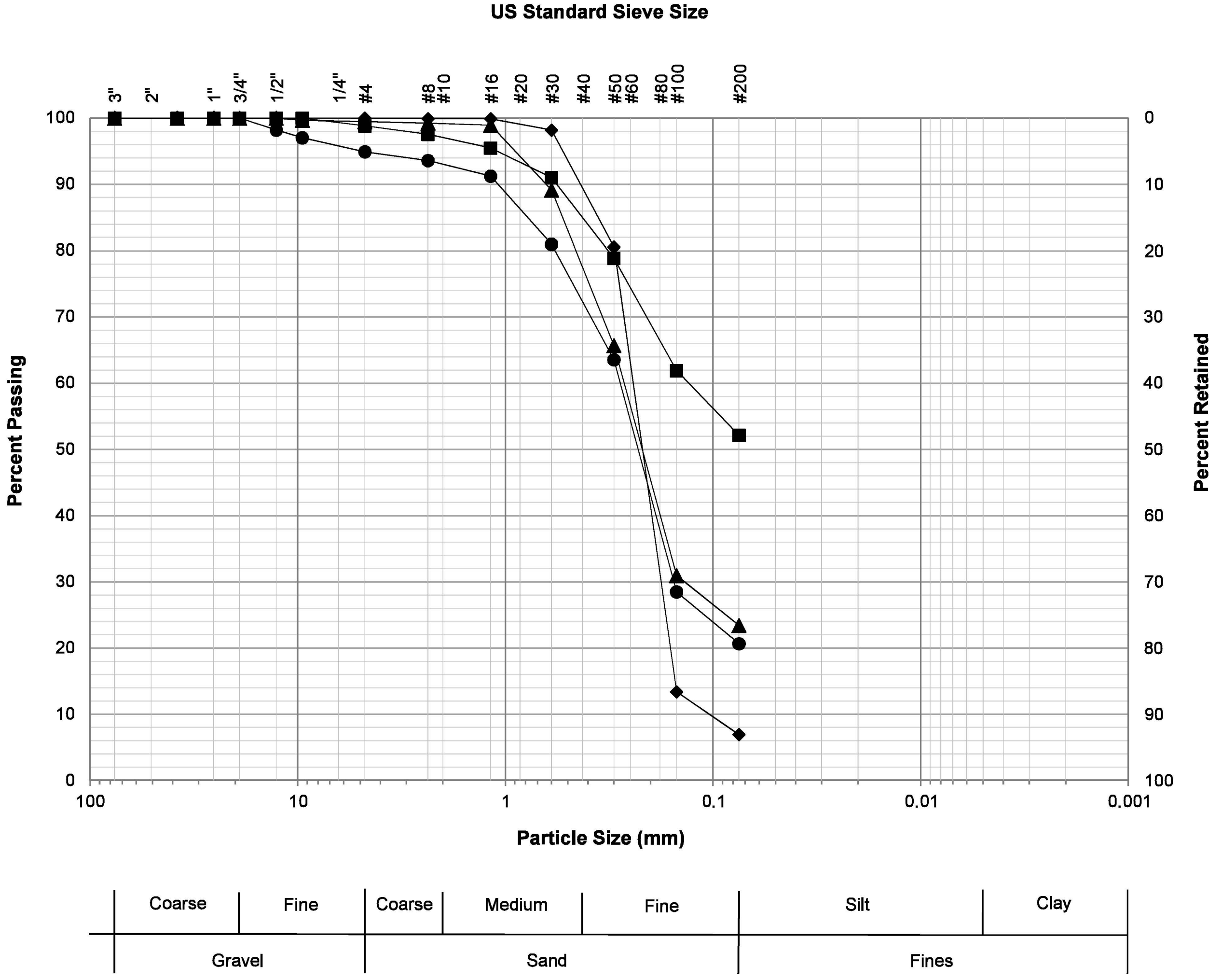
Project Info

Project Number: 169-3
Test Report Date: 2/27/2024
Project Name: Chartwell Middle School
Project Location: Seaside, CA
Tested by: R. Tuazon
Checked by: T. Chen

Stevens Ferrone & Bailey
Engineering Company, Inc

PARTICLE SIZE DISTRIBUTION

ASTM C136, D422 & D1140



Test Results

Symbol	% >3"	% Gravel		% Sand			% Fines		D_{60}	D_{30}	D_{10}	C_u	C_c
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay					
■	0.0	0.0	1.2	1.8	12.1	32.8	52.1		0.131				
▲	0.0	0.0	0.5	0.3	21.7	54.1	23.4		0.268	0.138			
●	0.0	0.0	5.1	1.9	20.7	51.7	20.6		0.280	0.155			
♦	0.0	0.0	0.0	0.1	10.5	82.5	6.9		0.243	0.178	0.105	2.318	1.248

Sample Info

Symbol	Sample Source	Sample Description	USCS
■	Boring B-3 at 2 ft.	Dark brown sandy silty CLAY	CL
▲	Boring B-3 at 11 ft.	Dark gray brown SAND with silt and clay	SM
●	Boring B-4 at 2 ft.	Red brown SAND with silt and clay some gravel	SM
♦	Boring B-4 at 21 ft.	Light brown fine SAND some silt	SP-SM

Project Info

Project Number:	169-3	Test Report Date:	2/26/2024
Project Name:	Chartwell Middle School		
Project Location:	Seaside, CA		
Tested by:	R. Tuazon		
Checked by:	T. Chen		

CERCO
analytical
1100 Willow Pass Court, Suite A
Concord, CA 94520-1006
925 462 2771 Fax. 925 462 2775
www.cercoanalytical.com

27 February, 2024

Job No. 2402049
Cust. No. 11486

Mr. John Harms
Stevens, Ferrone & Bailey
1600 Willow Pass Court
Concord, CA 94520

Subject: Project No.: 169-3
Project Name: Chartwell Middle School, Seaside, CA
Corrosivity Analysis – ASTM Test Methods

Dear Mr. Harms:

Pursuant to your request, CERCO Analytical has analyzed the soil samples submitted on February 22, 2024. Based on the analytical results, this brief corrosivity evaluation is enclosed for your consideration.

Based upon the resistivity measurements, Sample No. 002 is classified as "moderately corrosive" and Sample No. 001 is classified as "mildly corrosive. All buried iron, steel, cast iron, ductile iron, galvanized steel and dielectric coated steel or iron should be properly protected against corrosion depending upon the critical nature of the structure. All buried metallic pressure piping such as ductile iron firewater pipelines should be protected against corrosion.

The chloride ion concentrations are 24 mg/kg and 30 mg/kg and are determined to be insufficient to attack steel embedded in a concrete mortar coating.

The sulfate ion concentrations are 16 mg/kg and 48 mg/kg and are determined to be insufficient to damage reinforced concrete structures and cement mortar-coated steel at these locations.

The sulfide ion concentrations reflect none detected with a reporting limit of 50 mg/kg.

The pH of the soils are 8.04 and 8.33, which does not present corrosion problems for buried iron, steel, mortar-coated steel and reinforced concrete structures.

The redox potentials are 120-mV and 140-mV and are indicative of potentially "moderately corrosive" soils resulting from anaerobic soil conditions.

This corrosivity evaluation is based on general corrosion engineering standards and is non-specific in nature. For specific long-term corrosion control design recommendations or consultation, please call *JDH Corrosion Consultants, Inc. at (925) 927-6630.*

We appreciate the opportunity of working with you on this project. If you have any questions, or if you require further information, please do not hesitate to contact us.

Very truly yours,
CERCO ANALYTICAL, INC.

J. Darby Howard, Jr., P.E.
President

JDH/jdl
Enclosure

CERCO
analytical
1100 Willow Pass Court, Suite A
Concord, CA 94520-1006
925 462 2771 Fax. 925 462 2775
www.cercoanalytical.com

Client: Stevens, Ferrone & Bailey Engineering
Client's Project No.: 169-3
Client's Project Name: Chartwell Middle School, Seaside, CA
Date Sampled: 12-Feb-24
Date Received: 22-Feb-24
Matrix: Soil
Authorization: Signed Chain of Custody

Date of Report: 27-Feb-2024

Job/Sample No.	Sample I.D.	Redox (mV)	pH	Conductivity (umhos/cm)*	Resistivity (100% Saturation) (ohms-cm)	Sulfide (mg/kg)*	Chloride (mg/kg)*	Sulfate (mg/kg)*
2402049-001	B-1 @ 3.5'	120	8.04	-	10,000	N.D.	24	16
2402049-002	B-3 @ 2'	140	8.33	-	3,000	N.D.	30	48

Method:	ASTM D1498	ASTM D4972	ASTM D1125M	ASTM G57	ASTM D4658M	ASTM D4327	ASTM D4327
Reportring Limit:	-	-	10	-	50	15	15
Date Analyzed:	23-Feb-2024	26-Feb-2024	-	26-Feb-2024	23-Feb-2024	26-Feb-2024	26-Feb-2024

* Results Reported on "As Received" Basis

N.D. - None Detected

Julia Clauson
Chemist

Quality Control Summary - All laboratory quality control parameters were found to be within established limits

APPENDIX D

GBA Guidelines for Geotechnical Report

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept* *responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GBA
GEOPROFESSIONAL
BUSINESS
ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

Appendix E

Hazardous Materials Site Assessments

PHASE I

ENVIRONMENTAL SITE ASSESSMENT

2511 NUMA WATSON ROAD,
SEASIDE, CALIFORNIA

EIS, Inc. Project #2215-1

September 12, 2022

PREPARD FOR:

CHARTWELL SCHOOL

PREPARED BY:

ENVIRONMENTAL INVESTIGATION SERVICES, INC.
316 MID VALLEY CENTER #313
CARMEL, CA 93923 PH: 408.656.1032

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Figures

Photographs

Appendices

EXECUTIVE SUMMARY

Environmental Investigation Services Inc. (EIS) has completed a Phase I Environmental Site Assessment (ESA) for the property addressed as 2511 Numa Watson Road, Seaside, California with APN# 031-151-060 (subject property).

This ESA was prepared in accordance with EIS's Proposal No. 2215-1 and ASTM Designation: E 1527-13 *Standard Practice for Environmental Site Assessments: Phase I ESA Process.* The work is limited to the services agreed to by Chartwell School. The objective of this assessment was to evaluate the subject property for potential recognized environmental concerns, as outlined in the above-referenced standard. EIS's professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable environmental consultants practicing in the location of the subject property at the time of our investigation. This warranty is in lieu of all other warranties, expressed or implied. Exceptions to E 1527-13 and limitations encountered during this ESA are identified in the report.

The approximately 15.16-acre subject property is composed of three undeveloped lots all with the address 2511 Numa Watson Road, Seaside, California. A paved road, Numa Watson Rd., connects the undeveloped portion of the property to Normandy Road north of the subject property. The Western portion of the property contains two graded dirt lots that are parallel to each other with a paved parking lot separating the two and a paved parking lot immediately south of the undeveloped lots. The eastern portion of the property contains one graded undeveloped lot that surrounds a paved parking lot. There is a stockpile of fill in the southwestern lot where a sewage main was exposed.

EIS identified obvious subject property uses from the present back to 1949, at which time the subject property appeared to be undeveloped land. By 1956, there were four buildings that were visible in the western portion of the property in aerial imagery. By 1968 there were an additional three buildings in the eastern portion of the property that were visible in aerial imagery and remained relatively unchanged through the present. The primary historical occupants of the subject property have been the United States Army for military housing through 2016 and Chartwell School from 2016 to the present.

The surrounding properties appeared undeveloped until 1956 where there is a structure in the parcel to the northeast of the subject property as well as an above ground storage tank that is in the parcel to the south of the subject property. By 1968 the there is a large residential development north of the subject property and across Normandy Road and in 1971 a building is visible in the parcel that is located to the northwest of the subject property. By 2009 all adjoining properties match the current with the addition of a second above ground storage tank visible on the parcel immediately south of the subject property.

EIS has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527-13. This assessment has revealed no evidence of recognized environmental conditions (RECs), historical recognized environmental conditions (HRECs), controlled recognized environmental conditions (CRECs), potential vapor intrusion concerns (PVICs), or potential vapor encroachment concerns (PVECs) in connection with the subject property, except for the following:

- The presence of diesel-contaminated soil at the subject property represents a REC.
- The documented presence of ACMs with no record of asbestos abatement represents a potential environmental concern.
- The use of unknown fill at the subject property represents a potential environmental concern.
- The historical detections of lead in soil samples in the area of the former buildings is considered an HREC. Since these areas are planned for school use the lead detected in soil is also considered a potential environmental concern.
- The lack of documented soil sampling regarding possible organo-chlorine pesticides in areas of former buildings is a potential environmental concern.

EIS recommends a Limited Phase II Subsurface Investigation to address the above identified RECs.

1.0 INTRODUCTION

Environmental Investigation Services Inc. (EIS) has completed a Phase I Environmental Site Assessment (ESA) for the property addressed as 2511 Numa Watson Road, Seaside, California with APN# 031-151-060 (subject property). Peter Littman, Environmental Professional, prepared this report according to ASTM Standard E 1527-13. Any deviations from the ASTM Standard are cited in the report. Mr. Littman's qualifications as an Environmental Professional are presented in Appendix A. EIS understands that this ESA is being conducted as part of a loan refinance.

1.1 PURPOSE

The purpose of this Phase I Environmental Site Assessment was to identify, to the extent feasible pursuant to the processes prescribed herein, recognized environmental conditions in connection with the subject property. The term recognized environmental conditions refers to the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term is not intended to include *de minimis* conditions that generally do not present a threat to human health or the environment and that generally would not be subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis* are not recognized environmental conditions.

1.2 DETAILED SCOPE OF SERVICES

This Phase I Environmental Assessment (ESA) was prepared in accordance with EIS's Proposal No. 2110-1 with respect to the property addressed as 2511 Numa Watson Road, Seaside, California with APN 031-151-060. This investigation was conducted in general accordance with ASTM E 1527-13. The work conducted by EIS is limited to the services agreed to by the Chartwell School and no other services beyond those explicitly stated should be inferred or are implied. The objective of this assessment was to evaluate the subject property for potential recognized environmental concerns, as outlined in the above-referenced standard. EIS's professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable environmental consultants practicing in the location of the subject property at the time of our investigation. This warranty is in lieu of all other warranties, expressed or implied. This ESA includes the following parts: reconnaissance, interviews, records review, and evaluation. In addition, this ESA addresses the following non-ASTM considerations: asbestos, lead-based paint, mold, radon, and wetlands.

1.3 LIMITATIONS

Our professional judgment regarding the potential for environmental impacts is based on limited data and our investigation was not intended to be a definitive investigation of contamination at the subject property. Unless specifically set forth in our proposal, the scope of work did not include sampling of soil or groundwater, or a compliance audit pertaining to hazardous material use and storage, hazardous waste storage, or personnel health and safety training. In addition, this assessment did not include analyses of indoor air quality, asbestos, lead-based paint, formaldehyde, radon, or other hazardous materials.

Regarding any reviewed subsurface investigations and sampling and analysis data, our opinions are limited to specific areas and analytes evaluated. EIS will not be held accountable for detected analytes occurring at concentrations below laboratory detection limits. EIS does not warrant or guarantee that the subject property is suitable for any particular purpose or certify the subject property as "clean" or free from contamination. As with any assessment, it is possible that past or existing contamination remains undiscovered.

The professional opinions set forth in this report are based solely upon and limited to EIS's visual observations of the subject property and immediate vicinity, and upon EIS's interpretations of the readily available historical information, interviews with personnel knowledgeable about the subject property, and other readily available information (Appendix B). Consequently, this report is complete and accurate only to the extent that cited reports, agency information and recollections of persons interviewed are complete and accurate.

The opinions and recommendations in this report apply to observed conditions and features of the subject property, as they existed at the time of EIS's investigation. They cannot necessarily apply to conditions and features of which EIS is unaware and has not had the opportunity to evaluate. Future regulatory modifications, agency interpretations, and/or policy changes may also affect the compliance status of the subject property. EIS has made no attempt to address future financial impacts to the site (e.g., reduced property values) as a result of potential on-site subsurface contamination.

1.4 DATA GAPS

EIS encountered no significant data gaps or limitations during the completion of this report, except for the following:

- EIS submitted an electronic file review requests via email to the City of Seaside Fire Department (SFD) and Building Department (SBD) on August 13, 2022. As of the date of this report, SFD and SBD had not responded to these requests. If these agencies provide EIS with new, relevant, non-duplicative information when it fulfills the records request, EIS will issue an addendum to this report.

1.5 USER RELIANCE

This Phase I Environmental Site Assessment was prepared for the sole and exclusive use of Chartwell School. This report is intended exclusively for the purpose outlined herein for the subject property and is intended to be used in its entirety. No excerpts may be taken to be representative of the findings of this assessment. The scope of services performed in execution of this investigation may not be appropriate to satisfy other users, and any use or reuse of this document or its findings, or conclusions presented herein is at the sole risk of the user. This report is not a specification for further work.

2.0 SITE RECONNAISANCE

On August 18, 2022, EIS performed a visual reconnaissance of the subject property, adjoining properties, and surrounding areas to ascertain current and historical uses. EIS was accompanied by Mr. John Langrill from the Chartwell school during the reconnaissance. The subject property was systematically traversed on foot; adjoining properties were observed from the subject property and from public thoroughfares. Photographs are appended. Figure 2 depicts the site plan.

2.1 CURRENT USE OF SUBJECT PROPERTY

The approximately 15.16-acre subject property is composed of three undeveloped lots all with the address 2511 Numa Watson Road, Seaside, California. A paved road, Numa Watson Rd., connects the undeveloped portion of the property to Normandy Road north of the subject property. The Western portion of the property contains two graded dirt lots that are parallel to each other with a paved parking lot separating the two and a paved parking lot immediately south of the undeveloped lots. The eastern portion of the property contains one graded undeveloped lot that surrounds a paved parking lot. There is a stockpile of fill in the southwestern lot where a sewage main was exposed.

2.1.1 HAZARDOUS SUBSTANCES AND PETROLEUM PRODUCTS

EIS inspected the subject property for indications of the use, storage, or disposal of hazardous substances and petroleum products (e.g., manufacturing activities, drums, containers, stressed vegetation, stains, sheen, and heating/cooling systems). EIS observed no such indications.

2.1.2 UNDERGROUND STORAGE TANKS (USTS)

EIS inspected the subject property for indications of USTs (e.g., vent piping, dispensing equipment, pavement variations, and fill ports). EIS observed no such indications.

2.1.3 ABOVEGROUND STORAGE TANKS (ASTS)

EIS inspected the subject property for indications of ASTs (e.g., pavement bolts, containers, reservoirs, and generators). EIS observed no such indications.

2.1.4 LIQUID WASTE

EIS inspected the subject property for indications of liquid waste discharge sources (e.g., sumps, drains, clarifiers, pools of liquid, pits, ponds, lagoons, septic systems, wastewater, and storm water). EIS observed no such indications, except for the following:

- There is a storm drain located in the northeast part of the eastern graded area that appears to flow by gravity onto the north adjoining property.
- There are sewer manhole covers throughout the subject property. One in the eastern graded area, one in the western graded area, and exposed sewer piping in the southern graded lot in the western portion of the property.
- There is one porta-pottie that is in the eastern portion of the property.

2.1.5 SOLID WASTE

EIS inspected the subject property for indications of solid waste disposal (e.g., mounding, depressions, fill material, bins, debris, and active human use). EIS observed no such indications.

2.1.6 POLYCHLORINATED BIPHENYLS (PCBS)

EIS inspected the subject property for indications of PCBs (e.g., transformers, capacitors, elevators, and lifts). EIS observed no such indications.

2.1.7 WELLS

EIS inspected the subject property for indications of supply, irrigation, monitor, injection, dry, abandoned, or other wells (e.g., protruding pipes, cover plates, pumps, small sheds, large water storage containers, and mounded grout). EIS observed no such indications, except for the following:

- There is a water shutoff valve in the central portion of the property that likely is connected to the two large water tanks to the south. Immediately to the left of the piping is what appears to be an access point to the water main.

2.2 CURRENT USE OF ADJOINING PROPERTIES

The adjoining and nearby properties generally consist of residential property and undeveloped forested land. The uses and features of the adjoining properties are described below.

- Northeastern Adjoining: Undeveloped land
- Northern Adjoining: Housing development (across Normandy Road)
- Northwestern Adjoining: Chartwell elementary School (2511 Numa Watson Rd.)
- Southwestern Adjoining: Housing development
- Southeastern Adjoining: Undeveloped land (APN 031-151-061)

- Southern Adjoining: Two large above ground storage tanks

3.0 USER PROVIDED INFORMATION

ASTM E1527-13 defines "User" as the party seeking to use Practice E1527 to complete an environmental site assessment of the subject property. EIS understands that Chartwell School are the Users as defined by ASTM E1527-13. ASTM E1527-13 specifies that certain tasks associated with identifying potential recognized environmental conditions at the subject property should be performed by the user and provided to the Environmental Professional (i.e., User Responsibilities). John Langrill was provided with a User Questionnaire.

The returned questionnaire provided no new or non-duplicative information (Appendix C).

3.1 TITLE RECORDS

EIS was not provided with a Title Record or Title Report for review during the completion of this report.

3.2 ENVIRONMENTAL LIENS OR ACTIVITY & USE LIMITATIONS

According to a Transfer Deed for the subject property, a land use restriction exists on the property that restricts use to commercial or industrial activities. The restriction states that for residential use to be permitted the owner must perform abatement as required under Title X of the Housing and Community Development Act of 1992. The use of the property as a school is considered residential use. EIS understands that the owner is undertaking actions to abate/remediate the property sufficiently for the use restrictions to be lifted.

3.3 SPECIALIZED KNOWLEDGE

EIS was provided with a completed owner questionnaire for the subject property; however, it provided no new or non-duplicative information.

3.4 COMMONLY KNOWN OR REASONABLY ASCERTAINABLE INFORMATION

The User provided no additional relevant, non-duplicative information pertaining to the subject property.

3.5 VALUATION REDUCTIONS FOR ENVIRONMENTAL ISSUES

The User stated no valuation reduction for environmental issues.

3.6 REASONS FOR PERFORMING PHASE I

The Phase I is being performed as part of a feasibility study on the possibility of adding an upper school campus.

4.0 INTERVIEWS

4.1 SUBJECT PROPERTY OWNER/KEY SITE MANAGER

EIS interviewed John Langrill, Director of IT and Campus Management for the Chartwell School on August 18, 2022. Mr. Langrill stated that to his knowledge, no structures or improvements exist on the subject property. He also stated that that he has no knowledge of the large water main shutoff valve in the center of the property other than assuming it is connected to the two above ground water storage tanks that south of the subject property.

Mr. Langrill provided no additional or non-duplicative information.

4.2 TENANT-SPACE KEY SITE MANAGERS

Mr. Langrill provided the following information:

- The property was formerly used as barracks for the United States Army

Mr. Langrill confirmed the location of the following:

- A sewage main that has been exposed via an excavation and since been capped
- A water shut off valve
- The former buildings that were located on the subject property

Mr. Langrill provided no additional relevant, non-duplicative information.

4.3 PREVIOUS OWNERS, OPERATORS, AND OCCUPANTS

EIS identified no previous subject property owners, operators, and occupants.

4.4 NEARBY PROPERTY OWNERS AND OCCUPANTS

The subject property is not abandoned. Therefore, EIS did not interview nearby property owners and occupants.

4.5 GOVERNMENT OFFICIALS

EIS did not interview any local government officials during the completion of this report.

5.0 RECORDS REVIEW

EIS reviewed records pertaining to the subject property. In addition, where practicable and relevant, EIS reviewed records indicating uses at adjoining properties and nearby properties or surrounding areas within approximate minimum search distances from the subject property.

5.1 PHYSICAL SETTING

5.1.1 PHYSIOGRAPHY

EIS reviewed the United States Geological Survey's (USGS) 2018 7.5-Minute Series Marina Quadrangle Topographic Map. The ground surface elevation at the subject property is approximately 403-feet above mean sea level (msl). The subject property is relatively flat. The closest surface water body is the Pacific Ocean, located approximately 1.2 miles to the west of the subject property.

5.1.2 GEOLOGY

The subject property area is underlain by Quaternary to Pleistocene age dune deposits and terraces consisting of poorly graded sands (Dupre & Tinsley, 1980). According to a Draft Final Site Investigation Report completed for the Subject Property in 1997 by Harding Lawson Associates (HLA, 1997), soils encountered at the subject property consisted of poorly graded, medium silty sand in the first 5-15 feet. Material below 15 feet consisted of medium, poorly sorted, moist sand (HLA, 1997).

5.1.3 HYDROGEOLOGY

According to the investigative report completed by HLA depth to groundwater at the site is approximately 200 feet bgs. With the proximity to the Monterey Bay, EIS assumes a westerly groundwater flow direction. The local groundwater flow direction and gradient under the subject property may be influenced by naturally by zones of higher or lower permeability, or artificially by nearby groundwater pumping or recharge, and may deviate from the regional trend.

5.2 SANBORN FIRE INSURANCE MAPS

EIS requested Sanborn Fire Insurance Maps for the subject property, adjoining properties, and surrounding area from the Environmental Data Resources, Inc. (EDR) collection. According to EDR, no such maps were available (Appendix D).

5.3 AERIAL PHOTOGRAPHS

EIS reviewed aerial photographs for the years of 1949, 1956, 1968, 1971, 1974, 1981, 1987, 1998, 2005, 2009, 2012, and 2016 obtained from the EDR collection. The photographs are included in the appendices (Appendix E). Photograph descriptions for the subject property and adjoining properties follow.

Date	Aerial Photographs – Subject and Adjoining Properties
1949	The subject property, northeastern adjoining, and southeastern adjoining properties appear as undeveloped land with trees. The nearest developed area is a cluster of buildings approximately 800 feet to the northwest of subject property. A road roughly aligning with the current Normandy Road is visible to the north northwest of the subject property.
1956	The subject property appears to be developed with structures that roughly aligned with the recent layout prior to building demolition in 2022. There were three rectangular buildings in the north part of the property, one rectangular building in west part of property. There were asphalt paved parking areas for the buildings and interior driveways. Adjoining and nearby properties appear generally unchanged from the 1949 photograph, except the property to the northwest appears developed, although the photo is not very clear in this area. There is a large above ground tank approximately 100 feet to the south of subject property.
1968-1971	The subject property appears to be developed with structures that roughly aligns with the recent layout prior to building demolition in 2022. As of the 1968 imagery there were three rectangular buildings in the north part of the property, one rectangular building in west part of property, and three rectangular buildings on the central east part of the property. There were asphalt paved parking areas for the buildings and interior driveways. Adjoining and nearby properties appear generally unchanged from the 1956 photograph, except, as of 1968, the property nearby to the north and southwest are large residential areas, and the property to the west is undeveloped. By 1971 the property immediately

	west is developed with a structure that appears to align with the current layout.
1974-1998	The subject property and adjoining properties appear generally unchanged from the 1971 photograph.
2005	The subject property and all adjoining properties appear generally unchanged from the 1991 photograph. The structure that is on the northwestern adjoining property appears to have been demolished as well as the housing development that is to the southwest of the subject property.
2009-2016	The subject property and all adjoining properties appear generally unchanged from the 2005 photograph. With the exception, as of 2009, of a second above ground storage water tank located on the southern adjoining property. As of 2016 there was a Cemetery located approximately 800-feet to the northeast.

5.4 TOPOGRAPHIC MAPS

EIS reviewed topographic maps for the years of 1913, 1941, 1947, 1948, 1968, 1974, 1983, 2012, 2015, and 2018 obtained from the EDR collection. Map descriptions follow.

Date	Topographic Maps – Subject Property and Adjoining Properties
1913	The subject property is depicted as vacant land with an unpaved road immediately to the north of the subject property. There is a northeast-southwest trending rail line and road to the northwest of the property. Del Monte Heights development is depicted to the southwest of the property.
1941	The subject property appears generally unchanged from the 1913 map. There is a greater network of roads both paved and unpaved that surround the subject property. An unnamed development is depicted to the north of the property. What is likely now highway 1 is depicted northwest of the subject property.
1947-1948	The subject property and all adjoining properties appear generally unchanged from the 1941 map.
1968	The subject property is depicted with a total of six buildings. Three of which are in the northern portion of the property, one in the western portion of the property, and the other two on the eastern portion of the

	property. The adjoining properties are depicted with increased development. There are a greater number of roads depicted immediately to the north of the subject property and several structures approximately half a mile to the north of the subject property. There is a school shown approximately half a mile to the west of the subject property and two more schools approximately one mile southwest of the subject property.
1974 - 1983	The subject property and all adjoining properties appear generally unchanged from the 1968 map except for less structures depicted to the north of the subject property.
2012 - 2018	The subject property appears largely unchanged. A majority of the buildings that were depicted in the 1983 map are no longer shown. Beginning in the 2015 map, California State University Monterey Bay is depicted about a mile and a half north of the subject property.

