September 2025 | Initial Study / Mitigated Negative Declaration

NORTH POINT ISABEL PARK CAP RESILIENCE PROJECT

East Bay Regional Park District

Prepared for:

East Bay Regional Park District
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ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

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.

ENVIRONMENTAL CHECKLIST

☐ 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 of Lead Agency Representative	Date
Printed Name	East Bay Regional Park District Agency

1. INTRODUCTION

1.1 Purpose and Scope

Pursuant to the California Environmental Quality Act (CEQA) (California Public Resources Code Sections 21000 et seq.) and the Guidelines for Implementation of the California Environmental Quality Act (State CEQA Guidelines) (California Code of Regulations, Title 14, Sections 15000 et seq.), as amended, this Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared to identify the potential environmental impacts associated with the repair and restoration of the landfill cap that covers a landfill at North Point Isabel, a 17-acre area of Point Isabel Regional Shoreline in Richmond, California, and the installation of park amenities and landscape improvements (herein referred to as the proposed project). This IS/MND evaluates each of the environmental issues listed in Section 5, *Environmental Evaluation*. The objective of this IS/MND is to inform the East Bay Regional Park District (District), representatives of other affected/responsible agencies, and other interested parties of the potential environmental effects that may be associated with the development and operation of the proposed project and to recommend mitigation measures, when required by CEQA, to reduce potentially significant environmental impacts.

Pursuant to the provisions of CEQA and the State CEQA Guidelines, the East Bay Regional Park District is the Lead Agency and is charged with the responsibility of deciding whether or not to approve the proposed project.

1.2 Findings of this Mitigated Negative Declaration

This IS/MND is based on an environmental checklist, as suggested in Section 15063(d)(3) of the State CEQA Guidelines, as amended and provided in Section 3, *Environmental Evaluation*. Section 3 includes a series of questions about the proposed project for each of the listed environmental topics. The environmental checklist evaluates whether there would be significant environmental effects associated with the development of the proposed project and provides mitigation measures, when required, to reduce impacts to a less than significant level. An explanation for each answer is also included in Section 3.

The IS/MND reviews the potential environmental effects of the proposed project for each of the following areas:

- 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

As identified through the analysis presented in this IS/MND, the proposed project would have no impact or a less-than-significant impact without mitigation for all environmental topics except the following:

- **Biological resources.** The proposed project could result in potentially significant impacts to biological resources. Implementation of Mitigation Measure BIO-1 through Mitigation Measure BIO-9 would reduce impacts to a less-than-significant level.
- **Cultural resources.** The proposed project could result in potentially significant impacts to cultural resources. Implementation of Mitigation Measures CUL-1 and CUL-2 would reduce impacts to a less-than-significant level.
- **Geology and soils.** The proposed project could result in a potentially significant impact to paleontological resources. Implementation of Mitigation Measure GEO-1 would reduce this impact to a less-than-significant level.
- **Tribal cultural resources.** The proposed project could result in a potentially significant impact to tribal cultural resources. Implementation of Mitigation Measure TCR-1 would reduce this impact to a less-than-significant level.

1.3 Contact Person

The Lead Agency for the proposed project is the East Bay Regional Park District. Any questions about the preparation of the IS/MND, its assumptions, or its conclusions should be referred to the following:

Kim Thai, Senior Planner
East Bay Regional Park District
2950 Peralta Oaks Court
Oakland, California 94605
(510) 544-2320

2. PROJECT DESCRIPTION

2.1 Project Location and Setting

Point Isabel Regional Shoreline is part of the State of California's McLaughlin Eastshore State Park and is operated by the East Bay Regional Park District (see Figure 1, *Point Isabel Regional Shoreline Cap Resilience Project Regional Setting*). The Eastshore State Park encompasses approximately 2,262 acres of tideland and upland area and extends roughly 8.5 miles along the shore of the San Francisco Bay, from the Bay Bridge in Oakland north to the Marina Bay neighborhood in the City of Richmond (California State Parks and Recreation 2002).

This project site was identified as being vulnerable to tidal inundation and storm flooding in the District's Sea Level Rise Risk Assessment and Prioritization Plan (EBRPD 2021). North Point Isabel Regional Shoreline's bayside perimeter trail is particularly vulnerable to storm flooding with its earthen levee currently residing at around 13 feet above mean sea level (amsl).

The City of Richmond General Plan land use designation and zoning for the project site is Open Space. The area surrounding the project site is currently characterized by the Richmond Inner Harbor/San Francisco Bay to the north and west, and open space to the east and south.

Point Isabel is a designated off-leash dog area, and use of this area has expanded north to a portion of the park informally known as North Point Isabel (herein referred to as the project site). Prior to acquisition by California State Parks / East Bay Regional Park District, the project site was used as a dumping ground for construction/demolition and industrial waste. The man-made fill was limited to dumping on the ground. No natural landforms were used for placement of the waste at the project site. The project site became known as the Battery Point due to a large quantity of battery casings that were buried at the project site during the 1950s and 1960s (EKI Environmental & Water 2018). The project site became the subject of an environmental cleanup in the 1980s under Abatement Order Number 84-006 from the Regional Water Quality Control Board-San Francisco Bay (RWQCB) (Regional Water Quality Control Board-San Francisco Bay 1984). The cleanup effort involved preparation and implementation of a Remedial Action Plan (RAP) that required removal of battery casings and lead-impacted soils that were then disposed of off-site, construction of a clay cap over the landfill, and long-term monitoring of the shoreline and cap, with maintenance as required (EKI Environmental & Water 2018). Ongoing monitoring requirements for the project site were identified in Abatement Order Number 87-14.

Figure 1 Point Isabel Regional Shoreline Cap Resilience Project Regional Setting

Source: Tetra Tech.

Figure 1

North Point Isabel Regional Shoreline Cap Resilience Project Regional Setting

Since that time, annual inspections by the RWQCB have indicated that the landfill cap is eroding. Lead-contaminated soils have been detected in the perimeter drainage ditch, Hoffman Channel, and other areas and are likely discharging with stormwater into the San Francisco Bay. The RWQCB issued a Site Cleanup Requirement Order Number 98-072 in 1998 requiring repair of the degraded landfill cap.

2.2 Proposed Project

Through a funding partnership with California State Parks, the proposed project seeks to beautify and improve the project site's resilience to sea level rise by enhancing the existing remedial cap to provide long-term, sustainable recreational use of the park through effective grading, drainage, and planting to prevent soil erosion. The proposed project has five primary goals:

- Provide sea level rise resilience by raising the site's elevation with import soils and increased rock slope protection along the shoreline.
- Effectively stabilize the cap by raising the site's elevation above pre-existing classified soils. Install a new paved and gravel trail network to provide universal site access.
- Grade planted slopes and install a continuous vegetated swale to reduce soil erosion and filter sediments from site-generated stormwater before discharge into the San Francisco Bay.
- Provide more site furnishings to enhance and improve the user experience of the large off-leash dog area.
- Install resource protection fencing to prevent dogs from reaching shorebirds in the adjacent mudflats.

2.2.1 Construction

For the sea level rise resilience/shoreline stabilization design, the District's consulting engineers considered improvements based on projections for the year 2050 and 2100. The projections for each year according to the State of California's Sea-Level Guidance document (2018) are listed in Table 1, *Sea Level Rise Scenarios*.

Table 1 Sea Level Rise Scenarios

Year	Risk/Emissions	Sea Level Rise
2050	Low Risk	1.1
2050	High Risk	1.9
2100	Low Risk, Low Emissions	2.4
2100	Low Risk, High Emissions	3.4
2100	High Risk, Low Emissions	5.7
2100	High Risk, High Emissions	6.9

Source: State of California 2018.

The project's design criteria used the 2100 projections to calculate various projected heights of the proposed project. Specifically, the High Risk, Low Emissions projection was used for the increase in the height of the slope rock protection (5.7 feet amsl) and the High Risk, High Emissions projection was used for the increased elevation of the perimeter trail (6.9 feet amsl) plus the added King Tide Water of 7.4 (totaling 13.1 and 14.3 amsl). To accomplish these elevations, the proposed project would add soils to increase the elevation of the perimeter trail by 1.5 to 2 feet above the 14.3 amsl elevation and rip rap to increase the rock slope protection above 13.1 amsl.

The effort to protect against sea level rise would bring approximately 72,500 cubic yards of new fill and 26,500 square feet of rip rap to the project site to be placed on top of the existing soil surfaces and rocked slopes to raise the elevation of the perimeter trail and the rock slope protection.

To remediate the degraded landfill cap, a geomembrane liner would be installed under the new perimeter trail and swale to encapsulate the previously placed lead-impacted soils beneath the cap. The geomembrane would also be installed under locations where new rip rap is placed over the new fill. During placement of the new fill, the surface of the landfill would be graded for erosion control and to improve drainage to existing stormwater flow catch basins.

Construction equipment associated with the proposed project could include a paver, roller, flatbed truck, front end loader, dump truck, backhoe, grader, and compactor. In addition, construction of the proposed project would result in up to 80 haul truck trips per day for up to 110 days. The anticipated total construction duration of the proposed project ranges from 6 to 24 months depending on soil source availability and weather. Ideally, construction activities would take place outside of avian nesting season.

During construction, perimeter trails would be reconstructed and/or repaved to reduce erosion and improve stormwater drainage off the cap and into existing stormwater flow catch basins. Construction activity would be conducted within the existing trail width and would not encroach on open space parkland. Stormwater runoff would be directed into vegetated swales prior to being discharged from the project site into the local stormwater management system. Figure 2, *North Point Isabel Cap Resilience Project Construction Elements*, provides details for the rise in elevation of the project site surface that would result from the proposed cap improvement as well as stormwater management features.

Construction vehicles and equipment would access the project site from the southeastern entrance point using Rydin Road. Equipment would cross Hoffman Channel using the existing bridge. During construction, equipment could be staged at the project site or to the west of the project site across Hoffman Channel Bridge on the northern edge of the parking lot, as shown in Figure 1, *Point Isabel Regional Shoreline Cap Resilience Project Regional Setting*. The potential construction staging area could be used for a variety of things, including parking, equipment, and vehicle storage.

2.2.2 Park Amenities and Landscape Improvements

Once the project's final elevation and shoreline armoring are complete, park amenities for the beautification and enhanced use of the site as an off-leash dog use area would be installed. Access to the project site would be provided in the southeastern and northeastern corners and would include a paved perimeter trail and interior compacted gravel trails, as shown in Figure 3, *North Point Isabel Cap Resilience Project Amenities*. Vista seating and viewing areas that would include site furnishings would be created at focal points across the project site, as shown in Figure 3. Log and boulder clusters would be placed in two locations within the interior of the project site. The surface of the cap would be contoured to provide more aesthetic appeal to park users.

Landscaping of the project site would be used to enhance the aesthetics once the cap has been constructed and while park amenities are being installed. Native plants would be used for the landscaped elements and chosen for their ability to grow in a nonirrigated, coastal environment. Plants would be selected with shallow-growing root systems to prevent interference with the geomembrane and for their capability to withstand heavy dog traffic and deer browsing. A natural grass turf would be hydroseeded on the surface of the project site between interior trails, as shown in Figure 3.

Figure 2 North Point Isabel Cap Resilience Project Construction Elements

Source: Tetra Tech.

Figure 2

North Point Isabel Cap Improvement Project Construction Elements

Figure 3 North Point Isabel Cap Resilience Project Amenities

Source: East Bay Regional Park District 2023.

Figure 3
North Point Isabel Cap Resilience Project Amenities

2.2.3 Operations

Once the sea level rise resilience activities and installation of park amenities and landscape improvements are complete, the project site would resume operation as a park. Routine landscaping maintenance and repairs to the dog park areas would be conducted by the East Bay Regional Park District.

2.3 Project Approvals

This IS/MND will be used by the East Bay Regional Park District Board of Directors, the CEQA Lead Agency, in its consideration of whether to approve the proposed project. If approved, this IS/MND would be used by the East Bay Regional Park District when seeking various approvals and permits. The following approvals and permits may be required prior to implementation of the proposed project:

- City of Richmond Grading Permit
- Bay Coastal Development Commission Permit
- Stormwater Pollution Prevention Plan

In addition, the District has engaged in informal consultation with the San Francisco Regional Water Quality Control Board as part of the design of the proposed project. The design of the proposed project is anticipated to be acceptable to the San Francisco Regional Water Quality Control Board.

3. ENVIRONMENTAL EVALUATION

This section contains the environmental checklist for the proposed project. The checklist is marked with findings as to the environmental effects of the proposed project.

This analysis has been undertaken pursuant to the provisions of CEQA, as amended, to provide the East Bay Regional Park District with the factual basis for determining, based on the information available, the form of environmental documentation the proposed project warrants. The basis for each of the findings listed in the form is explained under the "Explanation of Checklist Answers" heading following each section of the checklist.

ENVIRONMENTAL CHECKLIST FORM

East Bay Regional Park District **2950 Peralta Oaks Court** **Oakland, California 94605**	
Project Title	North Point Isabel Cap Resilience Project
Lead Agency Name and Address	East Bay Regional Park District
Contact Person and Phone Number	Kim Thai (510) 544-2320
Project Location	Richmond, California
Project Sponsor's Name and Address	East Bay Regional Park District 2950 Peralta Oaks Court Oakland, California 94605
General Plan Designation	Open Space
Zoning Designation	Open Space (OS)
Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?	No

Project Best Management Practices

The following BMPs would be implemented as part of the proposed project during cap remediation activities to reduce project-related impacts to adjacent areas, maintain worker

safety, minimize impacts from hazardous materials spills, maintain emergency access, protect water quality, natural resources, and prevent fires.

Construction BMPs

1. All construction activities for remediating the landfill cap shall be done from an upland position. No work shall originate from the San Francisco Bay.

2. No construction equipment is expected to be operated below the high tide line, and no construction shall occur below the high tide line in Hoffman Channel.

3. No construction shall occur within 50 feet of suitable Salt Harvest Mouse habitat during any extreme high tide events (defined as exceeding mean higher high water elevation by over 1.5 feet).

4. The San Francisco Bay Trail shall remain open as much as possible during construction, and orange construction fencing shall be installed on either side of the trail. Temporary closure of the trail during peak material delivery periods may occur and shall be publicized in advance along with detour plans. Trail users may occasionally be temporarily stopped by a flagman to allow construction vehicle access to the project site. Pedestrian notices and caution signs shall be installed.

5. Hazardous materials used for construction shall not be stored or used where they could affect nearby properties or where they might enter Hoffman Channel, the San Francisco Bay, or the local stormwater management system.

6. The construction contractor shall prepare and implement a spill prevention and control plan to minimize the chance of spilling hazardous materials used during construction operations. Spill kits shall be present for any work adjacent to open waters. All spills of oil and other hazardous materials shall be immediately cleaned up and contained. Any hazardous materials cleaned up or used on-site shall be properly disposed of at an approved disposal facility.

7. The project shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) to limit erosion and protect water quality surrounding the project site.

8. The construction contractor shall implement erosion control measures as described in the SWPPP, such as silt fencing in areas of ground disturbance.

9. Construction workers associated with the earthwork movement portion of the project shall be trained and current with Hazardous Waste Operations and Emergency Response (HAZWOPER) standards for general industry (29 CFR 1910.120) and construction (29 CFR 126.65).

10. The construction contractor and all subcontractors shall prepare a project-specific Health and Safety Plan. The Health and Safety Plan shall include an air quality monitoring plan that includes lead.

11. Any materials removed during site preparation and determined to be unsuitable for re-use shall be disposed of off-site according to current laws and regulations. If materials are characterized as hazardous waste, a hazardous materials license contractor and transporter shall handle and transport the materials to a disposal facility permitted to receive the waste, in accordance with California laws.

Air Quality BMPs

The Bay Area Air District (Air District) recommends BMPs to ensure minimal impacts on regional air quality. The contractor shall be responsible for implementing the following BMPs during construction:

1. All exposed soil surfaces (e.g., parking areas, staging areas, soil piles, graded areas) shall be watered as needed.

2. All haul trucks transporting cap material on-site and from off-site sources shall be covered.

3. All visible mud or dirt tracked out onto adjacent public roads or the San Francisco Bay Trail shall be removed using a street sweeper at least once per day or as needed.

4. Idling times of construction equipment shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure in 13 CCR Section 2485).

5. Clear signage shall be provided for construction workers at all access points.

6. All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specification.

7. A publicly visible sign with the telephone number and person to contact at the East Bay Regional Park District regarding any dust complaints shall be posted in or near the project site. The contact person will respond to complaints and take corrective action within 48 hours. The Air District phone number shall also be visible to ensure compliance with applicable air quality regulations.

Noise BMPs

The contractor shall implement the following noise BMPs during construction to ensure minimal impacts on adjacent park users.

1. Construction hours shall be clearly posted on a sign at the entrance to the construction site.

2. Land uses adjacent to the construction site shall be notified of the construction schedule in writing. The East Bay Regional Park District construction manager shall be responsible for responding to any noise complaints and a contact telephone number shall be posted at the construction site.

3. All equipment used on-site shall be muffled and maintained. All internal combustion engine-driven equipment shall be fitted with mufflers that are in good condition.

4. Unnecessary idling of internal combustion engines shall be prohibited, and all equipment shall be turned off when not in use.

5. Quiet construction equipment, particularly air compressors, shall be selected whenever possible. Motorized equipment shall be fitted with proper mufflers in good working order and appropriate for the equipment.

6. Heavy equipment, such as paving and grading equipment, shall be stored on-site to minimize the need for extra heavy truck trips on local streets.

7. The contractor shall minimize the use of vehicle backup alarms. A common approach to minimizing the use of backup alarms is to design the construction site with a circular flow pattern that minimizes backing up of trucks and other heavy equipment.

3.1 Aesthetics

Except as provided in Public Resources Code Section 21099, would the project:	**Potentially Significant Impact**	**Less-than-Significant Impact with Mitigation Incorporated**	**Less-than-Significant Impact**	**No Impact**
a) Have a substantial adverse effect on a scenic vista?			**X**	

Except as provided in Public Resources Code Section 21099, would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				**X**
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?			**X**	
d) Create a new source of substantial light or glare that will adversely affect day or nighttime views in the area?				**X**

References: California Department of Conservation 2023.

3.1.1 Environmental Setting

The project site is located along the eastern edge of the San Francisco Bay in the City of Richmond, along the Point Isabel Regional Shoreline. The project site provides views of the San Francisco Bay, the Golden Gate Bridge, and surrounding hills. The San Francisco Bay Trail runs along the eastern boundary of the project site and can be accessed from the northeastern corner of the project site. Hoffman Marsh, a preservation area, is located northeast of the San Francisco Bay Trail and the project site.

Based on a review of the California Department of Transportation Scenic Highway Mapping Program, the project site is not located within a viewing corridor of a State-designated scenic highway (California Department of Conservation, 2023). The closest highway that is eligible for designation as a scenic highway is a portion of Interstate 580 (I-580) adjacent to Golden Gate Fields and approximately 1.3 miles southeast of the project site.

3.1.2 Explanation of Checklist Answers

A) LESS-THAN-SIGNIFICANT IMPACT

The project site offers high-quality views of the San Francisco Bay, the Golden Gate Bridge, and surrounding hills that are considered scenic vistas. The proposed project would install park

amenities and landscape improvements such as vista seating and viewing areas that would be beneficial improvements to existing scenic vistas. However, during construction, construction equipment would be visible from adjacent areas. Construction equipment would be temporarily staged on-site but would be parked as far back from the shoreline and San Francisco Bay Trail as possible. Construction activity would be temporarily visible from the San Francisco Bay and adjacent areas. Once construction is complete, the project site would resume its existing use as a park with enhanced features. Any adverse effect on a scenic vista would be temporary and the proposed project would not have a substantial adverse effect on a scenic vista. Therefore, a **less-than-significant impact** would occur.

B) NO IMPACT

The project site is not located within a viewing corridor of a designated State scenic highway. Additionally, no rock outcroppings, trees, or historic buildings are present at the project site. Therefore, the proposed project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway, and **no impact** would occur.

C) LESS-THAN-SIGNIFICANT IMPACT

An "urbanized area," as defined by CEQA Section 21071, is an incorporated city that either has a population of at least 100,000 persons, or a population of 100,000 persons if the population of that city and not more than two contiguous incorporated cities combined equals at least 100,000 persons. The project site is in the City of Richmond, which has a population of over 116,000 and is adjacent to another incorporated city (United States Census Bureau 2020). Thus, this impact analysis addresses whether, for an urbanized area, the proposed project would conflict with applicable zoning and other regulations governing scenic quality.

The project site is within the East Bay Regional Park District boundaries and therefore is within the East Bay Regional Park District's jurisdiction. Due to this, the proposed project is not subject to the City of Richmond's land use and zoning designations. The East Bay Regional Park has a Master Plan that was adopted in 2013 that establishes regional parkland classifications. Each classification has a distinct purpose and sets forth the minimum standards that an area must have to be considered part of the regional park system (EBRP 2013). The project site is classified as a Regional Shoreline in the 2013 Master Plan, which is defined in the 2013 Master Plan as an area that must contain a variety of natural environments and manageable units of tidal, near shore wetland and upland areas that can be used for scientific, interpretive, or environmental purposes (EBRP 2013). The project site is currently used as a park and is consistent with the description of a regional shoreline, and would resume operation as a park after the proposed remediation process and installation of park amenities and landscape improvements. As detailed in Section 3.11, *Land Use and Planning*, the proposed project would be consistent with the policies of the East Bay Regional Park District Master Plan, including

those related to scenic quality. Therefore, the proposed project would not conflict with applicable zoning and other regulations governing scenic quality and a **less-than-significant impact** would occur.

D) NO IMPACT

The proposed remediation process and installation of park amenities and landscape improvements would not include the use of reflective building materials. No nighttime construction would occur. The proposed project does not involve installation of exterior lighting sources. Therefore, the proposed project would not create a new source of substantial light or glare that will adversely affect day or nighttime views in the area, and **no impact** would occur.

3.2 Agriculture and Forestry Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and project site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agricultural 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:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				**X**
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				**X**

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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**
d) Result in the loss of forest land or conversion of forest land to non-forest use?				**X**
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**

References: California Department of Conservation 2022.

3.2.1 Environmental Setting

The project site has a zoning designation of Open Space. No lands under agricultural practices or Williamson Act contracts are located at the project site or in immediate areas to the project site. No forest lands are present at the project site. The California Important Farmland Finder managed by the California Department of Conservation classifies the project site as Other Land and immediate areas to the project site as Other Land or Urban and Built-Up Land (California Department of Conservation 2022). Other lands include low-density, rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip mines or borrow pits; water bodies smaller than 40 acres; and vacant and nonagricultural land surrounded by urban development and greater than 40 acres. Urban and Built-Up land is occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel, and includes residential, industrial, commercial, institutional facilities, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, and water control structures.

3.2.2 Explanation of Checklist Answers

A) NO IMPACT

The project site is classified by the California Department of Conservation as Other Land. Therefore, the proposed project would not convert farmland to non-agricultural use, and **no impact** would occur.

B) NO IMPACT

The City of Richmond zones the project site as Open Space and the project site is not under a Williamson Act Contract. Therefore, the proposed project would not conflict with existing zoning for agricultural use, or a Williamson Act contract, and **no impact** would occur.

C) NO IMPACT

The City of Richmond zones the project site as Open Space and the project site does not consist of any forest land, timberland, or timberland zoned Timberland Production. Therefore, the proposed project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production, and **no impact** would occur.

D) NO IMPACT

No forest lands are present at the project site. Therefore, the proposed project would not result in the loss of forest land or conversion of forest land to non-forest use, and **no impact** would occur.

E) NO IMPACT

The project site is classified as Other Land and does not consist of any forest land. Therefore, the proposed project would not 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, and **no impact** would occur.

3.3 Air Quality

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

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

References: Bay Area Air District 2017; California Air Pollution Control Officers Association 2022; California Air Resources Board 2022b.

3.3.1 Environmental Setting

Pursuant to the Clean Air Act Amendments of 1990, the United States Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The NAAQS are classified as primary and secondary standards. Primary standards prescribe the maximum permissible concentration in the ambient air and are required to protect public health. Secondary standards specify levels of air quality required to protect public welfare, including materials, soils, vegetation, and wildlife, from any known or anticipated adverse effects. NAAQS are established for six pollutants (known as criteria pollutants): ozone (O_3), particle pollution (i.e., respirable particulate matter less than 10 microns in diameter [PM_{10}] and respirable particulate matter less than 2.5 microns in diameter [$PM_{2.5}$]), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead (Pb). The California Air Resources Board (CARB) has also established its own air quality standards in the state of California, known as the California Ambient Air Quality Standards (CAAQS). The CAAQS are generally more stringent than the NAAQS and include air quality standards for all the criteria pollutants listed under NAAQS plus sulfates (SO_4), hydrogen sulfide (H_2S), vinyl chloride, and visibility-reducing particulate matter.

The EPA classifies the air quality within an Air Quality Control Region with regard to its attainment of federal primary and secondary NAAQS. An area with air quality better than the NAAQS for a specific pollutant is designated as being in attainment for that pollutant. Any area

not meeting the NAAQS is classified as a nonattainment area. Where there is a lack of data for the EPA to make a determination regarding attainment or nonattainment, the area is designated as unclassified and is treated as an attainment area until proven otherwise. Similarly, CARB makes state area designations for the state criteria pollutants.

The project site is in the City of Richmond, which is part of Contra Costa County and is subject to Air District regulations. Pollutant concentrations within Contra Costa County are assessed relative to both the federal and State ambient air quality standards. Contra Costa County is in attainment for all State criteria pollutants except for O_3, $PM_{2.5}$, and PM_{10} and in attainment for all federal criteria except O_3 and $PM_{2.5}$ (California Air Resources Board 2022b). Applicable Air District rules are presented in Table 2, *Applicable Rules*.

Table 2 Applicable Rules

Rule	Title	Purpose
Regulation 6, Rule 1	General Requirements	Limits the quantity of particulate matter in the atmosphere through the establishment of limitations on emission rates, emission concentrations, visible emissions and opacity.
Regulation 7	Odorous Substances	Places general limitations on odorous substances and specific emission limitations on certain odorous compounds. The limitations of this regulation are not applicable until the Air Pollution Control Officer receives odor complaints from ten or more complainants within a 90-day period, alleging that a person has caused odors perceived at or beyond the property line of such person and deemed to be objectionable by the complainants in the normal course of their work, travel or residence.

The Air District also prepares and updates air quality plans to attain national and State ambient air quality standards, comply with national and State air quality requirements, and protect air quality in the Bay Area. The most current air quality plan for the Bay Area is the 2017 Bay Area Clean Air Plan (Bay Area Air District 2017). The Clean Air Plan incorporates the Air District's regulatory and permitting framework as well as general plans and regional plans for its implementation. Thus, a project that is consistent with the general plan of the geographic area where it is located is consistent with the Clean Air Plan.

Additionally, the Air District has established thresholds of significance for criteria pollutant emissions and criteria air pollutant precursors. Projects with emissions below established thresholds are not expected to generate sufficient criteria air pollutant emissions to violate any air quality plans or contribute substantially to an existing or projected air quality violation and would therefore have a less-than-significant impact on air quality. Projects with emissions equal to or exceeding the established significance threshold would have a potentially significant

adverse impact on air quality unless mitigation measures are implemented. A summary of the Air District air quality thresholds of significance is presented in Table 3, *Air District Thresholds of Significance for Criteria Pollutants*.

Table 3 Air District Thresholds of Significance for Criteria Pollutants

Pollutant	Construction Pounds per Day	Operation Pounds per Day/ Tons per Year
NOx	54	54/10
ROG	54	54/10
PM_{10}	82 (exhaust only)	82/15
$PM_{2.5}$	54 (exhaust only)	54/10
$PM_{10}/PM_{2.5}$ (fugitive dust)	Best Management Practices	None
Local CO	None	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)
Odors	None	Complaint History – Five confirmed complaints per year averaged over three years.
Risk and Hazards	Compliance with Qualified Community Risk Reduction Plan or Increased Cancer Risk of >10.0 in a million Increased non-cancer risk of >1.0 Hazard Index (Chronic or Acute) Ambient $PM_{2.5}$ increase: >0.3 µg/m^3 annual average. Zone of Influence: 1,000-foot radius from fence line of source or receptor	

The nearest possible sensitive receptor to the project site is a commercial development approximately 1,200 feet east of the project site's fence line.

3.3.2 Explanation of Checklist Answers

A) LESS-THAN-SIGNIFICANT IMPACT

The project site is currently used as a park and would resume operation as a park after the proposed remediation process and installation of park amenities and landscape improvements. Thus, land use of the project site would not be changed by the proposed project and would remain consistent with the Clean Air Plan. Therefore, the proposed project would not conflict

with or obstruct the implementation an applicable air quality plan and a **less-than-significant impact** would occur.

B) LESS-THAN-SIGNIFICANT IMPACT

The proposed project would add new emissions of criteria pollutants only on a temporary basis during construction. The construction emissions were calculated using California Emissions Estimator Model (CalEEMod), which is widely accepted to provide a uniform platform to estimate potential emissions resulting from construction and operation activities of land use projects in California (California Air Pollution Control Officers Association, 2022). CalEEMod takes user-entered data and preprogrammed algorithms designed to take information such as project size and length; vehicle types, operating hours, and trip lengths; and emissions mitigation criteria to calculate emissions of criteria pollutants and greenhouse gases (GHGs). To determine the significant effects of the proposed project on the environment, construction emissions were compared against the thresholds of significance established by the Air District. A summary of the proposed project's construction emissions, comparison with the Air District thresholds of significance, and significance determination is presented in Table 4, *Project Construction Average Daily Emissions*. A summary of assumptions used and detailed emission calculations is included as Appendix A, *CalEEMod Air Emissions and Greenhouse Gas Emissions Calculations*.

Table 4 Project Construction Average Daily Emissions

Calendar Year	VOCs	NOx	CO	PM_{10}	$PM_{2.5}$
2024 (Average Daily Maximum in lb/day)	0.185	3.587	8.1374	0.3886	0.3004
Threshold of Significance (lb/day)	54	54	None	82	54
Exceeds threshold?	**No**	**No**	**No**	**No**	**No**

Notes: CO = carbon monoxide
lb/day = pounds per day
Nox= oxides of nitrogen (nitric oxide and nitrogen dioxide)
PM_{10} = respirable particulate matter less than 10 microns in diameter
$PM_{2.5}$ = respirable particulate matter less than 2.5 microns in diameter
VOC = volatile organic compounds (reported as reactive organic gases)

As presented in Table 4, while construction of the proposed project would result in emissions of criteria pollutants that would add to emissions released by other projects or sources in the region, the proposed project emissions are significantly below the Air District thresholds of significance. Once construction is complete, the project site would resume its existing use as a park and would not directly generate any emissions. Therefore, the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project

region is in nonattainment under an applicable federal or State ambient air quality standard, and a **less-than-significant impact** would occur.

C) LESS-THAN-SIGNIFICANT IMPACT

The proposed project would generate temporary emissions during construction activities associated with the remediation process and installation of park amenities and landscape improvements. The project site would be closed to the public and fenced off during construction activities. Once construction is complete, the project site would resume its existing use as a park. As described in Section 3.17, *Transportation*, operation of the proposed project would not result in new vehicle trips to and from the project site. No new operational emissions would be generated, as the proposed project would not introduce new sources of air pollutants or sensitive receptors to the project site. Additionally, the Air District threshold defines the zone of influence for sensitive receptors as a 1,000-foot radius from the fence line of source or receptor. The nearest possible sensitive receptor to the project site is a commercial development approximately 1,200 feet east of the project site's fence line. Therefore, the proposed project would not expose sensitive receptors to substantial pollutant concentrations. A **less-than-significant impact** would occur.

D) LESS-THAN-SIGNIFICANT IMPACT

Temporary and intermittent odors may result from combustion of diesel-fueled construction equipment during construction. However, noxious odors would be confined to the immediate vicinity of the construction equipment. Due to the distance between the project site and the nearest sensitive receptor, by the time such emissions reach any sensitive receptors, they would be diluted to well below any level of air quality concern. Once construction is complete, the project site would resume its existing use as a park and would not generate any odors. Therefore, the proposed project would not result in other emissions adversely affecting a substantial number of people and a **less-than-significant impact** would occur.

3.4 Biological Resources

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modification, on any species identified in local or regional plans, policies, or regulations, or by the		**X**		

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?				
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?		**X**		
c) Have a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?		**X**		
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**		
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			**X**	
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**

References: Contra Costa County 2005; California Native Plant Society 2023; California Natural Diversity Database 2023.

3.4.1 Environmental Setting

A Biological Resource Assessment was prepared by Nomad Ecology in July 2024 (see Appendix D, *Biological Resource Assessment*). The study area for the Biological Resource Assessment comprises approximately 25.2 acres and consists of a 50-foot buffer on the project impact areas, including a large project site on North Point Isabel and a potential construction staging area and two construction access routes on Point Isabel proper. The majority of the study area is on artificial fill, so all vegetation communities observed and described below are considered

disturbed and of anthropogenic origin to some degree, even if some are naturally recruiting and expanding at this point. Additionally, no federally or State-listed or California rare plant species were considered to have the potential to occur within the study area. In addition, the Biological Resources Assessment considered special-status animal species in the project vicinity from the California Natural Diversity Database. A total of 84 special-status fish and wildlife species were considered as part of the Biological Resource Assessment.

SENSITIVE HABITATS

Habitats such as wetlands or riparian areas are considered sensitive biological communities that fulfill special biological functions. These habitats are protected under federal regulations such as the Clean Water Act as well as State regulations such as the Porter-Cologne Act managed by the RWQCB and the California Department of Fish and Game Code managed by the California Department of Fish and Wildlife (CDFW) under the Streambed Alteration Program. In addition, the McAteer-Petris Act created the San Francisco Bay Conservation and Development Commission, which guides future developments for protection of natural resources and shoreline of the San Francisco Bay. Finally, CEQA, local ordinances or policies, Special Habitat Management Areas, and General Plans provide regulations or guidelines for protecting sensitive biological communities.

The Biological Resource Assessment identifies that one sensitive natural community currently recognized by CDFW was observed within the study area: *Salicornia pacifica* Herbaceous Alliance (pickleweed mats). Tidal marshes were also identified in the Biological Resources Assessment within the project buffer zone and adjacent to the study area in Hoffman Marsh.

SPECIAL-STATUS PLANTS

The Biological Resource Assessment identifies that, though 101 special-status plant species are known to occur in the project vicinity, no special-status plant species have the potential to occur within the study area due to lack of suitable habitat, including vernal pools, playas, coastal dunes, cismontane woodland, coniferous forest, chaparral, and/or serpentine soils. Species were also ruled out due to the high level of anthropogenic disturbance, lack of appropriate elevation ranges, and distributional limits.

SPECIAL-STATUS WILDLIFE

The Biological Resource Assessment identifies that, of the 84 special-status fish and wildlife species considered as part of the assessment, 9 have potential to occur within the study area and could be affected by the proposed project. These include 2 special-status invertebrates, 4 special-status bird species, and 1 special-status mammal species.

3.4.2 Explanation of Checklist Answers

A) LESS-THAN-SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED

This evaluation focuses on special-status species with the potential to be adversely affected by the proposed project, as identified in the Biological Resources Assessment (see Appendix D).

Special-Status Bumble Bees

Grading or any other ground-disturbing activities associated with the project could damage or destroy underground nests of Obscure bumble bee and Crotch bumble bee. Project activities could also cover the entrances to underground nests with fill material or damage them with vehicles. These impacts are potentially significant. Impacts to special-status bumble bee species potentially occurring on-site will be reduced to a **less-than-significant impact with mitigation** through implementation of **Mitigation Measure BIO-1** (Worker Environmental Awareness Training), **Mitigation Measure BIO-7** (Bumble Bee Mitigation), and **Mitigation Measure BIO-9** (Biological Monitoring).

Chinook Salmon, Green Sturgeon, and White Sturgeon

Project construction activities would be confined to upland areas and therefore the project would not have any direct impacts on Chinook salmon, green sturgeon, white sturgeon, or their habitat. However, indirect impacts to these species could occur during construction if sediment from the project site is transported (e.g., via wind or rain) into adjacent aquatic habitats. This could degrade habitat by temporarily increasing turbidity in waters within and adjacent to the study area. This potentially significant impact would be reduced to a **less-than-significant impact with mitigation** through implementation of the project's BMPs and **Mitigation Measure BIO-9** (Biological Monitoring). The project would provide a long-term indirect benefit to Chinook salmon, green sturgeon, and white sturgeon by preventing lead-contaminated soils from discharging into Hoffman Channel and the San Francisco Bay.

Burrowing Owl

The project could result in the temporary loss of potential foraging habitat for burrowing owls that use the study area for overwintering. Direct impacts to burrows used by burrowing owls are not anticipated because the owls burrow in the rip rap, which will not be affected by construction activities. The wintering burrowing owls in the study area are acclimated to human activity (and noise) in the vicinity of their burrows. However, construction equipment and sustained human activity during construction in the vicinity of burrows may constitute a novel source of disturbance to the owls. This could indirectly impact burrowing owls and either cause them to flush from their burrows or abandon the burrows completely, which could make the owls more susceptible to predation or force them into lower-quality habitat. This impact would be potentially significant, but would be reduced to a **less-than-significant impact with mitigation** through implementation of **Mitigation Measure BIO-1** (Worker Environmental

Awareness Training), **Mitigation Measure BIO-5** (Burrowing Owl Mitigation), and **Mitigation Measure BIO-9** (Biological Monitoring).

Northern Harrier and Alameda Song Sparrow

The project would not have any direct impacts on the northern harrier or the Alameda song sparrow because no construction activities will occur in areas containing potential nesting habitat for either species. However, noise and human activity associated with construction of the project could interfere with reproductive efforts or cause the northern harrier and Alameda song sparrows to abandon their nests if any nests are in portions of Hoffman Marsh near the study area. This indirect impact is potentially significant, but would be reduced to a **less-than-significant impact with mitigation** through implementation of **Mitigation Measure BIO-1** (Worker Environmental Awareness Training), **Mitigation Measure BIO-4** (Nesting Bird Mitigation), **Mitigation Measure BIO-8** (Hoffman Marsh), and **Mitigation Measure BIO-9** (Biological Monitoring).

California Ridgway's Rail

The project would not have any direct impacts on habitat for the California Ridgway's rail because no construction-related ground disturbance or vehicle activities would occur in salt marsh habitat or the marsh-upland ecotone. During extreme high tide events, rails could seek cover in the vicinity of the San Francisco Bay Trail (a short segment of which will be used as an access route for construction vehicles). If this occurs, construction vehicles could strike rails or cause them to flush from cover, making them more susceptible to predation. This potentially significant impact would be reduced to a **less-than-significant impact with mitigation** through implementation of **Mitigation Measure BIO-6** (California Ridgway's Rail and Salt Marsh Harvest Mouse Mitigation).

Ridgway's rails vary in their sensitivity to human disturbance, both individually and between marshes. Ridgway's rails have been documented nesting in areas with high levels of disturbance, including areas adjacent to trails, levees, and roads heavily used by pedestrian and vehicular traffic. In contrast, direct human-caused disturbance is known to occur at some locations. For example, Albertson (1995) documented a rail abandoning its territory shortly after a repair crew worked on a nearby transmission tower. California Ridgway's rail reactions to disturbance may vary with season; however, both breeding and nonbreeding seasons are critical times. During the breeding season, human disturbance primarily affects survival of eggs and chicks; during the nonbreeding season (winter), disturbance may cause adult mortality, particularly during high tide and storm events when rails are most vulnerable to predators.

The USFWS has determined that noise and human activities within 700 feet of a Ridgway's rail nest (or activity center of a vocalizing rail) could impact the species. The Ridgway's rails in Hoffman Marsh appear to be relatively habituated to human activity. Although project

construction activities would not occur in the early morning and late evening, when Ridgway's rails are most active (physically and vocally), noise and human activity associated with construction of the project could significantly impact rails by affecting essential breeding, foraging, or sheltering activities. These potentially significant impacts to California Ridgway's rails would be reduced to **less-than-significant impact with mitigation** through implementation of **Mitigation Measure BIO-1** (Worker Environmental Awareness Training), **Mitigation Measure BIO-2** (Delineation of Sensitive Resources), **Mitigation Measure BIO-6** (California Ridgway's Rail and Salt Marsh Harvest Mouse Mitigation), **Mitigation Measure BIO-8** (Hoffman Marsh), and **Mitigation Measure BIO-9** (Biological Monitoring). See heading "Potential Noise Impacts to Wildlife" for further discussion of potential impacts to Ridgway's rails.

Migratory Birds

Construction activities have the potential to directly affect nesting birds through trampling, vehicle strikes, and vegetation removal. Because the existing dog park would be closed during construction of the project, there would be less human activity at the project site during construction when compared to existing conditions. However, human activity and noise associated with project construction could indirectly adversely affect birds, causing nest abandonment or disruption of brooding behaviors essential to viability of eggs and survival of chicks. The project's direct and indirect impacts on migratory birds are potentially significant but would be reduced to a **less-than-significant impact with mitigation** through implementation of **Mitigation Measure BIO-1** (Worker Environmental Awareness Training), **Mitigation Measure BIO-4** (Nesting Bird Mitigation), **Mitigation Measure BIO-8** (Hoffman Marsh), and **Mitigation Measure BIO-9** (Biological Monitoring).

Salt Marsh Harvest Mouse

The USFWS has issued Biological Opinions for numerous projects potentially affecting the salt marsh harvest mouse, several of which state that loud noises or the presence and movement of nearby people and heavy equipment may disturb salt marsh harvest mice by altering foraging, sheltering, and dispersal activities. While these potential effects are plausible, they have not been studied, nor is there any scientific information suggesting that noise and human activity near salt marsh harvest mouse habitat are significant threats to the species. As described above, the existing dog park would be closed during construction of the project. As a result, human activity near marsh habitat during construction would be reduced when compared to existing conditions. For these reasons, impacts on the salt marsh harvest mouse due to noise and human activity would be less than significant.

Habitat for salt marsh harvest mice would not be directly affected by the project because there is no potential habitat for the species within the project site. However, ground-disturbing activities could result in injury or mortality of individual salt marsh harvest mice if mice are

forced into the project impact area during an extreme high tide event. This potentially significant impact will be reduced to a **less-than-significant impact with mitigation** through implementation of **Mitigation Measure BIO-1** (Worker Environmental Awareness Training), **Mitigation Measure BIO-6** (California Ridgway's Rail and Salt Marsh Harvest Mouse Mitigation), **Mitigation Measure BIO-8** (Hoffman Marsh), and **Mitigation Measure BIO-9** (Biological Monitoring).

Potential Noise Impacts to Wildlife

This discussion evaluates the potential impacts to wildlife from noise. For additional details on the project's potential noise impacts, see Section 3.13, *Noise*.

The marsh vegetation in the Hoffman Marsh to the east of the project site is habitat for the California Ridgway's rail (*Rallus longirostris obsoletus*). In 1991, the U.S. Fish and Wildlife Service (USFWS) recommended that noise levels not exceed 60 dBA to protect the gnatcatcher (*Polioptilidae*) and other bird species. While this threshold is commonly used for other endangered species, this project utilizes site-specific thresholds based on existing ambient noise levels from long-term measurements. A previous biological opinion suggested that project-related noise levels should not exceed "ambient noise level + 3 dBA" and essentially limit project-related construction noise level to the current ambient environment. Therefore, thresholds of 66 dBA L_{eq} (LT-1 and LT-2) and 60 dBA dBA L_{eq} (LT-3) are applied at measurement locations (Lt-1, LT-2, and LT-3) in Hoffman Marsh to assess noise impacts on the California Ridgway's rail off-site.

For the purposes of this analysis, thresholds based on not to exceed "ambient noise levels + 3 dBA" are used to determine impact significance at sensitive habitat receptors in the Hoffman Marsh.

The effects of noise on wildlife depend on the nature of the noise source. Chronic and frequent noise can impair an animal's sensory capabilities, thereby masking biologically relevant sounds used for communication, detection of threats or prey, and spatial navigation. Intermittent and unpredictable "impulse" noise stimuli that startle animals are perceived as threats and generate self-preservation responses such as fleeing or hiding. Most noise-related impacts appear to involve behavioral responses across four categories: (1) changes in temporal patterns, (2) alterations in spatial distributions or movements, (3) decreases in foraging or provisioning efficiency coupled with increased vigilance and anti-predator behavior, and (4) changes in mate attraction and territorial defense. These disturbance-, distraction-, and masking-mediated behavioral changes could directly affect individual survival and fitness or lead to physiological stress that may then compromise fitness. Irrespective of whether the noise is perceived as a threat or masks biologically relevant sounds, increases in noise intensity (loudness or amplitude) increase the severity of the effects.

Wildlife response to noise varies among taxa and species. For example, an impulse noise that causes a bird to flush from its nest may have no measurable effect on a reptile. Among birds, some species tolerate noisy environments and have learned to communicate by adjusting their song frequency levels, whereas other species will avoid the noisy environment altogether. Finally, there may be variance at the individual level, where some individuals tolerate the noise stimuli, but others do not.

The existing level of ambient noise is a critical variable in the effect that additional anthropogenic noise has on wildlife. In its analysis of the impacts of human disturbance on the California Ridgway's rail and salt marsh harvest mouse, the USFWS determined that significant impacts to these species would occur if project noise levels in marsh habitat either: (1) exceeded 80 decibels (dBA), or (2) exceeded the ambient noise level by 3 dBA. Subsequent research suggests that impacts occur at much lower noise levels, and that a 60 dBA threshold would be appropriate for birds and mammals in an area with relatively high ambient noise levels. Therefore, this analysis uses the USFWS's thresholds to assess noise impacts from the proposed project, except the first threshold was lowered to 60 dBA.

The existing noise environment was measured as part of the noise analysis for the proposed project (see Appendix C, *North Point Isabel Cap Improvement Project Noise and Vibrational Technical Study*). Noise measurements were taken at six locations near the project site. Five of these locations were along the western edge of Hoffman Marsh. In addition, long-term (24-hour) noise measurements were taken at three locations that were both near the project site and the western edge of Hoffman Marsh. Data from these nine sampling locations were used to characterize ambient noise conditions and assess potential impacts to special-status animals that may occur in Hoffman Marsh.

Summary

According to the noise study:

- Single-event haul (dump) truck trips associated with the project would generate intermittent, maximum noise levels of approximately 77 dBA (Lmax) at 50 feet (from the truck). Project haul trips would not exceed 60 dBA Leq or result in a 3 dBA increase over the existing Leq conditions at any of the short-term noise measurement locations.
- Without mitigation, project construction noise levels would range from 54.5 dBA Leq to 74.9 dBA Leq at the western edge of Hoffman Marsh. The increase over ambient noise due to project construction activities would range from 1.0 dBA to 8.5 dBA, depending on the specific location and type of construction activity. This increase above ambient conditions would result in a potentially significant impact on special-status animals in Hoffman Marsh. Installation of a temporary noise barrier, as described in the project's noise study

(Appendix C), would reduce construction noise impacts to a level considered less than significant (see Mitigation Measure BIO-8).

- Maximum ambient noise levels (Lmax) at the eight sampling locations near Hoffman Marsh ranged from 64.1 dBA (at location ST-1) to 82.1 dBA (at location LT-2). Maximum noise levels (Lmax) due to construction of the project could reach 69 to 73 dBA at these locations.

Potential Traffic Noise Impacts to Wildlife

Table 16, *Project Haul Truck Trip Analysis*, in Section 3.13, *Noise*, shows the ambient noise levels at short-term measurement locations, the combined noise level due to project haul truck trips, and the increase over ambient noise level attributable to project haul truck trips. As shown in Table 16, project haul trips would not result in a 3 dBA increase over existing conditions at any of the short-term noise measurement locations representing noise-sensitive California Ridgway's rail receptors in the Hoffman Marsh. Although the project's haul trucks would generate maximum noise levels comparable to ambient conditions, it would greatly increase the frequency and abundance of these loud impulse noise events. In addition, chronic noise levels at Hoffman Marsh would exceed the 60 dBA threshold when construction activities are occurring in the eastern portion of the project site, and they could exceed ambient conditions by more than 3 dBA (i.e., the second USFWS thresholds). These impulse and chronic noise events associated with construction of the proposed project could have a significant impact on the Ridgway's rail and other special-status animals in Hoffman Marsh. Installation of a temporary noise barrier, as required by **Mitigation Measure BIO-8**, would reduce this impact to a **less-than-significant impact with mitigation**.

Potential Construction Noise Impacts to Wildlife

As shown in Table 17, *Proposed Project-Related Construction Noise, dBA L_{eq}*, in Section 3.13, *Noise*, project construction noise levels would range from 54.5 dBA L_{eq} to 74.9 dBA L_{eq} at representative potential nesting habitat in the Hoffman Marsh during all construction activities. In addition, the increase over ambient noise due to project construction activities would range from 1 dBA to 8.5 dBA without mitigation. As shown in Table 17, construction noise levels would result in the exceedance of applied ambient noise thresholds of a 3 dBA increase at LT-1 and LT-2 (66 dBA L_{eq}) and at LT-3 (60 dBA L_{eq}) during daytime hours for noise-sensitive California Ridgway's rail receptors in the Hoffman Marsh, which would result in a potentially significant impact. However, implementation of **Mitigation Measure BIO-8** would ensure that impacts would be reduced to a **less-than-significant impact with mitigation**.

Table 5, *Construction Noise Contours*, shows the 66 or 60 dBA L_{eq} construction noise contours relative to construction sites C1, C2, C3, and C4. Without noise-reducing measures, the 66 or 60 dBA L_{eq} construction noise contour would range from 325 to 975 feet and expose Hoffman Marsh habitat to noise levels exceeding the threshold. Table 5 also shows that with the

incorporation of a barrier, set at 12 feet and 16 feet along the eastern and northeastern boundaries of the project site, construction noise from the project site would be reduced by 8 dBA, and the resulting 66 or 60 dBA L_{eq} noise contour would range from 125 to 375 feet from on-site construction activities.

Table 5 Construction Noise Contours, dBA L_{eq}

Construction Activity Phase	Noise Level from Construction Activity Sites to Hoffman Marsh				Resulting 60 dBA L_{eq} Contour (ft)	60 dBA L_{eq} Contour (ft) with 12-ft Barrier	60 dBA L_{eq} Contour (ft) with 16-ft Barrier
	C1	C2	C3	C4			
Rip rap	75.7	77.8	77.1	56.5	425	175	90
Trail Gravel	76.7	78.8	78.1	57.5	480	190	100
Grading 2 pieces of equipment	81.1	83.2	82.4	61.9	775	315	170
Grading 3 pieces of equipment	82.9	85	84.2	63.6	975	375	210
Landscape	73.4	75.5	74.8	54.2	325	125	70
Paving	75.7	77.8	77	56.5	425	175	90

Notes: Calculations performed with the FHWA's RCNM software are included in Appendix C.
Distance to sensitive habitat receptors is measured from the edge of the construction site to long-term measurement sites.

In addition, mitigation for construction noise levels at the ambient long-term noise locations were modeled using RCNM. Long-term noise measurement sites are used in the analysis to represent the nearest potential nesting habitat areas in the Hoffman Marsh. Threshold for LT-1 and LT-2 were determined to be 66 dBA L_{eq}, average daytime ambient noise level measured, while LT-3 was measured to be 60 dBA L_{eq}. Results are summarized in Table 6, *Construction Noise with Barrier Reduction, dBA L_{eq}.* As shown in Table 6, the highest noise levels during construction activity would be grading with three pieces of equipment, with noise levels at 73.8 dBA L_{eq}, 69.8 dBA L_{eq} and 63.9 dBA L_{eq}, respectively. A noise barrier with a height of 12 feet would reduce noise levels at LT-1 and LT-2 by 8 dBA. The highest noise levels would be reduced to 65.8 and 61.8 dBA L_{eq} respectively. Furthermore, a noise barrier with a height of 10 feet would reduce noise levels up to 5 dBA L_{eq} for LT-3. The barrier would reduce highest noise levels to 58.9 dBA L_{eq} at LT-3. Therefore, the noise barrier set at the height of 12 feet for LT-1 and LT-2

and a noise barrier set at the height 10 feet for LT-3 would reduce construction noise levels below the existing ambient noise levels and not cause a 3 dBA increase over ambient noise levels.

Table 6 Construction Noise with Noise Barrier Reduction, dBA Leq

Construction Activity Phase	RCNM Noise Levels			Distance to Noise Threshold with Noise Barrier (ft)		Exceeds Thresholds with Barrier?		
	LT-1	LT-2	LT-3	LT-1 [1] and LT-2 [1]	LT-3 [2]	LT-1 with 66 dBA Threshold	LT 2 with 66 dBA Threshold	LT-3 with 60 dBA Threshold
Rip rap	66.6	63.7	57.8	90	--	No	No	No
Trail Gravel	67.7	63.7	57.8	100	--			
Grading 2 pieces of equipment	72	68	62.1	160	450			
Grading 3 pieces of equipment	73.8	69.8	63.9	200	550			
Landscape	64.4	60.4	54.5	65	--			
Paving	66.6	62.6	56.7	90	--			

Notes:
1. A noise barrier with the height of 12 feet would reduce noise levels up to 8 dBA.
2. A noise barrier with the height of 10 feet would reduce noise levels up to 5 dBA.
Calculations performed with the FHWA's RCNM software are included in Appendix C.
Distance to sensitive habitat receptors is measured from the edge of the construction site to long-term measurement sites.

Mitigation Measure BIO-1: Worker Environmental Awareness Training. A qualified biologist shall conduct an environmental awareness training session for all work crews and contractors. The training session shall be conducted prior to initiating any work on the project, and upon the arrival of any new workers. The training shall include information on the sensitive biological resources that occur (or could occur) at the project site; the environmental regulations pertaining to the project; the locations of sensitive areas or exclusion zones; the role and authority of the biological monitor and other project members; and the project's best management practices (BMPs) and

mitigation measures. Construction personnel shall be informed that noise and human activity in the vicinity of Hoffman Marsh shall be confined to the minimum level necessary to complete the project (e.g., workers should not congregate near the marsh during breaks). The qualified biologist shall maintain a record of all personnel that have undergone the environmental awareness training.

Mitigation Measure BIO-2: Delineation of Sensitive Resources. Prior to the start of construction activities, a qualified biologist shall use flagging or temporary fencing to demarcate aquatic features, pickleweed mats, and other sensitive resource areas (e.g., Hoffman Marsh) so as to minimize the potential for inadvertent intrusion by construction equipment or personnel. In association with Mitigation Measure BIO-9 (Biological Monitoring), the biologist shall conduct regular inspections of the material(s) used to demarcate sensitive resource areas to ensure their integrity (visibility).

Mitigation Measure BIO-3: Preconstruction Surveys. A qualified biologist shall conduct a preconstruction "clearance" survey for wildlife immediately prior to initial construction commencement activities. The purpose of the survey is to minimize potential impacts to common wildlife species; additional surveys are required to avoid or minimize impacts to special-status animals (see Mitigation Measures BIO-4 [Nesting Birds], BIO-5 [Burrowing Owl], BIO-6 [California Ridgway's Rail and Salt Marsh Harvest Mouse], and BIO-7 [Bumble Bees]). During the survey, the biologist shall thoroughly search areas that will be subject to ground-disturbing activities. If any common (i.e., not special status) wildlife species are detected during the survey, the biologist shall devise a strategy for avoiding impacts (e.g., animal relocation) if, in the biologist's opinion, the animal is unlikely to successfully flee the project impact area once construction begins (e.g., animals with low vagility).

Mitigation Measure BIO-4: Nesting Birds. A qualified avian biologist shall conduct a nesting bird survey no more than 7 days prior to the initiation of any construction activities that will occur during the avian nesting season (approximately February 1 to August 31). The nesting bird survey shall include the entire project site and all potential nest substrates within 500 feet of the project boundary. At a minimum, the survey shall occur: (a) in the first 4 hours after sunrise when birds are most active, and (b) when weather conditions are conducive to bird detection (e.g., not during periods of high winds, sustained rain, or heavy fog). To prevent damage to marsh vegetation, surveyors shall not enter Hoffman Marsh. Because marsh-nesting birds construct well-concealed nests that are very difficult to locate, the avian biologist shall use behavioral cues to infer potential nest locations in the marsh. These potential nest locations shall be treated as occupied nests. All nest or potential nest locations detected during the survey

shall be recorded with a GPS unit and depicted on a map. If no nests are found within the survey area, no further action is necessary.

The biologist shall use flagging, temporary fencing, or other conspicuous materials to demarcate construction activity exclusion zones (buffers) around all active or potentially active nests (i.e., nests with eggs or young present). The default buffer size shall be 500 feet for raptors and 250 feet for all other bird taxa. However, the avian biologist shall have the authority to increase or decrease the buffer distance(s) based on: (a) the nest location, topography, and cover; (b) an evaluation of the birds' behavior to determine their sensitivity to human disturbance; (c) the specific construction activities that would occur in the vicinity of the nest; and (d) whether the temporary noise barrier shields the nest from construction activities. No work shall occur within an exclusion zone until the avian biologist has determined that the young have fledged.

Mitigation Measure BIO-5: Burrowing Owl. During each year of project construction, a qualified biologist shall conduct non-breeding season surveys for burrowing owls in accordance with the survey protocol described in CDFW's *Staff Report on Burrowing Owl Mitigation* (2012).

If an occupied burrowing owl burrow is detected during the surveys or at any other time during construction of the project, the project biologist shall use flagging, temporary fencing, or other conspicuous materials to demarcate construction activity exclusion zones (buffers) around the burrow, if the burrow is located within 150 meters of the project site. The buffer size shall be determined by a qualified biologist taking into consideration existing noise levels, activities in the vicinity and/or any noise attenuation and visual screening devices to be installed. Prior to establishing the buffer, the biologist shall monitor the owl's behavior to determine if it has been sensitized to human disturbance. If the owl exhibits signs of being intolerant to human disturbance, the buffer shall be extended to 100 meters (328 feet) or more, depending on the type of construction activities that would occur in the vicinity of the burrow and the individual owl's level of sensitivity. The activity exclusion zone shall be maintained until the biologist determines the owl has vacated the site for the season.

Mitigation Measure BIO-6: California Ridgway's Rail and Salt Marsh Harvest Mouse. The East Bay Regional Park District shall install a temporary noise barrier at least 16 feet in height along the eastern and northeastern boundaries of the project site, west of the Hoffman Marsh. The barrier shall adhere to the specifications described in Mitigation Measure BIO-8. The barrier shall be installed outside of the Ridgway's rail breeding season (from February to August) and prior to initiating project construction activities. Prior to or during installation of the noise barrier, the barrier shall be modified to prevent avian predators from being able to perch on it. The barrier (and associated

perch deterrents) shall be properly maintained and shall not be removed until project construction activities are complete.

Construction activities shall temporarily cease within 50 feet of suitable refugia habitat for the California Ridgway's rail and salt marsh harvest mouse during the 2 hours before and after a predicted extreme high tide event. An extreme high tide event is defined as a tidal event with a high tide peak of greater than 6.5 feet relative to the mean low water line measured at the Golden Gate tidal station.

Mitigation Measure BIO-7: Bumble Bees. A qualified biologist with demonstrated ability to identify locally occurring special-status bumble bee species shall survey for bumble bees no more than 14 days prior to the commencement of construction activities during the colony active period or the gyne flight season (approximately March through October). The survey shall occur at least two hours after sunrise or two hours before sunset when air temperatures are between 60 and 90 degrees Fahrenheit and there is no rain. The survey area shall include the project boundaries and a surrounding 100-foot buffer area where accessible and suitable habitat is present. The survey duration shall be a minimum of one person-hour of searching per three acres of suitable habitat. At a minimum, the survey methods shall include the following:

- Search areas with flowering plants for foraging bumble bees. Observed foraging activity may indicate a nest is nearby and, therefore, the survey duration shall be increased when foraging bees are present.
- Watch any bumble bees present and observe their flight patterns. Attempt to track their movements between foraging areas and the nest.
- Visually look for nest entrances. Observe burrows, any other underground cavities, logs, or other possible nesting habitat.
- Look for concentrated bumble bee activity.
- Listen for humming of nest colony.
- If bumble bees are observed, attempt to identify the species by taking a picture.