5.5 CITY DIRECTORIES

EIS reviewed an EDR City Directories report. The City Directories report is included in the appendices (Appendix F). Reviewed directories generally covered the years 1959 through 2017. Complete directory listings for the subject property and notable listings for adjoining and nearby properties are presented in the below tables.

Date	2511 Numa Watson Road (Subject Property)
2010-2021	Chartwell School The New High School Project

Date	2900 Parker Flats Road (Northeastern Adjoining)
2017	Lewis C. Nelson & Sons

5.6 REGULATORY AGENCIES

5.6.1 TAX ASSESSOR

EIS reviewed Monterey County Tax Assessor's Records online on July 29, 2022. According to information obtained from the assessor's website, the Assessor's Parcel Number (APN) for the subject property is 031-151-060.

5.6.2 BUILDING DEPARTMENT

EIS submitted an electronic file review request via email to the City of Seaside (COS) online public records request portal on August 13, 2022. As of the date of this report, COS had not responded to this request.

5.6.3 FIRE DEPARTMENT

EIS submitted an electronic file review request via email to the City of Seaside (COS) online public records request portal on August 13, 2022. As of the date of this report, COS had not responded to this request.

5.6.4 DEPARTMENT OF ENVIRONMENTAL HEALTH

EIS submitted a file review request to the Monterey County Environmental Health Department (MCEHD) on August 13, 2022. MCEHD Staff responded on August 19, 2022 stating that there are no records of any USTs, ASTs, or hazardous materials pertaining to the subject properties address.

5.6.5 STATE WATER RESOURCES CONTROL BOARD

EIS reviewed the State Water Resources Control Board's (SWRCB's) GeoTracker database website on August 31, 2022 and found no records pertaining to the subject property. Additionally, EIS identified no sites in the GeoTracker Database within a ½-mile radius of the subject property.

The subject property is included in the former Fort Ord military cleanup area on GeoTracker. For information on the Fort Ord cleanup, see section 5.8 below.

5.6.6 DEPARTMENT OF TOXIC SUBSTANCES CONTROL

EIS reviewed the Department of Toxic Substance Control's (DTSC's) Envirostor database website on August 31, 2022 and found no records pertaining to the subject property. Additionally, EIS reviewed the Envirostor database and identified no DTSC sites located within 1/2-mile of the subject property.

5.7 PREVIOUS REPORTS

EIS reviewed several previous environmental results prepared for the subject property, which are summarized below:

Phase I Environmental Site Assessment – Pacific Crest Engineering Inc., 2010

EIS reviewed a Phase I ESA prepared by Pacific Crest Engineering Inc. (PCEI) for the Subject Property and the eastern adjoining parcel dated March 22, 2010 (PCEI, 2010). PCEI's Phase I ESA included the following conclusions and recommendations:

- "Diesel fuel contamination may still exist under some of Building 4362 due to a past UST, Tank Number 4362.2, located adjacent to subject building. The exact extents of subject contamination are unknown. Once Building 4362 is removed, subject soil will have to be sampled and tested. Should associated laboratory results reveal the presence of diesel fuel contamination; the subject area will have to be decontaminated (soil excavation and property offsite disposal) per the requirements of the Monterey County Department of Health. In Addition, any contaminated soil left behind on site (too deep to reach) which is found to be above the Monterey County Department of Health's TPH threshold of 100 mg/kg will result in notification on the subject site property deed."

- "A Phase II ESA [should be] completed to provide additional information regarding the diesel fuel contamination associated with Building 4362."

- "Pesticides may be present in the soil surrounding the site buildings"."A Phase II ESA [should be] completed to provide additional information regarding the pesticides at subject site around each of the existing buildings."

- "An abandoned lead-acid battery is located along the east side of Building 4362." "The abandoned lead-acid battery located on the east side of Building 4362 should be removed and disposed of properly."

- "Lead-based paint is present at site buildings." PCEI referenced a lead-based paint survey which was being conducted by STech Consulting (STech) at the time of this report. A summary of STech's reports are included in section 6 of this report below.

- "Asbestos is present at site buildings." PCEI referenced an asbestos-containing materials survey which was being conducted by STech at the time of this report. A summary of STech's reports are included in section 6 below.

- According to PCEI, the diesel UST Tank 4362.1 was installed in approximately 1971. No source was cited for this date.

PCEI's Phase I ESA included no other relevant, non-duplicative information.

Underground Storage Tank Removal Spill Investigation, Building 4362, Fort Ord, California – Harding Lawson Associates, 1995

EIS reviewed an Underground Storage Tank Removal Spill Investigation Report prepared by Harding Lawson Associates (HLA) for the U.S. Army Corps of Engineers (USACE) dated April 26, 1995 (HLA, 1995). This report described activities completed at the subject property related to the removal of two USTs from the property and the excavation of related contaminated soils. This report includes the following relevant information:

- Two USTs were removed from the subject property between August and September of 1990, referred to as Tank 1 and Tank 2 (referred to more specifically as Tank 4362.1 and Tank 4362.2, respectively). Both tanks were located between former buildings 4361 and 4362 (Figure 2). Tank 1 was a 4,000-gallon diesel UST constructed of fiberglass and Tank 2 was a 1,500-gallon steel UST. The former contents and use of Tank 2 are not known. These tanks were removed following a leak of an estimated 1,500-gallons of diesel from Tank 1 reported on April 25,1990.

- Both USTs, the majority of their associated piping, an aboveground concrete pad, and a subgrade reinforced concrete slab were removed from the Subject Property. Tank 1 was found to contain approximately 100-gallons of diesel product, and a crack was observed in the bottom of the tank. Tank 2 was discovered during the excavation of Tank 1. During the removal of Tank 2, petroleum product was spilled into the excavation, and it was discovered that the tank had been formerly improperly sealed in place using sand.

- An estimated 800-yards of soil were excavated during the removal of these USTs, with a total excavated depth of 24-feet. A total of 15 soil samples were collected from the excavation sidewalls and bottom during this investigation. Soil samples were analyzed for TPH-d, TPH-g, and BTEX, although it is not stated how many of the collected soil samples were analyzed. All analyzed soil samples were found to contain TPH at less than the applied screening criteria of 100 ppm with the exception of soil samples collected from the eastern and southern excavation sidewalls. Soils in these areas reportedly exceeded the applied screening criteria, although EIS was not provided with the appendices for this report which include the sample analytical results. The excavation could not be widened in these directions due to the presence of building 4362 to the east and various above and below ground utilities to the south.

- The excavation was backfilled using clean fill material in September of 1990.

Draft Final Site Investigation Report, Buildings 2253, 3803, 4362, and 4534, Former Fort Ord, California – Harding Lawson Associates, 1997

EIS reviewed a Draft Final Site Investigation Report for multiple UST cleanup sites across Fort Ord, including at the Subject Property. This draft report was prepared by HLA for USACE on March 4, 1997 (HLA, 1997). EIS was not provided with a final version of this report. This report includes the following relevant information:

- This report indicates that confirmation soil samples collected during the excavation of Tanks 1 and 2 were found to detect TPH-d at up to 4,300 mg/kg near building 4362 at 19.0-feet bgs and at 5,700 mg/kg near the southern end of the excavation at 19.0-feet bgs. TPH-g was also detected above the applied 100 mg/kg screening criteria in these locations, although at lower concentrations than TPH-d.

- HLA advanced five soil borings to the south of the former excavation in 1994 to evaluate the extent of the remaining hydrocarbon and lead contamination in this area of the Subject Property. Soil samples were collected from each of these borings at 20 and 30-feet bgs and analyzed for TPH-d, TPH-g, BTEX, and total lead. No organic analytes were detected in any of the analyzed soil samples. Lead was detected in all samples at concentrations ranging from 1.3 to 3.0 mg/kg, which are well below applicable screening levels.

- A vadose zone leaching and groundwater mixing model was used to simulate the movement of remaining contaminants from soil to groundwater. This modeling exercise indicated that the remaining contaminants posed a negligible threat to groundwater. Depth to groundwater was estimated at 200-feet bgs at the Subject Property.

- This report concluded that the only significant contamination remaining at the subject property was beneath Building 4362 and could not be remediated without posing a threat to the structural integrity of the building. HLA requested closure of this site, stating that the site had been remediated to the extent practicable and that the remaining contamination did not pose a threat to groundwater based on its depth and the results of the modelling.

- The former tanks were reportedly granted closure by the MCDOH and the RWQCB in early 1997. Closure documentation is included in Appendix G.

5.8 DATABASE REVIEW

EIS reviewed a regulatory agency database search report prepared by EDR for information pertinent to the subject property and offsite facilities located within ASTM-specified search distances from the subject property. The database report is included in the appendices (Appendix H). The database report identifies 28 plotted sites as well as the accessed databases for these sites and the dates when information was updated.

In evaluating whether or not a listed site poses a potential environmental concern to the subject property, EIS generally reviewed the distance of a site from the subject property, the site's hydrologic position relative to the subject property (up-, cross-, or down-gradient), and the regulatory status of any open/closed cases.

Agency List	Search Radius	Subject Property?	Number of Sites Within Radius	Number of Sites Warranting Detailed Discussion (Reason)
NPL	1 mile	No	1	1 (Fort Ord)
DELISTED NPL	1/2 mile	No	0	0
SEMS/CERCLIS	1/2 mile	No	1	1 (Fort Ord)
SEMS-ARCHIVE/CERCLIS NFRAP	1/2 mile	No	0	0
RCRA CORRACTS	1 mile	No	1	1 (Fort Ord)
RCRA LQG/SQG/VSQG/NON GEN-NLR	Site or Adjacent	No	0	0
US ENG CONTROLS	Site	No	1	1 (Fort Ord)
US INST CONTROLS	Site	No	1	1 (Fort Ord)
ERNS	Site	No	0	0

CA RESPONSE	1 mile	No	0	0
CA ENVIROSTOR	1 mile	No	3	0 (Down-gradient.)
STATE/TRIBAL SWF/LF	1/2 mile	No	0	0
STATE/TRIBAL REGISTERED STORAGE TANKS	Site or adjacent	No	0	0
STATE/TRIBAL LUST	1/2 mile	No	1	0 (Distance, Cross to downgradient)
STATE/TRIBAL VCP	1/2 mile	No	0	0
STATE/TRIBAL BROWNFIELD	1/2 mile	No	0	0
OTHER ENVIRONMENTAL RECORDS	Site or adjacent	Yes	Various	Various

No environmental liens appear to be on record against the subject property, based on review of the database search report. EIS identified the following database listings included for the subject property:

Chartwell School Building Demolition – 2511 Numa Watson Road, Seaside, CA (Subject property). HWTS, HAZNET, NPDES, CIWQS, CERS

- Occupant Chartwell School was identified for the proper disposal of 0.9 tons of oxygenated solvents between 2011 and 2015.

- Occupant Chartwell School was identified as a generator of construction-related storm water in December of 2021.

Chartwell School – 2511 Numa Watson Road, Seaside, CA (Subject Property). RCRA NONGEN/NLR, ECHO, FINDS

- Occupant Chartwell School was verified as a non-generator of hazardous wastes and/or materials in 2021 and 2022.

EIS identified the following database listings for adjoining or nearby properties located up- to cross-gradient of the subject property with cases involving groundwater or otherwise potentially impacting the subject property:

Former Fort Ord Army Base – Fort Ord, Marina, CA (Nearby ~460-feet northeast). NPL, SEMS, CORRACTS, RCRA-LQG, DOD, FUD SITE, US ENG CONTROLS, US INST CONTROLS.

- The subject property is located within the bounds of the former Fort Ord military base. The subject property was formerly developed with visiting officer barracks as part of the base.
- Fort Ord served primarily as a training and staging facility for infantry troops beginning in 1917 until its deactivation in 1994. Activities conducted throughout the base, including industrial activities and military munitions training, have resulted in the identification of numerous sites where chemicals have been detected in soil and groundwater and munitions and explosives of concern (MEC) have been found in former munitions training areas. Since 1986, the Army has been conducting investigation and cleanup actions at Fort Ord.
- Based on data available from the *Final 4th Five-Year Review Report for Fort Ord Superfund Site, Monterey County, California,* contamination in the Seaside MRA, located in the westernmost part of the 8,000-acre former multi-range area, is along the western perimeter of the historical impact area. The Seaside MRA contained former firing points and former targets associated with small arms ammunition training, non-firing target range training, mortar and anti-tank training, and booby trap training. Based on the Draft Group 1 RI/FS Report, the MRA appears to have been used for various types of training in the vicinity of known firing ranges. Impacts are primarily to soil resources in areas formerly used for munitions and ordnance.
- According to transfer documents for the eastern adjoining parcel (APN# 031-151-061, military parcel L23.5.2), this parcel was listed as a former munitions and ordnance location. According to the Deed Requirements for this property, military training on this parcel was restricted to the use of practice items that are not meant to cause injury and/or munitions items that do not pose an explosive hazard. According to a DTSC approval memorandum, this parcel was transferred to Track 1 in 2006, indicating that no further remedial action was considered necessary (DTSC, 2006).

The Parks at Monterey Bay – 13 Addresses in Seaside, CA (Approximately 1,700-feet north-northwest). RCRA NONGEN / NLR

- The Occupant, a housing development, was identified in 2019 as a handler/non-generator of hazardous wastes. No violations noted.

Marin Coast Water District – Gigling Rd. & Noumea Rd. (~3,500-feet north-northwest). LUST, CORTESE, CERS

- A LUST case was opened for this site following a diesel leak reported in January of 2004. The case was granted closure on 5/2/2004. No further information is available.

6.0 NON-ASTM CONSIDERATIONS

6.1 ASBESTOS

EIS reviewed Hazardous Materials Assessments for the subject property, which include descriptions of former asbestos containing materials (ACMs). These reports are summarized below:

Hazardous Materials Assessment, Pre-Demolition, Former Military Housing – STech Consulting, March 19, 2010

EIS reviewed Hazardous Materials Assessments for each of the seven military housing buildings formerly located at the Subject Property. These assessments were completed by STech prior to the demolition of the buildings. These assessments included the following relevant information:

- All seven of the former military housing buildings contained hazardous materials, including ACMs (STech, 2010). Various materials were found to contain asbestos in varying amounts, such as vinyl floor tiling, cement pipes, building and pipe insulation, lighting fixtures, and fire doors, Other hazardous materials such as batteries, lighting ballasts, fluorescent lighting tubes, smoke detectors, emergency exit signs and suspect mercury switches were observed both intact and mixed with other debris in piles on the floors of the buildings.
- STech stated that "We strongly believe that the condition of this building presents serious human health hazards... It is astonishing that the current owner has allowed such conditions to occur" in reference to all seven former buildings.
- STech recommended protocols for demolition aimed at reducing the unnecessary spreading of the observed ACMs and other potentially hazardous

materials. These protocols generally entailed taking measures to remove ACMs in one piece to avoid crushing or destroying them.

- Asbestos was not detected in soils surrounding any of the former buildings at the time of the 2010 reports (STech, 2010).

EIS was not provided with asbestos abatement reports for the building demolitions or with post-demolition asbestos sample results.

6.2 LEAD-BASED PAINT

Included in the above-mentioned Hazardous Materials Assessments were descriptions of lead-based paints (LBPs) encountered at the subject property (STech, 2010). According to STech, LBPs were encountered at varying concentrations in/on materials such as ceramic tiles, porcelain sinks and toilets, and interior walls and ceilings. Lead was also detected in soil surrounding the buildings at concentrations up to 120 mg/kg. STech recommended protocols for demolition aimed at reducing the unnecessary spreading of the observed LBPs. These protocols generally entailed taking measures to remove LBP covered materials in one piece to avoid crushing or destroying them.

EIS also reviewed an Environmental Activities Report prepared for the subject property following demolition of the former buildings:

Environmental Activities Report, Former Fort Ord Buildings Demolition – PCEI, 2022

- PCEI, under supervision of the MCDEH, collected soil samples from the perimeters of each of the seven former buildings following their demolition. A total of 12 soil samples were collected from the perimeter of each former building, at distances of one foot and five feet from the former building. Soil samples were collected from the ground surface to a depth of approximately 2-inches. Sample results for building 4365 indicated that lead was detected in one soil sample at a concentration of 92 mg/kg, which was above the established screening criteria of 80 mg/kg. A second round of confirmation sampling near the original location indicated a lead concentration below the screening criteria.

- Waste soil generated during demolition and sampling activities were sampled and disposed of as non-hazardous waste, with the exception of waste soils in the vicinity of former building 4363. Waste soils from this area were disposed of as hazardous waste, apparently due to their detected lead concentration.

- Included in this report were No Further Action letters from the MCDEH for all seven former buildings, stating that corrective action was completed and no further action was necessary pertaining to known lead contamination in soil at the site.

6.3 MOLD

A visual inspection of all areas associated with the subject property for evidence of moisture incursion and visible fungal growth was performed. The inspection was not intended to disclose all possible microbial reservoirs or growth sites; rather, it was designed to screen the subject property for evidence of potential microbial issues in the areas inspected. Physical sampling and analysis of materials or air was not conducted during the assessment. During the inspection, evidence of visible water staining/damage and possible fungal growth was not observed.

6.4 RADON

Radon gas is a by-product of uranium. The gas forms as uranium molecules eject some protons and neutrons from their nuclei changing first into thorium, then radium, and finally radon. Radon tends to accumulate in uranium-rich metamorphic rocks, glacial moraines and till deposits derived from uranium-bearing rocks, marine organic shales, soils derived from carbonate rocks, and uranium-containing alluvial sediments deposited by rivers, deltas, lakes, etc. Outgassing of radon has not been identified as a problem in this region of Monterey County. According to radon survey results provided by the EDR, the subject property is located within Region 2 with average radon gas levels reported at 2 to 3 picocuries per liter of air (pCi/l). The level above which the U.S. Environmental Protection Agency recommends that action be taken to reduce radon levels is 4 pCi/l.

6.5 WETLANDS

EIS made visual observations for indications of the presence or potential presence of wetland areas on or immediately adjacent to the subject property. During reconnaissance, EIS observed no such indications of wetlands. No wetlands survey was performed. Wetlands are not mapped on the subject property or any of the adjoining properties on the relevant USGS topographic maps.

7.0 FINDINGS AND OPINIONS

Environmental Investigation Services Inc. (EIS) has completed a Phase I Environmental Site Assessment (ESA) for the property addressed as 2511 Numa Watson Road, Seaside, California with APN# 031-151-060 (subject property).

This ESA was prepared in accordance with EIS's Proposal No. 2215-1 and ASTM Designation: E 1527-13 *Standard Practice for Environmental Site Assessments: Phase I ESA Process.* The work is limited to the services agreed to by Chartwell School. The objective of this assessment was to evaluate the subject property for potential recognized environmental concerns, as outlined in the above-referenced standard. EIS's professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable environmental consultants practicing in the location of the subject property at the time of our investigation. This warranty is in lieu of all other warranties, expressed or implied. Exceptions to E 1527-13 and limitations encountered during this ESA are identified in the report.

The approximately 15.16-acre subject property is composed of three undeveloped lots all with the address 2511 Numa Watson Road, Seaside, California. A paved road, Numa Watson Rd., connects the undeveloped portion of the property to Normandy Road north of the subject property. The Western portion of the property contains two graded dirt lots that are parallel to each other with a paved parking lot separating the two and a paved parking lot immediately south of the undeveloped lots. The eastern portion of the property contains one graded undeveloped lot that surrounds a paved parking lot. There is a stockpile of fill in the southwestern lot where a sewage main was exposed.

EIS identified obvious subject property uses from the present back to 1949, at which time the subject property appeared to be undeveloped land. By 1956, there were four buildings that were visible in the western portion of the property in aerial imagery. By 1968 there were an additional three buildings in the eastern portion of the property that were visible in aerial imagery and remained relatively unchanged through the present. The primary historical occupants of the subject property have been the United States Army for military housing through 2016 and Chartwell School from 2016 to the present.

The surrounding properties appeared undeveloped until 1956 where there is a structure in the parcel that is northeast of the subject property as well as an above ground storage tank that is in the parcel to the south of the subject property. By 1968 the there is a large residential development north of the subject property and across Normandy Road and in 1971 a building is visible in the parcel that is located to the northwest of the subject property. By 2009 all adjoining properties match the current with the addition of a second above ground storage tank visible on the parcel immediately south of the subject property.

This ESA revealed the following notable findings:

- According to an Underground Storage Tank Removal Spill Investigation Report prepared by Harding Lawson Associates (HLA) for the U.S. Army Corps of Engineers (USACE) dated April 26, 1995, two USTs were removed from the subject property area between former buildings 4361 and 4362 in 1990 (HLA,

1995) (Figure 2). An estimated 1,500-gallons of diesel fuel leaked from one of the USTs. Contaminated soil was left in place beneath former building 4362 as it could not be removed without posing a threat to the building's structural integrity. The presence of diesel-contaminated soil at the subject property represents a REC.

- According to Hazardous Materials Assessments for each of the seven military housing buildings formerly located at the Subject Property, the former subject property buildings contained abundant asbestos containing materials (ACMs) prior to their demolition. EIS was not provided with asbestos abatement reports for the building demolitions or with post-demolition asbestos sample results. The documented presence of ACMs with no record of asbestos abatement represents a potential environmental concern.

- After building demolitions, a total of 12 soil samples were collected from the perimeter of each of the seven former buildings. Soil samples were collected from the ground surface to a depth of approximately 2-inches. Sample results for building 4365 indicated that lead was detected in one soil sample at a concentration of 92 mg/kg, which was above the established screening criteria of 80 mg/kg. A second round of confirmation sampling near the original location indicated a lead concentration below the screening criteria. Waste soil generated during demolition and sampling activities were sampled and disposed of as non-hazardous waste, with the exception of waste soils in the vicinity of former building 4363. Waste soils from this area were disposed of as hazardous waste, apparently due to their detected lead concentration. MCDEH issued "No Further Action" letters dated 2022 for all seven former buildings, stating that "corrective action was complete and no further action was necessary pertaining to known lead contamination in soil at the site." The extent of soil sampling conducted for lead was based on guidance to attain closure for a former commercial building and is not necessarily sufficient for redevelopment as a school. The historical presence of lead-based paints and historical detections of lead in soil is considered an HREC. Additionally, the lack of documented soil sampling regarding possible organo-chlorine pesticides in areas of former buildings is a potential environmental concern.

- According to an Environmental Activities Report for the subject property following building demolition, at least ~72 cubic yards of soil were removed from the subject property following building demolition. There is no record of the quantity or source of fill used to replace this soil. The use of unknown fill at the subject property represents a potential environmental concern.

8.0 CONCLUSION & RECOMMENDATIONS

EIS has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527-13. This assessment has revealed no evidence of recognized environmental conditions (RECs), historical recognized environmental conditions (HRECs), controlled recognized environmental conditions (CRECs), potential vapor intrusion concerns (PVICs), or potential vapor encroachment concerns (PVECs) in connection with the subject property, except for the following:

- The presence of diesel-contaminated soil at the subject property represents a REC.
- The documented presence of ACMs with no record of asbestos abatement represents a potential environmental concern.
- The use of unknown fill at the subject property represents a potential environmental concern.
- The historical detections of lead in soil samples in the area of the former buildings is considered an HREC. Since these areas are planned for school use the lead detected in soil is also considered a potential environmental concern.
- The lack of documented soil sampling regarding possible organo-chlorine pesticides in areas of former buildings is a potential environmental concern.

EIS recommends a Limited Phase II Subsurface Investigation to address the above identified RECs and potential concerns.

9.0 SIGNATURE(S) OF ENVIRONMENTAL PROFESSIONAL(S)

“We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in 312.10 of 40 CFR 312" and we have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

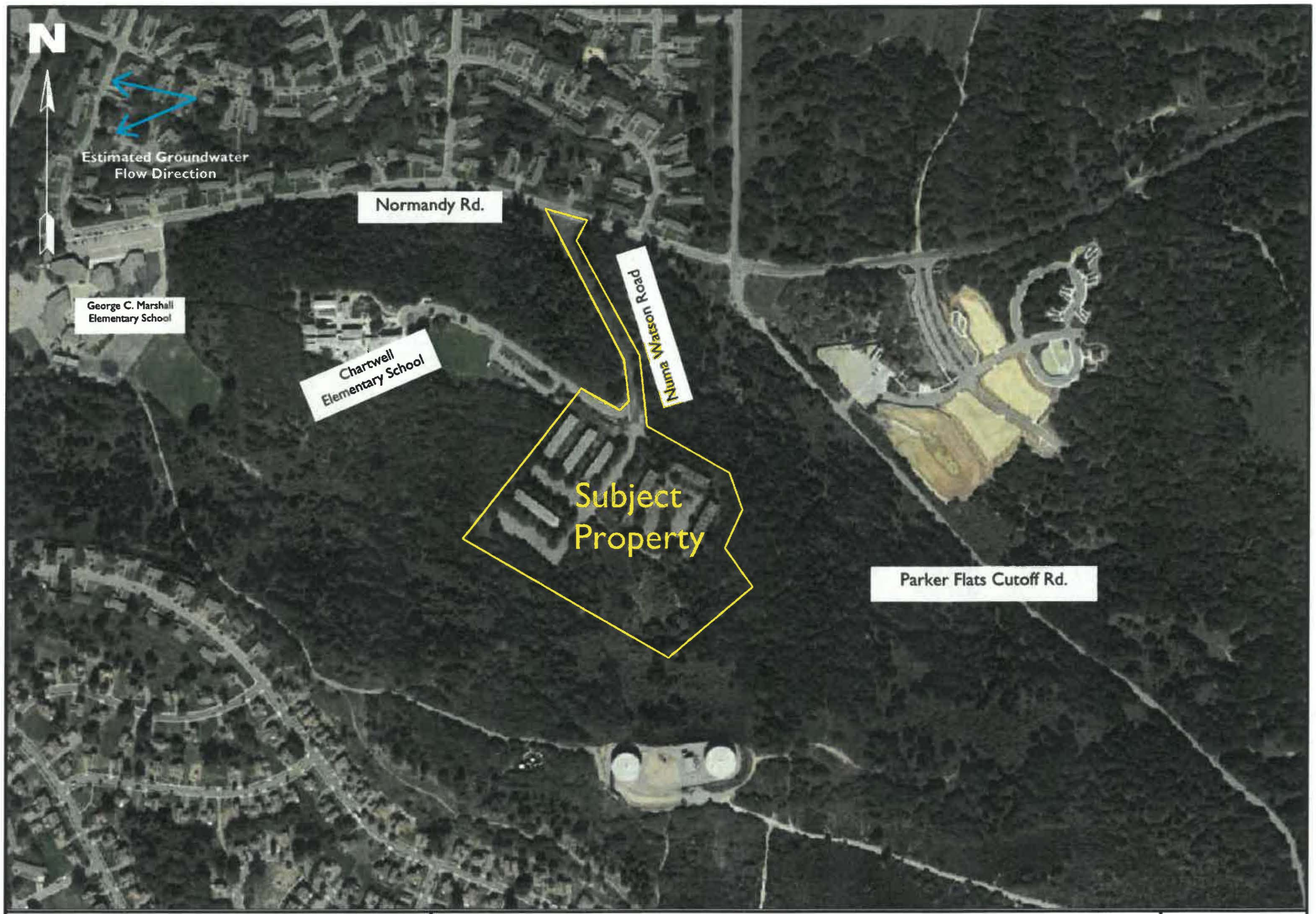
Peter Littman

Peter Littman, Sr. Project Manager

PREPARED BY:

Environmental Investigation Services, Inc.
316 Mid Valley Center #313
Carmel, California 93923

FIGURES

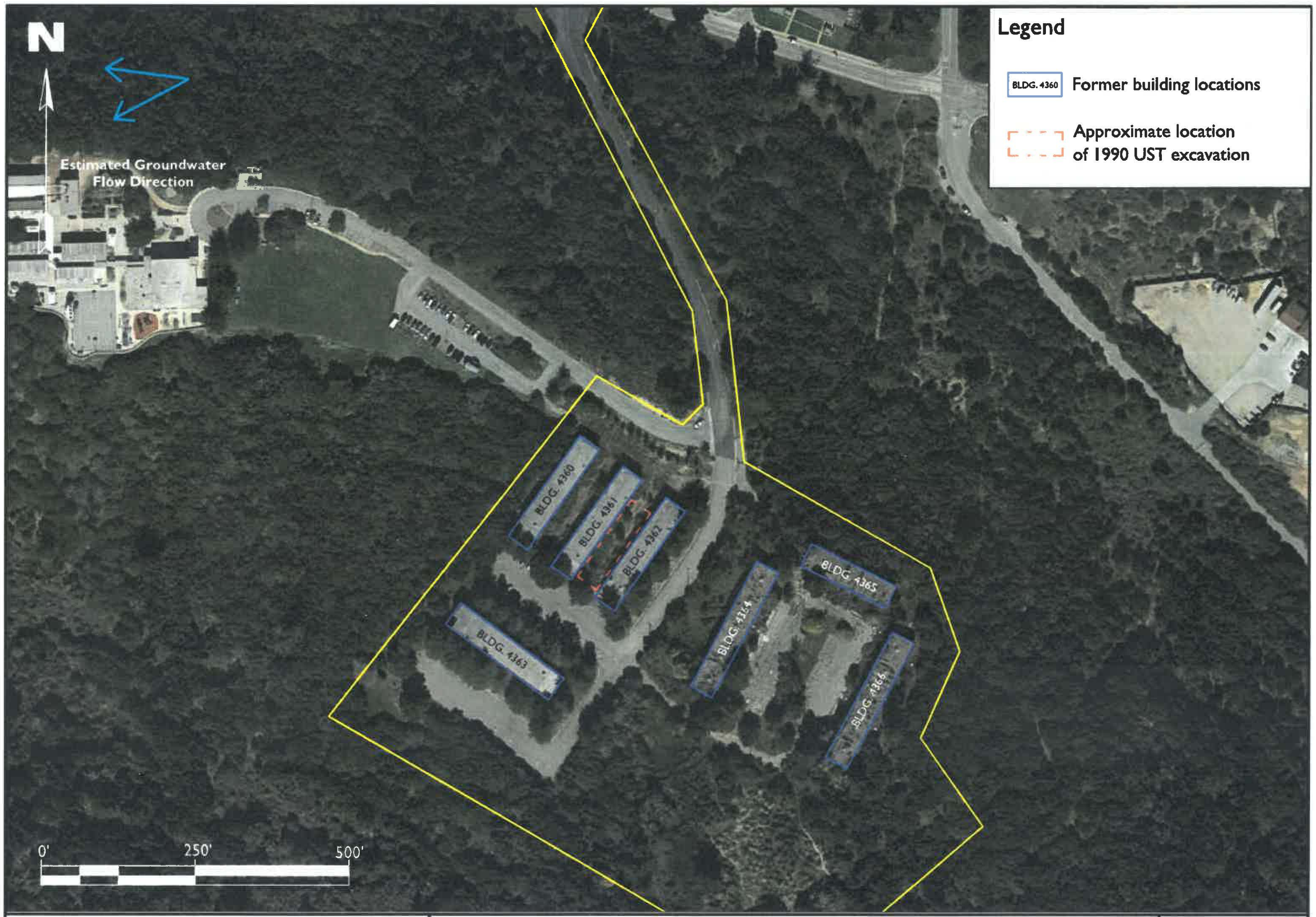


Environmental Investigation Services, Inc.
316 Mid Valley Center #313
Carmel, California 93923
Ph: (408) 656-1032

Site Location Map

2215 Numa Watson Road, Seaside, California

Figure: 1
EIS Project: 2215-1
August 25, 2022



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Carmel, California 93923
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Site Detail Map

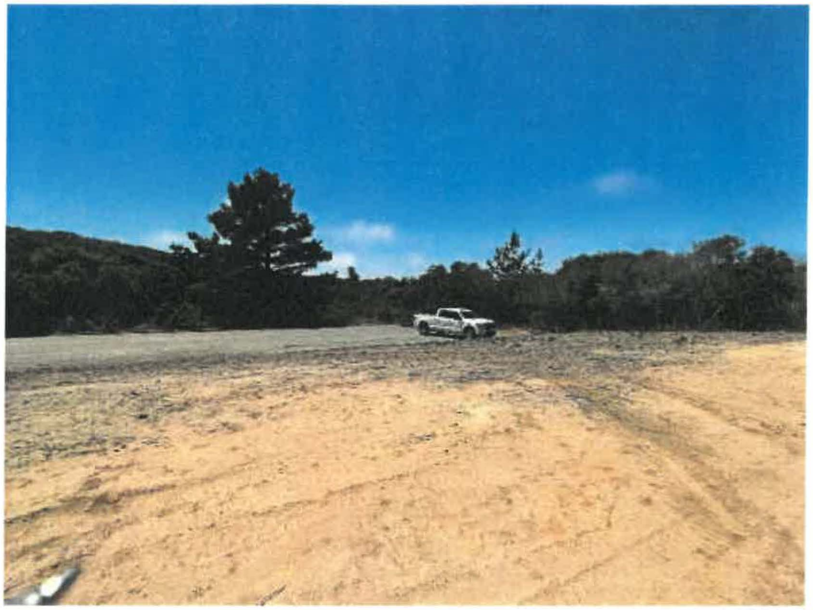
1720 15th Street, Sacramento, California

Figure: 2
EIS Project: 2215-1
September 6, 2022

SITE PHOTOGRAPHS

Project No. **2215-1**	**Description**	View of the north central part of the property and northern graded dirt lot and asphalt parking area. View looking southeast.	**1**
	Name	2511 Numa Watson Road, Seaside	**Photo Date**

Project No. **2215-1**	**Description**	View of the northwest part of northern graded dirt lot and adjacent parking area. View looking southwest.	**2**
	Name	2511 Numa Watson Road, Seaside	**Photo Date** August 30, 2022



Project No. **2215-1**	**Description**	View of the west part of the western graded lot and adjacent parking area. View looking south.	**3**
	Name	2511 Numa Watson Road, Seaside	**Photo Date** August 30, 2022

Project No. **2215-1**	**Description**	View of the vacant western graded lot and parking area. View looking southeast.	**4**
	Name	2511 Numa Watson Road, Seaside	**Photo Date** August 30, 2022

Project No. **2215-1**	**Description**	View of graded lot on west side of property, dirt stockpile and former fenced off sewer pipe. View looking northwest.	**5**
	Name	2511 Numa Watson Road, Seaside	**Photo Date** August 30, 2022

Project No. **2215-1**	**Description**	View of graded lot on west side of property, dirt stockpile and former fenced off sewer pipe area. View looking northwest.	**6**
	Name	2511 Numa Watson Road, Seaside	**Photo Date** August 30, 2022

Project No. 2215-1	Description	View of fire hydrant along the entrance road to the parking area on in central part of property.	7
	Name	2511 Numa Watson Road, Seaside	Photo Date August 30, 2022

Project No. 2215-1	Description	Driveway entrance and parking area to the eastern graded area located in the central northern part of property.	8
	Name	2511 Numa Watson Road, Seaside	Photo Date August 30, 2022

Project No. **2215-1**	**Description**	View of eastern graded area and parking lot with porta pottie.	**9**
	Name	2511 Numa Watson Road, Seaside	**Photo Date** August 30, 2022

Project No. **2215-1**	**Description**	View of the eastern graded area and the parking area in the northeast part of property.	**10**
	Name	2511 Numa Watson Road, Seaside	**Photo Date** August 30, 2022

Project No. **2215-1**	**Description**	View of the eastern graded area and trees and shrubs in the background in the central east part of property.	**11**
	Name	2511 Numa Watson Road, Seaside	**Photo Date** August 30, 2022

Project No. **2215-1**	**Description**	View of the storm drain in the northeast part of eastern graded area.	**12**
	Name	2511 Numa Watson Road, Seaside	**Photo Date** August 30, 2022

Project No. **2215-1**	**Description**	View of the graded lot on east northeast part of property.	**13**
	Name	2511 Numa Watson Road, Seaside	**Photo Date** August 30, 2022

Project No. **2215-1**	**Description**	View of eastern graded area and parking lot with porta pottie. Water tanks are visible up the hill on adjoining property to the south.	**14**
	Name	2511 Numa Watson Road, Seaside	**Photo Date** August 30, 2022

Project No. **2215-1**	**Description**	View of sewer pipe in southeast part of eastern graded area.	**15**
	Name	2511 Numa Watson Road, Seaside	**Photo Date** August 30, 2022

Project No. **2215-1**	**Description**	Water shutoff valve in the central portion of the property.	**16**
	Name	2511 Numa Watson Road, Seaside	**Photo Date** August 30, 2022

PHASE II SUBSURFACE INVESTIGATION REPORT

2511 NUMA WATSON ROAD

SEASIDE, CALIFORNIA

EIS, Inc. PROJECT #2215-2

March 8, 2023

PREPARED FOR:

Chartwell School
2511 Numa Watson Road.
Seaside, CA

PREPARED BY:

ENVIRONMENTAL INVESTIGATION SERVICES, INC.
PH:408.656.1032

Attachments:

Figures

Tables

Appendices

1.0 INTRODUCTION

Environmental Investigation Services, Inc. (EIS) appreciates the opportunity to work on the project located at 2511 Numa Watson Road, Seaside, California (the Site). In September 2022, EIS completed a Phase I Environmental Site Assessment (ESA) for the Site. The Phase I ESA, in part, identified a recognized environmental condition (REC) pertaining to the known presence of diesel-contaminated soil at the site. The Phase I additionally identified potential environmental concerns (PECs) related to the historical use of unknown fill, historical detections of lead in the area of the former buildings, and the lack of documented soil sampling regarding possible organo-chlorine pesticides in areas of the former buildings (EIS, 2022). The purpose of this current investigation is to determine if any of these identified potential environmental concerns have adversely environmentally impacted the subject site. To achieve this objective, EIS collected a series of soil and soil vapor samples from strategically placed locations across the property. This report details the field procedures, laboratory methods, and findings of the investigation. A site location map is presented as Figure 1 and sample locations are depicted on Figure 2.

2.0 BACKGROUND AND SITE SETTING

The approximately 15.16-acre subject property is composed of three undeveloped lots all with the address 2511 Numa Watson Road, Seaside, California. A paved road, Numa Watson Rd., connects the undeveloped portion of the property to Normandy Road north of the subject property. The Western portion of the property contains two graded dirt lots that are parallel to each other, with a paved parking lot separating the two, and a paved parking lot immediately south of the undeveloped lots. The eastern portion of the property contains one graded undeveloped lot that surrounds a paved parking lot. Additionally, there is a stockpile of fill in the southwestern lot where a sewage main was exposed.

EIS's Phase I ESA identified obvious subject property uses from the present back to 1949, at which time the subject property appeared to be undeveloped land. By 1956, there were four buildings that were visible in the western portion of the property in aerial imagery. By 1968 there were an additional three buildings in the eastern portion of the property that were visible in aerial imagery and remained relatively unchanged through the present. The primary historical occupants of the subject property have been the United States Army for military housing through 2016 and Chartwell School from 2016 to the present.

EIS's Phase I ESA identified the following notable findings (directly excerpted):

- According to an Underground Storage Tank Removal Spill Investigation Report prepared by Harding Lawson Associates (HLA) for the U.S. Army Corps of Engineers (USACE) dated April 26, 1995, two underground storage tanks (USTs) were removed from the subject property area between former buildings 4361 and 4362 in 1990 (HLA, 1995) (Figure 2). An estimated 1,500-gallons of diesel fuel leaked from one of the USTs. Contaminated soil was left in place beneath former building 4362 as it could not be removed without posing a threat to the building's structural integrity. The presence of diesel-contaminated soil at the subject property represents a REC.

- According to Hazardous Materials Assessments for each of the seven military housing buildings formerly located at the Subject Property, the former subject property buildings contained abundant asbestos containing materials (ACMs) prior to their demolition. EIS was not provided with asbestos abatement reports for the building demolitions or with post-demolition asbestos sample results. The documented presence of ACMs with no record of asbestos abatement represents a potential environmental concern.

- After building demolitions, a total of 12 soil samples were collected from the perimeter of each of the seven former buildings (PCEI, 2022). Soil samples were collected from the ground surface to a depth of approximately 2-inches. Sample results for building 4365 indicated that lead was detected in one soil sample at a concentration of 92 mg/kg, which was above the established screening criteria of 80 mg/kg. A second round of confirmation sampling near the original location indicated a lead concentration below the screening criteria. Waste soil generated during demolition and sampling activities were sampled and disposed of as non-hazardous waste, with the exception of waste soils in the vicinity of former building 4363. Waste soils from this area were disposed of as hazardous waste, apparently due to their detected lead concentration. MCDEH issued "No Further Action" letters dated 2022 for all seven former buildings, stating that "corrective action was complete, and no further action was necessary pertaining to known lead contamination in soil at the site." The extent of soil sampling conducted for lead was based on guidance to attain closure for a former commercial building and is not necessarily sufficient for redevelopment as a school. The historical presence of lead-based paints and historical detections of lead in soil is considered an HREC. Additionally, the lack of documented soil sampling regarding possible organo-chlorine pesticides in areas of former buildings is a potential environmental concern.

- According to an Environmental Activities Report for the subject property following building demolition, at least ~72 cubic yards of soil were removed from the subject property following building demolition. There is no record of the quantity or source of fill used to replace this soil. The use of unknown fill at the subject property represents a potential environmental concern.

Based on the finding of the Phase I ESA, EIS recommended a limited Phase II Subsurface Investigation. The details of the completed investigation are presented herein.

3.0 GENERAL SCOPE OF WORK OUTLINE

EIS completed the following tasks to meet general investigation requirements:

- Prepared a sampling Workplan and Site-Specific Health and Safety Plan (SSHSP) of the planned field activities.
- Attained the relevant soil boring permits from the Monterey County Department of Environmental Health (MCDEH) (Appendix A).
- Notified Underground Service Alert 48 hours prior to drilling activities to clear public utilities and contracted with a private utility locator to perform ground penetrating radar scans to clear soil borings and identify potential inground features.
- Advanced one temporary soil boring (SBT-1) to 24 ft. below ground surface (bgs) and two temporary soil borings (SBT-2 and SBT-3) to 20 ft. bgs in the vicinity of former UST "Tank #1" adjacent to former building 4362.
- Collected soil samples from SBT-1 at 14, 20, and 24 ft. bgs and from SBT-2 and SBT-3 at 14 and 20 ft. bgs for analysis of benzene, toluene, ethylbenzene, and xylenes (BTEX), as well as total petroleum hydrocarbons as gasoline, diesel, and motor oil (TPH-g, -d, & -mo). Soil collected from these borings were field screened using a PID prior to sample collection.
- Advanced one temporary soil boring (SBT-4) to 5.5 ft. bgs in the vicinity of former UST "Tank #2" between former buildings 4361 and 4362.
- Completed SBT-1 through SBT-4 as temporary soil vapor sample points at 5 ft. bgs. Soil vapor samples were collected from these locations for analysis of TPH-g and volatile organic compounds (VOCs).
- Advanced 44 temporary soil borings (SB0-1 through SB6-7) to 2.5 ft. bgs in the vicinity of the former buildings (six to seven boring locations per former building). Collected soil samples from 0 to 6" bgs and from 2 to 2.5 ft. bgs. Analyzed the shallow soil samples for organochlorine pesticides (OCPs) and placed the deeper samples on hold pending shallow sample analytical results.

- Analyzed the following 23 shallow soil samples for lead:
    - SB0-1-0.5, SB0-3-0.5, SB0-4-0.5
    - SB1-1-0.5, SB1-2-0.5, SB1-4-0.5
    - SB2-1-0.5, SB2-2-0.5, SB2-5-0.5
    - SB3-3-0.5, SB3-4-0.5, SB3-6-0.5, SB3-7-0.5
    - SB4-2-0.5, SB4-4-0.5, SB4-6-0.5
    - SB5-2-0.5, SB5-3-0.5, SB5-5-0.5
    - SB6-1-0.5, SB6-3-0.5, SB6-5-0.5, SB6-7-0.5

  The accompanying deeper samples were placed on hold pending shallow sample analytical results.
- Analyzed shallow (0 to 6" bgs) soil samples from three borings in former backfill areas (SB3-6-0.5, SB5-3-0.5, SB6-3-0.5) for a suite of unknown fill analyses including metals, hexavalent chromium, TPH-g, -d, & -mo, BTEX, VOCs, polycyclic aromatic hydrocarbons (PAHs), OCPs, and polychlorinated biphenyls (PCBs).
- Transferred selected soil samples to a California State certified laboratory for analysis.
- Prepared a professional technical report to present field procedures, laboratory methods, analytical results, and findings.

4.0 DETAILS OF FIELD INVESTIGATION

4.1 PRE-FIELD ACTIVITIES

EIS obtained all required soil boring permits from the MCDEH prior to the start of drilling (Appendix A). Prior to all drilling work, the Site was delineated with white marking paint and Underground Service Alert was contacted at least two working days (48 hours) prior to boring advancement, as required by law, for utility line location and marking. Additionally, EIS contracted with a private utility locator to identify underground utilities in the areas of the proposed soil borings.

4.2 BORING INSTALLATION AND SAMPLING

EIS oversaw the advancement of a total of 48 soil borings for the investigation using truck mounted Geoprobe^{TM} equipment. EIS contracted with Environmental Control Associates (ECA), a California-licensed C-57 drilling contractor (Lic. No. 655970), to advance the borings. The drilling equipment was cleaned prior to drilling and prior to leaving the Site. The borings were advanced by hydraulically pushing the Geoprobe sampling device to the desired sampling depths. The boring locations are shown on Figure 2. Soil encountered in boreholes SBT-1 through SBT-4 were logged using Unified Soil Classification System (USCS) guidelines for texture, relative moisture content, odor, and other observable characteristics. Soil boring logs are provided in Appendix B.

SBT-1 through SBT-4 were advanced in the area of the former tank removal and remedial excavation (HLA, 1995). SBT-1 was advanced near the area of the former diesel tank "Tank #1". SBT-2 and SBT-3 were advanced near former "Tank #1" in the area previously covered by building 4362; soils in the vicinity of these borings could be excavated at the time of the previous remedial excavation work due to the presence of former building 4362. SBT-4 was advanced near the location of former UST "Tank #2". Soil boring SBT-1 was advanced to 24-ft bgs with three soil samples retained for analysis. Soil borings SBT-2 and SBT-3 were advanced to approximately 20-feet bgs with two soil samples retained from each boring. SBT-4 was advanced to 5.5-ft bgs.

The remaining soil borings (SB0-1 through SB6-7) were located surrounding the footprints of the seven former buildings. These borings were advanced to 2.5-feet bgs and samples were collected from 0 to 6" bgs and from 2 to 2.5-feet bgs. Borings SB0-3, SB2-5, SB3-3, SB3-4, and SB6-5 were advanced near areas with previously identified lead impacts to shallow soil (PCEI, 2022). Borings SB3-6, SB5-3, and SB6-3 were advanced in areas in which the use of imported fill from an unknown source was implied (PCEI, 2022).

At least six shallow soil samples collected from the perimeter of each former building were analyzed for OCPs. This sampling program, combined with the PCB sampling included in this investigation and the lead sampling undertaken by PCEI in 2022, fulfills the relevant DTSC sampling requirements for these analytes at school sites (DTSC, 2006).

Soil sampling field logs are provided as Appendix C. All soil samples were collected in clean acetate or stainless steel sample liners with minimum headspace, sealed with Teflon sheets and plastic end-caps at both ends, labeled, logged onto chain-of-custody forms, and transported in a chilled ice chest on crushed ice to the laboratory.

4.3 SOIL VAPOR SAMPLE COLLECTION

Soil gas sampling was generally conducted following the guidelines provided in the Department of Toxic Substances Control's (DTSC's) "Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air" (DTSC, 2011) and "Advisory – Active Soil Gas Investigations" (DTSC et al, 2015).

EIS installed a total of 4 temporary, single-depth soil vapor wells (SBT-1 through SBT-4) in the approximate locations depicted on Figure 2. All vapor wells were installed to 5.5-feet bgs within a single 2-inch diameter boring. SBT-1 through SBT-3 were installed as step-out borings immediately adjacent to their deeper borings which share the same boring ID. The deeper borings were backfilled to ground surface using cement grout prior to sampling of the adjacent soil vapor sample points. Each probe consisted of one preassembled soil vapor sampling tip connected to a length of polypropylene (Nylaflow®)

or Teflon tubing that extends approximately 2 to 3 feet above the surface to facilitate sample collection. The probes were installed using a down-hole rod to support the well tubing and probe in the borehole and ensure that the probe tip was placed at the proper depth. This down-hole rod was removed during the placement of annulus materials.

A 12-inch sand pack of #3 sand was placed surrounding the 5-foot bgs probe tip midway in the sand pack to minimize the disruption of airflow to the sampling tip. 12 inches of dry granular bentonite was placed above the sand pack, followed by hydrated bentonite that extended to the surface. The bentonite was hydrated in a container at the surface and poured slowly into the borehole. The dry bentonite layer prevents the hydrated bentonite layer from infiltrating the sand pack.

Each soil vapor sample was collected using a SUMA® canister supplied by the contracted laboratory following a minimum equilibration period of 2-hours. Prior to the collection of a sample, the soil gas sampling point was purged of approximately three purge volumes of air (soil vapor) from the probe and tubing associated with the point using a 60-milliliter syringe attached to the Teflon tubing of the soil vapor well. Once the well had been purged, a sample collection SUMA® canister was attached to the Teflon tubing of the sampling point, the initial negative pressure of the canister was measured (and recorded), and soil vapor was delivered to the canister from the well until a negative pressure of about five-inches of Hg was noted on the vacuum gauge on the sample collection SUMA® canister, with the exception of SBT-3; soil vapor sampling at this location was halted after 40 minutes due excessive borehole vacuum. All vacuum readings were documented on the chain of custody record and field sampling logs. Soil vapor samples were kept at ambient temperatures and transported to the laboratory under chain of custody record. Leak testing was performed during sample collection using isopropyl alcohol (IPA) as a leak-check compound. This was accomplished by applying IPA with a clean towel to all aboveground fittings in the sampling train and placing an IPA-saturated towel adjacent to the borehole and beneath the sampling shroud. Soil vapor field sampling logs are provided as Appendix D.

5.0 LABORATORY ANALYSES

EIS used Pace Analytical, Inc. located in Bakersfield, California as the selected analytical laboratory for the soil and soil vapor. A total of ninety-five soil samples were transferred to Pace Analytical; fifty-one of the transferred soil samples were analyzed and the remainder were placed on hold. Soil samples were analyzed for the following parameters:

- Forty-four soil samples were analyzed for OCP's USEPA Method 8081A.
- Twenty-three samples were analyzed for lead by USEPA Method 6010B.
- Ten soil samples were analyzed for TPH-g/TPH-d/TPH-mo by USEPA Method 8015M and VOCs by USEPA Method 8260B.

- Three soil samples were analyzed for CAM 17 Metals by USEPA Method 6010B, PCBs by USEPA Method 8082 and PAHs by USEPA Method 8270C.
- Six soil samples were analyzed for Asbestos by USEPA Method oi600/R-93/116S.

Additionally, a total of four soil vapor samples were transferred to Pace and analyzed for TPHg and VOCs by USEPA Method TO-15

6.0 FINDINGS

6.1 GEOLOGIC AND HYDROLOGIC CONDITIONS

Soil and sediments encountered in the borings generally consisted of non-native fill of varying depths underlain by Silty Sand with Clay (SM) to Silty Sand with Gravel (SM) to a total explored depth of 24-ft bgs in SBT-1. Groundwater was not encountered in any of the borings advanced during the completion of this investigation. According to the Phase 1 ESA performed by EIS, groundwater is likely to present at 200-ft bgs with an assumed westerly flow direction. Detailed descriptions of the encountered subsurface materials are depicted on the boring logs (Appendix B).

6.2 SOIL ANALYTICAL RESULTS

A total of 95 soil samples were collected during this investigation. Soil analytical results are included in Appendix E and summarized in Tables 1 through 6.

Analytical results were compared to Regional Water Quality Control Board (RWQCB) Environmental Screening Levels (ESLs) for residential use (RWQCB, 2019 Rev. 2). By definition, any detected concentration below its applicable ESL can be assumed to not pose a significant threat to human health, water resources, or the environment. Similarly, the presence of a chemical at concentrations in excess of an ESL does not necessarily indicate adverse effects on human health or the environment, rather that additional evaluation is warranted (RWQCB, 2019).

Analyzed parameters were not detected in the soil samples above laboratory method detection limits (MDLs), except as follows:

TPH & VOCs (Table 1)

- TPH-d was detected in five of the analyzed samples at concentrations ranging from 9.3 mg/kg to 2100 milligrams per kilogram (mg/kg). The detected concentrations in samples SBT-1-14 and SBT-1-24 exceed the applied ESL of 260 mg/kg.
- TPH-mo was detected in SB3-6-0.5 at a concentration of 89 mg/kg, which does not exceed the applied ESL of 12,000 mg/kg.

OCPs (Table 2)

- Alpha-BHC was detected in SB6-3-0.6 at a concentration of 0.023 mg/kg; there is no established ESL for this analyte.

Lead (Table 3)

- Lead was detected in all twenty-three analyzed samples at concentrations ranging from 1.3 to 55 mg/kg, none of which exceed the applied ESL of 80 mg/kg.

CAM 17 Metals (Table 4)

- Arsenic was detected in all three of the analyzed samples at concentrations ranging from 1.1 mg/kg to 2.5 mg/kg, all of which exceed the applied ESL of 0.067 mg/kg.
- Total hexavalent chromium was initially detected in each of the three (SB3-6-0.5, SB5-3-0.5, and SB6-3-0.5) samples submitted for analysis at concentrations ranging from 1.2 mg/kg to 1.7 mg/kg, all of which exceed the applied ESL of 0.30 mg/kg. Based upon these results, EIS submitted an additional 15 samples collected from locations in and around the previous samples for hexavalent chromium analysis (Figure 3). Each of the additional samples also found concentrations (up to 2.1 mg/Kg) in excess of the designated ESL.
- Additional analytes barium, antimony, beryllium, cadmium, cobalt, copper, mercury, nickel, vanadium, and zinc were detected in one or more samples but were below their respective applied ESLs.

6.3 SOIL VAPOR ANALYTICAL RESULTS

Soil vapor analytical results are provided in Appendix F and summarized in Table 7. Soil vapor results were compared to RWQCB ESLs for residential land use (RWQCB, 2019 Rev. 2). Analyzed parameters TPH-g and VOCs were not detected in the soil vapor samples above laboratory MDLs, except as follows:

- TPH-g was detected in all four of the samples at concentrations ranging from 500 to 7,400 micrograms per cubic meter (µg/m^3), all of which are below the applied ESL of 83,000 µg/m^3.
- Benzene was detected in SBT-3 at a concentration of 29 µg/m^3, which exceeds the applied ESL of 14 µg/m^3.
- Additional analytes including toluene, acetone, and methyl ethyl ketone were detected in various samples at concentrations below their respective applied ESLs.

- Additional analytes carbon disulfide, cyclohexane, n-heptane, hexane, polypropylene, and trichlorofluoromethane were detected but have no established ESLs.

7.0 QUALITY ASSURANCE/QUALITY CONTROL

The analytical laboratory reports were reviewed by EIS. EIS verified that the holding times for each analytical method were achieved and that the laboratory achieved the specific data quality objectives for the selected analytical method. A review of the data validation process indicates that the laboratories completed QA/QC activities required for the samples such as blanks, lab control samples, matrix spikes, and duplicates. The QA/QC parameters for the samples were within acceptable limits and suggest that the data is useful for its intended purpose. In addition, the tracer compound isopropyl alcohol (IPA) was used to monitor the soil vapor probes and sample trains for leaks. The DTSC guidance states that if a liquid leak check compound is detected at a concentration greater or equal to 10 times the reporting limit for the target analyte then corrective action must be taken (DTSC, 2015). IPA was not detected above ten times the reporting limit in any of the soil vapor samples collected during this investigation, which verifies the representativeness of the samples.

8.0 CONCLUSIONS

On January 25, 2023, EIS advanced a total of forty-eight exploratory borings: three to 20-feet bgs, one to 24-ft bgs, and 44 to 2.5-ft bgs. Two to three soil samples were collected from the deepest borings and two soil samples were collected from each of the remining borings. In addition, four soil vapor samples were collected from 5-ft bgs. Based on the results of the current investigation, EIS makes the following conclusions.

- Soils and sediments encountered in the borings generally consisted of very strong brown to yellowish brown silty sand with clays to silty sands with gravels. There was visual evidence of contamination as well as a strong petroleum odor in SBT-1 at approximately 16-ft bgs. Groundwater was not encountered in any of the borings advanced during this investigation.
- TPH-d was detected in five of the analyzed samples at concentrations ranging from 9.3 mg/kg to 2,100 mg/kg. The detected concentrations in samples SBT-1-14 and SBT-1-24 exceed the applied ESL of 260 mg/kg. TPH-d was not detected above its ESL in soil samples collected from borings SBT-2 or SBT-3. These results indicate that residual diesel contamination related to the former UST "Tank 1" remains present in the subsurface in the vicinity of boring SBT-1.

- The relatively uniform arsenic concentrations detected in both soil samples above the residential and construction worker ESLs appear typical of background arsenic concentrations in the region. One study analyzed regional soils in the San Francisco Bay Area, and the upper range of arsenic in soils was reported at 11 mg/kg (Duverge, 2011). It should additionally be noted that the California Environmental Protection Agency (Cal EPA) and other agencies within California typically do not require cleanup of naturally occurring chemicals or metal species to less than background concentrations. Therefore, EIS concludes that the above-ESL arsenic detections are typical of background concentrations in the region and do not represent a significant environmental concern.

- Benzene was detected above the applicable ESL in one of the soil vapor samples (SBT-3) collected during this investigation. Benzene was not detected in any other soil vapor samples collected during this investigation, indicating it may be limited to the area of SBT-3. It is EIS's opinion that this lone elevated concentration is not consistent with a widespread release and is not typical of those that would generally require active remediation or represent a significant environmental risk to the property.