If foraging bees are present and a nest has not been found, floral resources within the project's disturbance footprint may be carefully removed by the contractor with hand-held tools to minimize foraging bee presence during project activities. The continuation of bumble bee activity once such floral resources are removed may be an indication that a nest is present.

The biologist conducting the survey shall record when the survey was conducted, a general description of any suitable foraging habitat/floral resources present, a description of observed bumble bee activity, a description of any vegetation removed to facilitate the survey, and their determination on whether the survey observations suggest a special-status bumble bee nest may be present or if construction activities could otherwise harm the species.

If any sign(s) of a bumble bee nest is observed, and if it cannot be established whether the nest is associated with a special-status species, then construction shall not commence within 50 feet of that location (a) until it has definitively been determined through an additional survey that the species present is not of special-status, (b) until the colony active season ends, (c) without obtaining take authorization, or (d) unless other appropriate actions have been taken to ensure a nest of a special-status bumble bee species is not harmed.

Mitigation Measure BIO-8: Hoffman Marsh. The East Bay Regional Park District shall implement the following measures during all phases of construction to ensure noise levels do not exceed 60 dBA Leq along the project boundary:

- Conduct construction activities at least 90 feet from the Hoffman Marsh.
- Construct temporary noise barriers at least 16 feet in height along the eastern and northeastern boundaries of the project site west of the Hoffman Marsh.
    - The noise control curtain shall consist of durable, flexible composite material featuring a noise barrier layer bonded to sound-absorptive material on one side.
    - The noise barrier layer shall consist of a rugged, impervious material with a surface weight of at least one pound per square foot.
    - The sound absorptive material shall include a protective face and be securely attached to one side of the flexible barrier over the entire face.
    - The noise curtain material shall be weather and abuse resistant, and exhibit superior hanging and tear strength during construction.
    - The curtain's noise barrier layer material shall have a minimum breaking strength of 120 pound per square inch (lb/in.) pursuant to Federal Test Method 191 A-M5102 and minimum tear strength of 30 lb/in. pursuant to ASTM D117. Based on the same test procedures, the noise curtain absorptive material facing shall have a minimum breaking strength of 100 lb/in. and a minimum tear strength of 7 lb/in.

  - The noise curtain material shall be corrosion resistant to most acids, mild alkalies, road salts, oils, and grease. It also shall be mildew resistant, vermin proof, and non-hygroscopic.

- Limit the number and types of construction equipment during construction activity by scheduling louder pieces of equipment to occur separately from other pieces of equipment.

Mitigation Measure BIO-9: Biological Monitoring. When construction activities are occurring, a qualified biologist shall inspect the site at least twice per week to ensure implementation of, and compliance with, all mitigation measures specified herein, and with the project BMPs. If the biologist observes any instances of non-compliance, the biologist shall (a) take immediate actions to rectify the issue and (b) provide a written report (with recommended remedial actions) to the project team (including the construction contractor's foreman and the East Bay Regional Park District's project manager).

- In addition to monitoring construction activity and compliance with other mitigation measures and BMPs, the biologist shall:

- a) Monitor the behavior and status of birds associated with construction activity exclusion zones (e.g., around burrowing owl burrows or active nest sites). Monitoring shall occur for a duration sufficient to determine the bird's sensitivity to human disturbance. At a minimum, monitoring shall occur during the first 5 days during which construction activity occurs within 100 feet of the exclusion zone. Thereafter, monitoring may be reduced to twice per week. If, based on the behavior of the bird, the biologist determines a larger exclusion zone is warranted, the biologist shall extend the exclusion zone and immediately inform the construction crew.

- b) Search for new bird nests that may have been established since completion of the nesting bird survey. If any new nests are detected, the biologist shall establish a construction activity exclusion zone around the nest, as described in Mitigation Measure BIO-4.

- c) Scan for bumble bees within the project footprint. If any bumble bees are detected, the biologist shall halt any construction activities that could harm (e.g., kill) the bumble bees. If the bumble bees are (or could be) a special-status species and a nest is potentially present, Mitigation Measure BIO-7 shall be reinitiated. If the bumble bees are not a special-status species, construction may recommence.

- If a previously undetected special-status animal species is detected within the construction area, construction activities that could harm the animal shall be halted until the animal leaves the construction area on its own volition. If a special-status species is detected outside of the construction area, the biologist shall monitor the behavior and movement of the animal. If the biologist determines the animal might move into the construction area, or could be indirectly impacted by project activities, the biologist shall either halt or modify construction activities to avoid any potential impacts to the animal.

B) LESS-THAN-SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED

Invasive Plants

Invasive plants threaten biodiversity, alter ecosystem processes, and can cause extinction of native species. Construction sites can be highly susceptible to invasive plant colonization. Construction vehicles and equipment are common vectors for transporting invasive plant propagules from one place to another. In addition, soil and vegetation disturbance associated with construction activities creates suitable conditions for the establishment of invasive plants. If an invasive plant propagule is transported to the project site (e.g., by construction equipment), the plant could become established at the site and subsequently spread into adjacent habitats (e.g., Hoffman Marsh). Although the project site would temporarily provide conditions conducive to invasive plant colonization, all areas that are disturbed by project construction activities would subsequently be hydroseeded or covered by native plantings, thereby reducing the potential for establishment and survival of invasive plants.

Riparian Habitat or other Sensitive Natural Community

The *Salicornia pacifica* Herbaceous Alliance (pickleweed mats) and greater Hoffman Marsh comprise a sensitive natural community. The project does not involve ground disturbance activities within this sensitive natural community. However, the community could be directly impacted if construction equipment or personnel inadvertently stray into the marsh. In addition, the sensitive natural community could be indirectly affected through the accidental discharge of chemicals (e.g., equipment fuel and oil) or transport of loose sediment (via wind or rain) from the project site into the marsh. These impacts are potentially significant, but would be reduced to a **less-than-significant impact with mitigation** through implementation of the project's BMPs, and through implementation of **Mitigation Measure BIO-1** (Worker Environmental Awareness Training), **Mitigation Measure BIO-2** (Delineation of Sensitive Resources), and **Mitigation Measures BIO-9** (Biological Monitoring).

C) LESS-THAN-SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED

The tidal and intertidal zones in the study area are jurisdictional waters regulated by the Army Corps of Engineers and the California State Water Resources Control Board. The project does

not involve ground disturbance or any other work activities within jurisdictional waters. Rip rap and relatively steep banks are located between proposed work areas and jurisdictional waters; these features would prevent construction equipment and personnel from inadvertently straying into the jurisdictional waters. For these reasons, the project would not have any direct effects on jurisdictional waters.

The project would have a beneficial impact on jurisdictional waters by eliminating (or significantly reducing) the lead-contaminated soils that have been entering the perimeter drainage ditch, Hoffman Channel, and San Francisco Bay under existing conditions. However, the project could negatively affect jurisdictional waters through the accidental discharge of construction-related chemicals (e.g., equipment fuel and oil) or transport of loose sediment (via wind or rain) from the project site into jurisdictional waters. These indirect impacts are potentially significant but would be reduced through implementation of the project's BMPs and further reduced to a **less-than-significant impact with mitigation** through implementation of **Mitigation Measure BIO-1** (Worker Environmental Awareness Training), **Mitigation Measure BIO-2** (Delineation of Sensitive Resources), and **Mitigation Measure BIO-9** (Biological Monitoring).

D) LESS-THAN-SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED

Based on scientific evidence, the geographic setting of the study area, and the surrounding land uses, the Biological Resources Assessment identifies that the study area does not function as a landscape-level corridor or linkage for wildlife. Any impacts to wildlife use of the study area (e.g., due to construction activities) would be temporary; wildlife would be able to continue utilizing the study area after project construction is complete. Wildlife movement with potential to be temporarily affected would involve common species such as Virginia opossum (*Didelphidae virginiana*), racoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*). Due to the absence of potential habitat, the project site does not function as a movement corridor for special-status species. For these reasons, project impacts on wildlife movement corridors would be **less than significant**.

E) LESS-THAN-SIGNIFICANT IMPACT

The project site is an existing closed landfill that is used as an off-leash dog park; it would remain a closed landfill and off-leash dog park after project completion. The project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. As a result, the project would not conflict with local policies or ordinances protecting biological resources, and the impact is **less than significant**.

F) NO IMPACT

The project site is not located within an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan. Therefore, **no impact** would occur.

3.5 Cultural Resources

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?		x		
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?		**X**		
c) Disturb any human remains, including those interred outside of formal cemeteries?		**X**		

References: Perris 2011; Perris 2005a; Perris 2005b.

3.5.1 Environmental Setting

North Point Isabel is an entirely artificial landform, composed of construction/demolition and industrial waste. It was constructed during the 1950s and 1960s, and therefore would not have been part of the pre-contact or proto-contact tribal landscape. This landform was constructed during the historic-period and could contain resources associated with that time frame.

The following section describes the existing cultural resources setting for the project site and evaluates whether the project would result in significant impacts on cultural resources.

METHODS

Records Search

The East Bay Regional Park District maintains a subscription to the Northwest Information Center (NWIC) of the California Historical Resources Information System for the lands it owns and operates, with a 50-foot (15-meter) buffer, which is updated every six months. The Park District conducted a search of the subscription data (File Number 23-0387, updated in October 2023) for site records and previous studies for the project site on the Richmond, California United States Geological Survey 7.5-minute quadrangle. The National Register of Historic Places

(National Register), the California Register of Historical Resources (California Register), and the Office of Historic Preservation (OHP) Historic Properties Directory (HPD) data files were also reviewed. The background investigation to identify known and potential historical (built environment) resources also reviewed the California Historical Landmarks and Points of Interest publications and updates, the OHP Built Environment Resource Directory (BERD), and the Richmond Historic Register.

Sacred Lands File Search

In an effort to identify any Native American cultural resources, the Park District requested a Sacred Lands Files (SLF) search for the project site on November 6, 2023. Cody Campagne, Cultural Resources Analyst, responded on December 11, 2023, with a letter stating that the result of the SLF check through the NAHC was "positive'' (see Section 3.18, *Tribal Cultural Resources*).

Historical Resources

Archival research did not identify any previously inventoried or evaluated built environmental resources within the project site.

Built Environment Survey

A Page & Turnbull, Inc. architectural historian conducted a built environment survey on March 9, 2024. Photographs and notes were taken to document the project site. The North Point Isabel landform was recorded and described on Department of Parks and Recreation (DPR) 523 series forms.

HISTORIC CONTEXT

Richmond Area

The project site is located along what is now the Richmond shoreline. In 1846, California was ceded to the United States at the close of the Mexican-American War. Former land grants, deeds, and property titles became even more confused, and areas with disputed ownership, including the former Rancho San Pablo, were slow to develop. However, when the Gold Rush struck California in 1849, the Point Isabel ferry established by Don Castro provided ready transportation to miners traveling from the port of San Francisco to the gold fields of the Sierra foothills. A second ferry service opened in 1859 at Ellis Landing, at the end of Harbor Way in present-day Richmond.

During the late 1880s, much of the land in present-day Richmond was marshy and developed sparsely by ranchers and scattered settlers. In 1894, a settlement against the Castro family ended their 40-year battle to retain their land and started an era of increased private development in Richmond. In 1895, developer Augustin S. Macdonald recognized the area's advantageous connection between land and navigable deep water, and he proposed a

transcontinental rail terminus and ferry service to a handful of railroad magnates. By 1899, the Santa Fe Railroad had established its western terminus in Richmond, for commercial traffic between the San Joaquin valley and the San Francisco Bay Area.

The same year, Macdonald and a syndicate of railroad executives and oil well developers purchased and subdivided 550 acres of land into a standard urban grid. Macdonald filed his plan with Contra Costa County for a new city named Richmond. The area of the new city was bounded by Barrett Avenue, Ohio Avenue, Garrard Boulevard, and 23rd Street. Within a decade, this area was dotted with homes and commercial development.

Early 20th Century

Around the turn of the twentieth century, the establishment of both the Santa Fe Railroad and Standard Oil refinery ensured Richmond's development as a thriving industrial city. Within one year of its establishment in 1901, the Standard Oil refinery grew to be the largest on the west coast, transforming crude oil into heating fuel and kerosene for lighting. In addition to jobs and workers, these industries spurred the construction of a public trolley system, and commercial and residential development increased apace. By 1907, the Richmond Chamber of Commerce touted the new city as "The Pittsburgh of the West." More industries settled in the city in the following decades, including Winehaven, American Standard, and the Pullman Company.

By the mid-1910s, the center of gravity for Richmond had definitively shifted from its earlier location in Point Richmond to area developed by A.S. Macdonald on Macdonald west of 4th Street, with modest development between 4th and 8th Streets and scattered development to the east. By the 1920s, four large buildings concentrated around Tenth and Macdonald showed that this intersection had become the business center for Richmond. Richmond's economic vitality during the 1920s reflected national trends, but also a major local development.

Richmond during Wartime

As World War II (WWII) began in Europe, government leaders from the United States and England argued for robust support for Great Britain as it sought to defend itself from Germany. By fall of 1940, Henry Kaiser and the Six Companies (partners responsible for construction of major New Deal projects such as Hoover Dam) were negotiating with the U.S. Maritime Commission (USMC) to locate a shipyard in Richmond that could replace British merchant ships that were being rapidly sunk by German forces. Fred Parr, the long-time force behind the development of Richmond's waterfront, had reportedly been wooing Kaiser and his engineers since 1939 and, by December 19, 1940, final arrangements for a shipyard on nearly 100 waterfront acres were in place. After the U.S. entered WWII in December 1941 and President Franklin Delano Roosevelt declared the nation an "arsenal of democracy," the Kaiser Richmond Shipyard complex grew to ultimately include four shipyards and a prefabrication plant by 1943. Richmond's shipyards pioneered the application of mass production methods for shipbuilding,

setting speed and production records and producing 20 percent of the nation's wartime merchant marine fleet.

As a direct result of the Kaiser Shipyards, Richmond became an icon of wartime mobilization's impact on American communities. Kaiser staff screened applicants and made preliminary placements for workers from a centralized hiring hall at the Northeast corner of 9th Street and Nevin Avenue in the former Montgomery Wards department store. The Kaiser Shipyards were the largest defense employer, but 55 other industries fed the city's transformation into a wartime boomtown. While several new industries, such as the Kaiser Shipyards, helped win Richmond its status as a "Purple Heart City," it was most likely through pre-war industries' wartime conversion and securing of government contracts for their goods that the figure of 56 industries was reached.

History of Point Isabel

Victor Castro named Point Isabel after his daughter and built a wharf for ferry access, along with a slaughterhouse for cowhides for trade with merchants in San Francisco and a hotel for ferry passengers. In the 1850s, Castro was forced to sell most of his land, and a widow named Minna Quilfelt and her new husband Richard Stege bought 500 acres of the former Castro tract. In the 1870s, Stege was known for his large bullfrog farm that raised some 15,000 frogs to supply upscale restaurants in San Francisco. He eventually sold off the land, but the industrial area land surrounding Point Isabel retained an association with the Stege name.

In the 1870s, the introduction of the transcontinental railroad north from Oakland allowed for new industry, and the East Bay was particularly suited to the production and testing of dynamite. Dynamite was a new explosive that was originally produced in the dunes of San Francisco beginning in the 1860s, but the resulting large blasts led companies to seek testing sites in more remote places. Promontories and undeveloped sections of the East Bay proved to be ideal places for dynamite testing as the blasts were less likely to impact dense urban areas. In 1902, Vigorite Powder Company began producing and shipping dynamite on Point Isabel, and maps as early as 1915 document the presence of railroad transportation to the promontory.

The Santa Fe Land Improvement Company, which was the development branch of the Santa Fe Railroad Company, purchased the land including Point Isabel and the future location of the project site in the early 1940s. Fill of uplands on the larger Point Isabel promontory began in phases in the 1940s and resumed in the 1950s through 1969, with materials including battery casings, concrete rubble, asphalt, and road base soils.

Construction of North Point Isabel

Research of permit records, plans, and memoranda did not identify specific documentation of the dates of infill or construction chronology of the project site. However, based on historic

maps, newspaper records, aerial photographs, and documentation by government and environmental agencies, the majority of the North Point Isabel uplands appear to have been infilled between approximately 1965 and 1969 by the Santa Fe Land Improvement Company. From analysis of aerial photographs, the trestle bridge appears to have been constructed between 1965 and 1968 by the Santa Fe Railroad.

For many years, the subject site was colloquially referred to as "Battery Point" due to piles of battery casings along the shoreline. By the 1970s, there was an emerging public concern for environmental conservation and access to green spaces, with a particular focus on the ways that brownfield sites (formerly industrial or polluted sites) were impacting public and wildlife welfare. In 1975, the Point Isabel Regional Shoreline (south of the project site directly across the Hoffman Channel) was remediated and opened as a landscaped park. By the 1980s, public and political scrutiny intensified around reports of poisoned marine animals along the Point Isabel shoreline and high levels of toxic materials within the infill of the project site. Several large-scale environmental remediation projects were subsequently implemented in the 1980s and 1990s to address the toxicity impacting the site and surrounding marine life.

The project site was owned by the Santa Fe Land Improvement Company (now Catellus Development Corporation) from approximately the 1940s until 1998 when it was sold to the State of California. The parcel became part of the McLaughlin Eastshore State Park in 2002.

HISTORICAL RESOURCES IN THE PROJECT SITE

No previously recorded built environment resources were identified within the project site as a result of the NWIC or background research. However, one potential historical resource, the North Point Isabel landform, was identified in the project site. The historical resource evaluation for the North Point Isabel landform concluded that it is not eligible for listing in the National Register or the California Register and does not meet the criteria as a historical resource for the purposes of CEQA (Page & Turnbull 2024). Thus, the project site is not considered a historical resource for the purposes of CEQA.

ARCHAEOLOGICAL RESOURCES

No previously recorded archaeological resources were identified within the project site as a result of the NWIC records search or as a result of the intensive pedestrian survey conducted by the District's archaeologist.

One archaeological resource (P-07-178) has been recorded within 0.25 miles of the project site. Pilling (1952) provides the earliest nonnative, written documentation for this Native American resource. The documentation was updated by Origer & Associates in 2017 (Pilling).

The project site has not previously been included in any site-specific studies. Nine studies have been conducted within a 0.25-mile radius on lands owned or operated by the Park District.

These studies, bibliographic information, and the presence of resources are listed in Table 7, *Archaeological Studies Conducted within a 0.25-Mile Radius of the Project Site*.

Table 7 Archaeological Studies Conducted within a 0.25-Mile Radius of the Project Site

Study Number	Report Title	Author(s)	Study Year	Identified Resources (Yes/No)
S-031579	Cultural Resources Study of the Stege Property, Richmond, Contra Costa County, California	Holman, M.	2006	No
S-004950	Archaeological Survey Report for Proposed High Occupancy Vehicle Lanes from Bay Bridge to Carquinez Bridge, 04-ALA/CC-80 2.0/8.0, 0.0/14.1, EA 04209-400211	Buss, Margaret	1981	Yes
S-002915	Archaeological Survey, Route 17 (Hoffman Freeway) Between Route 80 and Bayview Avenue, 04133-108701	Melandry, Mary, and Cindy S. Desgrandchamp	1978	No
S-012965	Historic Property Survey Report, Railroad Grade Separations on Route 17 in Contra Costa County from Canal Boulevard to Castro Street in the City of	Melandry, Mary, and Lois Webb	1976	Yes

Study Number	Report Title	Author(s)	Study Year	Identified Resources (Yes/No)
	Richmond, Post Mile: 4.4 to 5.1			
S-023366	East Bay Regional Park District-Cultural Resources Study for RTP Grant Project Point Isabel to Central Avenue San Francisco Bay Trail, City of Richmond, Contra Costa County	Busy, Colin, and Stuart A. Guedon	1999	No
S-021150	04-CCO, ISTEA REF. No. 04-CCO-0-EBRPD STPLE-6075, Pt. Isabel to Miller/ Knox Trail	Gudeon, Stuart A., and Colin Busby	1997	No
S-050987	Historical Resources Study for the Point Isabel Shoreline Improvements Project, Richmond, Contra Costa County, California	Alshuth, Taylor, and Janine Origer	2017	Yes
S-050451	Pear Cultural Resources Summary	Kaptain, Neal	2007	No
S-022817	Cultural Resources Survey for the Level (3) Communications Long Haul Fiber Optics Project, Segment WS01: Sacramento to Oakland	Nelson, Wendy J., Maureen Carpenter, and Julia G. Costello	2000	Yes

Archaeological Survey

The District's archaeologist conducted an intensive pedestrian survey of the project site on October 25, 2023. Parallel transects, approximately 20 meters apart, were walked northeast/southwest, across the project site, back and forth from the San Francisco Bay Trail toward the landform point. Ground visibility was relatively low, with dense vegetation across the project site. The shoreline was covered with concrete rip rap. The project site was examined for historic-period Native American and non-Native American cultural resources (deposits of ceramics, bottles, cans, tools, evidence of the railroad, camps or refuse deposits associated with railroad workers, anthropomorphic soils, etc.).

Pre-contact Setting

Although the project site was not constructed until the historic period, this section provides an overall understanding of pre-contact life within the region.

- **Paleoindian Period, 11,500 to 8000 B.C.** Characterized by big-game hunters occupying broad geographic areas. Evidence of human habitation during this period has not yet been discovered in the San Francisco Bay Area (Milliken et al. 2007).

- **Early Holocene (Lower Archaic), cal 8000 to 3500 B.C.** Early occupation of the San Francisco Bay region is characterized by the use of milling slabs, hand stones, and flaked tools, including the use of large, wide-stemmed and leaf-shaped projectile points. Data yielded from these early sites indicate a mobile foraging strategy.

- **Early Period (Middle Archaic), 3500 to 500 cal B.C.** Indicators of a general trend toward a more sedentary lifestyle are the hallmarks of this time period. New groundstone technology and the first cut shell beads in mortuary settings imply regional symbolic integration and an increase in trade throughout the San Francisco Bay Area.

- **Lower Middle Period (Initial Upper Archaic), 500 cal B.C. to A.D. 430.** The somewhat abrupt change in the bead style during this time period is indicative of a cultural disruption. New bone tools and ornaments, such as elk femur spatulae, whistles, and basketry tools were produced. While milling slabs were still in use at some locations, there was a prevailing use of mortars and pestles throughout this period.

- **Upper Middle Period (Late Upper Archaic) cal A.D. 430 to 1050.** During this period, the Olivella saucer bead trade network collapsed, sea otter use increased, and the Meganos extended burial mortuary pattern spread within the interior of the East Bay and into the Santa Clara Valley. Bead Horizon M3 is the apex of the Upper Middle Period, characterized by small, delicate square saddle Olivella beads in burials, often in off-village single

component cemeteries. Single barbed-bone fish spears, ear spools, and large mortars appear during the M3 horizon.

- **Initial Late Period (Lower Emergent) A.D. 1050 to 1550 and the Terminal Late Period.** Lifeways during this period became more socioeconomically complex as a new level of sedentism and social stratification emerged. The cultural items affiliated with this bead horizon include bird bone whistles and tubes, flanged steatite pipes, the "banjo" abalone effigy ornament, and the Olivella callus cup bead. The only shell beads in the South and Central bay mortuaries from this period were Olivella lipped and spire-lopped beads.

See Section 3.18, *Tribal Cultural Resources* for ethnographic information for Chochenyo Ohlone peoples.

3.5.2 Explanation of Checklist Answers

A) LESS-THAN-SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED

One built environment resource, North Point Isabel, was identified in the project site. The North Point Isabel landform does not meet any evaluation criteria and is not eligible for listing in the National Register or California Register and therefore does not constitute a historical resource for the purposes of CEQA (Page & Turnbull 2024). Nevertheless, if a historical resource is encountered during project-related construction, implementation of Mitigation Measure CUL-1 would reduce the impact to less-than-significant impact with mitigation.

> **Mitigation Measure CUL-1:** If historical/archaeological resources are encountered during construction activities, work in the immediate area should be halted and the Park District shall retain an archaeologist meeting the Secretary of the Interior Professional Qualification Standards for Archaeology immediately to evaluate the find. If necessary, the evaluation may require preparation of a treatment plan and archaeological testing for California Register of Historical Resources eligibility. If the discovery proves to be significant under CEQA and cannot be avoided by the project, additional work may be warranted, such as data recovery, to avoid any adverse effects to archaeological resources.

B) LESS-THAN-SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED

The project site consists of an artificial landform constructed during the historic period. No historic-period (Native American or otherwise) archaeological resources or unique archaeological resources pursuant to Section 15064.5 of the California Public Resource Code were identified during the background research for this project. Nevertheless, if an archaeological resource is encountered during project construction, implementation of **Mitigation Measure CUL-1** would reduce the impact to a **less-than-significant impact with mitigation**.

C) LESS-THAN-SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED

The project site consists of an artificial landform, and there is no ground disturbance associated with this project. There is a very low potential to encounter human remains during project implementation. Nevertheless, if human remains are encountered during project construction, implementation of Mitigation Measure CUL-2 would reduce the impact to a **less-than-significant impact with mitigation**.

> **Mitigation Measure CUL-2:** In the event that human remains are discovered during project implementation, all work in that area must halt and the Contra Costa County coroner must be contacted, pursuant to California Public Resources Code Sections 5097.94, 5097.98, and 5097.99.

3.6 Energy

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

References: N/A

3.6.1 Environmental Setting

The project site is currently used as a park with an off-leash dog area. There is no energy consumption at the project site.

3.6.2 Explanation of Checklist Answers

A) LESS-THAN-SIGNIFICANT IMPACT

Construction activities would involve energy consumption through the combustion of fossil fuels in construction vehicles, worker commute vehicles, and construction equipment. Fossil fuels to power construction vehicles and other energy-consuming equipment would be used during the proposed remediation process and installation of park amenities and landscape improvements. The types of equipment could include gasoline- and diesel-powered

construction and transportation equipment. Implementation of the project BMPs would serve to prevent wasteful, inefficient, or unnecessary consumption of energy resources. Specifically, idling times of construction equipment would be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes. All construction equipment would be maintained and properly tuned in accordance with the manufacturer's specifications. Once construction is complete, the project site would resume its existing use as a park and would not entail energy consumption. Therefore, the proposed project would not result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation and a **less-than-significant impact** would occur.

B) LESS-THAN-SIGNIFICANT IMPACT

The State of California has routinely adopted legislation to address climate change and clean energy production that has resulted in efforts to increase the efficiency of vehicles, buildings, and appliances and to provide energy from renewable sources. As identified in Section 3.8, *Greenhouse Gas Emissions*, GHG emissions generated during construction would be below Air District–established thresholds and would not be expected to substantially conflict with existing California legislation adopted to reduce GHGs throughout the state. Therefore, the proposed project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency and a **less-than-significant impact** would occur.

3.7 Geology and Soils

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				X
ii) Strong seismic ground shaking?			X	

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?			X	
b) Result in substantial soil erosion or the loss of topsoil?			X	
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 onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			X	
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
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		X		

References: Association of Bay Area Governments 2020.

3.7.1 Environmental Setting

EARTHQUAKES

Seismic events are unavoidable in the Bay Area. Weaknesses in the earth's crust where tectonic plates slip past each other associated with faults found in the region result in earthquakes. Earthquakes most typically result in shaking-related damage, but faults can also rupture the surface. Surface fault rupture occurs when movement on a fault breaks through to the earth's surface and almost always follow pre-existing faults. The project site has been determined probabilistically to experience violent shaking (Modified Mercalli Scale 9) during a seismic event. Alquist-Priolo earthquake fault zones are regulatory zones surrounding the surface traces of active faults in California. Wherever an active fault exists, if it has the potential for surface rupture, a structure for human occupancy cannot be placed over the fault and must be

a minimum distance from the fault, generally 50 feet. The project site is not in an Alquist-Priolo fault zone. The closest mapped Alquist-Priolo fault zone is associated with the North Hayward fault zone, approximately 2 miles east of the project site.

LIQUEFACTION

Liquefaction occurs when loose, water-saturated sediments lose strength and fail during ground shaking that occurs during a seismic event. Granular material is transformed from a solid state into a liquified state due to an increase in pore-water pressure that can occur during a seismic event. The project site has a very high susceptibility to experience liquefaction during a seismic event.

LANDSLIDE

Landslides tend to occur in weak soil and rock on sloping terrain. Rainfall-induced landslides are naturally occurring geologic phenomena, caused when winter rainstorms trigger fast-moving debris flows, or mudslides, and other slower-moving landslides. Flooding and landslides associated with severe storms have been among the most common disasters in the Bay Area. Landslides typically occur during periods of higher-than-average rainfall, like El Niño winter seasons, and are more likely to occur in areas associated with the following landforms.

- On steep slopes
- On slopes made top-heavy by construction debris (e.g., road grading)
- On slopes that have been eroded by construction
- On slopes with poor drainage
- On slopes where vegetation has been burned, removed, or otherwise destroyed
- On slopes where landslides have previously occurred

The project site has been identified as primarily flat land not likely to have rain-induced landslides (Association of Bay Area Governments 2020).

3.7.2 Explanation of Checklist Answers

A.I) NO IMPACT

The project site is not located within an Alquist-Priolo fault zone. Therefore, the proposed project would not cause potential substantial adverse effects involving the 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, and **no impact** would occur.

A.II) LESS-THAN-SIGNIFICANT IMPACT

The project site, like all locations within the San Francisco Bay Area, is likely subject to strong seismic shaking in the event of a major earthquake. The proposed project would involve

remediating the degraded landfill cap to prevent lead-contaminated soil from being exposed, as well as construction of park amenities and landscape improvements. Once construction is complete, the project site would resume its existing use as a park with enhanced features. No habitable dwellings are located at the project site, and none would be constructed as part of the proposed project. There would be no significant exposure of persons or structures to seismic risks as a result of the proposed project. Therefore, the proposed project would not cause potential substantial adverse effects involving strong seismic shaking and a **less-than-significant impact** would occur.