- OCPs were not detected above ESLs in any of the analyzed soil samples. These results appear to indicate that significant OCP impacts to shallow soil from former military use do not exist at the Site. These results, combined with the PCB results from this investigation and the lead results from this investigation and PCEI's 2022 investigation fulfill the relevant DTSC sampling requirements for these analytes at school sites (DTSC, 2006).

- Hexavalent chromium was initially detected in each of the three soil samples (SB3-6-0.5, SB5-3-0.5, and SB6-3-0.5) submitted for analysis at concentrations exceeding the applied residential ESL of 0.30 mg/kg. These results indicate that hexavalent chromium is present in shallow soils in these areas. In an attempt to determine the extent of these impacts, EIS submitted an additional 15 samples collected from various depths and locations across the site (Figure 2) for hexavalent chromium analysis. Each of the additional samples also found concentrations (up to 2.1 mg/Kg) of hexavalent chromium in excess of the designated ESL (Table 4). This indicates that soils across the site appear to be adversely impacted with hexavalent chromium and represents an environmental concern. The source and full extent of these impacts is unknown at this time as hexavalent chromium is not known to have been historically used or stored on-site. It should be noted, however, that shallow soils across large portions of the site consist of imported fill material. It is possible these impacts have been imported to the site in the fill from an unknown off-site source. Further investigations are warranted to determine the full extent of impacts.

9.0 RECOMMENDATIONS

Based upon the findings of this investigation, EIS presents the following recommendations:

1. Further investigations and research are warranted to determine both the source and full extent of identified hexavalent chromium impacts to subsurface soils. Additionally, the results of this investigation should be submitted to an oversight agency, such as the Department of Toxic Substance Control (DTSC), for further guidance and oversight.
2. As stated in the previous section, benzene was detected at a concentration exceeding applicable ESLs, in one of the soil vapor samples collected during the investigation. Even though it is EIS's opinion that the lone elevated concentration is not typical of those that would generally require active remediation, because the site is slated for redevelopment as an educational facility, additional vapor intrusion investigations may be warranted prior to redevelopment to ensure the safety of future occupants.
3. As a prerequisite for this investigation, EIS obtained a drilling permit from the Monterey County Health Department (MCHD). Because of the elevated concentrations of TPHd (up to 2,100 mg/Kg) found in subsurface soils during the investigation, the conditions set forth in the permit require the findings of this report be submitted to the MCHD for review.

10.0 LIMITATIONS

This report has been prepared specifically for the Site located at 2511 Numa Watson Road, Seaside, California. The investigation was completed according to current state and local agency suggested guidance. The interpretations, conclusions, and recommendations made herein are based on the data and analysis for the samples collected on-site. Conditions at the Site can change over time and the use of this report by third parties is entirely at their own risk.

The soil borings can only present information accurately on the area directly at the point of the boring. They give a general indication of the condition of the Site but will not serve as a basis for a guarantee of non-contamination of the site. The conclusions and professional opinions presented are developed in accordance with generally accepted practice as outlined in applied standard guidance documents referenced in this report.

The chemical analysis results are based on data collected at the sampling locations only, therefore EIS cannot have complete knowledge of the underlying conditions. Conditions at the Site will change with time due to natural processes or the works of man.

Please note that reports of contamination must be submitted to the agencies in a timely manner. This report has been prepared for the sole use of our Clients. This report shall not be relied upon by or transferred to any other party, or used for any other purpose, without the express written authorization of our Client. EIS is not responsible for errors neither in contract laboratory analysis and reporting, nor for information not available, nor unreported or unknown sources of Site contamination during the course of the study. Accordingly, the findings of this report will apply to the present conditions only; the opinions expressed therein are subject to revisions in consideration of new information, and no warranties are expressed or implied therein.

Please contact EIS at (408) 656-1032 if you have any questions regarding this report.
Sincerely,

Environmental Investigation Services, Inc.

FORREST N. COOK
No. 8201

Forrest Cook, PG #8201, exp 9/24
Professional Geologist

Loren Tolley-Mann
Staff Geologist

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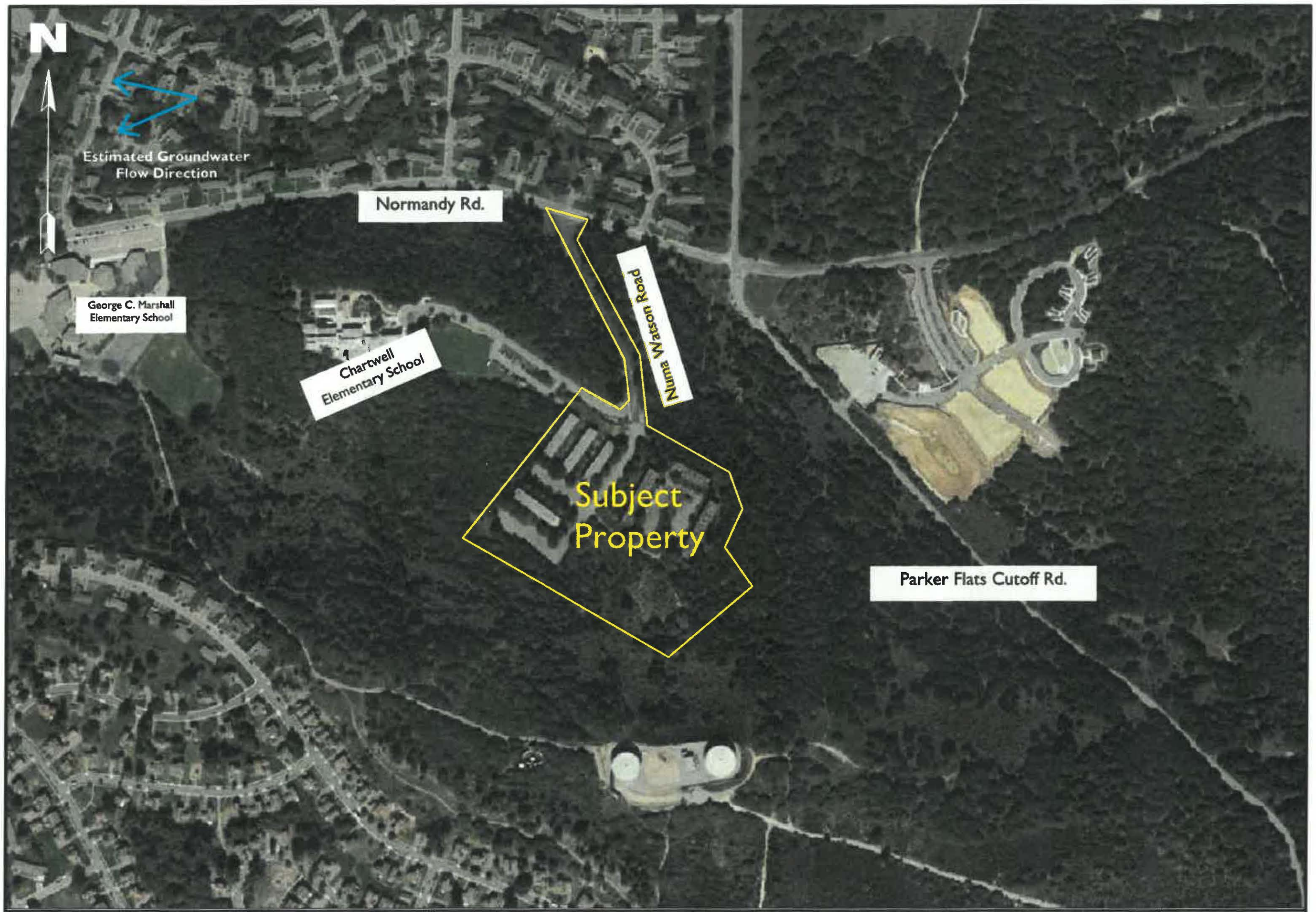
FIGURES



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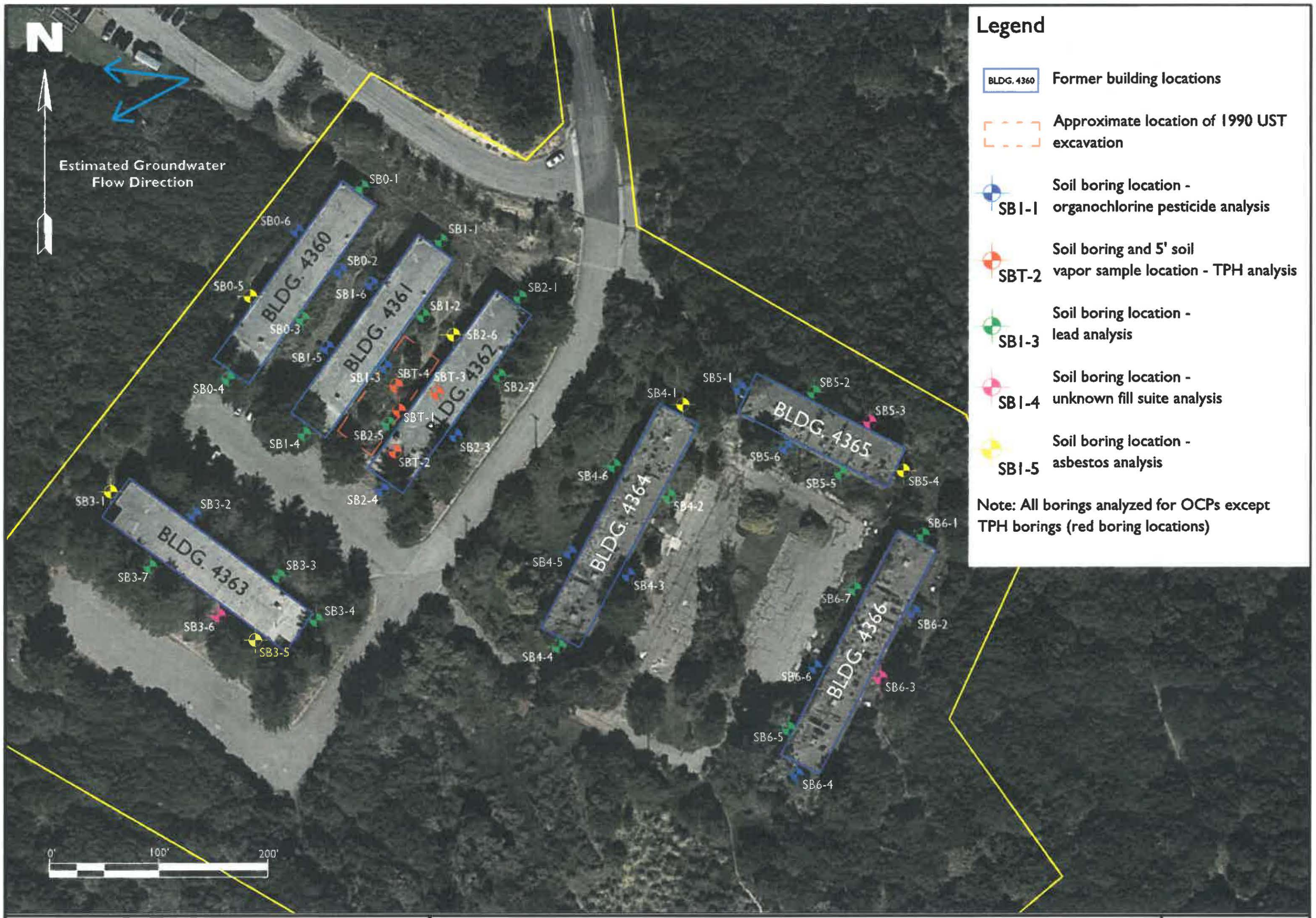
Site Location Map

2215 Numa Watson Road, Seaside, California

Figure: 1
EIS Project: 2215-1
August 25, 2022



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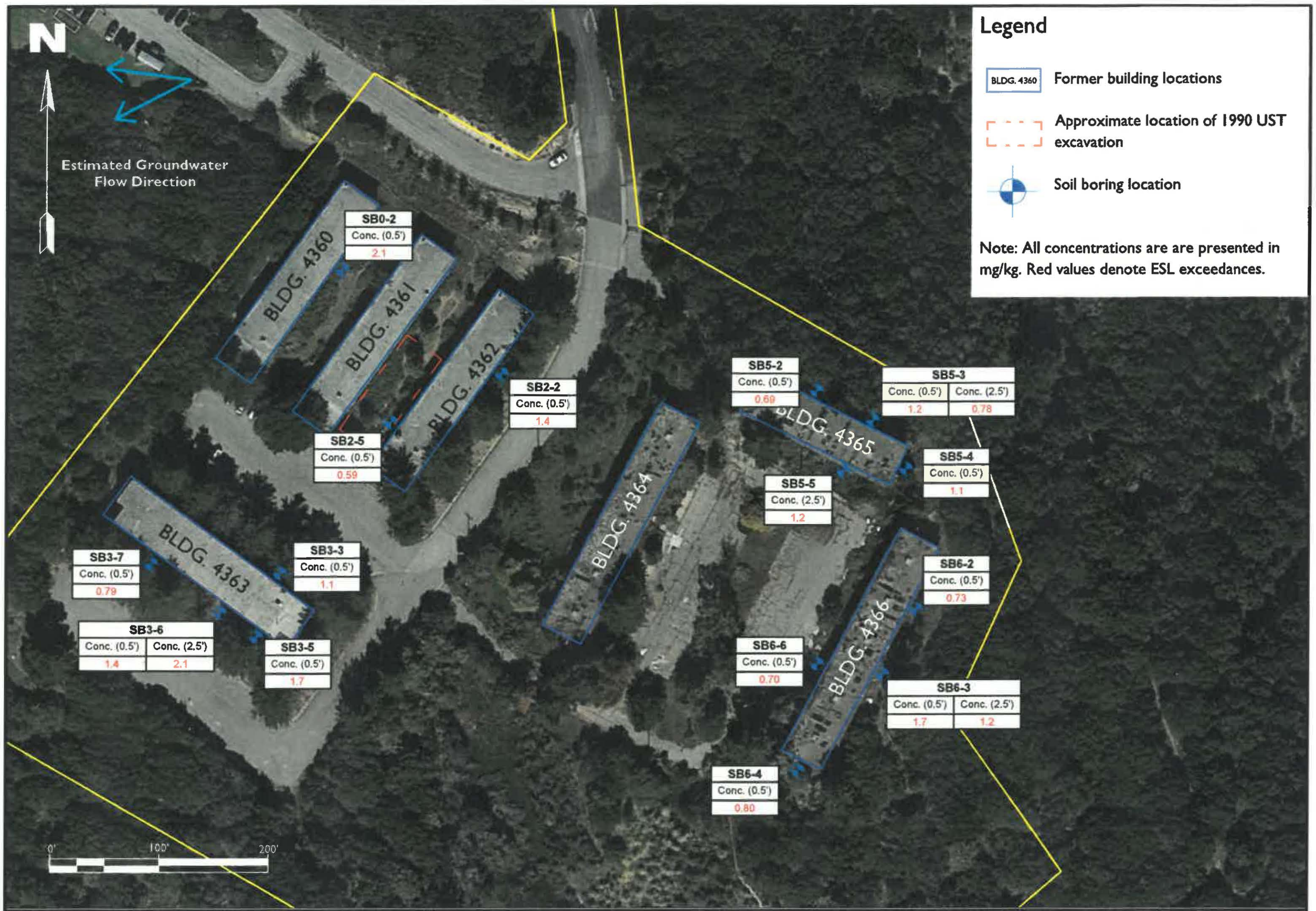
Soil Boring Location Map

2511 Numa Watson Road, Seaside, California

Figure: 2
EIS Project: 2215-2
February 14, 2023



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Total Hexavalant Chromium Concentrations in Soil

2511 Numa Watson Road, Seaside, California

Figure: 3
EIS Project: 2215-2
March 9, 2023

TABLES

TABLE 1

Current Soil Analytical Results Summary - TPH and VOCs
2511 Numa Watson Rd., Seaside, CA
Project No. 2215-2

Sample ID	Sample Date	Sample Depth (ft)	TPH			VOCs				
			TPHg	TPHd	TPHmo	Benzene	Tuolene	Ethylbenzene	Total Xylenes	Other VOCs
SBT-1-14	1/25/2023	13.5-14	<100	**2100** A10, A52	<140	<0.00067	<0.00069	<0.00069	<0.0025	**ND**
SBT-1-20	1/25/2023	19.5-20	<5.0	**34** A52	<7.0	<0.0034	<0.0034	<0.0034	<0.012	**ND**
SBT-1-24	1/25/2023	23.5-24	<120	**1400** A10, A52	<180	<0.00067	<0.00069	<0.00069	<0.0025	**ND**
SBT-2-14	1/25/2023	13.5-14	<5.0	**9.3** J, A52	<7.0	<0.0013	<0.0014	<0.0014	<0.0050	**ND**
SBT-2-20	1/25/2023	19.5-20	<5.0	<2.2	<7.0	<0.00067	<0.00069	<0.00069	<0.0025	**ND**
SBT-3-14	1/25/2023	13.5-14	<5.0	<2.2	**<7.0**	<0.00067	<0.00069	<0.00069	<0.0025	**ND**
SBT-3-20	1/25/2023	19.5-20	<5.0	<2.2	**<7.0**	<0.00067	<0.00069	<0.00069	<0.0025	**ND**
SB3-6-0.5	1/25/2023	0-0.5	<5.0	**80** A52	**89** A57	<0.00067	<0.0069	<0.0069	<0.0025	**ND**
SB5-3-0.5	1/25/2023	0-0.5	<5.0	<2.2	<7.0	<0.00067	<0.0069	<0.0069	<0.0025	**ND**
SB6-3-0.5	1/25/2023	0-0.5	<5.0	<2.2	<7.0	<0.00067	<0.00069	<0.00069	<0.0025	**ND**
RWQCB ESLs (residential) Cancer Risk			**NE**	**NE**	**NE**	**0.33**	**NE**	**5.9**	**NE**	**Varies**
RWQCB ESLs (residential) Non-Cancer			**430**	**260**	**12,000**	**11**	**1,100**	**3,400**	**580**	**Varies**

Notes:
VOCs analyzed by USEPA Method 8260B
TPH = total petroleum hydrocarbons
g/d/mo= gasoline/diesel/motor oil range organics.
Sample results reported in milligrams per kilogram (mg/kg).
Bolded value denotes analyte detected
Shaded value denotes exceedance of applied ESL.
<1.0 = not detected above analytical laboratory Method Detection Limit (MDL)
TPHg, d, mo analyzed by USEPA Method 8015B.

J = Estimated Value
A10 = Detection and quantitation limits were raised due to matrix inerference
A52 = Chromatogram not typical of diesel
A57 = Chromatogram not typical of motor oil.
RWQCB ESL = SF Bay Regional Water Quality Control Board Environmental Scree
Levels (January 2019, Rev 2).
NE = ESL not established
ND = Non detect

TABLE 2
Current Soil Analytical Results Summary - OCPs
2511 Numa Watson Rd., Seaside, CA
Project No. 2215-2

Sample ID	Building ID	Sample Date	Sample Depth (ft)	Organo Chlorine Pestacides (OCPs)				
				4,4'-DDD	4,4'-DDE	4,4'-DDT	Alpha-BHC	Other OCPs
SB0-1-0.5	BLDG. 4360	1/25/2023	0-0.5	<0.00064	<0.00095	<0.00040	<0.00038	ND
SB0-2-0.5		1/25/2023	0-0.5	<0.00032	<0.00048	<0.00020	<0.00019	ND
SB0-3-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB0-4-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB0-5-0.5		1/25/2023	0-0.5	<0.0013	<0.0019	<0.00080	<0.00076	ND
SB0-6-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB1-1-0.5	BLDG. 4631	1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB1-2-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB1-3-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB1-4-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB1-5-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB1-6-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB2-1-0.5	BLDG. 4362	1/25/2023	0-0.5	<0.00032	<0.00048	<0.00020	<0.00019	ND
SB2-2-0.5		1/25/2023	0-0.5	<0.00032	<0.00048	<0.00020	<0.00019	ND
SB2-3-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB2-4-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB2-5-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB2-6-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB3-1-0.5	BLDG. 4363	1/25/2023	0-0.5	<0.00064	<0.00095	<0.00040	<0.00038	ND
SB3-2-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB3-3-0.5		1/25/2023	0-0.5	<0.0013	<0.0019	<0.00080	<0.00076	ND
SB3-4-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB3-5-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB3-6-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB3-7-0.5		1/25/2023	0-0.5	<0.00064	<0.00095	<0.00040	<0.00038	ND
SB4-1-0.5	BLDG. 4364	1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB4-2-0.5		1/25/2023	0-0.5	<0.00064	<0.00095	<0.00040	<0.00038	ND
SB4-3-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB4-4-0.5		1/25/2023	0-0.5	<0.0013	<0.0019	<0.00080	<0.00076	ND
SB4-5-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB4-6-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB5-1-0.5	BLDG. 4365	1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB5-2-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB5-3-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB5-4-0.5		1/25/2023	0-0.5	<0.00064	<0.00095	<0.00040	<0.00038	ND
SB5-5-0.5		1/25/2023	0-0.5	<0.00064	<0.00095	<0.00040	<0.00038	ND
SB5-6-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB6-1-0.5	BLDG. 4366	1/25/2023	0-0.5	<0.00064	<0.00095	<0.00040	<0.00038	ND
SB6-2-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB6-3-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	**0.023**	ND
SB6-4-0.5		1/25/2023	0-0.5	<0.00064	<0.00095	<0.00040	<0.00038	ND
SB6-5-0.5		1/25/2023	0-0.5	<0.00064	<0.00095	<0.00040	<0.00038	ND
SB6-6-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
SB6-7-0.5		1/25/2023	0-0.5	<0.000064	<0.000095	<0.000040	<0.000038	ND
RWQCB ESLs (residential) Cancer Risk				**2.7**	**1.8**	**1.9**	**NE**	**Varies**
RWQCB ESLs (residential) Non-Cancer				**NE**	**NE**	**37**	**NE**	**Varies**

Notes:
OCPs analyzed by USEPA method 8081A
DDT = Dichlorodiphenyltrichloroethane
DDE = Dichlorodiphenyldichloroethylene
DDD = Dichlorodiphenyldichloroethane
Sample results reported in milligrams per kilogram (mg/kg).
Bolded value denotes analyte detected
Shaded value = exceedance of one or more ESL
<1.0 = not detected above analytical laboratory Method Detection Limit (MDL)
NE = Not established
J = Estimated Value
RWQCB ESL = SF Bay Regional Water Quality Control Board Environmental Screening Level
(January 2019, Rev 2).

TABLE 3
Current Soil Analytical Results Summary - Lead
2511 Numa Watson Rd., Seaside, CA
Project No. 2215-2

Sample ID	Building ID	Sample Date	Sample Depth (ft)	Lead
SB0-1-0.5	BLDG. 4360	1/25/2023	0-0.5	**8.5**
SB0-2-0.5		1/25/2023	0-0.5	NA
SB0-3-0.5		1/25/2023	0-0.5	**2.5**
SB0-4-0.5		1/25/2023	0-0.5	**4.1**
SB0-5-0.5		1/25/2023	0-0.5	NA
SB0-6-0.5		1/25/2023	0-0.5	NA
SB1-1-0.5	BLDG. 4631	1/25/2023	0-0.5	**7.3**
SB1-2-0.5		1/25/2023	0-0.5	**2.6**
SB1-3-0.5		1/25/2023	0-0.5	NA
SB1-4-0.5		1/25/2023	0-0.5	**4.2**
SB1-5-0.5		1/25/2023	0-0.5	NA
SB1-6-0.5		1/25/2023	0-0.5	NA
SB2-1-0.5	BLDG. 4362	1/25/2023	0-0.5	**6.6**
SB2-2-0.5		1/25/2023	0-0.5	**4.1**
SB2-3-0.5		1/25/2023	0-0.5	NA
SB2-4-0.5		1/25/2023	0-0.5	NA
SB2-5-0.5		1/25/2023	0-0.5	**4.6**
SB2-6-0.5		1/25/2023	0-0.5	NA
SB3-1-0.5	BLDG. 4363	1/25/2023	0-0.5	NA
SB3-2-0.5		1/25/2023	0-0.5	NA
SB3-3-0.5		1/25/2023	0-0.5	**2.4 J**
SB3-4-0.5		1/25/2023	0-0.5	**4.4**
SB3-5-0.5		1/25/2023	0-0.5	NA
SB3-6-0.5		1/25/2023	0-0.5	**1.7 J**
SB3-7-0.5		1/25/2023	0-0.5	**7.7**
SB4-1-0.5	BLDG. 4364	1/25/2023	0-0.5	NA
SB4-2-0.5		1/25/2023	0-0.5	**1.3 J**
SB4-3-0.5		1/25/2023	0-0.5	NA
SB4-4-0.5		1/25/2023	0-0.5	**6.2**
SB4-5-0.5		1/25/2023	0-0.5	NA
SB4-6-0.5		1/25/2023	0-0.5	**2.9 J**
SB5-1-0.5	BLDG. 4365	1/25/2023	0-0.5	NA
SB5-2-0.5		1/25/2023	0-0.5	**2.4 J**
SB5-3-0.5		1/25/2023	0-0.5	**2.7 J**
SB5-4-0.5		1/25/2023	0-0.5	NA
SB5-5-0.5		1/25/2023	0-0.5	**4.7 J**
SB5-6-0.5		1/25/2023	0-0.5	NA
SB6-1-0.5	BLDG. 4366	1/25/2023	0-0.5	**5.8**
SB6-2-0.5		1/25/2023	0-0.5	NA
SB6-3-0.5		1/25/2023	0-0.5	**2.3 J**
SB6-4-0.5		1/25/2023	0-0.5	NA
SB6-5-0.5		1/25/2023	0-0.5	**2.1 J**
SB6-6-0.5		1/25/2023	0-0.5	NA
SB6-7-0.5		1/25/2023	0-0.5	**55**
RWQCB ESLs residential) Cancer Risk				**82**
RWQCB ESLs residential) Non-Cancer				**80**

Notes:
Lead ran by USEPA method 6010B
Sample results reported in milligrams per kilogram (mg/kg).
Bolded value denotes analyte detected
Shaded value denotes exceedance of applied ESL.
Total concentrations of metals analyzed by USEPA method 6010B
NA = Not analyzed
J = Estimated Value
Detection and quanitiation limits raised due to matrix interference
for all samples (laboratory qualifier A10)
RWQCB ESL = SF Bay Regional Water Quality Control Board Environmental
Screening Level (January 2019, Rev 2).

TABLE 4

Current Soil Analytical Results Summary - CAM 17 Metals

2511 Numa Watson Rd., Seaside, CA
Project No. 2215-2

Sample ID	Sample Date	Sample Depth (ft)	CAM 17 Metals															
			Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Total Hexavalent Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Vanadium	Zinc	Other Metals
SB0-2-0.5	1/25/2023	0-0.5	NA	NA	NA	NA	NA	NA	1.2	NA	NA	NA	NA	NA	NA	NA	NA	ND
SB2-2-0.5	1/25/2023	0-0.5	NA	NA	NA	NA	NA	NA	1.4	NA	NA	NA	NA	NA	NA	NA	NA	ND
SB2-5-0.5	1/25/2023	0-0.5	NA	NA	NA	NA	NA	NA	0.59 J	NA	NA	NA	NA	NA	NA	NA	NA	ND
SB3-3-0.5	1/25/2023	0-0.5	NA	NA	NA	NA	NA	NA	1.1	NA	NA	NA	NA	NA	NA	NA	NA	ND
SB3-5-0.5	1/25/2023	0-0.5	NA	NA	NA	NA	NA	NA	1.7	NA	NA	NA	NA	NA	NA	NA	NA	ND
SB3-6-0.5	1/25/2023	0-0.5	0.38 J	1.7	13	0.13 J	0.12	10	1.4	3.3	2.6	1.7 J	0.023 J	0.18 J	6.1	7.9	6.7	ND
SB3-6-2.5	1/25/2023	2.0-2.5	NA	NA	NA	NA	NA	NA	2.1	NA	NA	NA	NA	NA	NA	NA	NA	ND
SB3-7-0.5	1/25/2023	0-0.5	NA	NA	NA	NA	NA	NA	0.79 J	NA	NA	NA	NA	NA	NA	NA	NA	ND
SB5-2-0.5	1/25/2023	0-0.5	NA	NA	NA	NA	NA	NA	0.69 J	NA	NA	NA	NA	NA	NA	NA	NA	ND
SB5-3-0.5	1/25/2023	0-0.5	<0.66*	1.1 J*	15*	<0.094*	<0.10*	8.6*	1.2	1.4 J*	2*	2.7 J*	0.05 J	<0.10*	3.8*	8.9*	4.7 J*	ND
SB5-3-2.5	1/25/2023	2.0-2.5	NA	NA	NA	NA	NA	NA	0.78 J	NA	NA	NA	NA	NA	NA	NA	NA	ND
SB5-4-0.5	1/25/2023	0-0.5	NA	NA	NA	NA	NA	NA	1.1	NA	NA	NA	NA	NA	NA	NA	NA	ND
SB5-5-2.5	1/25/2023	2.0-2.5	NA	NA	NA	NA	NA	NA	1.2	NA	NA	NA	NA	NA	NA	NA	NA	ND
SB6-2-0.5	1/25/2023	0-0.5	NA	NA	NA	NA	NA	NA	0.73 J	NA	NA	NA	NA	NA	NA	NA	NA	ND
SB6-3-0.5	1/25/2023	0-0.5	<0.66*	2.5*	11*	0.16 J*	<0.10*	12*	1.7	2.7 J*	2.4*	2.1*	0.031 J	<0.10*	4.9*	8.3*	3.9 J*	ND
SB6-3-2.5	1/25/2023	2.0-2.5	NA	NA	NA	NA	NA	NA	1.2	NA	NA	NA	NA	NA	NA	NA	NA	ND
SB6-4-0.5	1/25/2023	0-0.5	NA	NA	NA	NA	NA	NA	0.80 J	NA	NA	NA	NA	NA	NA	NA	NA	ND
SB6-6-0.5	1/25/2023	0-0.5	NA	NA	NA	NA	NA	NA	0.70 J	NA	NA	NA	NA	NA	NA	NA	NA	ND
RWQCB ESLs (residential) Cancer Risk			NE	0.067	NE	1,600	910	NE	0.30	420	NE	82	NE	NE	15,000	NE	NE	Varies
RWQCB ESLs (residential) Non-Cancer			11	0.26	15,000	16	78	NE	230	23	3100	80	13	390	820	390	23,000	Varies

Notes:
Total concentrations of metals analyzed by USEPA method 6010B
Sample results reported in milligrams per kilogram (mg/kg).
Bolded value denotes analyte detected
Shaded value denotes exceedance of applied ESL.
NA = Not Analyzed
J = Estimated Value
* = Detection and quantitation limits were raised due to matrix interference (laboratory qualifier A10)
RWQCB ESL = SF Bay Regional Water Quality Control Board Environmental Screening Level
(January 2019, Rev 2).