A.III) LESS-THAN-SIGNIFICANT IMPACT

The project site is located in an area mapped as being susceptible to liquefaction in the event of a seismic event. No habitable dwellings are located at the project site, and none would be constructed as part of the proposed project. Therefore, the proposed project would not cause potential substantial adverse effects involving liquefaction. A **less-than-significant impact** would occur.

A.IV) LESS-THAN-SIGNIFICANT IMPACT

The project site has been identified as primarily flat land not likely to have rain-induced landslides. Placement of rip rap as part of the proposed remediation process would further stabilize the closed landfill and reduce the risk of landslides. Therefore, the proposed project would not cause potential substantial adverse effects involving landslides and a **less-than-significant impact** would occur.

B) LESS-THAN-SIGNIFICANT IMPACT

The proposed remediation process would include erosion control measures such as rip rap and geofabric installation. Implementation of construction BMPs listed to limit erosion and compliance with the erosion control measures of the Storm Water Pollution Prevention Plan (SWPPP) required by the National Pollutant Discharge Elimination System (NPDES) Program would serve to avoid impacts related to soil erosion. Therefore, the proposed project would not result in substantial soil erosion or the loss of topsoil and a **less-than-significant impact** would occur.

C) LESS-THAN-SIGNIFICANT IMPACT

The project site is not located on known geologic unit or soils that are unstable. The proposed remediation process would improve the stability of the closed landfill. Therefore, the proposed project would not result in on- or off-site landslides, lateral spreading, liquefaction, or collapse during a seismic event as a result of instability and a **less-than-significant impact** would occur.

D) LESS-THAN-SIGNIFICANT IMPACT

The project site is a closed landfill capped with imported soils that are non-expansive. The proposed landfill cap restoration activities would include placement of additional non-expansive soils imported from off-site. Therefore, the proposed project would not create a substantial risk to life or property due to expansive soils and a **less-than-significant impact** would occur.

E) NO IMPACT

There are no public sanitary facilities located at the project site. No septic system or alternative wastewater disposal system is proposed as part of the project. Therefore, the proposed project would not 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, and **no impact** would occur.

F) LESS-THAN-SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED

The proposed project would involve remediating the degraded landfill cap to prevent lead-contaminated soil from being exposed, as well as installation of park amenities and landscape improvements. The project site is a former landfill and the proposed project does not include excavation. Nevertheless, the remote possibility exists that fossils of potential scientific significance could be discovered during construction activities. Implementation of **Mitigation Measure GEO-1** would reduce this impact to a **less-than-significant impact with mitigation**.

> **Mitigation Measure GEO-1**: In the event that fossils or fossil-bearing deposits are discovered during construction, activity within 50 feet of the find shall be temporarily halted or diverted. The contractor shall notify a qualified paleontologist to examine the discovery. The paleontologist shall document the discovery, as needed, in accordance with Society of Vertebrate Paleontology standards, evaluate the potential resource, and assess the significance of the finding under the criteria set forth in CEQA Guidelines Section 15064.5. The paleontologist shall notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find. If the project proponent determines that avoidance is not feasible, the paleontologist shall prepare a plan for mitigating the effect of the project based on the qualities that make the resource important. The plan shall be submitted to the East Bay Regional Park District for review and approval prior to implementation.

3.8 Greenhouse Gas Emissions

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			**X**	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			**X**	

References: United States Environmental Protection Agency 2016, 2023; California Air Resources Board 2022b, 2022c.

3.8.1 Environmental Setting

Significant changes in global climate patterns have been associated with global warming, an average increase in the temperature of the atmosphere near the Earth's surface, attributed to accumulation of GHG emissions in the atmosphere. GHGs trap heat in the atmosphere, which in turn heats the surface of the earth. Some GHGs occur naturally and are emitted to the atmosphere through natural processes while others are anthropogenic (i.e., created and emitted solely through human activities).

Regulated GHGs consist of carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3) (California Health and Safety Code 38505). GHGs are commonly quantified in the equivalent mass of CO_2, denoted CO_2e, which takes into account the global warming potential of each individual GHG compound.

Carbon dioxide enters the atmosphere through the process of burning fossil fuels (coal, natural gas, and oil), solid waste, trees, and wood products, and as a result of certain chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle. Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills. Nitrous oxide is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste. Hydrofluorocarbons, PFCs, SF_6, and NF_3 are synthetic, powerful GHGs that are emitted from a variety of industrial processes. These gases are typically emitted in smaller quantities, but because they are potent

GHGs, they are sometimes referred to as High Global Warming Potential gases ("High GWP gases"). HFCs and PFCs are sometimes used as substitutes for stratospheric ozone-depleting substances (e.g., chlorofluorocarbons, hydrochlorofluorocarbons, and halons). SF_6 is employed in electricity transmission and distribution and semiconductor manufacturing. NF_3 results from semiconductor manufacturing processes (California Air Resources Board 2022c). The most common GHG that results from human activity is CO_2, followed by CH_4 and N_2O.

CALIFORNIA'S GHG SOURCES AND RELATIVE CONTRIBUTION

California is the second largest emitter of GHG in the United States, surpassed only by Texas (United States Environmental Protection Agency 2023). However, California also has over ten million more people than the state of Texas. CARB released the latest update to the statewide GHG emissions inventory in 2022 for the year 2020 emissions. In 2020, California produced 369.2 million metric tons (MMT) of CO_2e GHG emissions, 35.3 $MMTCO_2e$ lower than 2019 levels and 61.8 $MMTCO_2e$ below the 2020 GHG limit of 431 $MMTCO_2e$. California's transportation sector is the single largest generator of GHG emissions, producing 36.8 percent of the state's total emissions. The industrial sector is the second largest source, comprising 19.9 percent. The electricity sector is California's third largest source of GHG emissions, comprising 16.1 percent of the state's total emissions. Other major sources of GHG emissions include commercial and residential development, agricultural operations, high global warming potential GHGs, and waste (California Air Resources Board 2022b).

HUMAN INFLUENCE ON CLIMATE CHANGE

Fossil fuel burning by day-to-day human activities has contributed a significant impact on climate change since the start of the Industrial Revolution. Human activities have caused an increase of atmospheric CO_2 concentration by more than 40 percent, with most of the increase occurring since 1970. An increase in the global average surface temperature by one degree Celsius has occurred since 1900. This change in temperature has been accompanied by many climate effects including warming of the ocean, causing a rise in sea level, a reduction in Arctic Sea ice, heatwaves throughout the planet. Detailed analyses have concluded that an increase in CO_2 and other GHGs has resulted in warming during the afore-mentioned period. Thus, continued emissions of GHGs would result in further climate change. How much of an impact GHG emissions have on climate change will depend on the amount of GHG emitted by human activity.

POTENTIAL CLIMATE CHANGE IMPACTS FOR CALIFORNIA

The EPA has issued a fact sheet documenting how climate change impacts California. It states that over the last century, Southern California has warmed about three degrees Fahrenheit with all the state becoming warmer. Heat waves are becoming more prevalent, causing snow to melt earlier in spring—and in Southern California, less rain is falling as well. The changing climate can impact water supply, increase the possibility for wildfires, and threaten coastal

development and ecosystems. Anthropogenic-generated CO_2 emissions have increased by 40 percent since the late 1700s. Additionally, the increase of other GHGs has contributed to warming of the earth surface and lower atmosphere about one degree during the last 50 years. Areas that would be affected by climate change include snowpack, water supply, agriculture, wildfires and changing landscapes, human health, and sea level rise (United States Environmental Protection Agency 2016).

The Air District has established thresholds of significance for GHG emissions to define the emissions level for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce GHGs throughout the state. Thus, by meeting established thresholds, the effects of a project are considered to be less than significant. The Air District GHG significance thresholds are presented in Table 8, *Air District GHG Significance Thresholds*.

Table 8 Air District GHG Significance Thresholds

Project Type	Construction (pounds/day)
Project Other Than Stationary Sources	Compliance with Qualified GHG Reduction Strategy OR 1,100 MT of CO_2e/year OR 4.6 MT CO_2e/service population/year (residents plus employees)

3.8.2 Explanation of Checklist Answers

A) LESS-THAN-SIGNIFICANT IMPACT

To determine whether the proposed project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, its resulting emissions were calculated using CalEEMod and compared against the Air District–established thresholds. A summary of the resulting GHG emissions, their comparison with established thresholds, and determination of significance are presented in Table 9, *Project Construction GHG Emissions*. Detailed GHG emissions resulting from the proposed project are included in Appendix C.

Table 9 Project Construction GHG Emissions

Calendar Year	CO_2e (MT)
2024 (MT/yr)	576.7
Threshold of Significance (MT/yr)	1,100
Significant?	**No**

Notes:
MT/yr = metric ton per year
CO2e = carbon monoxide equivalent

As presented in Table 9, the proposed project construction emissions of GHGs are below the Air District threshold of significance. Once construction is completed, the project site would resume its existing use as a park and would not emit any GHGs. Therefore, the proposed project would not generate GHG emissions that may have a significant impact on the environment and a **less-than-significant impact** would occur.

B) LESS-THAN-SIGNIFICANT IMPACT

As discussed above, the Air District has established thresholds of significance for GHG emissions to define the emissions level for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce GHGs throughout the state. The proposed project emissions of GHGs are below the established Air District thresholds of significance. Therefore, the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases and a **less-than-significant impact** would occur.

3.9 Hazards/Hazardous Materials

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			**X**	
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**	
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**
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a			**X**	

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
significant hazard to the public or the environment?				
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport, will the project result in a safety hazard or excessive noise for people working or residing in the project area?				**X**
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				**X**
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			**X**	
h) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?			**X**	

References: Regional Water Quality Control Board 1984, 1986, 1998; EKI Environmental & Water 2018; California Department of Forestry and Fire Protection 2024.

3.9.1 Environmental Setting

The project site is listed on the Department of Toxic Substances Control's EnviroStor database as a State response–certified O&M (operation and maintenance) site with land use restrictions and on the RWQCB's GeoTracker database as an open remediation cleanup program site. Prior to acquisition by California State Parks / East Bay Regional Park District, the project site was used as a dumping ground for construction/demolition and industrial waste. The man-made fill was limited to dumping on the ground. No natural landforms were used for placement of the waste at the project site. The project site became known as Battery Point due to a large quantity of battery casings that were buried at the project site as during the 1950s and 1960s (EKI Environmental & Water 2018).

A 1984 Cleanup and Abatement Order was issued by the RWQCB requiring investigations and remedial measures for the property, including the remediation of lead-impacted San Francisco Bay sediments and shellfish beds. Cleanup was focused on the portion of Point Isabel north of

the Hoffman Channel, as well as the Hoffman Channel and surrounding in San Francisco Bay sediments. The project site became the subject of an environmental cleanup in the 1980s under Abatement Order Number 84-006 used by the RWQCB (Regional Water Quality Control Board-San Francisco Bay 1984) that required preparation and implementation of a Remedial Action Plan (RAP) that required removal of battery casings and lead-impacted soils that were disposed of off-site, construction of a clay cap over the landfill and long-term monitoring of the shoreline and cap, with maintenance as required (EKI Environmental & Water 2018).

The project site is not within one-quarter mile of an existing or proposed school. The closest school is the Alvarado Adult School at 5625 Sutter Avenue, one-half mile northeast of the project site. The project site is not within two miles of an airport or within an existing or unadopted airport land use plan. The Oakland International Airport in Oakland is the closest airport, approximately 22 miles south of the project site. The project site is also not within the vicinity of a private airstrip. The Hayward Executive Airport in Hayward is the closest private airstrip, approximately 19 miles southeast of the project site.

3.9.2 Explanation of Checklist Answers

A) LESS-THAN-SIGNIFICANT IMPACT

During construction, hazardous materials, primarily fuel and lubricants, would be used by construction equipment. Implementation of project BMPs during construction would serve to avoid impacts from the transport, use, and disposal of hazardous materials. Specifically, hazardous materials necessary for construction would not be stored or used where they could enter Hoffman Channel, the San Francisco Bay, or the local stormwater management system. A spill prevention and control plan to minimize the chance of spilling hazardous materials used during construction would be prepared. Spill kits shall be present for any work adjacent to open waters. All spills of oil and other hazardous materials shall be immediately cleaned up and contained. Any hazardous materials cleaned up or used on-site shall be properly disposed of at an approved disposal facility. Once construction is completed, the project site would resume its existing use as a park and would not involve the routine transport, use, or disposal of hazardous materials. Therefore, the proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials and a **less-than-significant impact** would occur.

B) LESS-THAN-SIGNIFICANT IMPACT

As part of the proposed cap restoration, the project site would require preclearing of existing vegetation, which could result in limited disturbance of lead-contaminated soils. Implementation of project BMPs during construction would serve to avoid the accidental release of hazardous materials. As part of the construction BMPs, construction workers associated with the earthwork movement portion of the proposed project would be required to

be trained and current with HAZWOPER standards for general industry and construction. Therefore, the proposed project would not 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, and a **less-than-significant impact** would occur.

C) NO IMPACT

The project site is not within one-quarter mile of an existing or proposed school. Therefore, the proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter-mile of an existing or proposed school, and **no impact** would occur.

D) LESS-THAN-SIGNIFICANT IMPACT

The project site is listed as a hazardous materials site on the EnviroStor and GeoTracker databases. The proposed project would remedy cap deficiencies early in the construction sequence. The proposed project would result in a restored landfill cap that would cover exposed lead-contaminated soils at the project site, thus reducing the potential for hazard exposure to park users. Therefore, the proposed project would not create a significant hazard to the public or the environment and a **less-than-significant impact** would occur.

E) NO IMPACT

The project site is not within two miles of an airport or within an existing or unadopted airport land use plan. Therefore, the proposed project would not result in a safety hazard or excessive noise for people working or residing in the project area, and **no impact** would occur.

F) NO IMPACT

The project site is not within the vicinity of a private air strip. Therefore, the proposed project would not result in a safety hazard for people residing or working in the project area, and **no impact** would occur.

G) LESS-THAN-SIGNIFICANT IMPACT

During construction, all vehicles and stationary equipment would be staged on the project site and not on public roads to avoid blocking emergency access routes. Therefore, the proposed project would not impair or physically impact any adopted emergency response plan or evacuation plan and a **less-than-significant impact** would occur.

H) LESS-THAN-SIGNIFICANT IMPACT

The project site is not within the wildland-urban interface or a Fire Hazard Severity Zone (FHSZ). The nearest FHSZ is approximately 1.5 miles east of the project site. (California Department of Forestry and Fire Protection 2024). Therefore, the proposed project would not expose people

or structures to a significant risk of loss, injury, or death involving wildfires, and a **less-than-significant impact** would occur.

3.10 Hydrology and Water Quality

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

References: City of Richmond 2011; EKI Environment & Water 2019; Association of Bay Area Governments 2020; Regional Water Quality Control Board-San Francisco Bay 2021; East Bay Municipal Utility District 2023.

3.10.1 Environmental Setting

TOPOGRAPHY AND SOILS

The project site is part of the McLaughlin Eastshore State Park where there is relatively little topography. Elevation ranges from sea level to approximately 50 feet above mean sea level. Much of the McLaughlin Eastshore State Park consists of primarily artificial fill that is placed to the west of the shoreline. The project site is a closed landfill that was used as a dumping ground for construction/demolition and industrial waste. The man-made fill episode was limited to dumping on the ground. No natural landforms were used for placement of the waste at the project site.

HYDROLOGY AND DRAINAGE

The San Francisco Bay Estuary is on the northwest and western sides of the project site. This 1,600-square-mile estuary was formed where the fresh waters of the Sacramento and San Joaquin Rivers flow into Suisun Bay, then the San Pablo Bay, and finally empty into the San Francisco Bay, where fresh water mixes with salt water from the Pacific Ocean. The San Francisco Bay Estuary functions as the only drainage outlet for waters of the Central Valley and creates a natural topographic division between the northern and southern coastal mountain ranges.

The project site is in the Berkeley segment of the Central Bay subregion, which is one of four subregions within the San Francisco Bay. Major hydrologic features of the project site are the nearshore zone, shoreline, uplands, and creeks/channels. The nearshore zone is composed of shallow open water and mud and sand flats in the intertidal or subtidal zones that extend to the bay from the shoreline. The boundary along the shoreline edge where the project site is located is highly variable and influenced significantly by tidal fluctuation.

SURFACE WATER QUALITY

Surface water quality of the region is monitored by the RWQCB, according to stated goals in the 2007 Basin Plan as updated in 2021 (Regional Water Quality Control Board-San Francisco Bay 2021). The Basin Plan contains surface water quality objectives for bacteria, bioaccumulation, biostimulatory substances, color, dissolved oxygen, floating material, oil and grease, population and community ecology, pH, radioactivity, salinity, sediment, material that is suspended, material and that can settle, sulfide, tastes and odors, temperature, and toxicity. Stormflow-generated surface water is managed at the project site with contours directing stormflow to storm drain catch basins and outfalls into Hoffman Channel and the San Francisco Bay, respectively (EKI Environment & Water 2019).

GROUNDWATER

The City of Richmond is above the Santa Clara Valley Groundwater Basin, East Bay Plain Subbasin (Basin Number 2-9.04) (City of Richmond 2011). The 77,800-acre East Bay Plain Subbasin is composed of unconsolidated sediments of Quaternary age (i.e., less than 1.6 million years old). Groundwater in Richmond is very close to the surface in the low elevation or Bay plain areas. No groundwater resources are present at the project site.

FLOOD HAZARDS

The Federal Emergency Management Agency (FEMA) prepares and distributes the Flood Insurance Rate Map (FIRMs) used in the National Flood Insurance Program (NFIP) to identify the locations of special flood hazard areas, including the 100-year floodplain. The project site is in a VE 100-year flood zone (Association of Bay Area Governments 2020). A VE flood zone is an area designated by FEMA as having a high risk of flooding from storm surges caused by hurricanes or other severe weather. These areas are identified as Special Flood Hazard Areas with a 1 percent chance of experiencing a flood. Flood hazards are higher due to fast-moving storm waves of three feet or higher.

Tsunamis are potentially destructive waves that result from seismic activity. Tsunamis are unexpected ocean wave events that occur when underwater seismic activity vertically displaces water, causing rapidly moving waves that can rise to great heights when they encounter the shore, resulting in loss of life and property destruction. A seiche is an oscillation of a body of water in an enclosed or semi-enclosed basin, such as a reservoir, harbor, lake, or storage tank. Seiches can be created by winds, earthquakes, or tsunamis. Bodies of water such as reservoirs, ponds, lakes, or large aboveground storage tanks can experience seiche waves up to several feet in height during a strong earthquake. The water sloshes back and forth until the wave motion is dampened by friction. The project site is in a tsunami and seiche zone.

REGULATORY SETTING

There is a well-established regulatory framework of federal and State laws for protection of water quality and floodplain management that would apply to the proposed project. These regulations establish requirements for projects in flood-prone areas and water quality criteria for the protection of human health and the environment, including stormwater discharges to surface water.

Federal Regulations

Clean Water Act

The federal Clean Water Act (CWA) was enacted with the primary purpose of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters. The CWA directs states to establish water quality standards for all "waters of the United States" and to review and update such standards on a triennial basis. The EPA has delegated responsibility for

implementation of portions of the CWA, including water quality control planning and control programs, such as the NPDES Program, the State Water Resources Control Board (SWRCB), and the RWQCB.

National Pollutant Discharge Elimination System

The goal of the NPDES nonpoint source regulations is to improve the quality of stormwater discharged to receiving waters to the "maximum extent practicable" through the use of BMPs. The NPDES permit system was established in the CWA to regulate point source discharges (a municipal or industrial discharge at a specific location or pipe) and certain types of diffuse discharges. As defined in the federal regulations, nonpoint sources are generally exempt from federal NPDES permit program requirements. Nonpoint pollution sources are diffuse and originate over a wide area rather than from a definable point. Urban stormwater runoff and construction site runoff, however, are diffuse sources regulated under the NPDES permit program because they discharge to receiving waters at discrete locations. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits.

State Regulations

Responsibility for the protection of water quality in California rests with the SWRCB and nine RWQCBs. The SWRCB establishes statewide policies and regulations for the implementation of water quality control programs mandated by federal and State water quality statutes and regulations. The RWQCBs develop and implement Water Quality Control Plans (Basin Plans) that consider regional beneficial uses, water quality characteristics, and water quality problems. In cases where the Basin Plan does not contain a standard for a particular pollutant, other criteria are used to establish a standard. Other criteria may be applied from SWRCB documents (e.g., the Inland Surface Waters Plan and the Pollutant Policy Document, California Toxics Rule) or from EPA water quality criteria developed under Section 304(a) of the CWA. Numeric criteria are required by the CWA for many priority toxic pollutants. To fill in the gap between the water quality control plans and CWA requirements, on May 18, 2000, the EPA promulgated the California Toxics Rule based on the Administrator's determination that numeric criteria are necessary in the State of California to protect human health and the environment. These federal criteria are numeric water quality criteria for priority toxic pollutants and other provisions for water quality standards, legally applicable in the State of California, for inland surface waters, enclosed bays, and estuaries for all purposes and programs under the CWA.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act establishes the SWRCB and each RWQCB as the principal State agencies for coordinating and controlling water quality in California. Specifically, the Porter-Cologne Act authorizes the SWRCB to adopt, review, and revise policies for all waters of the state (including both surface and groundwater) and directs the RWQCBs to develop

regional Basin Plans. Section 13170 of the California Water Code authorizes the SWRCB to adopt water quality control plans on its own initiative.

Waste Discharge Requirements

The water quality objectives are achieved primarily through the establishment and enforcement of waste discharge requirements (WDRs). All discharges of waste to waters of the State, including both point and nonpoint source discharges, are subject to regulation. Non-point source discharges are regulated under WDRs, waivers of WDRs, a basin plan prohibition, or some combination of these administrative tools. Discharges of waste directly to State waters would be subject to an individual NPDES permit, which also serves as a WDR. The RWQCBs have primary responsibility for issuing WDRs.

NPDES General Construction Activity Stormwater Permit (Construction General Permit)

The SWRCB permits all regulated construction activities under NPDES General Permit for Storm Water Discharges Associated with Construction Activity (Order No.2009-0009-DWQ, NPDES No. CAR000002) adopted September 2, 2009. Every construction project that disturbs one or more acres of land surface or that is part of a common plan of development or sale that disturbs more than one acre of land surface requires coverage under this Construction General Permit. To obtain coverage, the landowner or other applicable entity must file Permit Registration Documents prior to the commencement of construction activity, which includes filing a Notice of Intent, preparing and implementing a SWPPP, submitting other documents required by this Construction General Permit, and mailing the appropriate permit fee to the SWRCB.

Regional Regulations

San Francisco Bay Basin (Region 2) Water Quality Control Plan (SFB Basin Plan)

The San Francisco RWQCB implements a number of federal and State laws, the most important of which are the State Porter-Cologne Water Quality Control Act and the federal CWA. Discharges from the City to surface and ground waters are subject to the SFB Basin Plan water quality objectives for the designated beneficial uses (water quality standards). The Bay has designated beneficial uses of industrial service and process supply; ocean, commercial, and sport fishing; shellfish harvesting; estuarine habitat; fish migration; preservation of rare and endangered species; fish spawning, wildlife habitat, water contact recreation; noncontact water recreation; and, navigation.

Municipal NPDES Permit

One of the primary objectives of the regulations for nonpoint source discharges is the reduction of pollutants in urban stormwater discharge through the use of structural and nonstructural BMPs. The City of Richmond is permitted under a Phase I for municipal stormwater and urban

runoff discharges under NPDES General Permit No. CA0029912, Water Quality Order No. 99-058 (Municipal NPDES Permit), and subsequent amendments for the Contra Costa County Flood Control and Water Conservation District, Contra Costa County, and 16 incorporated cities in the County that have joined to form the Contra Costa Clean Water Program. However, a tentative order has been prepared to cover six counties in the San Francisco Bay Region, including Contra Costa County, under a Regional General Permit (Municipal Regional Stormwater Permit). If adopted, in addition to existing provisions, this permit would include Low Impact Development (LID) requirements (Provision C.3.c.) and require limitations on increases in peak stormwater runoff rate and volume where such increased flow and/or volume is likely to cause increased erosion of creek beds and banks, silt pollutant generation, or other impacts to beneficial uses for areas not already subject to a hydrograph modification management plan/program, including the City of Richmond (Provision C.3.g.). LID is a stormwater management strategy that emphasizes conservation and the use of on-site natural features integrated with engineered, small-scale treatment and hydrologic controls to more closely reflect predevelopment conditions and minimizes the need for large sub-regional and regional treatment control measures.

3.10.2 Explanation of Checklist Answers

A) LESS-THAN-SIGNIFICANT IMPACT

Project BMPs and BMPs identified in the SWPPP required by NPDES would be used to control any stormwater flow generated on-site during construction and serve to protect water quality surrounding the project site. During site preparation, clearance, and grading, water would be used for dust suppression. The project site would be graded as identified in the grading plan to ensure no impacts to the existing drainage that is on the northwest and western side of the project site. Therefore, the proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface- or groundwater quality and a **less-than-significant impact** would occur.

B) NO IMPACT

No groundwater sources are present at the project site. Water that would be used during site preparation, clearance, and grading for dust suppression would likely be sourced from the City of Richmond. Water used by the City of Richmond is provided by the East Bay Municipal Utility District (EBMUD) and originates from the Mokelumne River watershed on the western slope of the Sierra Nevada Mountain range (East Bay Municipal Utility District 2023). Therefore, the proposed project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin, and **no impact** would occur.

C) LESS-THAN-SIGNIFICANT IMPACT

No natural streambed or river is present at the project site. During the remediation process, the current drainage pattern associated with the closed landfill would be temporarily altered as new cap material is added and the new surface is recontoured so that future stormwater flow is directed to drain catch basins and discharged via outfalls to Hoffman Channel and the San Franisco Bay.

CI)

During the remediation process, soil erosion both on- and off-site would be controlled using construction BMPs and BMPs identified in the SWPPP required by NPDES. Therefore, the proposed project would not result in substantial erosion or siltation on- or off-site.

CII)

During construction, construction BMPs and BMPs identified in the SWPPP required by NPDES would be incorporated to reduce the rate and amount of uncontrolled surface runoff. After construction, stormwater runoff generated on-site would be directed to the on-site drain catch basins and outfalls which would reduce any risks of both on- and off-site flooding. Therefore, the proposed project would not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

CIII)

During the remediation process, stormwater flow would be controlled using construction BMPs and BMPs identified in the SWPPP required by NPDES. The new surface would be recontoured so that future stormwater flow is directed to the proposed on-site drain catch basins, which would be designed to capture and manage potential runoff that may originate from the new landfill cap. Therefore, the proposed project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

CIV)

During construction, stormwater flow would be managed using construction BMPs and BMPs identified in the SWPPP required by NPDES. Afterward, stormwater flow would be controlled and directed to the project site's drain catch basins and discharged via outfalls to Hoffman Channel and the San Franisco Bay. The project site is topographically higher than the mapped 100-year flood zone; therefore, the proposed project would not impede or redirect a 100-year flood event (Association of Bay Area Governments 2020).

Project BMPs and BMPs identified in the SWPPP required by NPDES would be used to control stormwater flow. Therefore, the proposed project would not alter the existing drainage pattern

of the project site, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, and a **less-than-significant impact** would occur.

D) LESS-THAN-SIGNIFICANT IMPACT

Existing conditions of the landfill cap on the project site present an increased risk for release of pollutants during a 100-year flood event, tsunami, or seiche. Once implemented, the proposed remediated landfill cap would reduce the risk for the accidental release of contaminants originating from the landfill. Therefore, the proposed project would not increase risk of release of pollutants due to project inundation and a **less-than-significant impact** would occur.

E) LESS-THAN-SIGNIFICANT IMPACT

No groundwater resources are present at the project site. Water that would be used during site preparation, clearance, and grading for dust suppression would likely be sourced from the City of Richmond. Water used by the City of Richmond is provided by the EBMUD and originates from the Mokelumne River watershed located on the western slope of the Sierra Nevada (East Bay Municipal Utility District 2023). Once construction is complete, the project site would resume its existing use as a park. The proposed project would be subject to federal and State water quality regulations where applicable. Construction BMPs and BMPs identified in the SWPPP required by NPDES would serve to protect water quality surrounding the project site. Therefore, the proposed project would not conflict with implementation of a water quality control plan or a sustainable groundwater management plan and a **less-than-significant impact** would occur.

3.11 Land Use and Planning

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Physically divide an established community?				**X**
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**	

References: City of Richmond General Plan 2012; East Bay Regional Park District Master Plan 2013.

3.11.1 Environmental Setting

The project site is located in the East Bay region of the San Francisco Bay within Contra Costa County in the City of Richmond. The project site is within the East Bay Regional Park District boundaries and therefore is within the East Bay Regional Park District's jurisdiction. Due to this, the proposed project is not subject to the City of Richmond's land use and zoning designations. The East Bay Regional Park has a Master Plan that was adopted in 2013 which establishes regional parkland classifications. The project site is classified as a Regional Shoreline in the 2013 Master Plan, which is defined in the 2013 Master Plan as an area that must contain a variety of natural environments and manageable units of tidal, near shore wetland and upland areas that can be used for scientific, interpretive, or environmental purposes (EBRP 2013). The project site is located along the Richmond Shoreline of the San Francisco Bay. Areas surrounding the project site also includes open space, and beyond these areas to the north, east, and south is urban development.

3.11.2 Explanation of Checklist Answers

A) NO IMPACT

The project site is currently used as a park and would resume operation as a park after the proposed remediation process and installation of park amenities and landscape improvements. The project site is located along the San Francisco Bay shoreline on the outlying western edge of the Richmond and is not located amidst an established community. The project site is separated from the nearest neighborhood by Hoffman Marsh and I-580 and the adjacent railroad. Therefore, the proposed project would not physically divide an established community, and **no impact** would occur.

B) LESS-THAN-SIGNIFICANT IMPACT

The proposed project would be subject to the East Bay Regional Park District Master Plan. The project site is classified as a Regional Shoreline in the East Bay Regional Park District Master Plan. The project site is currently used as a park and would resume operation as a park after the proposed remediation process and installation of park amenities and landscape improvements. Table 10, *Consistency Analysis of Relevant East Bay Regional Park District Master Plan Policies and the Proposed Project*, details relevant East Bay Regional Park District Master Plan (East Bay Regional Park District Master Plan 2013) policies and their consistency with the proposed project.

Table 10 Consistency Analysis of Relevant East Bay Regional Park District Master Plan Policies and the Proposed Project

Planning Elements and Policy Description	Statement of Consistency
NRM11: Park water resources will be used for beneficial purposes. Water quality will be monitored to comply with established standards. The District will participate in cooperative efforts to plan comprehensive watershed management and will adopt "best management practice" guidelines for District land use activities to minimize potential storm water pollution. The District will monitor land use planning and development activities by other agencies and cities to avoid potential adverse impacts to parkland from pollutants generated by off-site or upstream sources.	**Consistent.** During construction of the proposed landfill cap remediation and installation of park amenities and landscape improvements, a SWPPP detailing BMPs would be implemented to prevent pollutants generated during storm events from leaving the project site.
PA6: The District will comply with the requirements of the Americans with Disabilities Act and use the current edition of the California State Parks Accessibility Guidelines as its standard for making the improvements necessary to create accessible circulation, programs, and facilities throughout the Park District.	**Consistent.** The Point Isabel Regional Shoreline has ADA-compliant facilities, and existing conditions and access at the project site would be improved as part of the proposed project.
RFA1: The District will provide a diverse system of non-motorized trails to accommodate a variety of recreational users including hikers, joggers, people with dogs, bicyclists, and equestrians. Both wide and narrow trails will be designed and designated to accommodate either single or multiple users based on location, recreational intensity, environmental, and safety considerations. The District will focus on appropriate trail planning and design, signage, and trail user education to promote safety and minimize conflicts with users.	**Consistent.** The proposed project involves the restoration of the existing landfill cap. Once the landfill cap is restored and new park amenities and landscape improvements have been installed, the project site would resume its existing use as a park. The proposed project would provide enhanced opportunities to use the project site as an off-leash dog area. Trails on top of the proposed landfill cap and signage at the two entrances of the park are proposed as part of the added park amenities.
PRPT8: A Regional Shoreline (one area or a group of smaller shoreline areas that are connected by trail or water access) must contain a variety of natural environments and manageable units of tidal, near shore wetland, and upland areas that can be used for scientific,	**Consistent.** The proposed project involves the restoration of the existing landfill cap. Once the landfill cap is restored and new park amenities and landscape improvements have been installed, the project site would resume its existing use as a park. The proposed project would provide enhanced

Planning Elements and Policy Description	Statement of Consistency
interpretive, or environmental purposes; and/or contain sufficient land and water to provide a variety of recreational activities, such as swimming, fishing, boating, or viewing. The Recreation/Staging Unit providing for public access and services may comprise no more than 30 percent of a Regional Shoreline.	opportunities to use the project site as an off-leash dog area. Access to the San Francisco Bay on the west and northwest sides of the proposed project would be limited to pedestrian trails.

The continued use of the project site as a park would not conflict with the existing park classification as a regional shoreline. No changes to the classification of the project site would be required to implement the proposed landfill cap restoration and installation of park amenities. Therefore, the proposed project would not 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, and a **less-than-significant impact** would occur.

3.12 Mineral Resources

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				**X**
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**

References: City of Richmond 2012; United States Geological Survey 2023.

3.12.1 Environmental Setting

The project site was identified as a quarry in 1972 as a primary source of stone owned by the Berkeley Waterfront Co. that had been abandoned (United States Geological Survey 2023). No mineral production at the project site has been identified by the United States Geological Survey. The City of Richmond General Plan does not identify mineral resources at the project site (City of Richmond 2012).

3.12.2 Explanation of Checklist Answers

A) NO IMPACT

No mineral production at the project site has been identified by the United States Geological Survey. While there may have been mineral resources in the past, no mineral resources are currently identified at the project site. Therefore, the proposed project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, and **no impact** would occur.

B) NO IMPACT

The City of Richmond General Plan does not identify mineral resources at the project site. Therefore, the proposed project would not 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, and **no impact** would occur.

3.13 Noise

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			**X**	
b) Generation of excessive groundborne vibration or groundborne noise levels?			**X**	
c) For a project 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, will the project expose people residing or working in the project area to excessive noise levels?				**X**

References: California Department of Transportation 2013; Google Earth Pro 2022.

3.13.1 Environmental Setting

EXISTING NOISE ENVIRONMENT

The existing noise environment in the project area is primarily influenced by traffic noise on I-580 and train operations on the Western Pacific and Amtrak rail line adjacent to and east of I-580. Secondary noise characteristics of the site include truck movements attributable to the industrial warehouse use to the south, San Francisco Bay Trail users, and birds.

Ambient noise monitoring was conducted around the project site from March 13 to 14, 2024. Figure 4, *Noise Monitoring Locations,* shows the six short-term (15-minute) and three long-term (24-hour) noise measurement locations. Short-term measurement results are detailed below and summarized in Table 11, *Ambient Short-Term Noise Measurements Summary*. See Appendix C, *North Point Isabel Cap Improvement Project Noise and Vibrational Technical Study*, for additional information regarding the noise study conducted for the proposed project.

Table 11 Ambient Short-Term Noise Measurement Summary

Location	L_{eq} (dBA)	L_{max} (dBA)
ST1 – Northern Hoffman Marsh Boundary	58.5	64.1
ST2 – Hoffman Marsh east of project site	64.8	71.1
ST3 – Adjacent to the San Francisco Bay Trail Bridge	62.5	68.1
ST4 – Point Isabel parking lot	65.3	73.8
ST5 – Hoffman Marsh east of the San Francisco Bay Trail parking lot	66.5	72.6
ST6 – Hoffman Marsh south of project site	60.7	74.2

Source: Appendix C.
Note: ST-1 is not included in this table because it is not located along the truck haul route.

- **Short-Term Location 1 (ST-1)** monitoring was conducted on the northern Hoffman Marsh Boundary. The measurement location was approximately 40 feet east of the San Francisco Bay. A 15-minute noise measurement began at 7:33 p.m. on Wednesday, March 13, 2024. The noise measurement was conducted close to dusk. The noise environment is characterized primarily by traffic along I-580, Western Pacific Rail horns, and bird activity nearby. Pedestrian and cyclist activity was observed to be less prominent during this time. Noise levels generally ranged from 59 to 64 dBA.

- **Short-Term Location 2 (ST-2)** monitoring was conducted east of the project site in the Hoffman Marsh approximately 140 feet from the trail. A 15-minute noise measurement began at 7:02 p.m. on Wednesday, March 13, 2024. The noise measurement was conducted approaching dusk. The noise primarily consisted of traffic along I-580, Western Pacific rail,

distant plane noise, and various bird activity. In addition to traffic, sirens were audible during this measurement. Noise levels generally ranged from 65 to 71 dBA.

- **Short-Term Location 3 (ST-3)** monitoring was conducted adjacent to the trail. The measurement location was approximately 20 feet east of the park. A 15-minute noise measurement began at 6:48 p.m. on Wednesday, March 13, 2024. The noise environment is characterized primarily by traffic along I-580, pedestrians walking and chatting, joggers, cyclists, dogs barking on the trail and in the nearby park, Western Pacific Rail, and bird activity nearby. Pedestrian and cyclist activity was observed to increase along the trail. Dogs barking were also more audible during this time. Noise levels generally ranged from 63 to 68 dBA.

- **Short-Term Location 4 (ST-4)** monitoring was conducted adjacent to the Point Isabel Parking Lot. A 15-minute noise measurement began at 6:27 p.m. on Wednesday, March 13, 2024. The noise measurement was conducted approaching dusk time. The noise primarily consisted of parking lot activity, traffic along I-580, Western Pacific rail, dogs barking, people chatting and walking into the park, dog washer station activity, and birds chirping. Noise levels generally ranged from 65 to 74 dBA.

- **Short-Term Location 5 (ST-5)** monitoring was conducted adjacent to the trail. The measurement location was taken in Hoffman Marsh approximately 20 feet east of the trail near the ending point of Rydin Road. A 15-minute noise measurement began at 6:02 p.m. on Wednesday, March 13, 2024. The noise environment is characterized primarily by traffic along I-580, pedestrians walking and chatting, joggers, cyclists, dog activity on the trail and in the nearby park, Western Pacific Rail, light- and heavy-duty vehicles along Rydin Road, and bird activity nearby. Noise levels generally ranged from 67 to 73 dBA.

- **Short-Term Location 6 (ST-6)** monitoring was conducted in the Hoffman Marsh south of the project site. The measurement location was taken approximately 20 feet east of the trail and approximately 55 feet of Rydin Road. A 15-minute noise measurement began at 5:33 p.m. on Wednesday, March 13, 2024. The noise environment is characterized primarily by traffic along I-580, pedestrians walking and chatting, joggers, cyclists, Western Pacific Rail, light- and heavy-duty vehicles along Rydin Road, and bird activity nearby. Noise levels generally ranged from 61 to 74 dBA.

Long-term measurement results are detailed below and summarized in Table 12, Table 13, and Table 14, *Ambient Long-Term Noise Measurements Summary* for LT-1, LT-2, and LT-3 (respectively). Average hourly noise levels at sites LT-1, LT-2, and LT-3 are 66.4 dBA L_{eq}, 66.2 dBA L_{eq}, and 60.1 dBA L_{eq}, respectively.

- **Long-Term Location 1 (LT-1)** monitoring was conducted east of the trail adjacent to the entrance of the channel from Hoffman Marsh. The measurement location was approximately 50 feet east of the bridge crossing the channel. A 24-hour noise measurement was taken from Wednesday, March 13, 2024, to Thursday, March 14, 2024. The noise environment is characterized primarily by traffic along I-580, pedestrians walking and chatting, joggers, cyclists, dog activity on the trail and in the nearby park, Western Pacific Rail, and bird activity nearby. Noise levels generally ranged from 57 to 70 dBA L_{eq}.

- **Long-Term Location 2 (LT-2)** monitoring was conducted east of the trail and project site in the Hoffman Marsh. The measurement location was approximately 140 feet from the trail along the marsh berm. A 24-hour noise measurement was taken from Wednesday, March 13, 2024, to Thursday, March 14, 2024. The noise environment is characterized primarily by traffic along I-580, Western Pacific Rail, and bird activity nearby. Noise levels generally ranged from 55 to 70 dBA L_{eq}.

- **Long-Term Location 3 (LT-3)** monitoring was conducted east of the trail and in the northern portion of the Hoffman Marsh. The measurement location was approximately 280 feet from the trail. A 24-hour noise measurement was taken from Wednesday, March 13, 2024, to Thursday, March 14, 2024. The noise environment is characterized primarily by traffic along I-580, Western Pacific Rail, and bird activity nearby. Noise levels generally ranged from 51 to 64 dBA L_{eq}.

Table 12 LT-1 Ambient Long-Term Noise Measurements

Time	L_{eq} (dBA)	L_{max} (dBA)	Time	L_{eq} (dBA)	L_{max} (dBA)
6:00 AM	69.7	80	6:00 PM	66.9	77.2
7:00 AM	66.7	89.9	7:00 PM	67	80.4
8:00 AM	63.3	72.9	8:00 PM	66	78.2
9:00 AM	69	77	9:00 PM	65.3	73.1
10:00 AM	69.3	85.1	10:00 PM	65	78.2
11:00 AM	70.1	84	11:00 PM	63.7	78.8
12:00 PM	69.4	84	12:00 AM	62.3	77.1
1:00 PM	64.3	72	1:00 AM	63.2	78.4
2:00 PM	60.4	74.8	2:00 AM	62.3	73.7
3:00 PM	56.4	76.1	3:00 AM	63.7	74.1
4:00 PM	57	70.5	4:00 AM	67	78.1
5:00 PM	59	77.2	5:00 AM	68.9	76.1

Source: Appendix C.

Table 13 LT-2 Ambient Long-Term Noise Measurements

Time	L_{eq} (dBA)	L_{max} (dBA)	Time	L_{eq} (dBA)	L_{max} (dBA)
6:00 AM	69.6	78.9	6:00 PM	66.7	74.4
7:00 AM	66.7	83.5	7:00 PM	66.8	76.9
8:00 AM	63.2	75.1	8:00 PM	65.9	82.1
9:00 AM	69.2	76.8	9:00 PM	65.2	79.3
10:00 AM	69.3	90.1	10:00 PM	65.3	75
11:00 AM	69.6	78.9	11:00 PM	64	75.7
12:00 PM	69.4	80.7	12:00 AM	62.5	76.9
1:00 PM	63.4	73.2	1:00 AM	63.1	79.5
2:00 PM	59.4	76.3	2:00 AM	61.7	75.4
3:00 PM	55.2	71.6	3:00 AM	63.3	73.5
4:00 PM	55.1	69.6	4:00 AM	66.9	76.9

Time	L_{eq} (dBA)	L_{max} (dBA)	Time	L_{eq} (dBA)	L_{max} (dBA)
5:00 PM	59.2	72.1	5:00 AM	68.9	75.4

Source: Appendix C.

Table 14 LT-3 Ambient Long-Term Noise Measurements

Time	L_{eq} (dBA)	L_{max} (dBA)	Time	L_{eq} (dBA)	L_{max} (dBA)
6:00 AM	62.7	71.4	6:00 PM	59.9	70
7:00 AM	60.4	70.8	7:00 PM	60.5	76.1
8:00 AM	57.5	77.7	8:00 PM	59.3	72.3
9:00 AM	63.7	74.6	9:00 PM	59.3	80.2
10:00 AM	63.2	81.3	10:00 PM	59.1	68.6
11:00 AM	63.4	73.2	11:00 PM	57.4	72.2
12:00 PM	63	73.8	12:00 AM	56	70.5
1:00 PM	58	88.8	1:00 AM	57.1	74
2:00 PM	53.7	67.3	2:00 AM	55.9	70.9
3:00 PM	51.5	61.2	3:00 AM	56.7	72.1
4:00 PM	51	63.5	4:00 AM	60.1	75.8
5:00 PM	53.7	66.5	5:00 AM	61.7	71.1

Source: Appendix C.

Figure 4 Noise Monitoring Locations

Source: USGS, East Bay Regional Parks District; PlaceWorks 2024.

Figure 4
Noise Monitoring Locations

SENSITIVE RECEPTORS

Certain land uses are particularly sensitive to noise and vibration, including residential, schools, hospitals, and open space/recreation areas where quiet environments are necessary for enjoyment, public health, and safety.

The closest sensitive receptor location is the Hoffman Marsh across the San Francisco Bay Trail from the project, where nesting habitat of endangered/threatened species exists—habitat for California Ridgway's rail (*Rallus longirostris obsoletus*). The closest residential sensitive receptors are approximately 1,300 feet east of the project site across I-580.

Biological resources can be susceptible to adverse effects associated with noise exposure. See Section 3.4, *Biological Resources*, for an analysis of potential noise impacts to special-status species.

3.13.2 Explanation of Checklist Answers

As a result of the California Supreme Court decision regarding the assessment of the environment's impacts on projects (*California Building Industry Association (CBIA) v. Bay Area Air Quality Management District (BAAQMD)*, 62 Cal. 4th 369 (No. S 213478) issued December 17, 2015), it is generally no longer the purview of the CEQA process to evaluate the impact of existing environmental conditions on any given project. The direct effects of exterior noise from nearby noise sources relative to land use compatibility of a future project as a result of the proposed project is no longer typically a required topic for impact evaluation under CEQA. Generally, no determination of significance is required except for certain school projects, projects affected by airport noise, and projects that would exacerbate existing conditions (i.e., projects that would have a significant operational impact).

SIGNIFICANCE THRESHOLDS

Traffic Noise

A project will normally have a significant effect on the environment related to noise if it will substantially increase the ambient noise levels for adjoining areas. Most people can detect changes in sound levels of approximately 3 dBA under normal, quiet conditions, and changes of 1 to 3 dBA under quiet, controlled conditions. Changes of less than 1 dBA are usually indiscernible. A change of 5 dBA is readily discernible to most people in an outdoor environment. Based on this, a significant impact would occur if traffic noise increases the existing noise environment by the following:

- 1.5 dBA or more for ambient noise environments of 65 dBA CNEL and higher
- 3 dBA or more for ambient noise environments of 60 to 64 CNEL
- 5 dBA or more for ambient noise environments of less than 60 dBA CNEL

Construction Noise

The Federal Transit Administration (FTA) provides criteria for acceptable construction noise levels and recommends a daytime noise threshold of 80 dBA L_{eq} (eight hour) for residential uses. For the purposes of this analysis, the FTA criterion is applied to nearby residences to determine impact significance.

Stationary Noise

The City's noise ordinance establishes exterior noise levels based on receiving land use. For the purposes of this analysis, these exterior noise standards are used to determine impact significance at nearby sensitive residential receptors.

Vibration

The City of Richmond has not established specific limits for vibration. The FTA provides criteria for acceptable levels of groundborne vibration for various types of buildings. These criteria are shown in Table 15, *Groundborne Vibration Criteria.* For the purposes of this analysis, the FTA criterion is applied to nearby sensitive receptors to determine impact significance.

Table 15 Groundborne Vibration Criteria

Building Category		PPV (in/sec)
I.	Reinforced concrete, steel, or timber (no plaster)	0.5
II.	Engineered concrete and masonry (no plaster)	0.3
III.	Nonengineered timber and masonry buildings	0.2
IV.	Buildings extremely susceptible to vibration damage	0.12

Source: FTA 2018.
PPV = peak particle velocity

METHODOLOGY

Anticipated daily haul truck trip generation associated with the proposed project is used in this analysis to estimate haul truck traffic noise increases when compared to baseline noise levels. The proposed project's average daily trips are compared to the baseline ambient noise levels to determine the traffic noise increases. The construction noise analysis uses the Roadway Construction Noise Model (RCNM) based on an anticipated equipment mix for individual construction activities verified by the applicant. The simultaneous use of the top three loudest pieces of equipment for each construction activity is modeled from the acoustical center of the construction site to the nearest sensitive receptor property line. Groundborne vibration and vibration noise is determined using FTA methodology and reference vibration levels for typical construction equipment (FTA 2018).

A) LESS-THAN-SIGNIFICANT IMPACT

Construction Vehicles

The transport of materials to and from the construction site would incrementally increase noise levels along Rydin Road. Single-event haul truck pass-bys generate noise levels of approximately 84 dBA (SEL) at 50 feet with a maximum of 77 dBA (Lmax) (FHWA 2006). Proposed haul truck trips are modeled assuming an operating speed of 15 miles per hour over an 8-hour workday. Based on anticipated haul truck trip estimates, the project would generate up to 80 haul truck trips per day, 10 per hour for an 8-hour workday, or 20 one-way trips per hour. Short-term measurement sites ST-2 through ST-6 are used to represent the nearest potential nesting habitat areas in the Hoffman Marsh (see Section 3.4, *Biological Resources*).

The operation of up to 20 one-way haul truck trips per hour along Rydin Road and the bridge over the Hoffman Canal would result in an hourly noise level of 53.6 dBA Leq at 50 feet. Table 16, *Project Haul Truck Trip Analysis*, shows the ambient noise levels at short-term measurement locations, the combined noise level due to project haul truck trips, and the increase over ambient noise level attributable to project haul truck trips. As shown in Table 16, project haul trips would not exceed 60 dBA Leq. Therefore, the proposed project would not result in significant haul truck traffic noise impacts, and impacts would be **less than significant**.

Table 16 Project Haul Truck Trip Analysis

Site Measurement Location	Ambient L_{eq} (dBA)	L_{eq} Comparison (dBA)	Combined L_{eq} (dBA)	Increase Over Ambient L_{eq} (dBA)
ST-2	64.8	-11.2	65.1	0.3
ST-3	62.5	-8.9	63.0	0.5
ST-4	65.3	-11.7	65.5	0.2
ST-5	66.5	-12.9	66.7	0.2
ST-6	60.7	-7.1	61.4	0.7

Source: PlaceWorks, March 13, 2024.

Construction Equipment

Noise generated by on-site construction equipment is based on the type of equipment used, its location relative to sensitive receptors, and the timing and duration of noise-generating activities. Each phase of construction involves different types of equipment and has distinct noise characteristics. Noise levels from construction activities are typically dominated by the loudest several pieces of equipment. The dominant equipment noise source is typically the engine, although work-piece noise (such as dropping of materials) can also be noticeable.

The noise produced at each construction phase is determined by combining the L_{eq} contributions from the top three loudest pieces of equipment used at a given time, while accounting for the ongoing time-variations of noise emissions (commonly referred to as the usage factor). Heavy equipment, such as a dozer or a loader, can have maximum, short-duration noise levels of up to 85 dBA at 50 feet (FTA 2018). However, overall noise emissions vary considerably, depending on what specific activity is being performed at any given moment.

Noise attenuation due to distance, the number and type of equipment, and the load and power requirements to accomplish tasks at each construction phase would result in different noise levels from construction activities at a given receptor. Since noise from construction equipment is intermittent and diminishes at a rate of at least 6 dBA per doubling of distance (conservatively ignoring other attenuation effects from air absorption, ground effects, and shielding effects), the average noise levels at noise-sensitive receptors could vary considerably, because mobile construction equipment would move around the site (site of each development phase) with different loads and power requirements.

Construction noise levels associated with the proposed project were modeled using RCNM from the edge of the construction site (which is conservative since construction equipment would move around the project site and would not remain at the edge of the construction site for prolonged periods of time) to the long-term noise measurement sites LT-1 through LT-3. Long-term noise measurement sites are used in the analysis to represent the nearest potential nesting habitat areas in the Hoffman Marsh (see Section 3.4, *Biological Resources*). Results are summarized in Table 17, *Proposed Project-Related Construction Noise, dBA L_{eq}*.

The nearest human noise-sensitive uses are more than 1,000 feet away, adjacent to I-580 and rail lines, and would not be exposed to project construction noise levels exceeding noise thresholds or cause a 3 dBA increase over the existing ambient noise levels and impacts would be **less than significant**.

To determine project construction activity at construction sites C1, C2, C3, and C4, shown in Figures 5a through 5g, *Construction Noise Contours*, construction noise levels were modeled based on construction site locations and the type of construction activity. Additionally, 66 dBA L_{eq} (Lt-1 and Lt-2) and 60 dBA L_{eq} (Lt-3) noise contours attributable to the different types of construction activity proposed for the project were modeled in different construction phases. Potential construction noise impacts to wildlife based on this analysis are addressed in Section 3.4, *Biological Resources*.

Table 17 Proposed Project-Related Construction Noise, dBA L_{eq}

Construction Activity Phase	RCNM Output Noise Level			Combined Noise Level with Ambient			Increase over Ambient		
	LT-1	LT-2	LT-3	LT-1	LT-2	LT-3	LT-1	LT-2	LT-3
Rip rap	66.6	63.7	57.8	69.5	68.1	62.1	3.1	1.9	2.0
Trail Gravel	67.7	63.7	57.8	70.1	68.1	62.1	3.7	1.9	2.0
Grading 2 pieces of equipment	72.0	68.0	62.1	73.1	70.2	64.2	6.7	4.0	4.1
Grading 3 pieces of equipment	73.8	69.8	63.9	74.9	71.4	65.4	8.5	5.2	5.3
Landscape	64.4	60.4	54.5	68.5	67.2	61.2	2.1	1.0	1.1
Paving	66.6	62.6	56.7	69.5	67.8	61.7	3.1	1.6	1.6

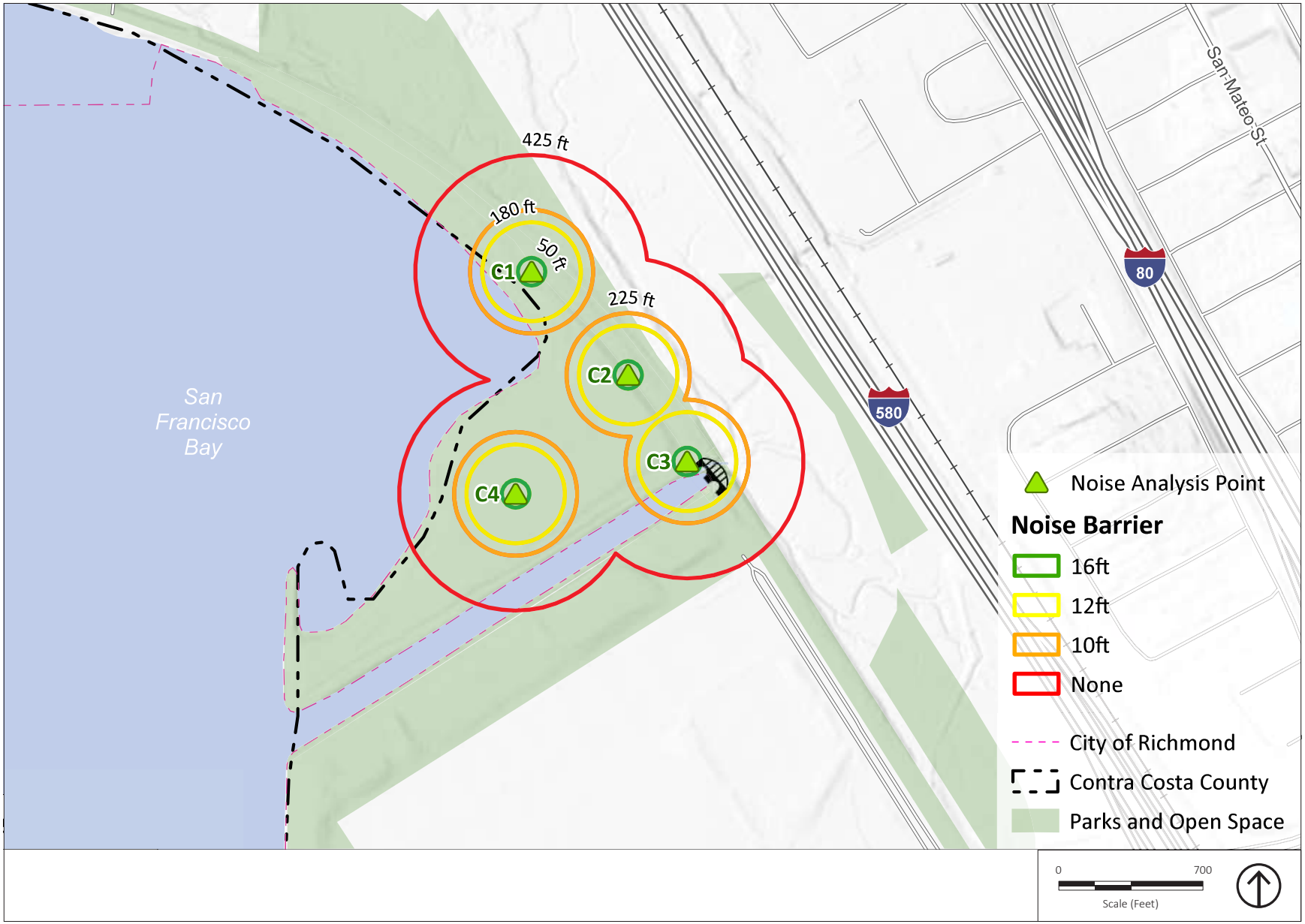
Notes: Calculations performed with the FHWA's RCNM software are included in Appendix C.
Distance to sensitive habitat receptors is measured from the edge of the construction site to long-term measurement sites.

Park User Noise Impacts

The proposed project would improve the recreational area amenities and landscape adjacent to the existing San Francisco Bay Trail recreation area and habitat; however, an increase in park users is not expected with implementation of the project. The proposed dog park would be a similar use and consist of similar noise sources associated with the San Franciso Bay Trail and habitat area. Project park user impacts would remain the same in amount of users, and would not result in an incremental noise level increase over existing park user noise levels. In addition, the nearest noise-sensitive uses are more than 1,000 feet away, adjacent to I-580 and rail lines, and would not be exposed to park user noise levels exceeding noise thresholds or cause a 3 dBA increase. Therefore, the proposed project would not result in significant park user noise impact at off-site noise-sensitive uses.

In addition, proposed project trips on the local roadway network would not result in an increase of traffic noise over existing as visitor amount would not change. Project trips would not result in a doubling of existing traffic volumes or result in a substantial increase in existing traffic noise levels. The traffic noise increase would be less than 1 dBA CNEL adjacent to uses that are not considered noise sensitive. Therefore, the proposed project would not result in significant traffic noise on the local roadway network, and impacts would be considered **less than significant**.