TABLE 5

Cumulative Soil Analytical Results Summary -Asbestos
2511 Numa Watson Rd., Seaside, CA
Project No. 2215-3

Sample ID	Sample Date	Sample Depth (ft)	Asbestos
SB0-5-0.5	1/25/2023	0-0.5	ND
SB2-6-0.5	1/25/2023	0-0.5	ND
SB3-1-0.5	1/25/2023	0-0.5	ND
SB3-5-0.5	1/25/2023	0-0.5	ND
SB4-1-0.5	1/25/2023	0-0.5	ND
SB5-4-0.5	1/25/2023	0-0.5	ND
RWQCB ESLs (com/ind) Cancer Risk			**NE**
RWQCB ESLs (com/ind) Non-Cancer			**NE**

Notes:
Asbestos analyzed by AHERA 40 CFR 763 and supplemented by
USEPA method 600/R-93/116
Sample results reported in milligrams per kilogram (mg/kg).
Bolded value denotes analyte detected
Shaded value denotes exceedance of applied ESL.
Total concentrations of metals analyzed by USEPA method 6010B
J = Estimated Value
Detection and quanitiation limits raised due to matrix interference for all samples (Laboratory qualifier A10)
RWQCB ESL = SF Bay Regional Water Quality Control Board Environmental Screening Level
(January 2019, Rev 2).

TABLE 6

Cumulative Soil Analytical Results Summary - PCBs PAHs
2155 Numa Watson Rd., Seaside, CA
Project No. 2215-2

Sample ID	Sample Date	Sample Depth (ft)	PCBs	PAHs
			Total PCBs	PAHs
SB3-6-0.5	1/25/2023	0-0.5	<0.0050	All ND
SB5-3-0.5	1/25/2023	0-0.5	<0.0050	All ND
SB6-3-0.5	1/25/2023	0-0.5	<0.0050	All ND
RWQCB ESLs (residential) Cancer Risk			**0.23**	**Varies**
RWQCB ESLs (residential) Non-Cancer			**NE**	**Varies**

Notes:
PCB as analyzed by USEPA Method 8082
PAH as analyzed by USEPA Method 8270C
PCB = polychlorinated biphenyls
PAH = polynuclear aromatic hydrocarbons
Sample results reported in milligrams per kilogram (mg/kg).
Bolded value denotes analyte detected
Shaded value denotes exceedance of applied ESL.
<7.2 = not detected above analytical laboratory Method Detection Limit (MDL)
RWQCB ESL = SF Bay Regional Water Quality Control Board Environmental Screening Level (January 2019, Rev 2).
NE = ESL not established

TABLE 7
Current At-depth Soil Vapor Analytical Results Summary - TPH VOCs
1 3 Bridge Street, Salinas, California
Project No. 2121-3

Sample ID	Sample Date	Sample Depth (ft)	TPHs	VOCs															Leak Check
			TPHg	Benzene	Toluene	Ethylbenzene	Total Xylenes	PCE	TCE	Acetone	Carbon disulfide	Cyclohexane	n-Heptane	Hexane	Methyl Ethyl Ketone	Propylene	Trichlorofluoromethane	Other VOCs	Isopropyl Alcohol
SBT-1	1/25/2023	5.0	**630**	<3.3	<4.3	<5.1	<14	<7.9	<8.5	**11**	<3.0	<6.0	<5.4	<3.2	<3.0	**85**	**9.8**	ND	**79**
SBT-2	1/25/2023	5.0	**500**	<3.6	<4.6	<5.5	<16	<8.6	<9.3	**17**	<3.3	<6.5	<5.8	<3.4	<3.3	**110**	**15**	ND	<5.5
SBT-3	1/25/2023	5.0	**7,400**	**29**	**20**	<7.0	<20	<11	<12	**460**	**22**	**37**	**63**	**150**	**64**	**3,400**	<10	ND	<7.0
SBT-4	1/25/2023	5.0	**780**	<3.4	<4.4	<5.2	<8.2	<8.2	<8.9	**22**	<3.1	<6.2	<5.6	<3.3	<3.1	**20**	**12**	ND	<5.2
RWQCB ESLs (com/ind) Cancer Risk			**NE**	**14**	**NE**	**160**	**NE**	**67**	**100**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**Varies**	**NE**
RWQCB ESLs (com/ind) Non-Cancer			**83,000**	**440**	**44,000**	**150,000**	**15,000**	**5,800**	**290**	**4,500,000**	**NE**	**NE**	**NE**	**NE**	**730,000**	**NE**	**NE**	**Varies**	**NE**

Notes:
TPH and VOCs analyzed by USEPA Method TO-15.
TPH = total petroleum hydrocarbons
VOCs = Volatile Organic Compounds
GRO = gasoline range organics.
PCE = tetrachloroethene
TCE = trichloroethene
Sample results reported in micrograms per cubic meter (µg/m3).
Bolded value = analyte detected above laboratory method detection limit

Shaded value = exceedence of one or more ESL
<320 = not detected above analytical laboratory Method Detection Limit (MDL)
NE = ESL not established
J = Estimated Value
Detection and quantation limits are raised due to sample dilution (Lab Qualifier A01) for all samples.
RWQCB ESL = SF Bay Regional Water Quality Control Board Environmental Screening Level (January 2019, Rev 2).

APPENDIX A

SOIL BORING PERMITS

ADDITIONAL SITE CHARACTERIZATION REPORT

CHARTWELL PROPOSED HIGH SCHOOL
2511 NUMA WATSON ROAD
SEASIDE, CALIFORNIA

EIS, Inc. PROJECT #2215-3

May 10, 2024

PREPARED FOR:

Department of Toxic Substances Control
1515 Tollhouse Road
Clovis, CA 93611

PREPARED BY:

ENVIRONMENTAL INVESTIGATION SERVICES, INC.
PH: 408.674.6949

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1.0 INTRODUCTION

On behalf of the owner of the property located at 2511 Numa Watson Road, (APN#031-151-060) Seaside, California (the Site), Environmental Investigation Services, Inc. (EIS) submits this *Additional Site Characterization Report* documenting recent sampling activities conducted at the Site. This investigation was conducted according to a *Revised Additional Site Characterization Workplan* prepared by EIS on December 18, 2023 and subsequently approved, with comments, by the California Department of Toxic Substances Control (DTSC) in a letter dated December 28, 2023 (Appendix A). The purpose of the current investigation was to further evaluate previously identified subsurface impacts at the site. A previous Phase II Investigation, completed by EIS in March 2023, in part, identified hexavalent chromium and diesel range total petroleum hydrocarbon (TPH-d) impacts to soil and benzene impacts to soil vapor. (EIS, 2023). This Report documents an expanded soil and soil vapor investigation to further assess the extent of the previously identified impacts. A site location map is presented as Figure 1 and a sample location map is presented as Figure 2. The details and results of the investigation are presented herein.

2.0 BACKGROUND & SITE SETTING

The approximately 15.16-acre subject property is composed of three undeveloped lots all with the address 2511 Numa Watson Road, Seaside, California. A paved road, Numa Watson Rd., connects the undeveloped portion of the property to Normandy Road north of the subject property. The western portion of the property contains two graded dirt lots that are parallel to each other, with a paved parking lot separating the two, and a paved parking lot immediately south of the undeveloped lots. The eastern portion of the property contains one graded undeveloped lot and a paved parking lot. According to historical investigations (see below), site specific native soils primarily consist of Silty Sands (SM) of varying density to the previous total explored depth of 24-feet below ground surface (bgs) (EIS, 2023). Groundwater was not encountered during the previous investigation but is anticipated to be first encountered at greater than 200 feet bgs and flow in a westerly direction (EIS, 2022).

2.1 PHASE 1 ENVIRONMENTAL SITE ASSESSMENT – SEPTEMBER 2022 (EIS, 2022)

EIS prepared a Phase I ESA for the Site in 2022 which identified obvious subject property uses from the present back to 1949, at which time the subject property appeared to be undeveloped land. By 1956, there were four buildings that were visible in the western portion of the property in aerial imagery. By 1968 there were an additional three buildings in the eastern portion of the property that were visible in aerial imagery and remained relatively unchanged through the present. The primary historical occupants of the subject property have been the United States Army for military housing through 2016 and Chartwell School from 2016 to the present.

EIS's Phase I ESA identified the following notable findings (directly excerpted):

- According to an Underground Storage Tank Removal Spill Investigation Report prepared by Harding Lawson Associates (HLA) for the U.S. Army Corps of Engineers (USACE) dated April 26, 1995, two USTs were removed from the subject property area between former buildings 4361 and 4362 in 1990 (HLA, 1995). An estimated 1,500-gallons of diesel fuel leaked from one of the USTs. Contaminated soil was left in place beneath former building 4362 as it could not be removed without posing a threat to the building's structural integrity. The presence of diesel-contaminated soil at the subject property represents a REC.

- According to Hazardous Materials Assessments for each of the seven military housing buildings formerly located at the Subject Property, the former subject property buildings contained abundant asbestos containing materials (ACMs) prior to their demolition. EIS was not provided with asbestos abatement reports for the building demolitions or with post-demolition asbestos sample results. The documented presence of ACMs with no record of asbestos abatement represents a potential environmental concern.

- After building demolitions, a total of 12 soil samples were collected from the perimeter of each of the seven former buildings. Soil samples were collected from the ground surface to a depth of approximately 2-inches. Sample results for building 4365 indicated that lead was detected in one soil sample at a concentration of 92 mg/kg, which was above the established screening criteria of 80 mg/kg. A second round of confirmation sampling near the original location indicated a lead concentration below the screening criteria. Waste soil generated during demolition and sampling activities were sampled and disposed of as non-hazardous waste, with the exception of waste soils in the vicinity of former building 4363. Waste soils from this area were disposed of as hazardous waste, apparently due to their detected lead concentration. MCDEH issued "No Further Action" letters dated 2022 for all seven former buildings, stating that "corrective action was complete and no further action was necessary pertaining to known lead contamination in soil at the site." The extent of soil sampling conducted for lead was based on guidance to attain closure for a former commercial building and is not necessarily sufficient for redevelopment as a school. The historical presence of lead-based paints and historical detections of lead in soil is considered an

HREC. Additionally, the lack of documented soil sampling regarding possible organo-chlorine pesticides in areas of former buildings is a potential environmental concern.

- According to an Environmental Activities Report for the subject property following building demolition, at least ~72 cubic yards of soil were removed from the subject property following building demolition. There is no record of the quantity or source of fill used to replace this soil. The use of unknown fill at the subject property represents a potential environmental concern.

2.2 PHASE II SUBSURFACE INVESTIGATION REPORT – MARCH 2023 (EIS, 2023)

In January of 2023, EIS oversaw the advancement of 48 soil borings, four of which were additionally completed as temporary soil vapor points at a depth of 5-feet below ground surface (bgs). During the investigation EIS collected two soil samples from each boring, from depths of 0 to 6" bgs and 2 to 2.5-ft bgs. All collected shallow (0 to 6") soil samples were analyzed for organochlorine pesticides (OCPs) and select shallow soil samples were analyzed for lead, CAM 17 metals, hexavalent chromium, TPH as gas, diesel, and motor oil (-g, -d, and -mo), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and asbestos. Following receipt of the initial laboratory data, select 2 to 2.5 foot samples were additionally analyzed for the presence of Chrom VI. Additionally, several deeper borings were extended to depths of up to 24 feet bgs in and around the area of the former tanks. Selected samples from these borings were also analyzed for TPH as gas, diesel, and motor oil (-g, -d, and -mo) and VOCs.

EIS's Phase II Subsurface Investigation Report identified the following notable findings (directly excerpted):

- Soils and sediments encountered in the borings generally consisted of very strong brown to yellowish brown silty sand with clays to silty sands with gravels. There was visual evidence of contamination as well as a strong petroleum odor in SBT-1 at approximately 16-ft bgs Groundwater was not encountered in any of the borings advanced during this investigation.
- TPH-d was detected in five of the analyzed samples at concentrations ranging from 9.3 mg/kg to 2,100 mg/kg. The detected concentrations in samples SBT-1-14 and SBT-1-24 exceed the applied ESL of 260 mg/kg. TPH-d was not detected above its ESL in soil samples collected from borings SBT-2 or SBT-3. These results indicate that residual diesel contamination related to the former UST "Tank 1" remains present in the subsurface in the vicinity of boring SBT-1.

- The relatively uniform arsenic concentrations detected in both soil samples above the residential and construction worker ESLs appear typical of background arsenic concentrations in the region. One study analyzed regional soils in the San Francisco Bay Area, and the upper range of arsenic in soils was reported at 11 mg/kg (Duverge, 2011). It should additionally be noted that the California Environmental Protection Agency (Cal EPA) and other agencies within California typically do not require cleanup of naturally occurring chemicals or metal species to less than background concentrations. Therefore, EIS concludes that the above-ESL arsenic detections are typical of background concentrations in the region and do not represent a significant environmental concern.
    - *Per DTSC guidance, EIS analyzed additional soil samples for arsenic during the current investigation.*

- Benzene was detected above the applicable ESL in one of the soil vapor samples (SBT-3) collected during this investigation. Benzene was not detected in any other soil vapor samples collected during this investigation, indicating it may be limited to the area of SBT-3. It is EIS's opinion that this lone elevated concentration is not consistent with a widespread release and is not typical of those that would generally require active remediation or represent a significant environmental risk to the property.

- OCPs were not detected above ESLs in any of the analyzed soil samples. These results appear to indicate that significant OCP impacts to shallow soil from former military use do not exist at the Site. These results, combined with the PCB results from this investigation and the lead results from this investigation and PCEI's 2022 investigation fulfill the relevant DTSC sampling requirements for these analytes at school sites (PCEI, 2022; DTSC, 2006).
    - *Per DTSC guidance, EIS collected additional OCP samples during the current investigation to evaluate potential OCP impacts at the 2.0-2.5 foot depth range.*

- Hexavalent chromium was initially detected in each of the three soil samples (SB3-6-0.5, SB5-3-0.5, and SB6-3-0.5) submitted for analysis at concentrations exceeding the applied residential ESL of 0.30 mg/kg. These results indicate that hexavalent chromium is present in shallow soils in these areas. In an attempt to determine the extent of these impacts, EIS submitted an additional 15 samples collected from various depths and locations across the site for hexavalent chromium analysis. Each of the additional samples also found concentrations (up to 2.1 mg/Kg) of hexavalent chromium in excess of the designated ESL. This indicates that soils across the site appear to be adversely impacted with hexavalent chromium and represents an environmental concern. The source and full extent of these impacts is unknown at this time as hexavalent chromium is not known to have been historically used or stored on-site. It should be noted, however, that shallow soils across large portions of the site consist of imported fill material. It is possible these impacts have been imported to the site in the fill from an unknown off-site source. Further investigations are warranted to determine the full extent of impacts.

Based on the findings of the Phase II, EIS recommended further investigation to determine the source and full extent of the hexavalent chromium impacts to soil and to fully delineate benzene impacted soil vapor. Per DTSC comments, the current investigation was expanded to establish the total depth of TPH-d impacts to soil in the former tank area, establish a site-specific arsenic background level, and further evaluate potential OCP impacts to soil. The details of the investigation are presented herein.

3.0 SCOPE OF WORK

EIS completed the following tasks to meet general investigation requirements:

- Prepared a sampling Workplan and Site-Specific Health and Safety Plan (SSHSP) of the planned field activities (Appendix I).
- Notified Underground Service Alert 48 hours prior to drilling activities to clear public utilities and contracted with a private utility locator to perform ground penetrating radar scans to clear soil borings and identify potential inground features.
- Advanced four temporary soil borings (SBT-5 through SBT-8) to 15.5 ft. bgs in the vicinity of previous boring SBT-3.
- Completed SBT-5 through SBT-8 as dual-depth temporary soil vapor sample points at 5 and 15 ft. bgs. Collected soil vapor samples from these locations for analysis of gasoline range total petroleum hydrocarbons (TPH-g) and volatile organic compounds (VOCs).
- Advanced one temporary soil boring (SBT-1B) to a total depth of 36 ft. bgs immediately adjacent to previous boring SBT-1.
- Collected soil samples from SBT-1B at depths of 30 and 36 ft. bgs for analysis of VOCs and TPH-g, -d, & -mo.
- Advanced 64 temporary soil borings (SB-22 through SB-60 and SB-62 through SB-86) to 8 ft. bgs in grids in the vicinities of the former buildings. Collected soil samples from 0 to 6” bgs, from 2 to 2.5 ft. bgs, from 3.5 to 4 ft. bgs, and from 7.5 to 8 ft. bgs. Analyzed shallow soil samples (0 to 6” bgs and 2 to 2.5 ft. bgs) for

hexavalent chromium and analyzed 20 of the samples collected from 3.5 to 4 ft. bgs for hexavalent chromium. The remainder of the soil samples were placed on hold pending analytical results from the analyzed samples.

- Advanced ten temporary soil borings (SB-87A through SB-96A) to 4 ft. bgs in the undisturbed perimeter area of the Site (Figure 2). Collected soil samples from 0 to 6" bgs, from 2 to 2.5 ft. bgs, and from 3.5 to 4 ft. bgs from these borings and analyzed for hexavalent chromium.
- Advanced ten temporary soil borings (SB-87 through SB-96) to 6" bgs in the undisturbed perimeter area of the Site (Figure 2). Collected soil samples from 0 to 6" bgs from these borings and analyzed for arsenic. Additionally, analyzed shallow (0 to 6" bgs) soil samples from two borings advanced in the former building areas (SB-28 and SB-60) and two borings in the paved site areas (SB-40 and SB-85) for arsenic.
- Additionally analyzed each of the 2 to 2.5 ft soil samples collected from the dirt areas formerly developed with buildings for OCPs.
- Transferred selected soil samples to a California State certified laboratory for analysis.
- Contracted an environmental health consultant to conduct in-depth data analysis of hexavalent chromium and arsenic concentrations in soil samples collected from disturbed and undisturbed areas of the site to calculate site-specific potential background threshold values (BTVs) for these compounds.
- Prepared a professional technical report to present field procedures, laboratory methods, analytical results, and findings.

4.0 FIELD ACTIVITIES

4.1 PRE-FIELD ACTIVITIES

EIS prepared a Site-Specific Health and Safety Plan (HASP) dated November 30, 2023 (Appendix I) prior to the initiation of this workfor the work proposed at the Site in accordance with the requirements of the State of California General Industry Safety Order (GISO) 5192 and Title 29 of the Code of Federal Regulations, Section 1910.120 (29 CFR 1910.120). The workplan was tacitly approved by the DTSC. The HASP detailed the work to be performed, safety precautions, emergency response procedures, nearest hospital information, and onsite personnel responsible for managing emergency situations. A copy of the HASP was kept onsite during field activities.

Prior to all subsurface work, the locations of the proposed exploratory boring locations were delineated with white marking paint and Underground Service Alert was contacted at least two working days (48 hours) prior to boring advancement, as required by law, for utility line location and marking. Additionally, EIS contracted with GPRS, a private underground utility locator, to perform ground penetrating radar scanning to clear the proposed boring locations of potential underground conflicts.

EIS obtained all required soil boring permits from the Monterey County Environmental Health Department prior to drilling (Appendix D).

4.2 SOIL AND SOIL VAPOR SAMPLE COLLECTION

4.2.1 SOIL SAMPLING

EIS advanced a total of 89 soil borings during the current investigation. EIS contracted with Environmental Control Associates, Inc. (ECA), a California-licensed C-57 drilling contractor to advance the borings. A total of 69 of the soil borings were advanced for the purpose of collecting discrete soil samples. Borings SB-22 through SB-60 and SB-62 through SB-86 were implemented in a grid pattern across the property. Twenty-one borings (SB-22 through SB-42) were located on the northern lot, thirteen borings (SB-43 through SB-55) were located on the southwestern plot, and thirty borings (SB-56 through SB-60 and SB-62 through SB-86) were located on the eastern plot. Proposed boring SB-61 was erroneously not advanced. SBT-1B was located adjacent to former boring SBT-1, near former diesel UST “Tank #1” (HLA, 1995). SBT-5 through SBT-8 were located surrounding former boring SBT-3 and near the former UST area. Each boring was advanced using GeoProbe direct push technology (DPT) to obtain minimally disturbed soil cores. The Geoprobe direct-pushed (hammered) a 2.25-inch diameter steel core barrel to the desired depth at each of the boring locations. The core barrels were lined with clear plastic disposable tubing to facilitate continuous soil coring and soil logging for description. The soil cores were examined for soil classification and described on detailed boring logs in general conformance with Unified Soil Classification System (USCS) guidelines for texture, relative moisture content, odor, and other observable characteristics. Boring logs are included as Appendix E.

Soil samples from SB-22 through SB-60 and SB-62 through SB-86 were collected from four different depths: 0-6” bgs, 2-2.5 ft. bgs, 3.5-4 ft. bgs, and 7.5-8 ft. bgs. Soil samples from SBT-1B were collected at depths of 30 ft. bgs and 36 ft. bgs. Soil boring SBT-1B was planned for advancement to a total depth of 40 ft. bgs, however drilling refusal was encountered at a depth of approximately 36 ft. bgs. As such, a soil sample was collected from this depth. Twenty soil borings (SB-87 through SB-96 and collocated borings SB-87A through SB-96A) were located in the undisturbed perimeter area of the property. These borings were advanced using hand augering equipment, as these boring locations were not readily accessible with a drill rig. A 2.25-inch diameter steel auger barrel was driven to the desired sampling depths at each boring location. Soil from each target depth was decanted into a clean glass jar and sealed with a threaded, Teflon-lined lid. Hand augering equipment was decontaminated between each boring location. Soil samples from SB-87 through SB-96 were collected from 0-6" bgs. Upon receipt of initial soil sample results, EIS returned to the Site and advanced collocated soil borings SB-87A through SB-96A. Soil samples were collected from these borings from depths of 0-6" bgs, 2-2.5 ft. bgs, and 3.5-4 ft. bgs. In total, 298 soil samples were collected during this investigation. All boring locations are shown on Figure 2 and specific laboratory analysis is summarized in Section 5.0.

Sampling Procedures

Sample Containers: Soil samples from each Geoprobe boring were retained for laboratory analysis by cutting the desired section of disposable plastic tubing and sealing the ends of the tube with Teflon™ tape and plastic caps. The caps were then sealed with silicone tape. Soil samples from each hand auger boring were retained for laboratory analysis by decanting the sample from the auger barrel into a laboratory-supplied glass jar and sealing the jar with a threaded, Teflon-lined lid. Samples were sealed in individual plastic bags. Sufficient sample volume was collected to perform all planned analyses, and additional sample volume was retained by the analytical laboratory to allow for additional analysis, as necessary.

Preservatives: No preservatives were added to soil samples during sampling. Soil samples were preserved by placing all samples in pre-chilled ice chests with ice to remain at or below 4° Celsius (°C) for the duration of transportation. Temperature blanks were measured by the analytical laboratory upon sample receipt to verify sample temperature during transportation (Section 7.0). Any soil sample preservation performed by the analytical laboratory was completed as specified in the relevant USEPA Methods listed below and in Section 5.0.

Hold Times: Soil samples were analyzed via the standard USEPA Methods indicated below and in Section 5.0. Hold times for the utilized methods were not exceeded with the exception of sample SB-44-2.5, which was erroneously not assigned analysis for OCPs upon submission. By the time this error was discovered the hold time had lapsed, and as such the sample was analyzed beyond its hold time. Hold times for the selected analytical methods are as follows:

USEPA Method	Hold time
7199 (Hexavalent Chromium)	30 days
8081A (OCPs)	14 days
6020 (arsenic only)	180 days

8015 (TPH)	14 days
8260 (VOCs)	14 days

Labeling: Each soil sample was labeled with a unique sample ID, the sampling date, and the sampling time.

Chain of Custody: All soil samples were logged onto chain of custody documentation via their unique sample ID, sampling date, and sampling time. Chain of custody documentation accompanied samples during all stages of transportation.

Field Forms: Unique sample IDs, sampling dates, and sampling times for each soil sample were recorded onto field forms. Soil description and classification, as well as any other relevant field observations, were recorded on field forms.

Shipping and Handling Procedures: All soil samples were transported by courier to the selected analytical laboratory in custody-sealed, cold (≤4 °C) ice chests under chain of custody documentation. Custody seals were inspected by the analytical laboratory(s) upon sample receipt.

4.2.2 SOIL VAPOR PROBE INSTALLATION

EIS oversaw the installation of, and collected samples from, four dual-depth (5 and 15 ft bgs) soil vapor sampling points to further delineate previously identified soil vapor impacts in and around the area of the former USTs (Figure 3). Soil vapor sampling was performed following guidelines provided in DTSC's Guidance for the "Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air" (DTSC, 2011) and "Advisory – Active Soil Gas Investigations" (DTSC et al, 2015) and "Final Draft Supplemental Guidance: Screening and Evaluating Vapor Intrusion" (DTSC, 2023).

Soil borings for soil vapor point installation were advanced using a Geoprobe to the desired depths (15.5 ft bgs) following the same methodology described in Section 4.2.1. Once the target depth was reached at each of the four boring locations, the probe rods were removed, and a down-hole rod was placed within the open borehole to support the well tubing and probe within the borehole and ensure that the probe tip was placed at the proper depth. The downhole rod was removed during the placement of annulus materials. Each nested soil vapor well contains two vapor probes installed within a single 2-inch diameter boring. Each probe consists of one preassembled soil vapor sampling tip connected to a length of polypropylene (Nylaflow®) or Teflon tubing that extends approximately 2 to 3 feet above the surface to facilitate sample collection. In each nested soil vapor well, a 12-inch sand pack of #3 sand was placed surrounding the deepest probe tip (15 ft. bgs) midway in the sand pack to minimize the disruption of airflow to the sampling tip. 12 inches of dry granular bentonite was placed above the sand pack, followed by hydrated bentonite/cement grout to approximately 6 inches below the next vapor probe depth (5 ft bgs), with each shallower probe installed in the same manner as the deeper soil vapor probe. The bentonite was hydrated in a container at the surface and poured slowly into the borehole. The dry bentonite layer prevents the hydrated bentonite layer from infiltrating the sand pack. Immediately above the sand and dry bentonite of the shallowest vapor probe, a layer of hydrated bentonite was placed up to the ground surface.