Figure 5a Noise Contours at 60 dBA L_{eq} with Rip Rap Equipment

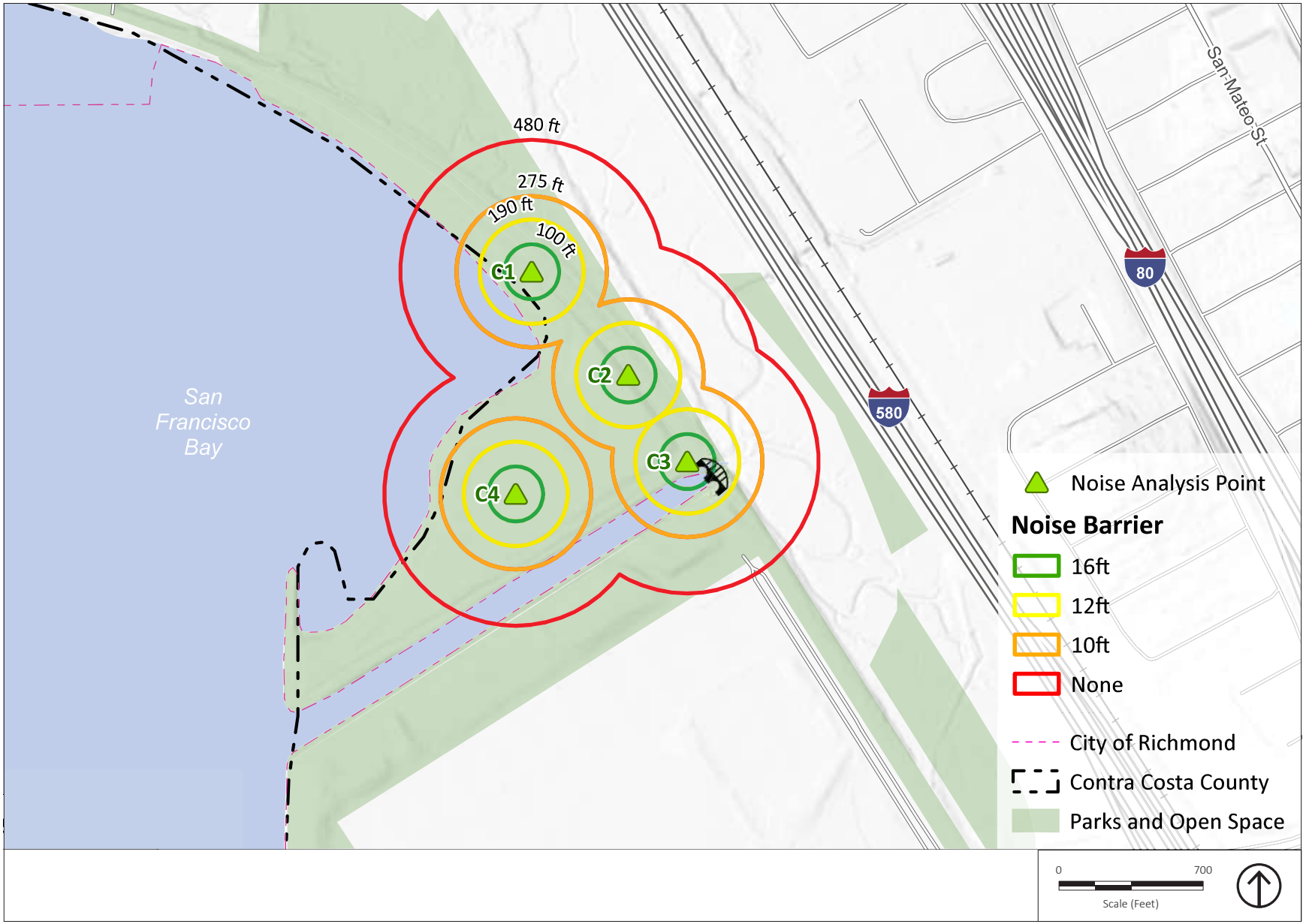


Source: USGS, East Bay Regional Parks District; PlaceWorks.

Figure 5a

Noise Contours at 60 dBA L_{eq} with Rip Rap Equipment

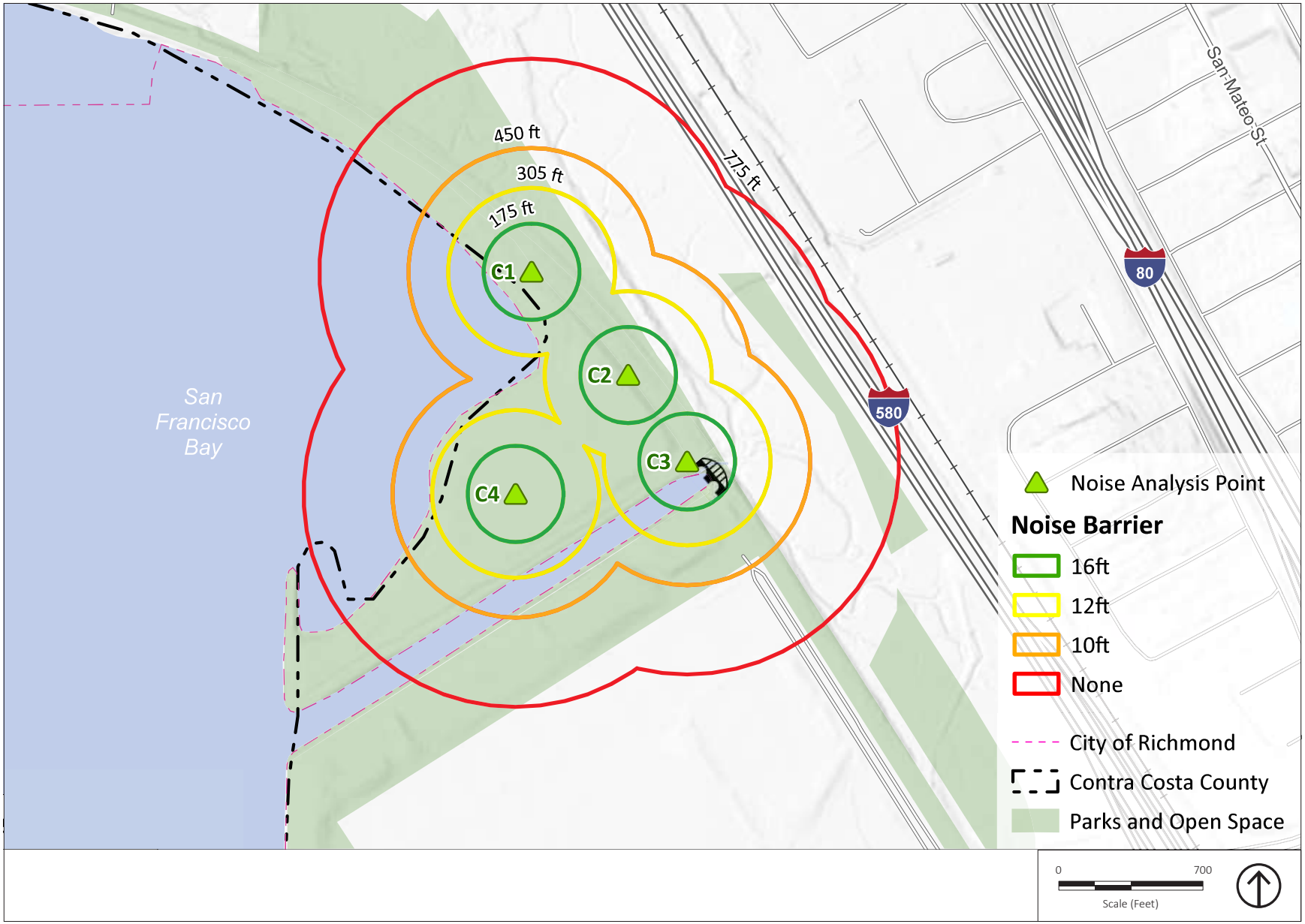
Figure 5b Noise Contours at 60 dBA L_{eq} with Trail Gravel Equipment



Source: USGS, East Bay Regional Parks District; PlaceWorks.

Figure 5b
Noise Contours at 60 dBA L_{eq} with Trail Gravel Equipment

Figure 5c Noise Contours at 60 dBA L_{eq} with 2 Pieces of Grading Equipment

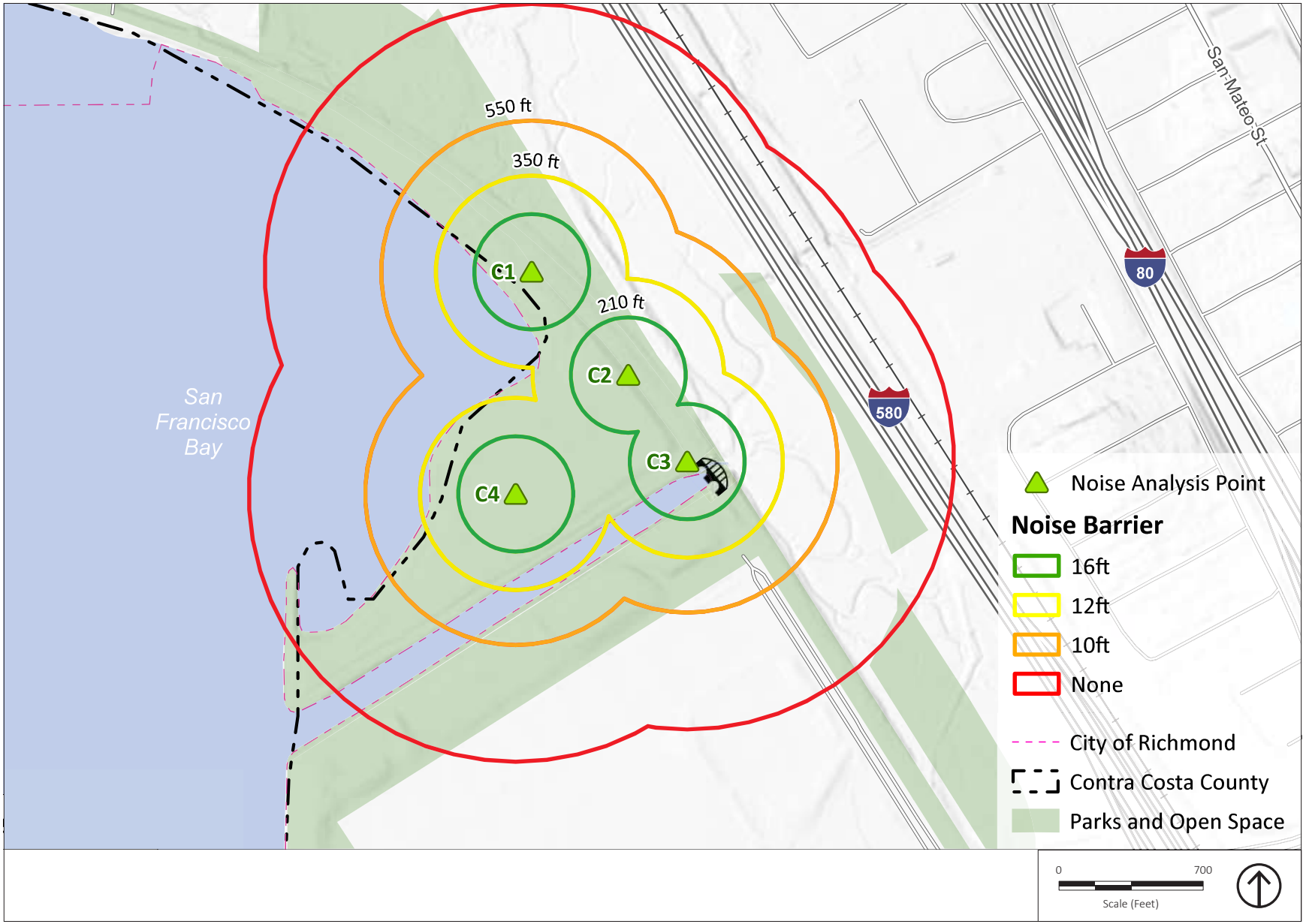


Source: USGS, East Bay Regional Parks District; PlaceWorks.

Figure 5c

Noise Contours at 60 dBA L_{eq} with 2 Pieces of Grading Equipment

Figure 5d Noise Contours at 60 dBA L_{eq} with 3 Pieces of Grading Equipment

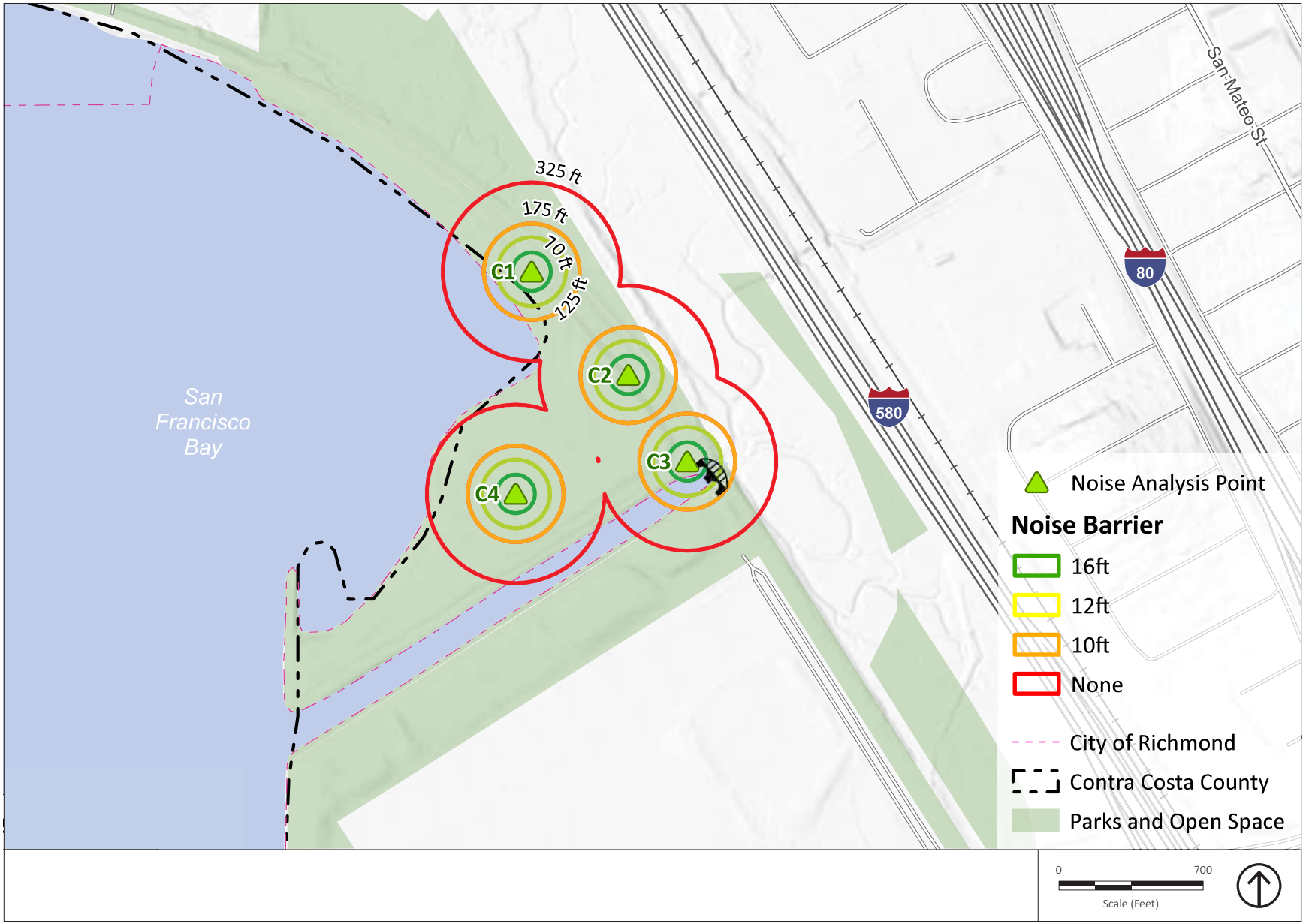


Source: USGS, East Bay Regional Parks District; PlaceWorks.

Figure 5d

Noise Contours at 60 dBA L_{eq} with 3 Pieces of Grading Equipment

Figure 5e Noise Contours at 60 dBA L_{eq} with Landscape Equipment

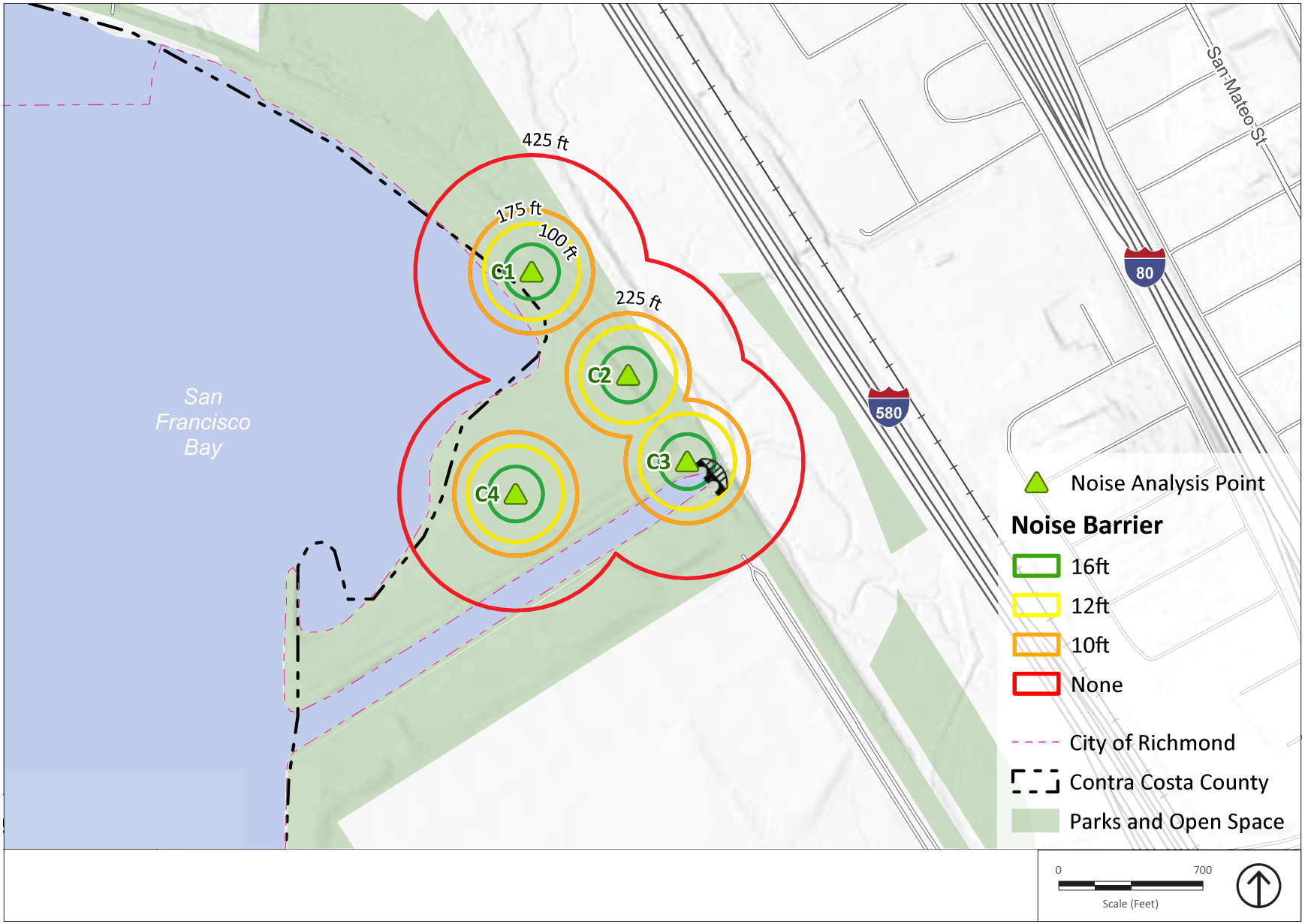


Source: USGS, East Bay Regional Parks District; PlaceWorks.

Figure 5e

Noise Contours at 60 dBA L_{eq} with Landscape Equipment

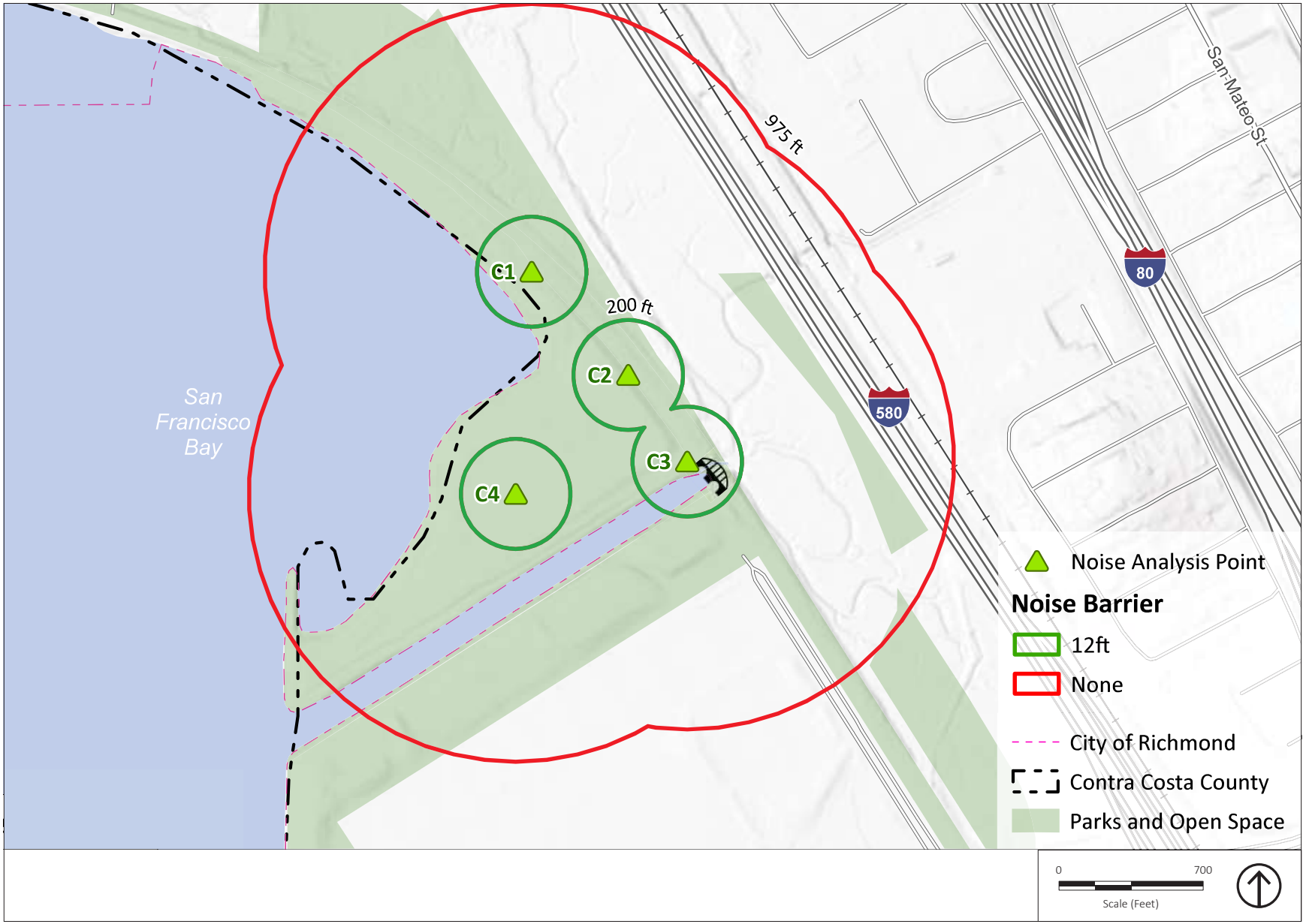
Figure 5f Noise Contours at 60 dBA L_{eq} with Paving Equipment



Source: USGS, East Bay Regional Parks District; PlaceWorks.

Figure 5f
Noise Contours at 60 dBA L_{eq} with Paving

Figure 5g Noise Contours at 66 dBA L_{eq} with 3 Pieces of Grading Equipment



Source: USGS, East Bay Regional Parks District; PlaceWorks.

Figure 5g

Noise Contours at 66 dBA L_{eq} with 3 Pieces of Grading Equipment

B) LESS-THAN-SIGNIFICANT IMPACT

During operation, the proposed project would not include any equipment or uses that would generate vibration. Therefore, this analysis focuses on construction-phase vibration.

Construction can generate varying degrees of ground vibration, depending on the construction procedures and equipment. Operation of construction equipment generates vibrations that spread through the ground and diminish with distance from the source. The effect on buildings in the vicinity of the construction site varies depending on soil type, ground strata, and receptor-building construction. The effects from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight structural damage at the highest levels. Vibration from construction activities rarely reaches the levels that can damage structures.

Table 18, *Proposed Project Vibration Levels (in/sec PPV),* summarizes vibration levels for typical construction equipment at a reference distance of 25 feet. Typical construction equipment can generate vibration levels ranging up to 0.089 inches per second (in/sec) PPV at 25 feet. Vibration levels at a distance greater than 100 feet would attenuate to 0.01 in/sec PPV or less.

Table 18 Proposed Project Vibration Levels (in/sec PPV)

Equipment	FTA Reference PPV (in/sec) at 25 feet	PPV (in/sec) at 100 feet
Large Bulldozer	0.089	0.011
Loaded Trucks	0.079	0.010
Jackhammer	0.035	0.004
Small Bulldozer	0.003	0.000

Source: FTA 2018.

The nearest structure to the site's construction activities, the United States Post Office Distribution Center, is more than 100 feet away. At this distance, construction vibration from a large bulldozer would attenuate to 0.01 in/sec or less, which would not exceed the threshold of 0.20 in/sec PPV for historic structures. Therefore, construction vibration would result in a **less-than-significant impact**.

C) NO IMPACT

The nearest airport to the project site is the Oakland International Airport, approximately 13 miles to the south. Other airports in the area include Buchanan Field to the east and San Rafael Airport to the northwest, approximately 15 miles and 14 miles away, respectively (AIRNAV 2022). Therefore, the proposed project would not expose people residing or working

in the project area to excessive noise levels from airport-related noise and there would be **no impact**.

3.14 Population and Housing

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through the extension of roads or other infrastructure)?				**X**
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				**X**

Reference: California State Parks and Recreation 2002.

3.14.1 Environmental Setting

The project site is currently a recreational open space used as a park. The project site does not contain any housing units or population.

3.14.2 Explanation of Checklist Answers

A) NO IMPACT

Once the proposed remediation process is complete and park amenities and landscape improvements have been installed, the project site would resume its existing use as a park. Construction of residential structures is not proposed as part of the project. Therefore, the proposed project would not induce substantial unplanned population growth in the area, either directly or indirectly, and **no impact** would occur.

B) NO IMPACT

There are no residences at the project site. Therefore, the proposed project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere, and **no impact** would occur.

3.15 Public Services

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered government 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	
b) Police protection?			X	
c) Schools?				X
d) Parks?			X	
e) Other public facilities?				X

Reference: East Bay Regional Park District 2023; West Contra Costa Unified School District 2023.

3.15.1 Environmental Setting

FIRE SERVICES

The East Bay Regional Park District Fire Department (Fire Department) provides emergency services that includes fire suppression, search and rescue, fuels management and emergency medical response and care for all regional parks in the East Bay Regional Park District. The Fire Department includes a total of ten stations. The closest fire station to the project site is Fire Station #9 at 5755 McBryde Avenue, approximately 3.3 miles north of the project site (East Bay Regional Park District 2023).

POLICE SERVICES

The East Bay Regional Park District Police Department (Police Department) serves and patrols all 73 regional parks in Alameda and Contra Costa counties, including the project site (East Bay Regional Park District 2023). Headquarters for the Police Department are at 17930 Lake Chabot Road in Castro Valley, and the closest police station to the project site is approximately 1.8 miles northwest at 1701 Regatta Boulevard.

SCHOOLS

The closest school is the Alvarado Adult School at 5625 Sutter Avenue, approximately one-half mile northeast of the project site.

The West Contra Costa Unified School District (School District) covers the cities of El Cerrito, Richmond, San Pablo, Pinole and Hercules plus unincorporated areas of Bayview-Montalvin Manor, East Richmond Heights, El Sobrante, Kensington, North Richmond and Tara Hills (West Contra Costa Unified School District 2023). The School District operates the majority of the education facilities within the City of Richmond. The School District has 38 elementary schools, 6 middle schools, 7 high schools, 6 alternative and continuing education schools, and 1 special education early intervention school.

PARKS

The project site is part of the East Bay Regional Park District, a system of parklands in Alameda and Contra Costa counties to the east of San Francisco. The system includes 73 parks that span 125,000 acres, 1,250 miles of trails, and 55 miles of shoreline (East Bay Regional Park District 2023).

3.15.2 Explanation of Checklist Answers

A) LESS-THAN-SIGNIFICANT IMPACT

The proposed project would not include expansion of the park or induce any population growth, as noted in Section 3.14, *Population and Housing*. Once the proposed remediation process is complete and park amenities and landscape improvements have been installed, the project site would resume its existing use as a park. Therefore, no increase in fire services would be anticipated, and the proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection services, and a **less-than-significant impact** would occur.

B) LESS-THAN-SIGNIFICANT IMPACT

The proposed project would not include expansion of the park or induce any population growth, as noted in Section 3.14, *Population and Housing*. Once the proposed remediation process is complete and park amenities and landscape improvements have been installed, the project site would resume its existing use as a park. Therefore, no increase in police protection services would be anticipated, and the proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities in order to maintain acceptable service ratios, response times, or other performance objectives for police protection services and a **less-than-significant impact** would occur.

C) NO IMPACT

Implementation of the proposed project, as stated in Section 3.14, *Population and Housing*, would not induce any population growth that could affect the number of students attending public schools. No residential structures are proposed as part of the project, and no permanent employment opportunities would be created that could lead to an increase in student populations. Therefore, the proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered schools, and **no impact** would occur.

D) LESS-THAN-SIGNIFICANT IMPACT

The proposed project would not include expansion of the park or induce any population growth, as noted in Section 3.14, *Population and Housing*. Movement of equipment to and from the project site during construction may temporarily stop pedestrian and bicycle traffic using the San Francisco Bay Trail. However, the project BMPs require that the San Francisco Bay Trail remain open as much as possible during construction, and that orange construction fencing be installed on either side of the trail. Temporary closure of the trail during peak material delivery periods is to be publicized in advance along with detour plans. Pedestrian notices and caution signs are also to be installed. Once construction is completed, the project site would resume its existing use as a park. The proposed project would not affect existing neighborhood or regional parks or other recreational facilities. Therefore, the proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered park facilities in order to maintain acceptable performance objectives for park services, and a **less-than-significant impact** would occur.

E) NO IMPACT

The proposed project would not involve construction of additional public facilities, and would not induce any population growth, as noted in Section 3.14, *Population and Housing*. Therefore, the proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered public facilities, need for new or physically altered public facilities, and **no impact** would occur.

3.16 Recreation

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) 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**	
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**	

References: California State Parks and Recreation 2002; East Bay Regional Park District 2023.

3.16.1 Environmental Setting

The project site is part of the East Bay Regional Park District, a system of parklands in Alameda and Contra Costa counties to the east of San Francisco. The system includes 73 parks that span 125,000 acres, 1,250 miles of trails, and 55 miles of shoreline (East Bay Regional Park District, 2023). Point Isabel Park, located southeast of the project site, is one of the few designated off-leash dog areas in the East Bay shoreline. Due to demand at Point Isabel Park, visitors have expanded their use into the project site (California State Parks and Recreation 2002). In addition to park users walking their dogs, the project site has the potential to be accessed by pedestrian and bicycle visitors who use the adjacent San Francisco Bay Trail.

3.16.2 Explanation of Checklist Answers

A) LESS-THAN-SIGNIFICANT IMPACT

The proposed project would involve remediating the degraded landfill cap to prevent lead-contaminated soil from being exposed, as well as installation of park amenities and landscape improvements. The project site would temporarily be closed to park users during construction. During this time, park visitors could continue to use Point Isabel Park that is located southeast of the project site. Once construction is complete, the project site would resume its existing use as a park with enhanced features. The proposed improvements may result in increased use of the project site, but the proposed remediation process would prevent substantial deterioration. Therefore, the proposed project would not 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 and a **less-than-significant impact** would occur.

B) LESS-THAN-SIGNIFICANT IMPACT

The proposed project would involve remediating the degraded landfill cap to prevent lead-contaminated soil from being exposed, as well as installation of park amenities and landscape improvements. The proposed project would not include expansion of the park, but rather improve and enhance future recreation at the project site. Therefore, the proposed project would not require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment and a **less-than-significant impact** would occur.

3.17 Transportation

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle and pedestrian facilities?			X	
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?				X
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
d) Result in inadequate emergency access?			X	

References: City of Richmond 2012.

3.17.1 Environmental Setting

The project site is located to the southwest of I-580 and northwest of the Central Avenue off-ramp. I-80 is located to the east of I-580. I-580 and Central Avenue have been identified as Routes of Regional Significance as they provide regional connections within the City of Richmond (City of Richmond 2012). A summary of the local transportation infrastructure is found as follows.

Interstate 580. I-580 connects the East Bay area of San Francisco Bay with Marin County to the north and the San Joaquin Valley region to the east.

Central Avenue. Central Avenue is a four-lane undivided east-west street in the southern portion of the City of Richmond. Central Avenue provides the northernmost access to the project site from its interchange with I-80. Within the project site vicinity, and west of I-580/ I-80, Central Avenue is a two-lane road with on-street parking that provides access to the Point Isabel Regional Shoreline Park and adjacent retail and retail/commercial land uses.

San Francisco Bay Trail. West of I-580/I-80, the San Francisco Bay Trail is a north-south bicycle and pedestrian route that allows continuous bicycle/pedestrian access along the entire length of the project site.

Point Isabel Regional Shoreline Park. Two existing parking lots serve Point Isabel and the project site: a 50-space lot off Rydin Road, and a 200-space lot along the west side of Isabel Street. In addition, on-street parking is allowed along Isabel Street and Central Avenue (adjacent to the existing retail/commercial uses).

3.17.2 Explanation of Checklist Answers

A) LESS-THAN-SIGNIFICANT IMPACT

Construction of the proposed project would be temporary and any additional traffic generated during the construction phase would not add to permanent traffic generated by the project site. Once construction is complete, the project site would resume its existing use as a park. No new roads or additional parking lots are proposed as part of the project. Therefore, the proposed project would not conflict with an applicable plan, ordinance, or policy that addresses circulation system and **a less-than-significant impact** would occur.

B) NO IMPACT

Senate Bill 743, codified in Public Resources Code Section 21099 and signed by the Governor in 2013, directed the Governor's Office of Planning and Research to identify alternative metrics for evaluating transportation impacts under CEQA. Pursuant to Section 21099, the criteria for determining the significance of transportation impacts must "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." Recently adopted changes to the CEQA Guidelines in response to Section 21099 include a new section (15064.3) that specifies that vehicle miles traveled (VMT) is the most appropriate measure of transportation impacts. A separate Technical Advisory issued by OPR provides additional technical details on calculating VMT and assessing transportation impacts for various types of projects.

VMT is a metric that accounts for the number of project generated vehicle trips and the distance of those trips. For development projects, the analysis of VMT is to assess whether a project or plan adequately reduces total VMT. The proposed project involves the restoration of a landfill cap and installation of park amenities. As the proposed project does not include

development of the project site that would increase vehicle trips to and from the project site, a VMT analysis is not warranted. Therefore, the proposed project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b), and **no impact** would occur.

C) NO IMPACT

The proposed project would involve remediating the degraded landfill cap to prevent lead-contaminated soil from being exposed, as well as installation of park amenities and landscape improvements. Once construction is complete, the project site would resume its existing use as a park. The construction of new roads is not proposed as part of the project. Therefore, the proposed project would not substantially increase hazards due to a geometric design feature or incompatible uses, **no impact** would occur.

D) LESS-THAN-SIGNIFICANT IMPACT

During construction, construction traffic and trucks carrying equipment, landfill cap soils and rip rap would travel to the project site most likely using I-580 and exit at Central Avenue. From Central Avenue, construction traffic would travel to the north to the project site using Ryden Road and would cross Hoffman Channel using an existing bridge. Construction activities that may temporarily restrict vehicular traffic flow along Ryden Road and Central Avenue and pedestrian/bicycle users of the San Francisco Bay Trail would be required to implement adequate measures to facilitate the passage of pedestrians, bicyclists, and vehicles through and/or around any required temporary road closures. All existing access to the project site would be maintained during construction. Therefore, the proposed project would not result in inadequate emergency access and a **less-than-significant impact** would occur.

3.18 Tribal Cultural Resources

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Cause a substantial adverse change in the significance of a tribal cultural resource defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:		X		
e) Listed or eligible for listing in the California Register of Historical Resources, or in a local		**X**		

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
register of historical resources as defined in Public Resources Code section 5020.1(k), or				
f) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.		**X**		

References: N/A

3.18.1 Environmental Setting

North Point Isabel is an entirely artificial landform, composed of construction/demolition and industrial waste, that was constructed during the 1950s and 1960s and therefore would not have been part of the pre-contact or proto-contact tribal landscape. However, it is not impossible for the artificial landform to harbor tribal cultural resources from the historic period and/or modern era. However, the landform is located within ancestral waters and along the coastline. Ancestral lands and waters are important to the Chochenyo Ohlone people.

ETHNOGRAPHIC SETTING

The landscape (including, but not limited to the water, animals, vegetation, and the land) of the project site has been stewarded by California native people since time immemorial. Western academics and non-native ethnographers bestowed the linguistic terms ''Ohlone'' and ''Costanoan'' to refer to the native peoples who inhabited the region from where the San Joaquin and Sacramento rivers empty into the San Francisco Bay southward to Point Sur and spanned the San Francisco peninsula eastward, terminating around what is now considered the Central Valley, which includes the current project site. The term Costanoan is an anglicized version of the Spanish term, *Costaños*, which translates to ''coastal people.'' Western researchers have often postulated that the term ''Ohlone'' stems from a village site the Spanish documented as ''Oljon'' from the San Mateo coast and was then ascribed to the broader geographic region. However, Native knowledge has indicated that the word Ohlone is a variant of the Sierra Miwok word indicating the direction west – ''O'lo'no wit'' (Milliken et al. 2009). In general, today's tribes often use the term ''Ohlone'' to describe themselves. Therefore, this is

the term used in this chapter. However, it is at the discretion of each individual and/or tribe to determine which term they identify with.

Multiple dialects make up the Ohlone language. Chochenyo, which is still spoken today, is the dialect within the vicinity of the project site (Levy 1978). Proto-contact ethnographic maps, somewhat informed by indigenous knowledge but wholly underpinned by a western paradigmatic framework, indicate the vicinity of the project site is within the territory of the Huchiun, or Xučyun, village (Levy 1978; East Bay Regional Park District 2018).

The term ''Huchiun'' first appears in a 1787 baptism for a five-month-old, who is described as a ''native of the other shore of the vicinity that they call Junchaque and the Nation Huchiun." The Huchiun village territory is situated west of the Karkins and east of the San Francisco Bay, located within the Oakland-Richmond vicinity, encompassing Rodeo and Pinole creeks. Village residence, at least at the time of contact and based on Spanish records and accounts, appears to have been flexible and ephemeral, subject to change on a seasonal and yearly basis. By Spanish accounts, the Huchiun village was the largest East Bay village with a population of over 400 people (Milliken et al. 2009).

The importance of coastal waters and the shoreline to the Ohlone peoples are evident from the early accounts of the entire Ohlone ''frontage on ocean and bay'' being ''lined with shell deposits'' (Kroeber 1925). Along the Bayshore, ancestral Ohlone groups consciously and purposefully constructed monumental shell mounds, utilizing waste shell from thousands of meals to raise village sites out of the high tide zone. Marine resources (i.e., mammals, mollusks, avian, and flora) would have been employed for dietary, utilitarian (e.g., tools), economic (e.g., shell beads), and ceremonial (e.g., abalone shell pendants, etc.) use. Balsas, tule reed boats, facilitated fishing and the hunting of shorebirds. An anthropogenic fire regime shaped and enhanced the on-shore landscape (Panich 2020).

ETHNOHISTORY

The first recorded intrusion into the lives of Indigenous people of what is now the greater Bay Area occurred in 1542, when Juan Rodriguez Cabrillo anchored in the region that became known as Monterey. Numerous European expeditions followed, by sea and land. These early encounters heralded a time of tremendous dislocation and upheaval in the lives of Indigenous people (East Bay Regional Park District 2018). The entry of Spanish missionaries, soldiers, and later civilians introduced a tumultuous time when extensive sociocultural and environmental changes made it impossible for Indigenous people to continue their traditional, pre-contact way of life.

Mexico's independence from Spain in 1821 began the process of secularization of mission lands and ushered in another era of change. Although Spanish missionaries promised to one day return mission lands to the local Indigenous, few Ohlone ever received any land. Instead, they

became serf-like laborers on non-Indigenous owned ranchos, with most of the Indigenous labor actually being coerced through the use of force (East Bay Regional Park District 2018; Madley 2014). Older boys and men worked as *vacqueros* while older girls and women worked as housekeepers, cooks, and childcare workers. Indigenous people endured another era of change when California became a state in 1850. Ohlone peoples (along with other California Indigenous peoples) were subject to state laws that legalized the indenture and de facto slavery of Indigenous people, leading to their kidnapping, buying, and selling. These laws also made it illegal for Indigenous people to testify in court, serve on juries, and vote. In 1863, the passage of the Emancipation Proclamation began to dismantle these laws; by 1924 California Indians were granted citizenship (Park District 2018).

In 1928, three main Ohlone communities survived, those of Mission San Jose, Mission San Juan Bautista, and Mission Carmel. The 1930s through the 1950s were decades when discrimination against them and all California Indians continued to abound. Indigenous Californians responded to this in four main ways: 1) ignoring it, 2) keeping a low profile, 3) passing as a member of another ethnic group, or 4) creating familial and community support networks. The 1960s through the 1980s were transitional decades when the Ohlone began to influence public policy in local areas. Since the 1970s, many Ohlone have participated in intertribal pan-Indian events (gatherings, picnics, meetings, pow-wows) that have helped to foster renewed pride in their Indigenous heritage. Ohlone peoples have continued to speak and revive their native languages (Milliken et al. 2009).

Colonization (which began upon the arrival of the Spanish and continues into the American period), created barriers and restricted access ancestral land. In general, the non-native land management framework does not include a fire regime, but has historically embraced a fire suppression policy and a hands-off-nature viewpoint, guided by an idealized, pristine version of Nature, compared to which humans and cultural influences are viewed as separate and even negative (Nelson 2023). Ironically, the version of nature Western society has come to idealize, and is attempting to regain, is actually one that was carefully tended and created by Indigenous people, and specifically by the Ohlone and Bay Miwok in the east Bay Area.

East Bay coastal lands and the Bayshore waters continue to be important to the Ohlone, even as access remains a challenge. From 2005 through 2008, the organization Indian People Organizing for Change (IPOC), organized community peace walks around the San Francisco Bay Area to sacred shellmounds in order to raise awareness about protecting Native American sacred sites (Sheynin 2015). In March 2024, the West Berkeley Shellmound site was purchased by the City of Berkeley and transferred to the Sogorea Te' Land Trust, led by urban and indigenous women, on behalf of the Confederated Villages of Lisjan Nation (Shellmound 2024). Today's Ohlone tribes maintain their identities through their programmatic efforts to reach their goals (e.g., ancestral land stewardship); through their group social gatherings and internal

governmental meetings; or for some, through their efforts to have their interests recognized by local representatives of federal, state, or county governments and special districts (Milliken et al. 2009). Land management decisions made in consultation and collaboration with tribes that are culturally and traditionally affiliated with the geographic region can help to restore tribal cultural traditions and relationships with the land.

ASSEMBLY BILL 52

California Assembly Bill (AB) 52 established a category of resources in the CEQA called ''tribal cultural resources'' that considers the tribal cultural values in addition to the scientific and archaeological values when determining impacts and mitigation.

Tribal cultural resources are defined as sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either included or determined to be eligible for inclusion in the California Register of Historical Resources or included in a local register of historical resources, or a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant. A cultural landscape that meets these criteria is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape. Historical resources, unique archaeological resources, or non-unique archaeological resources may also be tribal cultural resources if they meet these criteria.

AB 52 recognizes that California Native American tribes may have expertise with regard to their tribal history and practices, which concern the tribal cultural resources with which they are traditionally and culturally affiliated. Because the CEQA calls for sufficient degree of analysis, tribal knowledge about the land and tribal cultural resources at issue should be included in environmental assessments for projects that may have significant impact on those resources.

AB 52 sets up a tribal consultation process for projects initiated after July 1, 2015. Lead agencies are required to provide notice of the proposed projects to any tribe that is traditionally and culturally affiliated with the geographic area that requested to be informed by the lead agency, following PRC Section 21018.3.1(b). If, within 30 days, a tribe requests consultation, the consultation process must end before the lead agency can release a draft environmental document. Consultation with the tribe may include a discussion regarding the type of review necessary, the significance of tribal cultural resources, the significance of the project's impacts on the tribal cultural resources, and alternatives and mitigation measures recommended by the tribe. The consultation process will be deemed concluded when either: 1) the parties agree to mitigation measures, or 2) any party concludes, after a good-faith effort, that an agreement cannot be reached. Any mitigation measures agreed to by the tribe and lead agency must be recommended for inclusion in the environmental document. If a tribe does not request consultation, or to otherwise assist in identifying mitigation measures during the

consultation process, a lead agency may still consider mitigation measures if the agency determines that a project will cause a substantial adverse change to a tribal cultural resource.

In an effort to identify potential tribal cultural resources within the site, the Park District contact the Native American Heritage Commission (NAHC) to request the AB 52 tribal consultation list and for a search of the Sacred Lands File for the site on November 6, 2023. Cody Campagne, Cultural Resources Analyst, responded on December 11, 2023, with a letter stating that the result of the SLF check through the NAHC was "positive." The NAHC also provided a list of tribes that are traditionally and culturally affiliated with the site.

The District sent letters regarding the project via certified mail with a return receipt and via electronic mail (email) on January 16, 2024. Tribes were requested to respond within 30 days (February 15, 2024). Pursuant to subdivision (r) of Section 6254 and Section 6254.10 of the Government Code, and subdivision (d) of Section 15120 of Title 14 of the California Code of Regulations, any information, including, but not limited to, the location, description, and use of the tribal cultural resources, submitted by a California Native tribe during the environmental review process for this project is not included in this environmental document and will not be disclosed without prior consent of the tribe that provided the information. Table 19 summarizes correspondence efforts and AB 52 requests and outcomes.

Table 19 Park District and Tribal Correspondence for AB 52 Consultation

Tribal Affiliation	Tribal Contact	Response
Amah Mutsun Tribal Band of Mission San Juan Bautista	Irene Zwierlein, Chairperson	No response.
Confederated Villages of Lisjan Nation	Corrina Gould, Chairperson	No response.
Confederated Villages of Lisjan Nation	Deja Gould, Language Program Manager	No response.
Confederated Villages of Lisjan Nation	Cheyenne Gould, Tribal Cultural Resource Manager	No response.
Guidiville Rancheria of California	Bunny Tarin, Tribal Administrator	No response.
Guidiville Rancheria of California	Michael Derry, Historian	Email bounced back on 1/18/2024. Park District staff called Mr. Derry on 1/22/2024, and he provided an alternate email address. The correspondence was re-sent on 1/22/2024. No response was received.
Indian Canyon Mutsun Band of Costanoan	Ann Marie Sayers, Chairperson	Email did not go through. Park District staff re-sent the correspondence to an alternate email address on-file for Chairperson Sayers.

Indian Canyon Mutsun Band of Costanoan	Kanyon Sayers-Roods, MLD Contact	No response.
Muwekma Ohlone Indian Tribe of the SF Bay Area	Monica Arellano, Vice Chairwoman	No response.
The Ohlone Indian Tribe	Andrew Galvan, Chairperson	No response.
The Ohlone Indian Tribe	Desiree Vigil, THPO	No response.
The Ohlone Indian Tribe	Vincent Medina, Cultural Leader	No response.
Wuksachi Indian Tribe/Eshom Valley Band	Kenneth Woodrow, Chairperson	No response.

3.18.2 Explanation of Checklist Answers

A) LESS-THAN-SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED

No tribal cultural resources that are listed on or eligible for listing in the California Register or in a local register of historical resources as defined in Public Resources Code 5020.1(k) have been identified within the project site, which is an artificial landform that would not have been a part of the pre-contact landscape. However, the landform is located within ancestral waters and along the coastline. These areas were and continue to be important to the Chochenyo Ohlone people. In addition, it is not impossible for the artificial landform to harbor tribal cultural resources from the historic period and/or modern era. Therefore, ground-disturbing activities during construction of the proposed project could adversely affect tribal cultural resources, which is a potentially significant impact. Implementation of **Mitigation Measure TCR-1** would reduce this impact to a **less-than-significant impact with mitigation**.

> **Mitigation Measure TCR-1:** If a previously unidentified tribal cultural resource is identified during project construction, in accordance with Public Resources Code Section 21084.3, the following measures shall be followed to minimize the potential significant adverse impacts:
>
> - Avoidance and preservation of the resources in place, if feasible, including but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
> - Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

- Protecting the cultural character and integrity of the resource.
- Protecting the traditional use of the resource.
- Protecting the confidentiality of the resource.

- Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
- Protecting the resource.

B) LESS-THAN-SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED

The District did not identify any significant resources pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1 within the project site. Because the project site comprises an artificial landform that would not have been a part of the pre-contact landscape, there is a low possibility that the project site contains a tribal cultural resource. However, the landform is located within ancestral waters and along the coastline. These areas were and continue to be important to the Chochenyo Ohlone people, and the landform could harbor tribal cultural resources from the historic period/modern era. Although there is a low likelihood to encounter a tribal cultural resource during project implementation, if a tribal cultural resource is identified during the project, it would be treated in accordance with **Mitigation Measure TCR-1**. Therefore, the project would result in a **less-than-significant impact with mitigation**.

3.19 Utilities and Service Systems

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electrical power, natural gas, or telecommunications facility, the construction or relocation of which could cause significant environmental Impact?			**X**	
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?			**X**	

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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 commitment?				**X**
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**	
e) Comply with federal, state, and local statutes and regulations related to solid waste?			**X**	

References: City of Richmond 2023; East Bay Municipal Utility District 2023.

3.19.1 Environmental Setting

WATER SUPPLY

EBMUD is the drinking water service provider within the City of Richmond (East Bay Municipal Utility District 2023). EBMUD currently produces an average of 325 million gallons per day (MGD) from the Mokelumne River watershed, with a diversion point at Pardee Reservoir. In a year of normal precipitation, water users within the EBMUD service area use an average of 21 MGD. There are no potable water sources at the project site.

WASTEWATER

Wastewater treatment is managed by EBMUD collection systems that direct wastewater to their treatment plant in Oakland near the entrance of the San Francisco-Oakland Bay Bridge. The EBMUD provides wastewater primary treatment for up to 320 MGD and secondary treatment for up to 168 MGD. On average, about 63 million gallons of wastewater are treated everyday (East Bay Municipal Water District 2023).

SOLID WASTE

Waste generated at the project site is disposed of in waste receptacles that are managed and maintained by the East Bay Regional Park District. Solid waste services in the City of Richmond are provided by Richmond Republic Sanitary Services (City of Richmond 2023). Waste is collected and delivered to the Golden Bear transfer station and West Contra Costa sanitary landfill located at 1 Parr Boulevard in Richmond.

ELECTRICAL AND NATURAL GAS

Electricity and natural gas in the City of Richmond are provided by Pacific Gas and Electric Company (PG&E) (City of Richmond 2023). PG&E is based in Oakland and its primary business is the transmission and delivery of electrical energy. The company provides natural gas and electricity to approximately 16 million customers throughout a 70,000-square-mile service area in northern and central California.

TELECOMMUNICATIONS

Internet in the City of Richmond is provided by Comcast, who provides broadband and mobile services. Entertainment services within the City of Richmond are provided by DirectTV using satellite or internet streaming services. Telephone services in the City of Richmond are supported by AT&T (City of Richmond 2023).

3.19.2 Explanation of Checklist Answers

A) LESS-THAN-SIGNIFICANT IMPACT

There are no sources of water, wastewater management, electricity, natural gas, or telecommunications at the project site. Waste debris generated during construction would be disposed of into closed-top trash bins that would be removed by Republic Sanitary Services. During site preparation, clearance, and grading, water used for dust suppression would be obtained from a local metered hydrant and applied at the project site using a water truck. No existing utilities would be relocated, and none would be constructed as part of the proposed project. Therefore, the proposed project would not require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electrical power, natural gas, or telecommunications facility, and a **less-than-significant impact** would occur.

B) LESS-THAN-SIGNIFICANT IMPACT

During site preparation, clearance, and grading, water used for dust suppression would be obtained from a local metered hydrant and applied at the project site using a water truck. Once construction is complete, no additional water resources would be needed. Therefore, the proposed project would have sufficient water supplies and a **less-than-significant impact** would occur.

C) NO IMPACT

The project site currently does not have public sanitary services, and none are proposed to be constructed as part of the project. During construction, portable toilets would be provided for workers. No wastewater treatment services would be required at the project site. Therefore, the proposed project would not result in a determination by the project-serving wastewater treatment provider that it does not have adequate capacity, and **no impact** would occur.

D) LESS-THAN-SIGNIFICANT IMPACT

Temporary waste debris generated during construction would be disposed of into close top trash bins that would be removed by Republic Sanitary Services and disposed of at the Golden Bear transfer station/West Contra Costa landfill. Once construction is complete, the project site would resume its existing use as a park. No new waste receptacles would be added as part of the proposed project because waste generation is not anticipated to exceed what is currently generated. Therefore, the proposed project would not 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, and a **less-than-significant impact** would occur.

E) LESS-THAN-SIGNIFICANT IMPACT

Temporary waste debris generated during construction would be disposed of into closed-top trash bins that would be removed by Republic Sanitary Services and disposed of at the Golden Bear transfer station/West Contra Costa landfill. Once construction is complete, the project site would resume its existing use as a park. Waste generated from park use is not anticipated to exceed what is currently generated. Management and disposal of waste generated by park users would be managed by East Bay Regional Park District in compliance with local and State regulations. Therefore, the proposed project would comply with federal, State, and local statutes and regulations related to solid waste, and a **less-than-significant impact** would occur.

3.20 Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	**Potentially Significant Impact**	**Less-than-Significant Impact with Mitigation Incorporated**	**Less-than-Significant Impact**	**No Impact**
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?				**X**
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**
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				**X**

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
fire risk or that may result in temporary or ongoing impacts to the environment?				
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result or runoff, post-fire slope instability, or drainage changes?				**X**

References: California Department of Forestry and Fire Protection, 2024.

3.20.1 Environmental Setting

Wildfire in the urban interface is a growing concern in the Bay Area, where wildfires in the past have claimed lives and destroyed thousands of structures. Wildfire is a common hazard that threatens public safety and property and can cause the following impacts.

- Cause damage to linear infrastructure causing power outages
- Adversely impact air quality during the duration of the fire
- Adversely impact water quality in watersheds impacted by wildland fires
- Damage natural environments with lasing impacts to slopes and soils that could lead to hill destabilization, erosion and landslide.

The project site is located within a Local Responsibility Area (LRA) and is not located in a Very High FHSZ. The closest Very High FHSZ in an LRA is approximately 1.5 miles to the east and is separated from the project site by dense residential and commercial developments. The nearest State Responsibility Area (SRA) is approximately 3 miles east of the project site, adjacent to the Very High FHSZ in an LRA (California Department of Forestry and Fire Protection 2024).

3.20.2 Explanation of Checklist Answers

A) NO IMPACT

As noted in Section 3.9, *Hazards and Hazardous Materials*, the proposed project would not impair or physically impact any adopted emergency response plan or evacuation plan. However, the project site is not located in or near an SRA or lands classified as very high FHSZ. Therefore, the proposed project would not substantially impair an adopted emergency response plan or emergency evacuation plan, and **no impact** would occur under this threshold.

B) NO IMPACT

The project site is located on primarily flat land and consists of little vegetation. The proposed project would not change prevailing winds. Additionally, the project site is not located in or near an SRA or lands classified as very high FHSZ. Therefore, the proposed project would not exacerbate wildfire risks, expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors, and **no impact** would occur under this threshold.

C) NO IMPACT

The proposed project would involve remediating the degraded landfill cap to prevent lead-contaminated soil from being exposed, as well as installation of park amenities and landscape improvements. No new roads, fuel breaks, emergency water sources, power lines or other utilities are proposed as part of the project. Additionally, the project site is not located in or near an SRA or lands classified as very high FHSZ. Therefore, the proposed project would not require the installation or maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment, and **no impact** would occur under this threshold.

D) NO IMPACT

As noted in Section 3.7, *Geology and Soils*, and Section 3.10, *Hydrology and Water Quality,* the proposed project would have less-than-significant impacts related to flooding and landslides. However, the project site is not located in or near an SRA or lands classified as very high FHSZ. Therefore, the proposed project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result or runoff, post-fire slope instability, or drainage changes, and **no impact** would occur under this threshold.

3.21 Mandatory Findings of Significance

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Have the potential to 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, reduce the number or restrict the range of rare or		**X**		

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?				
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?			**X**	
c) Have environmental effects which would cause substantial adverse effects on human beings, either directly or indirectly?			**X**	

References: N/A

Explanation of Checklist Answers

A) LESS-THAN-SIGNIFICANT IMPACT

The project site is currently used as a park and would resume operation as a park after the proposed remediation process and installation of park amenities and landscape improvements. All impacts to biological resources and geology and soils would be fully mitigated to less-than-significant levels with implementation of **Mitigation Measures BIO-1** through **BIO-9** and **Mitigation Measure GEO-1**. Therefore, the proposed project would not have the potential to 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, reduce the number or restrict the range of rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory and the proposed project would result in a **less-than-significant impact with mitigation**.

B) LESS-THAN-SIGNIFICANT IMPACT

As discussed previously, the proposed project would not result in a significant impact that could not be mitigated to a less-than-significant level. The project site is currently used as a park and would resume operation as a park after the proposed remediation process and installation of park amenities and landscape improvements. The proposed project would not increase the

population of the surrounding area. Therefore, the proposed project would not have impacts that are individually limited, but cumulatively considerable and a **less-than-significant impact** would occur.

C) LESS-THAN-SIGNIFICANT IMPACT

As discussed previously, the proposed project would not result in a significant impact that could not be mitigated to a less-than-significant level. Therefore, the proposed project would not have environmental effects which would cause substantial adverse effects on human beings, either directly or indirectly and a **less-than-significant impact** would occur.

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APPENDIX A:
CalEEMod Air Emissions and Greenhouse Gas Emissions Calculations

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Appendix A

The following are assumptions used for calculation emissions of criteria pollutants and greenhouse gases (GHG) that would be generated during the proposed landfill cap construction at the closed landfill located at North Point Isabel.

Air Quality Emissions. The proposed landfill cap remediation construction-related emissions were calculated using California Emissions Estimator Model (CalEEMod) version 2022.1.1.20, which is widely accepted to provide a uniform platform to estimate potential emissions resulting from construction and operation activities of land use projects in California. The model takes user entered data and preprogrammed algorithms designed to take information such as project size and length; vehicle types, operating hours, and trip lengths; and emissions mitigation criteria to calculate emissions of criteria pollutants and greenhouse gases (GHGs). As the proposed project would generate new emissions only during its construction phase, only construction emissions were calculated. The proposed project's objective is to remediate the degraded North Point Isabel landfill cap. Access to the North Point Isabel site to park users would be closed during construction activities. Once the construction activities are completed, park amenities would be installed and access to North Point Isabel section would be restored, and operation of the park would be fully restored to pre-construction capacity. The cap remediation would not introduce new operations, and related operation emissions are expected to remain unchanged before and after the remediation effort.

Construction emissions are temporary emissions occurring only while a project is being constructed and end when construction of the project is complete. Construction emissions originate primarily from the combustion of fossil fuels used by mobile on-road sources (e.g., workers vehicles, material and equipment delivery trucks, soil haul trucks) and mobile off-road sources (e.g., excavators, dozers, backhoes, excavators, rollers, pavers, and water trucks). Emissions from the proposed project would result from the following construction activities: Site preparation (mobilization, clearing and grubbing, removal of debris in preparation for grading and cover placement), grading (grading and cover placement), construction, and paving. Construction activities resulting from the proposed project would occur during the calendar year 2024.

Equipment considered in the emission calculations consisted of the following CalEEMod categories: three rubber tired Dozers (367 horsepower [hp]), four tractors/loaders/backhoes (84 hp), one grader (148 hp), two excavators (36 hp), two scraper (423 hp), two pavers (81 hp), two paving equipment (89 hp), and two rollers (36 hp) with each equipment being operated at a rate of 8-hours per day during the duration of the project. All equipment units are assumed to use Tier 4 engines. Standard control measures including watering of disturbed, reducing equipment idling time, and use of local sustainable building materials were factored into the emissions calculations.