4.2.3 SOIL VAPOR SAMPLE COLLECTION

Each individual soil vapor sample was collected using a SUMA® canister supplied by the contracted laboratory. Each sample point was allowed to equilibrate for at least two hours after installation prior to sample collection. Prior to the collection of a sample, the soil gas sampling point was purged of approximately three well volumes of air (soil gas), removed from the probe and tubing associated with the point. Each sampling point was purged using a designated SUMA® canister (purge canister) attached to a flow meter which, in turn, is attached to the Teflon tubing of the soil gas well. The sampling point was purged at a rate between 100 to 200 ml/minute. Once the well was purged, a sample collection SUMA® canister was attached to the flow controller, the initial negative pressure of the canister was measured (and recorded), and soil gas was delivered to the canister from the well until a negative pressure of about five-inches of Hg was noted on the vacuum gauge on the sample collection SUMA® canister. All vacuum readings were documented on field forms (Appendix F) and on the chain of custody record. Soil gas samples were kept at ambient temperatures and transported to the laboratory under chain of custody record. Leak testing was performed during sample collection using isopropyl alcohol (IPA) as a leak-check compound. This was accomplished by applying IPA with a clean towel to all aboveground fittings in the sampling train and placing an IPA-saturated towel adjacent to the borehole and beneath the sampling shroud. One duplicate soil vapor sample (SV-DUP) was collected during the sampling process. Soil vapor samples are identified according to their boring location and depth. For example, the soil vapor sample collected from boring SBT-6 at 5-feet bgs is identified as SV-6-5 and the soil vapor sample collected from boring SBT-6 at 15-feet bgs is identified as SV-6-15

4.3 COMPLETION ACTIVITIES

All drill cuttings and equipment decontamination wash and rinse water were stored onsite at the client-designated location in sealed drums pending analysis and disposal. Upon completion of all sampling activities, the soil borings were backfilled to ground surface using neat cement grout as required by the procedures outlined in the drilling permit. Surface patching activities complied with local regulations to repair paved surfaces to original condition. Upon completion of all other field activities, EIS will arrange for disposal of drill cuttings and rinse water, as appropriate.

5.0 LABORATORY ANALYSES

298 Soil samples, one duplicate soil sample, and one trip blank sample were transferred to McCampbell Analytical, a California State-Certified analytical laboratory located in Pittsburg, California following the procedures described in Section 4.2.1. Additionally, eight soil vapor samples and one duplicate soil vapor sample were transferred to Enthalpy Analytical, a California State-Certified analytical laboratory located in Orange, California following the procedures described in Section 4.2.2. Selected samples were analyzed using standard USEPA methods for the following parameters:

- All shallow soil samples (0 to 6" bgs and 2 to 2.5 ft. bgs) from borings SB-22 through SB-60 and SB-62 through SB-86 were analyzed for hexavalent chromium by USEPA method 7199. Additionally, 20 of the samples collected from 3.5 to 4 ft. bgs were analyzed for hexavalent chromium. All soil samples (0 to 6" bgs, 2 to 2.5 ft. bgs, and 3.5 to 4 ft. bgs) collected from borings SB-87A through SB-96A were analyzed for hexavalent chromium. One field duplicate was also analyzed for hexavalent chromium. In total, 178 target soil samples plus one duplicated soil sample were analyzed for hexavalent chromium by USEPA Method 7199. The remainder of the soil samples were placed on hold pending analytical results from the analyzed samples.
- Each of the 2-2.5 ft bgs soil samples collected from the dirt areas formerly developed with buildings were analyzed for Organochlorine Pesticides (OCPs) by USEPA method 8081A. A total of 40 samples were analyzed for OCPs.
- Fourteen surface samples (0 to 0.5 ft) from borings SB-28, SB-40, SB-60, SB-85, and SB-87 through SB-96 were analyzed for arsenic by USEPA Method 6020. Additionally, one field duplicate was analyzed for arsenic by USEPA Method 6020.
- Two soil samples collected from boring SBT-1B were analyzed for TPH by USEPA Method 8015Bm and VOCs by USEPA Method 8260D.
- Each of the eight soil vapor samples, plus one duplicate, were analyzed for TPH-g and VOCs by USEPA Method TO-15.

6.0 FINDINGS

6.1 GEOLOGIC AND HYDROLOGIC CONDITIONS

Soils and sediments encountered in the borings generally consisted of yellowish brown to dark brown silty sand from ground surface to a total explored depth of 36-feet bgs. Very dense (estimated) silty sand was encountered in boring SBT-1B and drilling refusal occurred at approximately 36-feet bgs. Non-native fill consisting of light yellowish brown gravelly sand was encountered in borings SBT-1B and SBT-8 from ground surface to depths of 9 and 10.5-feet bgs, respectively. Groundwater was not encountered in any of the borings advanced during this investigation. Boring logs are included as Appendix E.

6.2 SOIL ANALYITCAL RESULTS

Soil analytical results are provided in Appendix G and summarized in Tables 1 through 4. Soil results were compared to Regional Water Quality Control Board (RWQCB) Environmental Screening Levels (ESLs), DTSC HHRA Note 3 Screening Levels (SLs), and U.S. Environmental Protection Agency Regional Screening Levels (US EPA RSLs) (RWQCB, 2019; DTSC, 2022; USEPA, 2023). Analyzed parameters were not detected in the primary soil samples above laboratory MDLs, except as follows:

- TPH-d was detected in soil samples SBT-1B-30 and SBT-1B-36 at respective concentrations of 2.7 and 1.8 milligrams per kilogram (mg/kg), both of which are well below the applied RWQCB ESL (260 mg/kg). No DTSC SLs or USEPA RSLs are established for this analyte.

- Motor oil range total petroleum hydrocarbons (TPH-mo) were detected in soil sample SBT-1B-30 at a concentration of 4.8 mg/kg, which is well below the applied RWQCB ESL (12,000 mg/kg). No DTSC SLs or USEPA RSLs are established for this analyte.

- Benzene was detected in soil samples SBT-1B-30 and SBT-1B-36 at respective concentrations of 0.0013 and 0.0014 mg/kg, both of which are well below all applicable screening levels.

- Hexavalent chromium was detected in 156 out of 178 analyzed samples at concentrations ranging from 0.12 to 5 mg/kg. Hexavalent chromium was detected in 146 soil samples at concentrations that exceed the applied RWQCB ESL and USEPA RSL for residential use (both 0.3 mg/kg).

- The OCPs p,p-dichlorodiphenyldichloroethane (DDD), p,p-dichlorodiphenyldichloroethylene (DDE), p,p-dichlorodiphenyltrichloroethane (DDT), endosulfan II, endrin, endrin aldehyde, and endrin ketone were detected in soil sample SB-23-2.5 at concentrations well below their respective most conservative applied screening levels. OCPs were not detected in any of the other 39 analyzed soil samples.

- Arsenic was detected in all 14 analyzed soil samples at concentrations ranging from 0.65 to 2.0 mg/kg, all of which exceed one or more applicable screening level.

6.3 SOIL VAPOR ANALYITICAL RESULTS

Soil vapor analytical results are provided in Appendix H and summarized in Table 5. Soil vapor results were compared to RWQCB ESLs for soil gas and to DTSC HHRA Note 3 SLs and US EPA RSLs for indoor air using a default screening attenuation factor of 0.03, as recommended by DTSC (RWQCB, 2019; DTSC, 2022; USEPA, 2023; DTSC, 2023). Analyzed parameters were not detected in the primary soil vapor samples above laboratory MDLs except as follows:

- Benzene was detected in four of the eight collected soil vapor samples at concentrations ranging from 2.7 to 21 micrograms per cubic meter (µg/m^3). The detected concentrations of benzene in soil vapor samples SV-5-15, SV-6-15, SV-8-5, and SV-8-15 exceed the applicable RWQCB ESL and DTSC SL.
- Tetrachloroethene (PCE) and trichloroethene (TCE) were detected in soil vapor sample SV-5-5 at respective concentrations of 2.2 and 5.1 µg/m^3, both of which are below applicable screening levels.
- Toluene, ethylbenzene, xylenes, acetone, carbon disulfide, dichlorodifluoromethane, 1,1-dichloroethene, 4-ethyltoluene, n-hexane, methyl ethyl ketone, methyl isobutyl ketone, trichlorofluoromethane, trichlorotrifluoroethane, and 1,2,4-trimethylbenzene were detected in one or more soil vapor samples at concentrations above their MDLs but below their respective ESLs, SLs, and RSLs, where established.

7.0 QUALITY INSURANCE & QUALITY CONTROL (QA/QC)

The QA/QC review for sample handling and custody procedures included a verification of sample labels, containers, and chain-of-custody forms before samples are transferred to the selected analytical laboratory. Sample holding times for the laboratory analyses were not exceeded with one exception; sample SB-44-2.5 was analyzed for OCPs out of hold time due to an error on the chain of custody.

Field Duplicates

A field duplicate is a sample that is collected and analyzed in the same manner, and at the same time and location, as a primary sample. One field duplicate soil sample and one field duplicate soil vapor sample were collected and analyzed to evaluate sampling and analytical precision (reproducibility). Duplicate soil sample Blind Dup-1 was collected from the same soil boring as soil sample SB-85-0.5 at a similar depth by cutting and collecting two adjacent sections of the same soil core. Both SB-85-0.5 and Blind Dup-1 were analyzed for hexavalent chromium and arsenic. Duplicate soil vapor sample SV-DUP was collected from the same soil vapor probe as soil vapor sample SV-8-5 immediately after SV-8-5 was collected. Both SV-8-5 and SV-DUP were analyzed for VOCs.

The precision goal for soil and soil gas field duplicate results was plus or minus 50% relative percent difference (RPD) compared to the primary sample results. A summary of primary sample results, duplicate sample results, and the calculated RPDs for each analyte is presented as Table 7. The sample results showed acceptable RPDs (<50%) for all analytes with the exception of hexavalent chromium. Hexavalent chromium was not detected in duplicate sample Blind Dup-1 above the laboratory MDL of 0.092 mg/kg, while hexavalent chromium was detected in primary sample SB-85-0.5 at an estimated concentration of 0.16 mg/kg (the result for sample SB-85-0.5 bears the J quantifier because the detected value is above the laboratory MDL but below the reporting limit (RL)). An exact RPD between these results cannot be calculated due to the non-detect result in Blind Dup-1, however the RPD is at least 54% (the RPD between the result of sample SB-85-0.5 (0.16 mg/kg) and the MDL of duplicate sample Blind Dup-1 (0.092 mg/kg)).

Trip Blanks

A trip blank is a sample that is prepared by the analytical laboratory using laboratory grade deionized water and shipped with the sample cooler to the office for delivery to the project site. The trip blank is used to assess the potential for contamination during transport of the sample from the laboratory to the field, through the sampling program and its return to the laboratory. One trip blank (Trip Blank-1) was submitted with the sample cooler containing soil samples to be analyzed for VOCs.

TPH-g was detected in Trip Blank-1 at an estimated concentration of 15 micrograms per liter (µg/L). This concentration barely exceeds the MDL of 14 µg/L. No VOCs were detected in Trip Blank-1. The trace detection of TPH-g and the non-detect result for all VOCs appears to indicate that minimal contamination occurred during the transportation of the TPH and VOC samples and that these samples are therefore useful for their intended purpose.

Temperature Blanks

A temperature blank is used to determine whether samples have been adequately cooled during storage and transfer to the analytical laboratory. One temperature blank per cooler per day was prepared by adding water to a sample container (i.e., a VOA vial) and transporting it to the laboratory in the cooler alongside the soil samples. The temperature blanks were measured upon receipt by the laboratory and were not analyzed. The laboratory report indicates that the temperature blanks were received at 0.2°C, which is well below the sample preservation temperature limit for the selected analyses (≤4°C). These results indicate that the samples were adequately cooled during transport.

Soil Vapor Sampling Leak Check

The tracer compound IPA was used to monitor the soil vapor probes and sample trains for leaks during sample collection as described in Section 4.2.3. The relevant DTSC guidance states that if a liquid leak check compound is detected at a concentration greater or equal to 10 times the reporting limit for the target analyte then corrective action must be taken (DTSC, 2015). Isopropyl alcohol was not detected above the DTSC's permissible concentration threshold in any of the soil vapor samples collected during this investigation, further verifying the validity of these samples.

8.0 CONCLUSIONS

Petroleum Hydrocarbons and VOCs in Soil

- EIS analyzed two soil samples collected from boring SBT-1B for TPH and VOCs. TPH-d, TPH-mo, and benzene were detected in samples SBT-1B-30 and SBT-1B-36 at concentrations well below all applicable screening levels. These results indicate that the previously identified petroleum impacts to soil in the vicinity of SBT-1/SBT-1B related to the former UST "Tank 1" are limited in depth and do not significantly affect soils at or below 30-feet bgs. The lateral extent of petroleum impacts to soil were determined to be restricted to the area around boring SBT-1/SBT-1B during the previous investigation (EIS, 2023). It is EIS's opinion that the spatial extent of these impacts is now adequately defined.

Hexavalent Chromium in Soil

- EIS analyzed a total of 178 soil samples collected during this investigation for hexavalent chromium. 148 of these soil samples were collected from depths of 0-6" bgs, 2-2.5 ft bgs, or 3.5-4 ft bgs from borings located in grids across areas of the site previously developed with buildings or currently developed with roads (disturbed areas). The remaining 30 soil samples were collected from depths of 0-6" bgs, 2-2.5 ft bgs, or 3.5-4 ft bgs from the undisturbed perimeter of the site. Hexavalent chromium was detected in 156 of these 178 analyzed soil samples at concentrations ranging from 0.12 to 5 mg/kg. Hexavalent chromium was detected in 146 soil samples at concentrations that exceed the applied RWQCB ESL and USEPA RSL for residential use (both 0.3 mg/kg). EIS contracted with Intrinsik Ltd. (Intrinsik), an environmental health consultant, to prepare a technical memorandum which documents in-depth statistical analysis comparing cumulative soil data from the disturbed and undisturbed areas of the Site. Intrinsik's technical memorandum is included as Appendix C. Intrinsik compared the soil data from the disturbed and undisturbed Site areas to establish potential site-specific BTVs following guidance issued by the Cal/EPA (1997, 2008, 2009, and 2020) and the United States EPA (USEPA, 2022a). This analysis indicated that the soil datasets from the disturbed and undisturbed areas of the site "are not statistically significantly different, indicating that the Site hexavalent chromium concentrations are within the local background level". Calculated potential site-specific BTVs range from 2.081 mg/kg (Kaplan-Meier [KM] method 95th percentile) to 3.076 mg/kg (KM method 95-99 upper tolerance limit). Of the 197 total soil samples analyzed for hexavalent chromium to date, only samples SB3-6-2.5 (2.1 mg/kg), SB-87A-2.5 (2.1 mg/kg), SB-95A-4.0 (2.7 mg/kg), and SB-49-2.5 (5 mg/kg) exceed one or more potential site-specific BTV for hexavalent chromium. These results appear to indicate that the concentrations of hexavalent chromium detected in Site soils are generally within the local background level and that a significant source of anthropogenic hexavalent chromium is not present onsite. The California Environmental Protection Agency (CalEPA) and other California agencies typically do not require cleanup of naturally occurring chemicals to less than background concentrations. Therefore, it is EIS's opinion that they do not require further investigation or action.

Arsenic in Soil

- As requested by DTSC, EIS analyzed fourteen surface soil samples collected during this investigation for arsenic. Four of these soil samples were collected from borings located in the disturbed areas of the Site. The remaining ten soil samples were collected from the undisturbed perimeter of the Site. Arsenic was detected in all 14 analyzed soil samples at concentrations ranging from 0.65 to 2.0 mg/kg, all of which exceed one or more applicable screening level. Intrinsik utilized cumulative soil analytical data to compare arsenic concentrations in the disturbed and undisturbed areas of the Stie (Appendix C). Intrinsik's analysis indicated that the soil datasets from the disturbed and undisturbed areas of the Site are statistically significantly different from one another, however the small sample size of this dataset makes the statistics somewhat unreliable. Calculated potential site-specific BTVs range from 1.33 mg/kg (95% upper confidence limit) to 2.473 mg/kg (KM method 95-99 upper tolerance limit). All detected concentrations of arsenic are well below the established California background levels of 11-12 mg/kg (Cal/EPA 2019 & 2020). The cumulative soil analytical results indicate that the concentrations of arsenic detected in Site soils are generally within the local background level and are well below widely applied regional background levels. Based on this finding, a significant source of anthropogenic arsenic does not appear to be present onsite.

<u>OCPs in Soil</u>

- As requested by DTSC, EIS analyzed 40 soil samples collected from 2-2.5 ft bgs from the graded former building areas of the Site for OCPs. The OCPs DDD, DDE, DDT, endosulfan II, endrin, endrin aldehyde, and endrin ketone were detected in soil sample SB-23-2.5 at concentrations well below their respective most conservative applied screening levels. OCPs were not detected in any of the other 39 analyzed soil samples collected during this investigation. This result, combined with the previous OCP analytical results of 44 surface soil samples, indicate that significant OCP impacts to shallow soil from former military use do not exist at the Site. These results fulfill the relevant DTSC sampling requirements for OCPs at school sites (DTSC, 2006).

<u>Benzene in Soil Vapor</u>

- EIS collected eight soil vapor samples (plus one duplicate sample) from depths of 5 and 15 ft bgs for analysis for VOCs. Soil vapor samples were collected from borings advanced to the northwest, northeast, east, and south of previous boring SBT-3 in an attempt to define the spatial extent of previously identified benzene impacts to soil vapor. Benzene was detected in four of the eight collected soil vapor samples at concentrations ranging from 2.7 to 21 $\mu g/m^3$. The detected concentrations of benzene in soil vapor samples SV-5-15, SV-6-15, SV-8-5, and SV-8-15 exceed the applicable RWQCB ESL and DTSC SL. Benzene was not detected in the shallow (5-foot depth) soil vapor samples collected from SBT-5, SBT-6, or SBT-7 but was detected above applicable screening levels in the deeper (15-foot) soil vapor samples from SBT-5 and SBT-6. Benzene was detected above applicable screening levels in both soil vapor samples (5 and 15-foot depths) collected from SBT-8. These results appear to indicate that benzene impacts to soil vapor are concentrated near boring SBT-3 and decline in all directions. Soil vapor impacts generally appear to increase with depth to at least 15-feet bgs.

Remedial excavation work conducted in 1990 removed contaminated soil associated with the former USTs to depths up to 20 to 24-feet bgs, although contaminated soil was left in place beneath former building 4362 (HLA, 1995). The documented residual contaminated soil is considered the most likely source of detected benzene in soil vapor. The increase in benzene soil vapor concentration with depth is likely attributable to the removal of the shallow source during the previous remedial excavation. The full spatial extent of benzene impacts to soil vapor remains undefined to the northwest, northeast, and southeast of the area sampled during this investigation.

- Several other VOCs were detected in soil vapor samples collected during this investigation at concentrations below all applicable screening levels. This finding does not represent a significant environmental concern.

9.0 RECOMMENDATIONS

Based on the findings and conclusions of this investigation, EIS presents the following recommendations:

1. The detected concentrations of hexavalent chromium and arsenic in soil are now considered adequately defined and are generally consistent with site-specific background concentrations. As such, no further action is recommended.
2. The spatial extent of diesel-contaminated soil in the vicinity of the former USTs is now considered adequately defined. Given their depth and limited lateral extent, these impacts do not present a significant exposure risk beyond vapor intrusion (discussed below). As such, no further action is recommended.
3. As stated in the previous section, benzene has been detected in several soil vapor samples at concentrations exceeding applicable screening levels. Because the Site is slated for redevelopment as an education facility, further vapor intrusion assessment is recommended prior to redevelopment to ensure the safety of future occupants.

10.0 LIMITATIONS

This report has been prepared specifically for the Site located at 2511 Numa Watson Road, Seaside, California. The investigation was completed according to current state and local agency suggested guidance. The interpretations, conclusions, and recommendations made herein are based on the data and analysis for the samples collected on-site. Conditions at the Site can change over time and the use of this report by third parties is entirely at their own risk.

The soil borings can only present information accurately on the area directly at the point of the boring. They give a general indication of the condition of the Site but will not serve as a basis for a guarantee of non-contamination of the site. The conclusions and professional opinions presented are developed in accordance with generally accepted practice as outlined in applied standard guidance documents referenced in this report.

The chemical analysis results are based on data collected at the sampling locations only, therefore EIS cannot have complete knowledge of the underlying conditions. Conditions at the Site will change with time due to natural processes or the works of man.

Please note that reports of contamination must be submitted to the agencies in a timely manner. This report has been prepared for the sole use of our Clients. This report shall not be relied upon by or transferred to any other party, or used for any other purpose, without the express written authorization of our Client. EIS is not responsible for errors neither in contract laboratory analysis and reporting, nor for information not available, nor unreported or unknown sources of Site contamination during the course of the study. Accordingly, the findings of this report will apply to the present conditions only; the opinions expressed therein are subject to revisions in consideration of new information, and no warranties are expressed or implied therein.

Please contact EIS at (408) 674-6949 if you have any questions regarding this report.
Sincerely,

Environmental Investigation Services, Inc.

FORREST N. COOK
No. 8201

Pet Willit

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Professional Geologist

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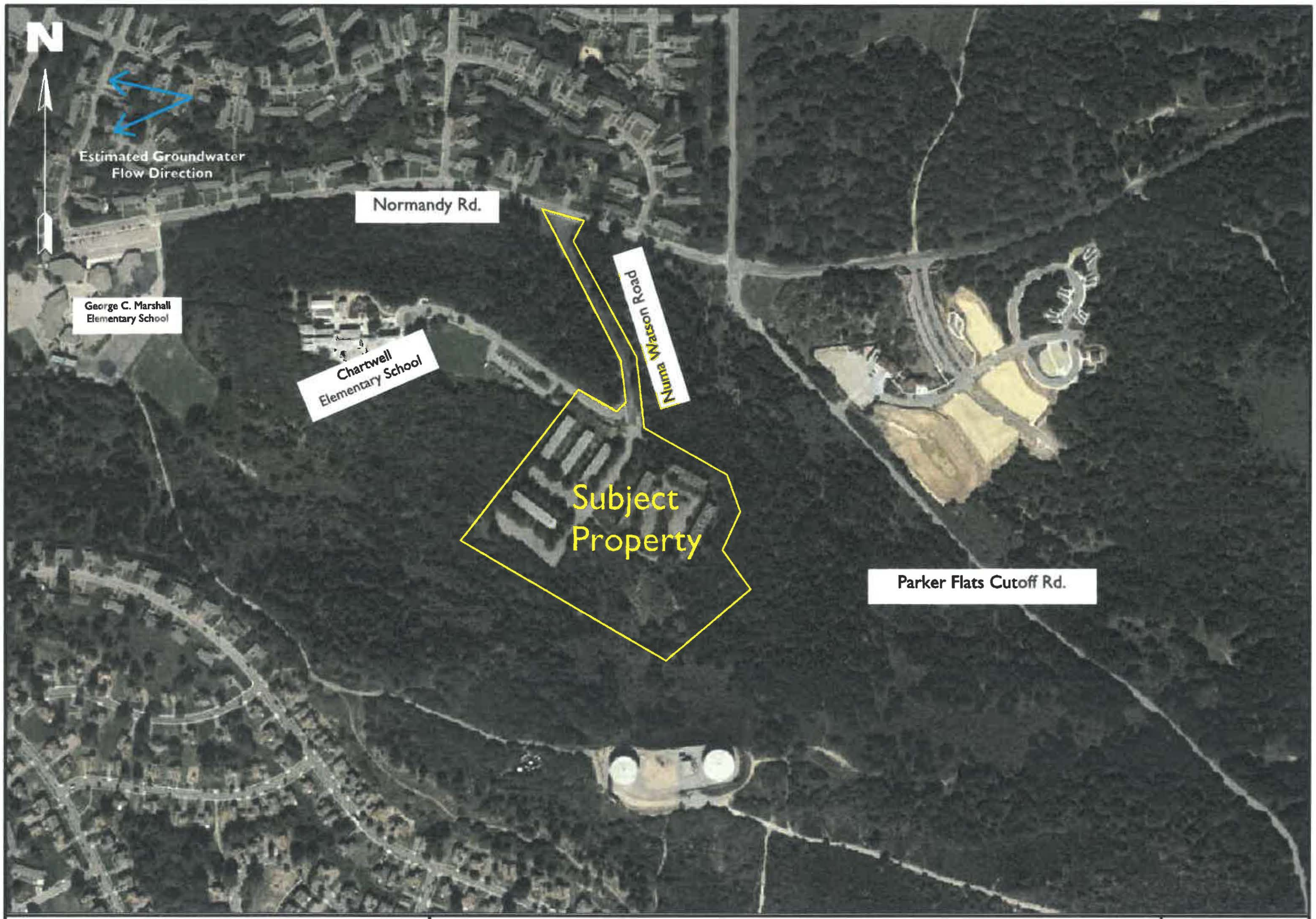
FIGURES

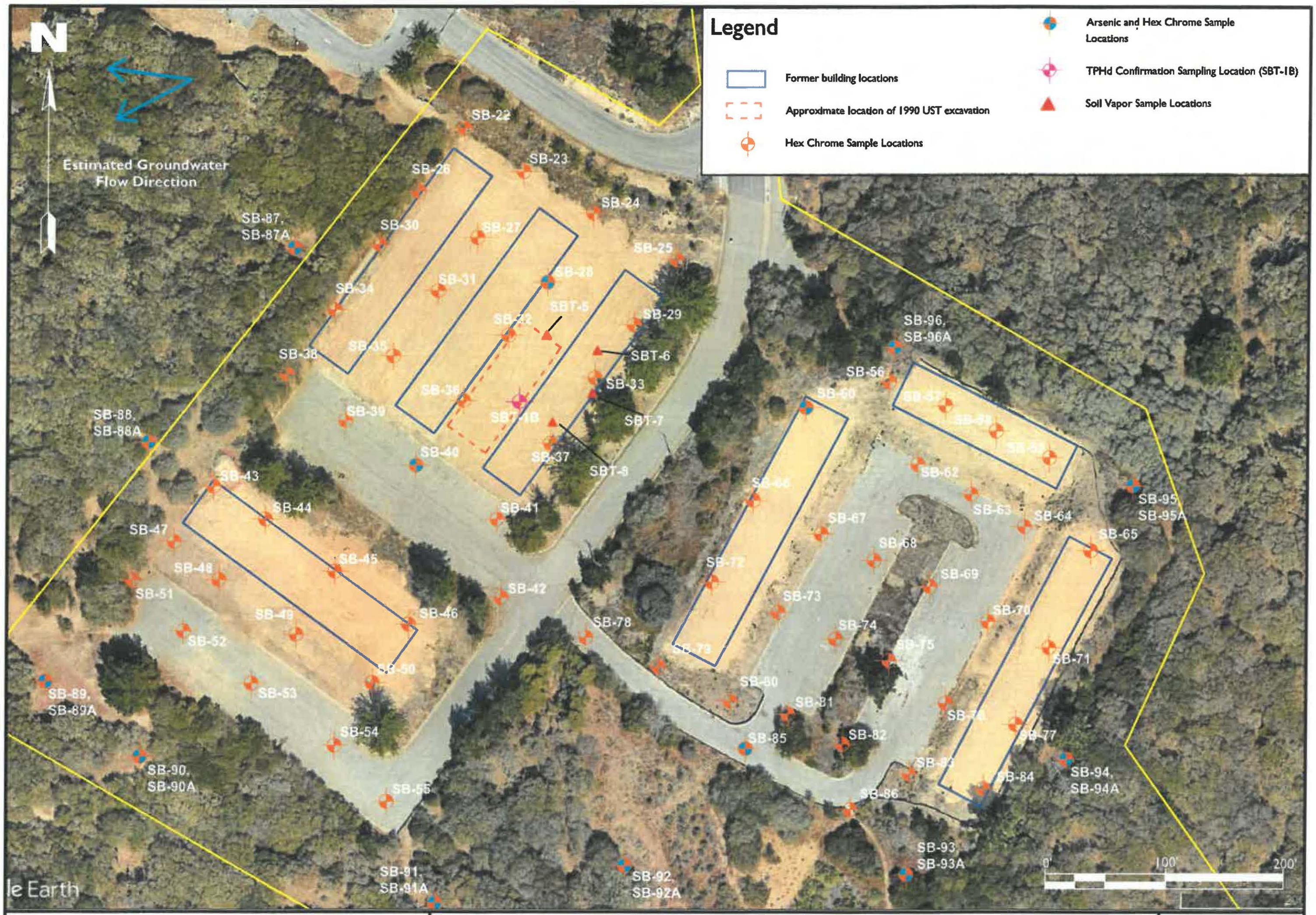


Environmental Investigation Services, Inc.
316 Mid Valley Center #313
Carmel, California 93923
Ph: (408) 656-1032

Site Location Map

2215 Numa Watson Road, Seaside, California

Figure: 1
EIS Project: 2215-1
August 25, 2022



Environmental Investigation Services, Inc.
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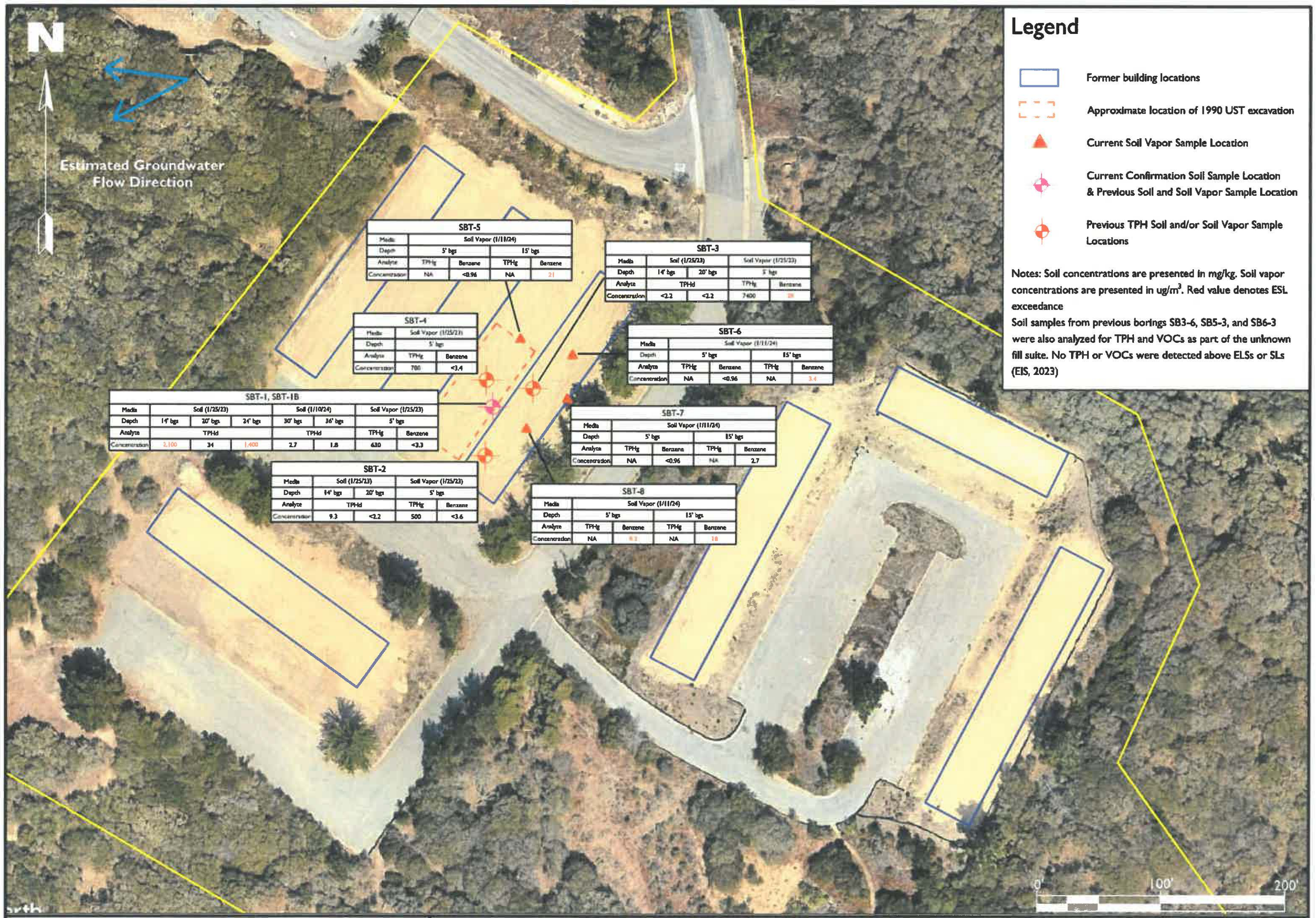
Current Sample Location Map

2511 Numa Watson Road, Seaside, California

Figure: 2
EIS Project: 2215-3
April 11, 2024



Notes: Soil concentrations are presented in mg/kg. Soil vapor concentrations are presented in ug/m^3. Red value denotes ESL exceedance

Soil samples from previous borings SB3-6, SB5-3, and SB6-3 were also analyzed for TPH and VOCs as part of the unknown fill suite. No TPH or VOCs were detected above ELSs or SLs (EIS, 2023)

SBT-5

Media	Soil Vapor (1/11/24)			
Depth	5' bgs		15' bgs	
Analyte	TPHg	Benzene	TPHg	Benzene
Concentration	NA	<0.96	NA	21

SBT-3

Media	Soil (1/25/23)		Soil Vapor (1/25/23)	
Depth	14' bgs	20' bgs	5' bgs	
Analyte	TPHd		TPHg	Benzene
Concentration	<2.2	<2.2	7400	[illegible]

SBT-4

Media	Soil Vapor (1/25/23)	
Depth	5' bgs	
Analyte	TPHg	Benzene
Concentration	700	<3.4

SBT-6

Media	Soil Vapor (1/11/24)			
Depth	5' bgs		15' bgs	
Analyte	TPHg	Benzene	TPHg	Benzene
Concentration	NA	<0.96	NA	3.4

SBT-1, SBT-1B

Media	Soil (1/25/23)			Soil (1/10/24)		Soil Vapor (1/25/23)	
Depth	14' bgs	20' bgs	24' bgs	30' bgs	36' bgs	5' bgs	
Analyte	TPHd			TPHd		TPHg	Benzene
Concentration	2,100	34	1,400	2.7	1.8	630	<3.3

SBT-7

Media	Soil Vapor (1/11/24)			
Depth	5' bgs		15' bgs	
Analyte	TPHg	Benzene	TPHg	Benzene
Concentration	NA	<0.96	NA	2.7

SBT-2

Media	Soil (1/25/23)		Soil Vapor (1/25/23)	
Depth	14' bgs	20' bgs	5' bgs	
Analyte	TPHd		TPHg	Benzene
Concentration	9.3	<2.2	500	<3.6

SBT-8

Media	Soil Vapor (1/11/24)			
Depth	5' bgs		15' bgs	
Analyte	TPHg	Benzene	TPHg	Benzene
Concentration	NA	[illegible]	NA	18

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Cumulative TPH Constituent Concentrations in Soil and Soil Vapor

2511 Numa Watson Road, Seaside, California

Figure: 3
EIS Project: 2215-3
April 11, 2024

TABLES

TABLE 1

Current Soil Analytical Results Summary - TPH and VOCs

2511 Numa Watson Rd., Seaside, CA

Project No. 2215-3

Sample ID	Sample Date	Sample Depth (ft)	TPH			VOCs				
			TPHg	TPHd	TPHmo	Benzene	Tuolene	Ethylbenzene	Total Xylenes	Other VOCs
SBT-1B-30	1/10/2024	29.5-30	<0.48	**2.7**	**4.8**	**0.0013 J**	<0.0016	<0.0011	<0.0050	**ND**
SBT-1B-36	1/10/2024	35.5-36	<0.48	**1.8**	<4.3	**0.0014 J**	<0.0016	<0.0011	<0.0050	**ND**
RWQCB ESLs (residential) Cancer Risk			**NE**	**NE**	**NE**	**0.33**	**NE**	**5.9**	**NE**	**Varies**
RWQCB ESLs (residential) Non-Cancer			**430**	**260**	**12,000**	**11**	**1,100**	**3,400**	**580**	**Varies**
DTSC HHRA SL (residential) Cancer Endpoint			**430**	**NE**	**NE**	**0.33**	**NE**	**NE**	**NE**	**Varies**
DTSC HHRA SL (residential) Noncancer Endpoint			**NE**	**NE**	**NE**	**11**	**1,100**	**NE**	**NE**	**Varies**
USEPA RSL (residential) Carcinogenic SL			**NE**	**NE**	**NE**	**1.2**	**NE**	**5.8**	**NE**	**Varies**
USEPA RSL (residential) Noncarcinogenic SL (Child)			**NE**	**NE**	**NE**	**82**	**4,900**	**2,400**	**580**	**Varies**

Notes:

TPH = total petroleum hydrocarbons

g/d/mo= gasoline/diesel/motor oil range organics.

VOCs = volatile organic compounds

Sample results reported in milligrams per kilogram (mg/kg).

Bolded value denotes analyte detected

Shaded value denotes exceedance of applied ESL.

<#.# = not detected above analytical laboratory Method Detection Limit (MDL)

TPHg, d, mo analyzed by USEPA Method 8015B.

VOCs analyzed by USEPA Method 8260B

J = Estimated Value

RWQCB ESL = SF Bay Regional Water Quality Control Board Environmental Screening Levels (January 2019, Rev 2).

DTSC HHRA SL = Department of Toxic Substances Control Human Health Risk Assessment Screening Level (June 2020, Revised May 2022).

USEPA RSL = United States Environmental Protection Agency Regional Screening Level (Revised May 2023). (THQ = 1.0)

NE = ESL not established

TABLE 2
Current Soil Analytical Results Summary - Hexavalent Chromium
2511 Numa Watson Rd., Seaside, CA
Project No. 2215-2

Sample ID	Sample Date	Sample Depth (ft)	Total Hexavalent Chromium
SB-22-0.5	1/10/2024	0-0.5	**0.48**
SB-22-2.5	1/10/2024	2-2.5	**0.96**
SB-23-0.5	1/10/2024	0-0.5	<0.092
SB-23-2.5	1/10/2024	2-2.5	**1.4**
SB-24.0.5	1/10/2024	0-0.5	**1.7**
SB-24-2.5	1/10/2024	2-2.5	**1.4**
SB-24-4.0	1/10/2024	3.5-4.0	**1.9**
SB-25-0.5	1/10/2024	0-0.5	**0.89**
SB-25-2.5	1/10/2024	2-2.5	**0.27**
SB-26-0.5	1/10/2024	0-0.5	**1.1**
SB-26.2.5	1/10/2024	2-2.5	**0.62**
SB-27-0.5	1/10/2024	0-0.5	<0.092
SB-27-2.5	1/10/2024	2-2.5	**0.98**
SB-27-4.0	1/10/2024	3.5-4.0	**1.0**
SB-28-0.5	1/10/2024	0-0.5	**0.82**
SB-28-2.5	1/10/2024	2-2.5	**0.59**
SB-29-0.5	1/10/2024	0-0.5	**0.84**
SB-29-2.5	1/10/2024	2-2.5	**0.85**
SB-30-0.5	1/10/2024	0-0.5	**0.62**
SB-30.2.5	1/10/2024	2-2.5	**0.97**
SB-30.4.0	1/10/2024	3.5-4.0	**0.25**
SB-31-0.5	1/10/2024	0-0.5	<0.092
SB-31-2.5	1/10/2024	2-2.5	**1.1**
SB-32-0.5	1/10/2024	0-0.5	**1.1**
SB-32-2.5	1/10/2024	2-2.5	**1.1**
SB-33-0.5	1/10/2024	0-0.5	**1.1**
SB-33-2.5	1/10/2024	2-2.5	<0.092
SB-33-4.0	1/10/2024	3.5-4.0	<0.092
SB-34-0.5	1/10/2024	0-0.5	**0.37**
SB-34-2.5	1/10/2024	2-2.5	**1.2**
SB-35-0.5	1/10/2024	0-0.5	<0.092
SB-35-2.5	1/10/2024	2-2.5	**0.79**
SB-36-0.5	1/10/2024	0-0.5	**1.1**
SB-36-2.5	1/10/2024	2-2.5	<0.092
SB-36-4.0	1/10/2024	3.5-4.0	<0.092
SB-37-0.5	1/10/2024	0-0.5	**1.8**
SB-37-2.5	1/10/2024	2-2.5	<0.092
SB-38-0.5	1/10/2024	0-0.5	**0.53**
SB-38-2.5	1/10/2024	2-2.5	**0.75**
SB-39-0.5	1/10/2024	0-0.5	**1.7**
SB-39-2.5	1/10/2024	2-2.5	**1.7**
SB-39-4.0	1/10/2024	3.5-4.0	**1.4**
SB-40-0.5	1/10/2024	0-0.5	**1.4**
SB-40-2.5	1/10/2024	2-2.5	**0.51**
SB-41-0.5	1/10/2024	0-0.5	**1.5**
RWQCB ESLs (residential) Cancer Risk			**0.3**
RWQCB ESLs (residential) Non-Cancer			**230**
DTSC HHRA SL (residential) Cancer Endpoint			**NE**
DTSC HHRA SL (residential) Noncancer Endpoint			**NE**
USEPA RSL (residential) Carcinogenic SL			**0.3**
USEPA RSL (residential) Noncarcinogenic SL (Child)			**230**

Sample ID	Sample Date	Sample Depth (ft)	Total Hexavalent Chromium
SB-41-2.5	1/10/2024	2-2.5	**0.58**
SB-42-0.5	1/10/2024	0-0.5	**0.80**
SB-42-2.5	1/10/2024	2-2.5	**0.60**
SB-42-4.0	1/10/2024	3.5-4.0	**0.73**
SB-43-0.5	1/10/2024	0-0.5	**1.2**
SB-43-2.5	1/10/2024	2-2.5	**1.4**
SB-44-0.5	1/10/2024	0-0.5	**0.74**
SB-44-2.5	1/10/2024	2-2.5	**0.88**
SB-45-0.5	1/11/2024	0-0.5	**1.7**
SB-45-2.5	1/11/2024	2-2.5	**0.99**
SB-45-4.0	1/11/2024	3.5-4.0	**1.5**
SB-46-0.5	1/11/2024	0-0.5	**0.90**
SB-46-2.5	1/11/2024	2-2.5	<0.092
SB-47-0.5	1/11/2024	0-0.5	**0.67**
SB-47-2.5	1/11/2024	2-2.5	**0.28**
SB-48-0.5	1/11/2024	0-0.5	<0.092
SB-48-2.5	1/11/2024	2-2.5	**1.8**
SB-48-4.0	1/11/2024	3.5-4.0	**2.0**
SB-49-0.5	1/11/2024	0-0.5	<0.092
SB-49-2.5	1/11/2024	2-2.5	**5.0**
SB-50-0.5	1/11/2024	0-0.5	**1.2**
SB-50-2.5	1/11/2024	2-2.5	**1.3**
SB-51-0.5	1/11/2024	0-0.5	<0.092
SB-51-2.5	1/11/2024	2-2.5	**0.22**
SB-51-4.0	1/11/2024	3.5-4.0	**1.1**
SB-52-0.5	1/11/2024	0-0.5	<0.092
SB-52-2.5	1/11/2024	2-2.5	**0.99**
SB-53-0.5	1/11/2024	0-0.5	**0.42**
SB-53-2.5	1/11/2024	2-2.5	**0.83**
SB-54-0.5	1/11/2024	0-0.5	**0.55**
SB-54-2.5	1/11/2024	2-2.5	**0.74**
SB-54-4.0	1/11/2024	3.5-4.0	**1.9**
SB-55-0.5	1/11/2024	0-0.5	**0.54**
SB-55-2.5	1/11/2024	2-2.5	**0.65**
SB-56-0.5	1/11/2024	0-0.5	**1.1**
SB-56-2.5	1/11/2024	2-2.5	**1.0**
SB-57-0.5	1/11/2024	0-0.5	**0.59**
SB-57-2.5	1/11/2024	2-2.5	**0.79**
SB-57-4.0	1/11/2024	3.5-4.0	**0.78**
SB-58-0.5	1/11/2024	0-0.5	**0.98**
SB-58-2.5	1/11/2024	2-2.5	**1.1**
SB-59-0.5	1/11/2024	0-0.5	**1.2**
SB-59-2.5	1/11/2024	2-2.5	**1.0**
SB-60-0.5	1/11/2024	0-0.5	**0.85**
SB-60-2.5	1/11/2024	2-2.5	**1.3**
RWQCB ESLs (residential) Cancer Risk			**0.3**
RWQCB ESLs (residential) Non-Cancer			**230**
DTSC HHRA SL (residential) Cancer Endpoint			**NE**
DTSC HHRA SL (residential) Noncancer Endpoint			**NE**
USEPA RSL (residential) Carcinogenic SL			**0.3**
USEPA RSL (residential) Noncarcinogenic SL (Child)			**230**

Notes:

Total hexavalent chromium analyzed by USEPA Method 7199
Sample results reported in milligrams per kilogram (mg/kg).
Bolded value denotes analyte detected
Shaded value denotes exceedance of applied ESL.
J = Estimated Value
RWQCB ESL = SF Bay Regional Water Quality Control Board Environmental Screening Level
(January 2019, Rev 2).
DTSC HHRA SL = Department of Toxic Substances Control Human Health Risk Assessment Screening Level
(June 2020, Revised May 2022).
USEPA RSL = United States Environmental Protection Agency Regional Screening Level
(Revised May 2023). (THQ = 1.0)
Sample Blind Dup-1 was subimtted as a blind duplicate of sample SB-85-0.5

TABLE 2
Current Soil Analytical Results Summary - Hexavalent Chromium
2511 Numa Watson Rd., Seaside, CA

Project No. 2215-2

Sample ID	Sample Date	Sample Depth (ft)	Total Hexavalent Chromium
SB-60-4.0	1/11/2024	3.5-4.0	**0.70**
SB-62-0.5	1/11/2024	0-0.5	**0.80**
SB-62-2.5	1/11/2024	2-2.5	**1.8**
SB-63-0.5	1/11/2024	0-0.5	**0.35**
SB-63-2.5	1/11/2024	2-2.5	**1.1**
SB-63-4.0	1/11/2024	3.5-4.0	<0.092
SB-64-0.5	1/11/2024	0-0.5	**1.2**
SB-64-2.5	1/11/2024	2-2.5	**0.90**
SN-65-0.5	1/11/2024	0-0.5	**0.82**
SB-65-2.5	1/11/2024	2-2.5	**0.98**
SB-66-0.5	1/11/2024	0-0.5	**0.68**
SB-66-2.5	1/11/2024	2-2.5	**1.1**
SB-66-4.0	1/11/2024	3.5-4.0	**0.98**
SB-67-0.5	1/11/2024	0-0.5	**1.1**
SB-67-2.5	1/11/2024	2-2.5	**1.1**
SB-68-0.5	1/11/2024	0-0.5	<0.092
SB-68-2.5	1/11/2024	2-2.5	**0.80**
SB-69-0.5	1/11/2024	0-0.5	**0.55**
SB-69-2.5	1/11/2024	2-2.5	**0.59**
SB-69-4.0	1/11/2024	3.5-4.0	**1.2**
SB-70-0.5	1/11/2024	0-0.5	**0.74**
SB-70-2.5	1/11/2024	2-2.5	**0.93**
SB-71-0.5	1/11/2024	0-0.5	**0.90**
SB-71-2.5	1/11/2024	2-2.5	**0.94**
SB-72-0.5	1/11/2024	0-0.5	**1.3**
SB-72-2.5	1/11/2024	2-2.5	**0.97**
SB-72-4.0	1/11/2024	3.5-4.0	**0.84**
SB-73-0.5	1/11/2024	0-0.5	**0.54**
SB-73-2.5	1/11/2024	2-2.5	**0.96**
SB-74-0.5	1/11/2024	0-0.5	**1.4**
SB-74-2.5	1/11/2024	2-2.5	**1.0**
SB-75-0.5	1/11/2024	0-0.5	<0.092
SB-75-2.5	1/11/2024	2-2.5	**1.3**
SB-75-4.0	1/11/2024	3.5-4.0	**0.97**
SB-76-0.5	1/11/2024	0-0.5	**1.1**
SB-76-2.5	1/11/2024	2-2.5	**1.1**
SB-77-0.5	1/11/2024	0-0.5	**0.84**
SB-77-2.5	1/11/2024	2-2.5	**0.80**
SB-78-0.5	1/11/2024	0-0.5	**0.94**
SB-78-2.5	1/11/2024	2-2.5	**0.98**
SB-78-4.0	1/11/2024	3.5-4.0	**0.87**
SB-79-05	1/11/2024	0-0.5	**1.0**
SB-79-2.5	1/11/2024	2-2.5	**0.82**
SB-80-0.5	1/11/2024	0-0.5	**0.91**
SB-80-2.5	1/11/2024	2-2.5	**0.85**
RWQCB ESLs (residential) Cancer Risk			**0.3**
RWQCB ESLs (residential) Non-Cancer			**230**
DTSC HHRA SL (residential) Cancer Endpoint			**NE**
DTSC HHRA SL (residential) Noncancer Endpoint			**NE**
USEPA RSL (residential) Carcinogenic SL			**0.3**
USEPA RSL (residential) Noncarcinogenic SL (Child)			**230**

Sample ID	Sample Date	Sample Depth (ft)	Total Hexavalent Chromium
SB-81-0.5	1/11/2024	0-0.5	**1.1**
SB-81-2.5	1/11/2024	2-2.5	**0.98**
SB-81-4.0	1/11/2024	3.5-4.0	**0.49**
SB-82-0.5	1/11/2024	0-0.5	**0.95**
SB-82-2.5	1/11/2024	2-2.5	**0.99**
SB-83-0.5	1/11/2024	0-0.5	<0.092
SB-83-2.5	1/11/2024	2-2.5	**0.90**
SB-84-0.5	1/11/2024	0-0.5	**0.96**
SB-84-2.5	1/11/2024	2-2.5	**2.0**
SB-85-0.5	1/11/2024	0-0.5	0.16 J
Blind Dup-1	1/11/2024	0-0.5	<0.092
SB-85-2.5	1/11/2024	2-2.5	**0.31**
SB-86-0.5	1/11/2024	0-0.5	**0.79**
SB-86-2.5	1/11/2024	2-2.5	**0.79**
SB-87A-0.5	3/29/2024	0-0.5	<0.092
SB-87A-2.5	3/29/2024	2-2.5	**2.1**
SB-87A-4.0	3/29/2024	3.5-4.0	**0.87**
SB-88A-0.5	3/29/2024	0-0.5	<0.092
SB-88A-2.5	3/29/2024	2-2.5	**1.5**
SB-88A-4.0	3/29/2024	3.5-4.0	**1.1**
SB-89A-0.5	3/29/2024	0-0.5	**0.54**
SB-89A-2.5	3/29/2024	2-2.5	0.13 J
SB-89A-4.0	3/29/2024	3.5-4.0	**0.50**
SB-90A-0.5	3/29/2024	0-0.5	**0.28**
SB-90A-2.5	3/29/2024	2-2.5	**1.8**
SB-90A-4.0	3/29/2024	3.5-4.0	**1.6**
SB-91A-0.5	3/29/2024	0-0.5	<0.092
SB-91A-2.5	3/29/2024	2-2.5	**1.0**
SB-91A-4.0	3/29/2024	3.5-4.0	**1.4**
SB-92A-0.5	3/29/2024	0-0.5	**0.39**
SB-92A-2.5	3/29/2024	2-2.5	**0.91**
SB-92A-4.0	3/29/2024	3.5-4.0	**1.2**
SB-93A-0.5	3/29/2024	0-0.5	**0.25**
SB-93A-2.5	3/29/2024	2-2.5	**0.84**
SB-93A-4.0	3/29/2024	3.5-4.0	**0.42**
SB-94A-0.5	3/29/2024	0-0.5	0.12 J
SB-94A-2.5	3/29/2024	2-2.5	**1.2**
SB-94A-4.0	3/29/2024	3.5-4.0	**1.7**
SB-95A-0.5	3/29/2024	0-0.5	**1.3**
SB-95A-2.5	3/29/2024	2-2.5	**0.24**
SB-95A-4.0	3/29/2024	3.5-4.0	**2.7**
SB-96A-0.5	3/29/2024	0-0.5	<0.092
SB-96A-2.5	3/29/2024	2-2.5	**1.8**
SB-96A-4.0	3/29/2024	3.5-4.0	**1.6**
--	--	--	--
RWQCB ESLs (residential) Cancer Risk			**0.3**
RWQCB ESLs (residential) Non-Cancer			**230**
DTSC HHRA SL (residential) Cancer Endpoint			**NE**
DTSC HHRA SL (residential) Noncancer Endpoint			**NE**
USEPA RSL (residential) Carcinogenic SL			**0.3**
USEPA RSL (residential) Noncarcinogenic SL (Child)			**230**

Notes:

Total hexavalent chromium analyzed by USEPA Method 7199

Sample results reported in milligrams per kilogram (mg/kg).

Bolded value denotes analyte detected

Shaded value denotes exceedance of applied ESL.

J = Estimated Value

RWQCB ESL = SF Bay Regional Water Quality Control Board Environmental Screening Level (January 2019, Rev 2).

DTSC HHRA SL = Department of Toxic Substances Control Human Health Risk Assessment Screening Level (June 2020, Revised May 2022).

USEPA RSL = United States Environmental Protection Agency Regional Screening Level (Revised May 2023). (THQ = 1.0)

Sample Blind Dup-1 was subimtted as a blind duplicate of sample SB-85-0.5

TABLE 3
Current Soil Analytical Results Summary - OCPs
2511 Numa Watson Rd., Seaside, CA
Project No. 2215-3

Sample ID	Sample Date	Sample Depth (ft)	Organochlorine Pestacides (OCPs)							
			p,p-DDD	p,p-DDE	p,p-DDT	Endosulfan II	Endrin	Endrin Aldehyde	Endrin Ketone	Other OCPs
SB-22-2.5	1/10/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-23-2.5	1/10/2024	2-2.5	**0.0012**	**0.00042 J**	<0.00039	**0.00069 J**	**0.00063 JP**	**0.00046 JP**	**0.00039 J**	ND
SB-24-2.5	1/10/2024	2-2.5	0.00067 J	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-25-2.5	1/10/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-26-2.5	1/10/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-27-2.5	1/10/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-28-2.5	1/10/2024	2-2.5	<0.0041	<0.0029	<0.0039	<0.0033	<0.0038	<0.0044	<0.0029	ND
SB-29-2.5	1/10/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-30-2.5	1/10/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-31-2.5	1/10/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-32-2.5	1/10/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-33-2.5	1/10/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-34-2.5	1/10/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-35-2.5	1/10/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-36-2.5	1/10/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-37-2.5	1/10/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-43-2.5	1/11/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-44-2.5	1/11/2024	2-2.5	<0.00041*	<0.00029*	<0.00039*	<0.00033*	<0.00038*	<0.00044*	<0.00029*	ND
SB-45-2.5	1/11/2024	2-2.5	<0.00082	<0.00058	<0.00078	<0.00066	<0.00076	<0.00088	<0.00058	ND
SB-46-2.5	1/11/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-47-2.5	1/11/2024	2-2.5	<0.0041	<0.0029	<0.0039	<0.0033	<0.0038	<0.0044	<0.0029	ND
SB-48-2.5	1/11/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-49-2.5	1/11/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-50-2.5	1/11/2024	2-2.5	<0.0041	<0.0029	<0.0039	<0.0033	<0.0038	<0.0044	<0.0029	ND
SB-56-2.5	1/11/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-57-2.5	1/11/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-58-2.5	1/11/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-59-2.5	1/11/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-60-2.5	1/11/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-65-2.5	1/11/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-66-2.5	1/11/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-67-2.5	1/11/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-71-2.5	1/11/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-72-2.5	1/11/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-73-2.5	1/11/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-77-2.5	1/11/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-79-2.5	1/11/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-80-2.5	1/11/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-83-2.5	1/11/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
SB-85-2.5	1/11/2024	2-2.5	<0.00041	<0.00029	<0.00039	<0.00033	<0.00038	<0.00044	<0.00029	ND
RWQCB ESLs (residential) Cancer Risk			**2.7**	**1.8**	**1.9**	**NE**	**NE**	**NE**	**NE**	**Varies**
RWQCB ESLs (residential) Non-Cancer			**NE**	**NE**	**37**	**NE**	**21**	**NE**	**NE**	**Varies**
DTSC HHRA SL (residential) Cancer Endpoint			**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**Varies**
DTSC HHRA SL (residential) Noncancer Endpoint			**NE**	**NE**	**NE**	**NE**	**19**	**NE**	**NE**	**Varies**
USEPA RSL (residential) Carcinogenic SL			**2.3**	**2.0**	**1.9**	**NE**	**NE**	**NE**	**NE**	**Varies**
USEPA RSL (residential) Noncarcinogenic SL (Child)			**32**	**39**	**37**	**NE**	**19**	**NE**	**NE**	**Varies**

Notes:
OCPs analyzed by USEPA method 8081A
DDD = Dichlorodiphenyldichloroethane
DDE = Dichlorodiphenyldichloroethylene
DDT = Dichlorodiphenyltrichloroethane
Sample results reported in milligrams per kilogram (mg/kg).
Bolded value denotes analyte detected
Shaded value = exceedance of one or more ESL
<1.0 = not detected above analytical laboratory Method Detection Limit (MDL)
NE = Not established
J = Estimated Value
P = Agreement between the quantitative dual-column confirmation results exceed method recommended limits of 40% RPD. The lowest concentration is reported.
RWQCB ESL = SF Bay Regional Water Quality Control Board Environmental Screening Level
(January 2019, Rev 2).
DTSC HHRA SL = Department of Toxic Substances Control Human Health Risk Assessment Screening Level
(June 2020, Revised May 2022).
USEPA RSL = United States Environmental Protection Agency Regional Screening Level
(Revised May 2023). (THQ = 1.0)

TABLE 4
Current Soil Analytical Results Summary - Arsenic
2511 Numa Watson Rd., Seaside, CA
Project No. 2215-2

Sample ID	Sample Date	Sample Depth (ft)	Arsenic
SB-28-0.5	1/10/2024	0-0.5	**1.4**
SB-40-0.5	1/10/2024	0-0.5	**2.0**
SB-60-0.5	1/11/2024	0-0.5	**1.4**
SB-85-0.5	1/11/2024	0-0.5	**1.2**
Blind Dup-1	1/10/2024	0-0.5	**1.2**
SB-87-05	1/10/2024	0-0.5	**1.1**
SB-88-0.5	1/10/2024	0-0.5	**1.1**
SB-89-0.5	1/10/2024	0-0.5	**1.2**
SB-90-0.5	1/10/2024	0-0.5	**0.65**
SB-91-0.5	1/10/2024	0-0.5	**0.77**
SB-92-0.5	1/10/2024	0-0.5	**0.95**
SB-93-0.5	1/10/2024	0-0.5	**0.98**
SB-94-0.5	1/10/2024	0-0.5	**1.8**
SB-95-0.5	1/10/2024	0-0.5	**1.4**
SB-96-0.5	1/10/2024	0-0.5	**1.4**
RWQCB ESLs (residential) Cancer Risk			**0.067**
RWQCB ESLs (residential) Non-Cancer			**0.26**
DTSC HHRA SL (residential) Cancer Endpoint			**0.11**
DTSC HHRA SL (residential) Noncancer Endpoint			**0.41**
USEPA RSL (residential) Carcinogenic SL			**0.68**
USEPA RSL (residential) Noncarcinogenic SL (Child)			**35**

Notes:
Lead ran by USEPA method 6010B
Sample results reported in milligrams per kilogram (mg/kg).
Bolded value denotes analyte detected
Shaded value denotes exceedance of applied ESL.
Total concentrations of metals analyzed by USEPA method 6010B
NA = Not analyzed
J = Estimated Value
Detection and quanitiation limits raised due to matrix interference for all samples (laboratory qualifier A10)
RWQCB ESL = SF Bay Regional Water Quality Control Board Environmental Screening Level (January 2019, Rev 2).
DTSC HHRA SL = Department of Toxic Substances Control Human Health Risk Assessment Screening Level (June 2020, Revised May 2022).
USEPA RSL = United States Environmental Protection Agency Regional Screening Level (Revised May 2023). (THQ = 1.0)
Sample Blind Dup-1 was subimtted as a blind duplicate of sample SB-85-0.5

Table 5
Current Soil Vapor Analytical Results Summary
2511 Numa Watson Rd, Seaside, CA
Project No. 2215-3

Sample ID	Sample Depth (ft)	Sample Date	VOCs																	Leak Check
			Benzene	Toluene	Ethylbenzene	Total Xylenes	PCE	TCE	Acetone	Carbon Disulfide	Dichlorodifluoromethane (Freon-12)	1,1-Dichloroethene	4-Ethyltoluene	n-Hexane	Methyl Ethyl Ketone (2-Butanone)	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	Trichlorofluoromethane	Trichlorotrifluoroethane (Freon 113)	1,2,4-Trimethylbenzene	Isopropanol (IPA)
SV-5-5	5	1/11/2024	<0.96	**1.2**	<1.3	<1.3	**2.2**	**5.1**	**7.2**	<0.93	**2.3**	**1.3**	<1.5	**2.3**	<4.4	<1.2	<1.7	**6.5**	<1.5	**8.8**
SV-5-15	15	1/11/2024	**21**	**26**	**5.5**	**20**	<2.0	<1.6	**37**	**21**	**2.4**	<1.2	**1.5**	**10**	**6.8**	<1.2	**2.3**	<2.3	**2.9**	**22**
SV-6-5	5	1/11/2024	<0.96	**1.7**	<1.3	<1.3	<2.0	<1.6	**9.1**	<0.93	**2.4**	<1.2	<1.5	<1.1	<4.4	<1.2	**2.7**	<2.3	<1.5	<3.7
SV-6-15	5	1/11/2024	**3.4**	**17**	**1.4**	**3.6**	<2.0	<1.6	**24**	**1.2**	**2.2**	<1.2	<1.5	**4.7**	**4.8**	**1.3**	**2.9**	<2.3	<1.5	<3.7
SV-7-5	5	1/11/2024	<0.96	**1.7**	<1.3	<1.3	<2.0	<1.6	**13**	<0.93	**2.1**	<1.2	<1.5	<1.1	<4.4	<1.2	**2.0**	<2.3	<1.5	**16**
SV-7-15	15	1/11/2024	**2.7**	**13**	**1.4**	**3.7**	<2.0	<1.6	**36**	**1.6**	**2.5**	<1.2	<1.5	**3.0**	**5.5**	<1.2	**3.3**	<2.3	<1.5	**13**
SV-8-5	5	1/11/2024	**9.3**	**32**	**2.5**	**7.4**	<2.0	<1.6	**27**	**6.9**	**2.1**	<1.2	<1.5	**14**	**6.0**	<1.2	**2.5**	<2.3	<1.5	<3.7
SV-DUP	5	1/11/2024	**9.2**	**33**	**2.5**	**7.5**	<2.0	<1.6	**25**	**6.7**	**2.2**	<1.2	<1.5	**12**	**8.4**	<1.2	**2.5**	<2.3	<1.5	<3.7
SV-8-15	15	1/11/2024	**18**	**36**	**3.9**	**11**	<2.0	**2.3**	**34**	**26**	**3.1**	<1.2	<1.5	**71**	**8.5**	<1.2	**12**	<2.3	**1.7**	<3.7
RWQCB ESLs (residential) Cancer Risk			3.2	NE	37	NE	15	100	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	--
RWQCB ESLs (residential) Non-Cancer			100	10,000	35,000	3,500	1,400	290	1.1E+06	NE	NE	2,400	NE	NE	170,000	100,000	NE	NE	NE	--
DTSC HHRA SL (residential) Cancer Endpoint			3.2	NE	NE	NE	15	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	--
DTSC HHRA SL (residential) Noncancer Endpoint			102	10,230	NE	NE	NE	NE	NE	NE	NE	2,409	NE	NE	NE	NE	42,900	42,900	NE	--
USEPA RSL (residential) Carcinogenic SL			11.9	NE	36	NE	NE	16	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	--
USEPA RSL (residential) Noncarcinogenic SL (Child)			10,230	171,600	33,000	3,300	NE	69	NE	24,090	3,300	6,930	NE	24,090	171,600	102,300	NE	NE	2,079	--
Short-term Action Level for TCE (res)			--	--	--	--	--	67	--	--	--	--	--	--	--	--	--	--	--	--

Notes:
VOC sample results reported in micrograms per liter (µg/m^3).
<#.# = not detected above analytical laboratory Method Detection Limit (MDL)
NE = ESL not established
-- = Not applicable
PCE = Tetrachloroethene
TCE = Trichloroethene
VOCs analysed by USEPA Method TO-15
Bolded value denotes detection above laboratory MDL
Shaded value denotes exceedance of one or more ESLs
RWQCB ESL = San Francisco Bay Regional Water Quality Control Board Environmental Screening Level (January 2019, Rev. 2).
The listed ESLs are based on Direct Exposure, Human Health Risk Levels for a commercial/industrial scenario (Table SG-1).
DTSC HHRA SL = Department of Toxic Substances Control Human Health Risk Assessment Screening Level
(June 2020, Revised May 2022).
USEPA RSL = United States Environmental Protection Agency Regional Screening Level
(Revised May 2023). (THQ = 1.0)
DTSC HHRA SLs and USEPA RSLs derived by applying an attenuation factor of 0.03 to ambient air SLs and RSLs, per DTSC guidance
Sample SV-DUP was subimtted as a blind duplicate of sample SV-8-5

Table 6
Trip Blank Analytical Results Summary

2511 Numa Watson Road, Seaside, CA
Project No. 2215-3

Sample ID	Sample Date	TPH	VOCs				
		GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	Other Analyzed VOCs
Trip Blank-1	1/10/2024	**15 J**	<0.0340	<0.0960	<0.140	<0.50	ND

Notes:
Sample results reported in micrograms per liter (µg/L).
TPH = total petroleum hydrocarbons
GRO = Gasoline range organics
VOCs = volatile organic compounds
ND = not detected above laboratory MDL
J = Estimated value (greater than MDL but below RL)
Bold entry denotes analyte detection
TPH analyzed by USEPA Method 8015B
VOCs analyzed by USEPA Method 8260D

TABLE 7
QA/QC Results: Relative Percent Difference
2511 Numa Watson Rd., Seaside, CA
Project No. 2215-2

Primary Sample ID	Duplicate Sample ID	Media	Units	Analyte	Primary Sample Results	Duplicate Sample Result	RPD (%)	RPD Precision Goal (%)
SB-85-0.5	Blind Dup-1	Soil	mg/kg	Hexavalent Chromium	0.16 J	<0.092	>54.0	50
SB-85-0.5	Blind Dup-1	Soil	mg/kg	Arsenic	1.2	1.2	0.0	50
SV-8-5	SV-DUP	Soil Vapor	µg/m^3	Benzene	9.3	9.2	1.1	50
SV-8-6	SV-DUP	Soil Vapor	µg/m^3	Toluene	32	33	3.1	50
SV-8-7	SV-DUP	Soil Vapor	µg/m^3	Ethylbenzene	2.5	2.5	0.0	50
SV-8-8	SV-DUP	Soil Vapor	µg/m^3	Total Xylenes	7.4	7.5	1.3	50
SV-8-9	SV-DUP	Soil Vapor	µg/m^3	Acetone	27	25	7.7	50
SV-8-10	SV-DUP	Soil Vapor	µg/m^3	Carbon Disulfide	6.9	6.7	2.9	50
SV-8-11	SV-DUP	Soil Vapor	µg/m^3	Dichlorodifluoromethane (Freon-12)	2.1	2.2	4.7	50
SV-8-12	SV-DUP	Soil Vapor	µg/m^3	n-Hexane	14	12	15.4	50
SV-8-13	SV-DUP	Soil Vapor	µg/m^3	Methyl Ethyl Ketone (2-Butanone)	6.0	8.4	33.3	50
SV-8-14	SV-DUP	Soil Vapor	µg/m^3	Trichlorofluoromethane	2.5	2.5	0.0	50

Notes:

Shaded value = exceedance of RPD Precision Goal
<#.# = not detected above analytical laboratory Method Detection Limit (MDL)
J = Estimated Value

APPENDIX A

DTSC DIRECTIVE LETTER (DECEMBER 28, 2023

Department of Toxic Substances Control

Yana Garcia
Secretary for
Environmental Protection

Meredith Williams, Ph.D., Director
1515 Tollhouse Road
Clovis, California 93611

Gavin Newsom
Governor

December 28, 2023

Chartwell School
c/o Danielle Patterson
2511 Numa Watson Road
Seaside, California 93955

CHARTWELL PROPOSED HIGH SCHOOL: REVISED ADDITIONAL SITE CHARACTERIZATION WORKPLAN. SEASIDE CALIFORNIA

Dear Ms. Patterson:

The Department of Toxic Substances Control (DTSC) reviewed the Revised Additional Site Characterization Workplan (Workplan) for the Chartwell Proposed High School located at 2511 Numa Watson Road, Seaside California (Site) dated December 18, 2023. The Workplan proposes a limited soil and soil gas investigation to delineate hexavalent chromium impacts to soil and to delineate benzene impacted soil gas. The Workplan was prepared in accordance with the Standard Voluntary Agreement (SVA) (Site Code: 204339 and Docket Number: HSA-FY22/23-124) signed August 3, 2023.

DTSCs Clovis Office review of the subject document, dated December 18, 2023, yielded the additional comment below.

DTSC Clovis Office Specific Comment

- Section 3.0 – General Scope of Proposed Work: The Workplan proposes to advance ten temporary soil borings to 6" below ground surface (bgs) in the undisturbed perimeter area of the Site. Soil samples will be collected from 0 to 6" bgs from these borings and analyzed for arsenic. Additionally, the Workplan proposes to analyze shallow (0 to 6" bgs) soil samples from two borings advanced in the former building areas and two borings in the paved areas for arsenic. Samples collected from the borings in the former building areas and in the paved areas can be used as a comparison to the ten temporary soil borings but not as part of the site-specific arsenic background level. The proposed ten borings shall be used to establish a site-specific arsenic background level.

DTSC has no additional comments, therefore, the subject Workplan is approved.

Should you have questions regarding this letter, please contact the undersigned at (559) 578-8173 or at Daniel.Ochoa@dtsc.ca.gov.

Sincerely,

Daniel Ochoa

Daniel Ochoa
Engineering Geologist
Site Mitigation and Restoration Program
California Department of Toxic Substances Control

cc: Via email

Joseph Tapia, P.E.
Unit Chief, DTSC
Joseph.Tapia@dtsc.ca.gov

Peter Littman
Sr. Project Manager
Environmental Investigation Services, Inc
plittman@eis1.net

DO: sc
DO07.1223

Appendix F

Vehicle Miles Travelled Analysis

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HEXAGON TRANSPORTATION CONSULTANTS, INC.

Memorandum

Date: September 23, 2024

To: Robyn Simpson, Denise Duffy & Associates

From: Ollie Zhou, T.E.

Subject: Chartwell School Expansion VMT Analysis

Hexagon Transportation Consultants, Inc. has completed a Vehicle Miles Traveled (VMT) analysis for the proposed expansion of the Chartwell school located at 2511 Numa Watson Road in Seaside, CA (see Figure 1). The project proposes to expand the existing campus to increase the student enrollment from 200 to 395 and the faculty and staff from 72 to 112.

Vehicle Miles Traveled

Historically, transportation analysis has utilized delay and congestion on the roadway system as the primary metric for the identification of traffic impacts and potential roadway improvements to relieve traffic congestion that may result due to proposed/planned growth. However, the State of California has recognized the limitations of measuring and mitigating only vehicle delay at intersections, and in 2013, passed Senate Bill (SB) 743, which requires jurisdictions to stop using congestion and delay metrics, such as Level of Service (LOS), as the measurement for CEQA transportation analysis. With the adoption of SB 743 legislation, public agencies are now required to base the determination of transportation impacts on Vehicle Miles Traveled (VMT) rather than on level of service. The intent of this change is to shift the focus of transportation analysis under CEQA from vehicle delay and roadway auto capacity to a reduction in vehicle emissions and the creation of robust multimodal networks that support integrated land uses.

VMT is generally defined as the total miles of travel by personal motorized vehicles that a project is expected to generate in a day. VMT is calculated using the Origin-Destination VMT method, which measures the full distance of personal motorized vehicle trips, with one trip-end being the project.

AMBAG Travel Demand Model

The latest travel demand forecast model that represents travel within the City of Seaside is the Association of Monterey Bay Area Governments (AMBAG) Tri-County transportation model. This model serves as the primary forecasting tool for the City and is currently the best available analytical tool for VMT evaluations. The model is a mathematical representation of travel within the three counties in the Monterey Bay Region and is mainly composed of four main components: 1) trip generation, 2) trip distribution, 3) mode choice, and 4) trip assignment. The model uses socioeconomic inputs (i.e. households, number of jobs, hotel rooms) to estimate travel within Monterey County, Santa Cruz County, and San Benito County. Socioeconomic inputs are aggregated into geographic areas (transportation analysis zones). There are 1,673 traffic analysis zones (TAZs) within the model to represent the three counties. The City of Seaside is represented by 46 TAZs.

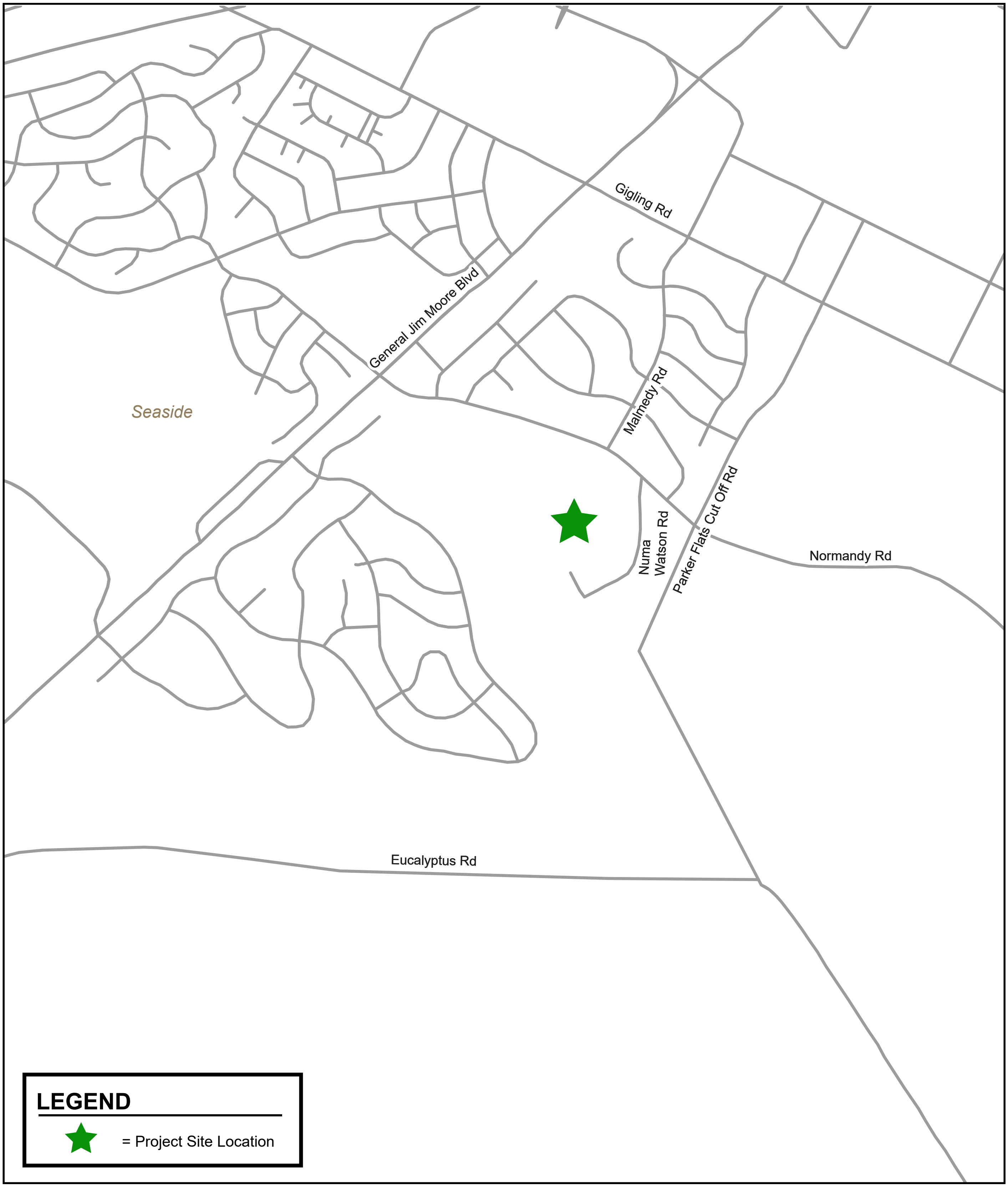

Figure 1
Project Site Location

VMT Analysis Methodology

Pursuant to SB 743, the Office of Planning and Research (OPR) published the finalized *Updates to the CEQA Guidelines* in November 2017. The guidelines stated that Level of Service will no longer be considered an environmental impact under CEQA and consider vehicle-miles-traveled (VMT) the most appropriate measure of transportation impact. The City of Seaside has not formally adopted its own VMT policies. This study utilizes OPR's *Technical Advisory on Evaluating Transportation Impacts in CEQA*, published in December 2018, for the VMT analysis methodology and impact thresholds.

Metrics and Impact Criteria

VMT Threshold for Employees

The school will increase both staff and student enrollment. Staff is evaluated as employees for VMT purposes. Per OPR's technical advisory, for employment-generating projects, the project's home-to-work VMT is divided by the number of jobs to determine the VMT per job. As stated in the technical advisory, OPR recommends an impact threshold of 15% below the existing VMT levels for employment-generating developments. OPR allows the existing VMT to be defined as the regional average VMT per capita or the county average VMT per capita. For the purpose of this study, the VMT threshold is defined as 15% below the existing Monterey County average for employment land use.

The AMBAG model has an existing scenario only for year 2015. Therefore, existing VMT references AMBAG's year 2015 results. Based on the AMBAG model, the existing (year 2015) county average daily employment VMT per job is 11.0. The VMT threshold (shown in Table 1 below) will thus be set at 9.4 daily vehicle miles traveled (15% below the average).

VMT Threshold for Students

OPR's technical advisory does not provide guidance on evaluating VMT for student enrollment increases. For the purpose of this analysis, student enrollment VMT will be calculated as total VMT per student. The project will generate a potential significant VMT impact if its proposed students' VMT per student is greater than the school's existing VMT per student.

VMT Analysis

Staff VMT

The school is located in Traffic Analysis Zone (TAZ) 787 in the AMBAG model. Under existing conditions, the TAZ's employment VMT per job is 9.0 (see Table 1), which is below the VMT impact threshold of 9.4 (15% below the County average). Therefore, the project's proposed staff increase would generate a ***less than significant VMT impact***.

Student VMT

As discussed above, for this project, the student VMT analysis will compare the school's existing VMT per student against the proposed student enrollment increase. To make the analysis comparable, the following assumptions are made for both the existing VMT and proposed VMT analysis:

- Currently, 87 students (or 43.5%) carpool to the school. For this analysis, this carpool rate is assumed for both the existing and proposed VMT analysis.
- Parents are assumed to make two round trips from home to school on a daily basis. One round trip in the morning and one round trip in the evening.

Table 1
Faculty and Staff VMT Analysis

Year 2015 Existing	Employment VMT per Employee [1]
Monterey County Average	11.0
Impact Threshold [2]	9.4
Project Site (TAZ 787)	9.0
VMT Impact?	**No**

Notes:
Data referenced the AMBAG travel demand model.
1. Employment VMT per employee accounts only for home-based work VMT.
2. Neither the City of Seaside nor the County of Monterey has adopted VMT thresholds. Therefore, this impact threshold is calculated using OPR's technical advisory, which suggested 15% below the county average.

Existing Student VMT

The Chartwell school provided its zip code-level enrollment data for the 2024-2025 school year. As shown on Figure 2 and Table 2 below, approximately 60% of the school's existing students are from Monterey County, 29% from Santa Cruz County, and 8% from Santa Clara County. Based on the student's zip code information, Chartwell students travel, on average, 26.7 miles to the school, as shown in Table 3. With the assumptions described above, Chartwell's existing student VMT would be 60.3 VMT per student (60.3 VMT per student = 26.7 miles/student * 43.5% carpool rate * 4 trips/day).

Table 2
Existing Number of Students by County

County	Number of Students	Percentages
Monterey	120	60%
Santa Cruz	58	29%
Santa Clara	17	8%
San Benito	2	1%
Alameda	1	1%
Contra Costa	1	1%
San Mateo	1	0%
Total	**200**	**100%**

Proposed Student VMT

The project proposes to increase student enrollment by 195 students. There are no zip code-level data regarding these proposed students' home locations. However, it is expected that Chartwell would generally attract students from within the same geographic area as its existing student catchment area. Hexagon developed the following methodology to estimate these 195 students' VMT:

- The percentage of students generated from each County is assumed to be the same as Chartwell's existing students (see Table 2 above).
- Within each County, the percentage of students coming from each City is estimated based on each City's population. It is assumed that cities with higher populations will likely have more students attending the school.

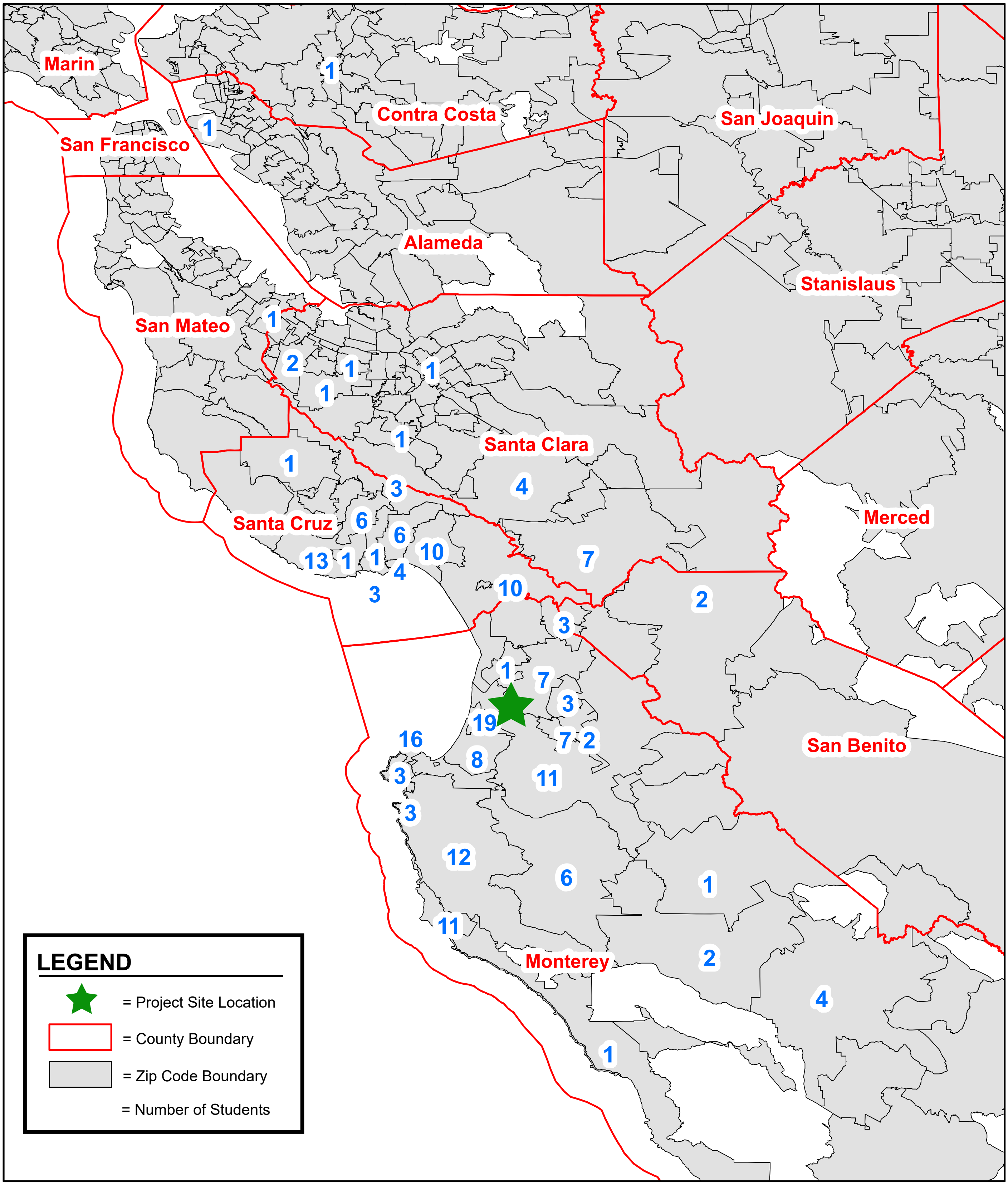

Figure 2
Existing Number of Students by Zip Code

Using the above methodology, Hexagon estimated that the proposed enrollment increase of 195 students would generate 62.1 VMT per student, which is above the existing VMT of 60.3 per student (see Table 3). As a result, the proposed student enrollment increase would generate a potentially significant VMT impact. To eliminate the VMT impact, the proposed enrollment increase of 180 students would need to reduce their VMT by 3.0%.

Expanded School

It is expected that any VMT mitigation measures will be available to all students at the school, not just to the proposed enrollment increase of 195 students. Therefore, while the VMT analysis indicates that the project (for the additional 195 students) would require a 3.0% VMT mitigation, the mitigation measures need to reduce the expanded school (at 395 students)'s VMT by only 1.5% to achieve the same VMT mitigation effectiveness (see Table 3).

The following section discusses potential TDM measures that the project can implement.

Table 3
Student VMT Analysis

Scenario	Number of Students	VMT per Student	Total VMT
Existing School	200	60.3	12,060
Proposed Enrollment Increase	195	62.1	12,110
Expanded School	395	61.2	24,170
Percent Changes vs. Existing School			
Proposed Enrollment Increase	--	*3.0%*	--
Expanded School	--	*1.5%*	--

Potential Mitigation Measures

As discussed above, the school currently has 87 students (43.5% of all students) carpooling to school. With the increased enrollment, it is expected that there will be a greater percentage of students who can find carpooling opportunities. The school is also exploring the use of a third-party app to help its students find carpooling opportunities.

The school also has 7 students (3.5% of all students) who are related to staff members. Similarly, with the increased enrollment, there is potential for a greater percentage of students to be related to staff members. These students could potentially be driven to school by their related staff members.

The VMT analysis requires the proposed expanded school to reduce its student VMT by 1.5%. This means that with 43.5% of students currently carpooling, the expanded school, which will have 395 students, would need to increase the carpooling rate to 45.0% (or 178 students) to eliminate its VMT impact. This VMT reduction is achievable through an aggressive carpooling campaign, such as utilizing a third-party app to facilitate student carpooling, as the school is beginning to explore.

As mitigation to its VMT impact, the project would need to prepare a Travel Demand Management (TDM) plan that outlines its proposed strategies to reduce the school's VMT by increasing carpooling. The TDM plan would also require a monitoring component so that the City can ensure the school is achieving its VMT reduction targets. With the proposed VMT mitigation measure, the project's VMT impact would be ***less than significant with mitigation.***