Greenhouse Gas Emissions. The proposed project will generate new GHG emissions but only during the construction stage where construction activities would be conducted as part of a process to remediate the project site. The proposed project GHG emissions were calculated using CalEEMod, which is widely accepted to provide a uniform platform to estimate potential emissions resulting from construction and operation activities of land use projects in California. The model takes user entered data and preprogrammed algorithms designed to take information such as project size and length; vehicle types, operating hours, and trip lengths; and emissions mitigation criteria to calculate emissions of criteria pollutants and GHGs.

Point Isabel Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Point Isabel
Construction Start Date	5/1/2024
Lead Agency	Park District
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.90
Precipitation (days)	29.8
Location	2701 Isabel St, Richmond, CA 94804, USA
County	Contra Costa
City	Richmond
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1549
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.20

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
City Park	19.9	Acre	19.9	0.00	0.00	0.00	—	—

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-5	Use Advanced Engine Tiers
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-C	Water Unpaved Construction Roads

* 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.	5.78	3.90	53.2	40.0	0.15	1.71	20.2	21.8	1.51	10.2	11.7	—	21,358	21,358	1.47	2.41	32.3	22,145
Mit.	2.24	1.02	23.3	45.2	0.15	0.39	8.17	8.30	0.30	4.07	4.19	—	21,358	21,358	1.47	2.41	32.3	22,145
% Reduced	61%	74%	56%	-13%	—	77%	59%	62%	80%	60%	64%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.05	0.76	9.46	7.58	0.02	0.33	2.64	2.97	0.29	1.07	1.36	—	3,314	3,314	0.22	0.34	1.99	3,423
Mit.	0.35	0.19	3.59	8.14	0.02	0.06	1.36	1.42	0.05	0.51	0.56	—	3,314	3,314	0.22	0.34	1.99	3,423
% Reduced	67%	75%	62%	-7%	—	82%	48%	52%	84%	52%	59%	—	—	—	—	—	—	—

Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.19	0.14	1.73	1.38	< 0.005	0.06	0.48	0.54	0.05	0.19	0.25	—	549	549	0.04	0.06	0.33	567
Mit.	0.06	0.03	0.65	1.49	< 0.005	0.01	0.25	0.26	0.01	0.09	0.10	—	549	549	0.04	0.06	0.33	567
% Reduced	67%	75%	62%	-7%	—	82%	48%	52%	84%	52%	59%	—	—	—	—	—	—	—

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	5.78	3.90	53.2	40.0	0.15	1.71	20.2	21.8	1.51	10.2	11.7	—	21,358	21,358	1.47	2.41	32.3	22,145
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.05	0.76	9.46	7.58	0.02	0.33	2.64	2.97	0.29	1.07	1.36	—	3,314	3,314	0.22	0.34	1.99	3,423
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.19	0.14	1.73	1.38	< 0.005	0.06	0.48	0.54	0.05	0.19	0.25	—	549	549	0.04	0.06	0.33	567

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	2.24	1.02	23.3	45.2	0.15	0.39	8.17	8.30	0.30	4.07	4.19	—	21,358	21,358	1.47	2.41	32.3	22,145

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.35	0.19	3.59	8.14	0.02	0.06	1.36	1.42	0.05	0.51	0.56	—	3,314	3,314	0.22	0.34	1.99	3,423
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.06	0.03	0.65	1.49	< 0.005	0.01	0.25	0.26	0.01	0.09	0.10	—	549	549	0.04	0.06	0.33	567

3. Construction Emissions Details

3.1. Site Preparation (2024) - 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	4.34	3.65	36.0	32.9	0.05	1.60	—	1.60	1.47	—	1.47	—	5,296	5,296	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.18	0.15	1.48	1.35	< 0.005	0.07	—	0.07	0.06	—	0.06	—	218	218	0.01	< 0.005	—	218
Dust From Material Movement	—	—	—	—	—	—	0.81	0.81	—	0.42	0.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.27	0.25	< 0.005	0.01	—	0.01	0.01	—	0.01	—	36.0	36.0	< 0.005	< 0.005	—	36.2
Dust From Material Movement	—	—	—	—	—	—	0.15	0.15	—	0.08	0.08	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.05	0.79	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	157	157	< 0.005	0.01	0.66	160
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.15	0.03	1.80	0.85	0.01	0.03	0.35	0.38	0.02	0.10	0.11	—	1,395	1,395	0.11	0.22	3.02	1,468
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.98	5.98	< 0.005	< 0.005	0.01	6.07
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.08	0.04	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	57.3	57.3	< 0.005	0.01	0.05	60.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.99	0.99	< 0.005	< 0.005	< 0.005	1.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.49	9.49	< 0.005	< 0.005	0.01	9.98

3.2. Site Preparation (2024) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50	0.50	2.59	28.3	0.05	0.10	—	0.10	0.10	—	0.10	—	5,296	5,296	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.11	1.16	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	218	218	0.01	< 0.005	—	218
Dust From Material Movement	—	—	—	—	—	—	0.32	0.32	—	0.16	0.16	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	0.02	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	36.0	36.0	< 0.005	< 0.005	—	36.2
Dust From Material Movement	—	—	—	—	—	—	0.06	0.06	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.05	0.79	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	157	157	< 0.005	0.01	0.66	160
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.15	0.03	1.80	0.85	0.01	0.03	0.35	0.38	0.02	0.10	0.11	—	1,395	1,395	0.11	0.22	3.02	1,468
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.98	5.98	< 0.005	< 0.005	0.01	6.07
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.08	0.04	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	57.3	57.3	< 0.005	0.01	0.05	60.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.99	0.99	< 0.005	< 0.005	< 0.005	1.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.49	9.49	< 0.005	< 0.005	0.01	9.98

3.3. Grading (2024) - 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	4.19	3.52	34.3	30.2	0.06	1.45	—	1.45	1.33	—	1.33	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.35	9.35	—	3.68	3.68	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.57	0.48	4.70	4.13	0.01	0.20	—	0.20	0.18	—	0.18	—	904	904	0.04	0.01	—	907
Dust From Material Movement	—	—	—	—	—	—	1.28	1.28	—	0.50	0.50	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.86	0.75	< 0.005	0.04	—	0.04	0.03	—	0.03	—	150	150	0.01	< 0.005	—	150
Dust From Material Movement	—	—	—	—	—	—	0.23	0.23	—	0.09	0.09	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.05	0.90	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	180	180	< 0.005	0.01	0.76	183
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	1.52	0.30	18.8	8.91	0.09	0.26	3.71	3.97	0.18	1.02	1.19	—	14,580	14,580	1.20	2.35	31.5	15,342
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	22.8	22.8	< 0.005	< 0.005	0.05	23.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.21	0.04	2.67	1.22	0.01	0.04	0.50	0.54	0.02	0.14	0.16	—	1,998	1,998	0.16	0.32	1.87	2,099
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.77	3.77	< 0.005	< 0.005	0.01	3.83
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.01	0.49	0.22	< 0.005	0.01	0.09	0.10	< 0.005	0.03	0.03	—	331	331	0.03	0.05	0.31	348

3.4. Grading (2024) - 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	0.64	0.64	4.43	35.3	0.06	0.12	—	0.12	0.12	—	0.12	—	6,598	6,598	0.27	0.05	—	6,621

Dust From Material Movement	—	—	—	—	—	—	3.65	3.65	—	1.43	1.43	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.09	0.61	4.84	0.01	0.02	—	0.02	0.02	—	0.02	—	904	904	0.04	0.01	—	907
Dust From Material Movement	—	—	—	—	—	—	0.50	0.50	—	0.20	0.20	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.11	0.88	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	150	150	0.01	< 0.005	—	150
Dust From Material Movement	—	—	—	—	—	—	0.09	0.09	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.05	0.90	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	180	180	< 0.005	0.01	0.76	183
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	1.52	0.30	18.8	8.91	0.09	0.26	3.71	3.97	0.18	1.02	1.19	—	14,580	14,580	1.20	2.35	31.5	15,342

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	22.8	22.8	< 0.005	< 0.005	0.05	23.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.21	0.04	2.67	1.22	0.01	0.04	0.50	0.54	0.02	0.14	0.16	—	1,998	1,998	0.16	0.32	1.87	2,099
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.77	3.77	< 0.005	< 0.005	0.01	3.83
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.01	0.49	0.22	< 0.005	0.01	0.09	0.10	< 0.005	0.03	0.03	—	331	331	0.03	0.05	0.31	348

3.5. Building Construction (2024) - 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	0.30	0.25	2.39	3.14	< 0.005	0.14	—	0.14	0.13	—	0.13	—	457	457	0.02	< 0.005	—	459
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.13	< 0.005	0.01	—	0.01	0.01	—	0.01	—	18.8	18.8	< 0.005	< 0.005	—	18.9

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.11	3.11	< 0.005	< 0.005	—	3.12
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Building Construction (2024) - 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	0.04	0.04	0.23	3.21	< 0.005	0.01	—	0.01	0.01	—	0.01	—	457	457	0.02	< 0.005	—	459
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.13	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.8	18.8	< 0.005	< 0.005	—	18.9
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.11	3.11	< 0.005	< 0.005	—	3.12
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Paving (2024) - 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	1.01	0.85	7.81	10.0	0.01	0.39	—	0.39	0.36	—	0.36	—	1,512	1,512	0.06	0.01	—	1,517
Paving	—	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.43	0.55	< 0.005	0.02	—	0.02	0.02	—	0.02	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.68	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	135	135	< 0.005	< 0.005	0.57	137
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.83	6.83	< 0.005	< 0.005	0.01	6.94
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.13	1.13	< 0.005	< 0.005	< 0.005	1.15
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Paving (2024) - 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	0.16	0.16	1.93	10.6	0.01	0.03	—	0.03	0.03	—	0.03	—	1,512	1,512	0.06	0.01	—	1,517
Paving	—	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.11	0.58	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.68	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	135	135	< 0.005	< 0.005	0.57	137
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.83	6.83	< 0.005	< 0.005	0.01	6.94
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.13	1.13	< 0.005	< 0.005	< 0.005	1.15
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

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

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

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

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

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

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

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

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
Site Preparation	Site Preparation	5/1/2024	5/21/2024	5.00	15.0	—
Grading	Grading	5/22/2024	7/30/2024	5.00	50.0	—
Building Construction	Building Construction	8/1/2024	8/21/2024	5.00	15.0	—
Paving	Paving	8/22/2024	9/18/2024	5.00	20.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20

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
Site Preparation	Rubber Tired Dozers	Diesel	Tier 4 Final	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Tier 4 Final	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Tier 4 Final	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Tier 4 Final	3.00	8.00	82.0	0.20
Paving	Pavers	Diesel	Tier 4 Final	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 4 Final	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Tier 4 Final	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
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.40	HHDT,MHDT
Site Preparation	Hauling	19.1	20.0	HHDT

Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	11.7	LDA,LDT1,LDT2
Grading	Vendor	—	8.40	HHDT,MHDT
Grading	Hauling	200	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	0.00	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	0.00	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.40	HHDT,MHDT
Site Preparation	Hauling	19.1	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	11.7	LDA,LDT1,LDT2
Grading	Vendor	—	8.40	HHDT,MHDT

Grading	Hauling	200	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	0.00	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	0.00	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

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

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	2,290	22.5	0.00	—
Grading	80,000	—	150	0.00	—

Paving	0.00	0.00	0.00	0.00	1.27

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
City Park	1.27	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	204	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. 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	5.89	annual days of extreme heat
Extreme Precipitation	6.70	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	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	1	0	0	N/A
Wildfire	1	0	0	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	5	0	0	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	1	1	1	2
Wildfire	1	1	1	2
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	5	1	1	4

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	—
AQ-PM	—
AQ-DPM	—
Drinking Water	—
Lead Risk Housing	—
Pesticides	—
Toxic Releases	—
Traffic	—
Effect Indicators	—
CleanUp Sites	—
Groundwater	—
Haz Waste Facilities/Generators	—
Impaired Water Bodies	—

Solid Waste	—
Sensitive Population	—
Asthma	—
Cardio-vascular	—
Low Birth Weights	—
Socioeconomic Factor Indicators	—
Education	—
Housing	—
Linguistic	—
Poverty	—
Unemployment	—

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	46.67008854
Employed	75.23418452
Median HI	66.21326832
Education	—
Bachelor's or higher	77.49262158
High school enrollment	100
Preschool enrollment	86.60336199
Transportation	—
Auto Access	24.21403824
Active commuting	91.29988451
Social	—

2-parent households	30.79686898
Voting	84.98652637
Neighborhood	—
Alcohol availability	56.58924676
Park access	81.35506224
Retail density	54.81842679
Supermarket access	9.559861414
Tree canopy	61.37559348
Housing	—
Homeownership	38.3036058
Housing habitability	57.89811369
Low-inc homeowner severe housing cost burden	69.97305274
Low-inc renter severe housing cost burden	85.46131143
Uncrowded housing	55.19055563
Health Outcomes	—
Insured adults	55.46002823
Arthritis	51.7
Asthma ER Admissions	0.7
High Blood Pressure	19.9
Cancer (excluding skin)	52.2
Asthma	37.3
Coronary Heart Disease	77.0
Chronic Obstructive Pulmonary Disease	62.6
Diagnosed Diabetes	61.5
Life Expectancy at Birth	22.8
Cognitively Disabled	43.0
Physically Disabled	46.5

Heart Attack ER Admissions	15.8
Mental Health Not Good	56.0
Chronic Kidney Disease	73.0
Obesity	23.4
Pedestrian Injuries	46.9
Physical Health Not Good	59.3
Stroke	58.2
Health Risk Behaviors	—
Binge Drinking	68.3
Current Smoker	57.8
No Leisure Time for Physical Activity	57.5
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	27.7
Children	39.2
Elderly	57.3
English Speaking	40.2
Foreign-born	54.2
Outdoor Workers	25.5
Climate Change Adaptive Capacity	—
Impervious Surface Cover	26.0
Traffic Density	70.3
Traffic Access	56.9
Other Indices	—
Hardship	35.6
Other Decision Support	—
2016 Voting	50.8

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	—
Healthy Places Index Score for Project Location (b)	75.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
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
Construction: Construction Phases	Demolition and architectural coating not included
Construction: Off-Road Equipment	No erection of buildings. Only assembly and installation of park benches and shades.
Construction: Paving	Estimated paved area

APPENDIX B:
California Natural Diversity Database Sensitive Biological Resources

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Appendix B
Federal and State of California Sensitive Biological Resources
North Point Isabel Point Cap Improvement Project

Resource	Habitat and Distribution	Status Designation	Occurrence Probability
Plants			
Bent-flowered fiddleneck (*Amsinkia lunaris*)[1,2]	Cismontane woodland, valley and foothill grassland, coastal bluff scrub.	Federal: ND State: ND CNPS: 1B.2	Absent. No suitable habitat present at the site and use of the site an off-leash dog park likely precludes this species.
Alkali milk-vetch (*Astragalus tener* var. *tener*) [1,2]	Akali playa, valley and foothill grassland, vernal pools.	Federal: ND State: ND CNPS: 1B.2	Absent. No suitable habitat present at the site and use of the site an off-leash dog park likely precludes this species.
Pallid manzanita (*Arctostaphylos pallida*) [1,2]	Boad-leafed upland forest, closed cone coniferous forest, chaparral, cismontane woodland, coastal scrub.	Federal: FT State: SE CNPS: 1B.1	Absent. No suitable habitat present at the site and use of the site an off-leash dog park likely precludes this species.
Coastal bluff morning glory (*Calystegia purpurata* ssp. *saxicola*) [1,2]	Coastal dunes, coastal scrub, coastal bluff scrub, north coast coniferous forest.	Federal: ND State: ND CNPS: 1B.2	Absent; occurrence noted 30 years ago (1893); no likely habitat at the site or in adjacent areas to the site.
Oakland star-tulip (*Calochortus umbellatus*)[2]	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland.	Federal: ND State: ND CNPS: 4.2	Absent. No suitable habitat present at the site and use of the site an off-leash dog park likely precludes this species.
Soft salty bird's-beak (*Chloropyron molle* ssp. *molle*)[2]	Marshes and swamps (coastal salt)	Federal: ND State: ND CNPS: 4.3	Absent. No suitable habitat present at the site and use of the site an off-leash dog park likely precludes this species.
Point Reyes salty bird-beak (*Chloropyron maritimum* spp. *palustre*) [1,2]	Coastal salt marsh.	Federal: ND State: ND CNPS: 1B.2	Absent; occurrence noted 30 years ago (1906); no likely habitat at the site or in adjacent areas to the site.
Western leatherwood (*Dirca occidentalis*) [1,2]	Broadleafed upland forest, chaparral, closed-cone coniferous forest, cismontane woodland, north coast coniferous forest, riparian forest andwoodland.	Federal: ND State: ND CNPS: 1B.2	Absent. No suitable habitat present at the site and use of the site an off-leash dog park likely precludes this species.
Fragrant fritillary (*Fritillaria liliacea*) [1,2]	Coastal scrub, valley and foothill grassland, coastal prairie, often on serpentine soils.	Federal: ND State: ND CNPS: 1B.2	Absent. No suitable habitat present at the site.
Diablo helianthella (*Helianthella castanea*) [1,2]	Broadleaf upland forest, chapparal, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland.	Federal: ND State: ND CNPS: 1B.2	Absent. No suitable habitat present at the site and use of the site an off-leash dog park likely precludes this species.

Appendix B
Federal and State of California Sensitive Biological Resources
North Point Isabel Point Cap Improvement Project

Resource	Habitat and Distribution	Status Designation	Occurrence Probability
Plants (continued)			
Santa Cruz tarplant (*Holocarpha macradenia*) [1,2]	Coastal prairie, coastal scrub, valley and foothill grassland.	Federal: ND State: ND CNPS: 1B.1	Absent. No suitable habitat present at the site and use of the site an off-leash dog park likely precludes this species.
Loma Prieta hoita (*Hoita stroblina*) [1,2]	Chapparal, cismontane woodland, riparian woodland; serpentine mesic soils.	Federal: ND State: ND CNPS: 1B.1	Absent. No suitable habitat present at the site.
Bristly leptosiphon (*Leptosiphon aureus*)[2]	Chapparal, cismontane woodland, coastal prairie, valley and foothill grassland.	Federal: ND State: ND CNPS: 4.2	Absent. No suitable habitat present at the site and use of the site an off-leash dog park likely precludes this species.
Large-flowered leptosiphon (*Leptosiphon grandiflorus*)[2]	Cismontane woodland, closed-cone coniferous forest, coastal bluff scrub, coastal dunes, coastal prairie, costal scrub, valley and foothill grassland	Federal: ND State: ND CNPS: 4.2	Absent. No suitable habitat present at the site and use of the site an off-leash dog park likely precludes this species.
Coast iris (*Iris longipetala*)[2]	Coastal prairie, lower montane coniferous forest, meadows and seeps.	Federal: ND State: ND CNPS: 4.2	Absent. No suitable habitat present at the site and use of the site an off-leash dog park likely precludes this species.
Lobb's aquatic buttercup (*Ranunculus lobbii*)[2]	Cismontane woodland, north coast coniferous forest, valley and foothill grassland, vernal pools	Federal: ND State: ND CNPS: 4.2	Absent. No suitable habitat present at the site and use of the site an off-leash dog park likely precludes this species.
Long-styled sand-spurrey (*Spergularia macrotheca* var. *longistyla*) [1,2]	Marshes and swamps, meadows and seep.	Federal: ND State: ND CNPS: 1B.2	Absent. No suitable habitat present at the site and use of the site an off-leash dog park likely precludes this species.
California seablite (*Suaeda californica*) [1,2]	Marshes and swamps; margins of coastal salt marshes.	Federal: FE State: ND CNPS: 1B.2	Absent. No suitable habitat present at the site and use of the site an off-leash dog park likely precludes this species.
Saline clover (*Trifolium hydrophilum*) [1,2]	Marshes and swamps; valley and foothill grassland, vernal pools.	Federal: ND State: ND CNPS: 1B.2	Absent; occurrence noted 30 years ago (1900); no likely habitat at the site or in adjacent areas to the site.
Fish			
Green sturgeon-southern DPS (*Acipenser medirostris* pop 1) [1]	Spawning site fidelity; spawns in the Sacramento, Feather and Yuba Rivers	Federal: FT State: ND	Absent; no suitable habitat is present at the site for this sensitive resource.

Appendix B
Federal and State of California Sensitive Biological Resources
North Point Isabel Point Cap Improvement Project

Resource	Habitat and Distribution	Status Designation	Occurrence Probability
Fish (continued)			
Sacramento perch (*Archoplites interruptus*) [1]	Historically found in the sloughs, slow-moving rives and lakes of the central valley.	Federal: ND State: California Species of Concern	Absent; no suitable habitat is present at the site for this sensitive resource.
Longfin smelt (*Spirinchus thaleichthys*) [1]	Euryhaline, nektonic and anadromous; found in open waters of estuaries, mostly in middle or bottom of water column.	Federal: FC State: ST	Absent; no suitable habitat is present at the site for this sensitive resource.
Birds			
Burrowing owl (*Athene cunicularia*) [1]	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation.	Federal: ND State: California Species of Concern	Low; there is possibly limited nesting habitat at the site but continued use of the site for off-leash dogs likely precludes the presence of this species.
Snowy egret *(Egretta thula*) [1]	Colonial nester, with nests situated in protected beds of dense tules; rookery sites situated close to foraging areas, marshes, tidal-flats,, streams, wet meadows and borders of lakes.	Federal: ND State: ND	Low; While there is no nesting habitat at the site, the site may serve as temporary a roosting site for solitary birds.
White-tailed kite (*Elanus leucurus*) [1]	Rolling foothills and valleys margins with scattered oaks and river bottomlands or marshes next to deciduous woodland.	Federal: ND State: FP	Absent; no suitable habitat is present at the site for this sensitive resource. No trees present at the site for roosts.
Birds (continued)			
Caspian tern (*Hydroprogne caspia*) [1]	Nests on sandy or gravelly beaches and shell banks in small colonies inland and along the coast.	Federal: ND State: ND	Low; while there is nesting habitat at the site, continued use of the site for off-leash dogs likely precludes the presence of this species.
California black rail (*Laterallus jamaicensis coturniculus*) [1]	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays.	Federal: ND State: ST, FP	Absent; no suitable habitat is present at the site for this sensitive resource.
Alameda song sparrow (*Melospiza melodia pusillula*) [1]	Resident of salt marshes bordering south arm of San Francisco Bay; inhabits *Salcornia* marshes, nests in low *Grindelia* bushes and *Salcornia*.	Federal: ND State: California Species of Concern	Absent; occurrence noted 30 years ago (1940); no likely habitat at the site or in adjacent areas to the site.

Appendix B
Federal and State of California Sensitive Biological Resources
North Point Isabel Point Cap Improvement Project

Resource	Habitat and Distribution	Status Designation	Occurrence Probability
Birds (continued)			
San Pablo song sparrow (*Melospiza melodia samuelis*) [1]	Resident of salt marshes along north side of San Francisco and San Pablo Bays; inhabits tidal sloughs in the *Salcornia* marshes; nests in *Grindelia* bordering slough channels.	Federal: ND State: California Species of Concern	Absent; occurrence noted 30 years ago (1953); no likely habitat at the site or in adjacent areas to the site.
California Ridgway's rail (*Rallus obsoletus obsoletus*) [1]	Salt water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growth of pickleweed and feeds on invertebrates from mud-bottomed sloughs	Federal: FE State: SE, FP	Absent; no suitable habitat is present at the site for this sensitive resource.
Black-crowned night heron (*Nycticorax nycticorax*) [1]	Colonial nesters, usually in trees, occasionally in tule patches; rookery sites located adjacent to foraging areas, mud-bordered bays, marshy spots.	Federal: ND State: ND	Low; While there is no nesting habitat at the site, the site may serve as temporary a roosting site for solitary birds.
Yellow-headed blackbird (*Xanthocephalus xanthocephalus*) [1]	Nests in freshwater emergent wetlands with dense vegetation and deep water; often along borders of lakes or ponds	Federal: ND State: California Species of Concern	Absent; occurrence noted 30 years ago (1899); no likely habitat at the site or in adjacent areas to the site.
Amphibians			
California red-legged frog (*Rana draytonii*) [1]	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	Federal: FT State: California Species of Concern	Absent; no suitable habitat is present at the site for this sensitive resource.
Mammals			
Pallid bat (*Antrozous pallidus*) [1]	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting.	Federal: ND State: California Species of Concern	Absent; occurrence noted 30 years ago (1945); no likely habitat at the site or in adjacent areas to the site.
Townsend's big-eared bat (*Corynorhinus townsendii*) [1]	Throughout California in a wide variety of habitats; most common in mesic sites.	Federal: ND State: California Species of Concern	Absent; occurrence noted 30 years ago (1938); no likely habitat at the site or in adjacent areas to the site.
Silver-haired bat (*Lasionycteris noctivagans*) [1]	Primarily a coastal and montane forest dweller, feeding over streams, ponds and open brushy areas.	Federal: ND State: ND	Absent; occurrence noted 30 years ago (1982); no likely habitat at the site or in adjacent areas to the site.

Appendix B
Federal and State of California Sensitive Biological Resources
North Point Isabel Point Cap Improvement Project

Resource	Habitat and Distribution	Status Designation	Occurrence Probability
Mammals (continued)			
Hoary bat (*Lasiurus cinereus*) [1]	Prefers open habitats or habitat mosaics with access to trees for cover and open areas or habitat edges for feeding	Federal: ND State: ND	Absent; occurrence noted 30 years ago (1969); no likely habitat at the site or in adjacent areas to the site.
San Pablo vole (*Microtus californicus sanpabloensis*) [1]	Salt marshes of San Pablo Creek, on the south shore of San Pablo Bay; constructs burrow in soft soil, feeds on grasses, sedges and herbs.	Federal: ND State: California Species of Concern	Absent; occurrence noted 30 years ago (1986); no likely habitat at the site or in adjacent areas to the site.
Big free-tailed bat (*Nyctinomops macrotis*) [1]	Low-lying arid areas in southern California; needs high cliffs or rocky outcrops for roosting sites; feeds principally on large moths.	Federal: ND State: California Species of Concern	Absent; occurrence noted 30 years ago (1916); no likely habitat at the site or in adjacent areas to the site.
Salt-marsh harvest mouse (*Reithrodontomys raviventris*) [1]	Only in the saline emergent wetlands of San Francisco Bay and its tributaries; pickleweed is primary habitat.	Federal: FE State: FE, FP	Absent; no suitable habitat is present at the site for this sensitive resource.
Salt-marsh wandering shrew (*Sorex vagrans halicoetes*) [1]	Salt marshes of the south arm of the San Francisco Bay; medium high marshes 6-8 feet above sea level.	Federal: FT State: California Species of Concern	Absent; occurrence noted 30 years ago (1950); no likely habitat at the site or in adjacent areas to the site.
Insects			
Obscure bumble bee (*Bombus caliginosus*) [1]	Coastal areas from Santa Barbara county, north to Washington State; food plant genera include *Baccharis*, C*irsium*, *Lupinus*, *Lotus*, *Grindelia* and *Phacelia*.	Federal: ND State: ND	Absent; occurrence noted 30 years ago (1986); no likely habitat at the site or in adjacent areas to the site.
Crotch bumble bee (*Bombus crotchii*) [1]	Coastal California east to the Sierra-Cascade crest and south into Mexico; food plant genera include *Antirrhinum*, *Phacelia*, *Clarkia*, *Dendromecon*, *Eschscholzia* and *Eriogonum*.	Federal: ND State: CE	Absent; no suitable habitat is present at the site for this sensitive resource.
Western bumble bee (*Bombus occidentalis*)	Once present in many habitat types in California.	Federal: ND State: CE	Absent; no suitable habitat is present at the site for this sensitive resource. No flowering plants present at the site.

Appendix B
Federal and State of California Sensitive Biological Resources
North Point Isabel Point Cap Improvement Project

Resource	Habitat and Distribution	Status Designation	Occurrence Probability
Insects (continued)			
Monarch butterfly (*Danaus plexippus* pop. 1) [1]	Roosts located in wind-protected tree groves with nectar and water sources nearby.	Federal: FC State: ND	Absent; no suitable habitat is present at the site for this sensitive resource.
Lee's micro-blind harvestman (*Microcina leei*) [1]	Xeric habitats in the San Francisco Bay region; found beneath sandstone rocks in open oak grassland.	Federal: ND State: ND	Absent; occurrence noted 30 years ago (1983); no likely habitat at the site or in adjacent areas to the site.
Mollusks			
Bridges' coast range shouldband (*Helminthoglypta nickliniana bridgesi*) [1]	Inhabits open hillsides of Alameda and Contra Costa counties; tends to colonize under tall grasses and weeds.	Federal: ND State: ND	Absent; occurrence noted 30 years ago (1950); no likely habitat at the site or in adjacent areas to the site.
Reptiles			
Western pond turtle (*Emys marmorata*) [1]	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches.	Federal: ND State: California Species of Special Concern	Absent; no suitable habitat is present at the site for this sensitive resource
Alameda whipsnake (*Masticophis lateralis euryxanthus*) [1]	Typically found in chapparal and scrub habitats but will also use adjacent grassland, oak savannah and woodland habitats.	Federal: FT State: ST	Absent; no suitable habitat is present at the site for this sensitive resource
Habitat			
Northern Maritime Chaparral[1]		Federal: ND State: ND	Absent; this habitat type is not found at the site or in adjacent areas to the site.
Valley Needlegrass Grassland[1]		Federal: ND State: ND	Absent; this habitat type is not found at the site or in adjacent areas to the site.
Northern Coastal Salt Marsh[1]		Federal: ND State: ND	Absent; this habitat type is not found at the site or in adjacent areas to the site.

Appendix B
Federal and State of California Sensitive Biological Resources
North Point Isabel Point Cap Improvement Project

Notes:	**State Status:**	**California Native Plant Society (CNPS) List:**
ND No Designation	SE State listed Endangered	1A Plants presumed extinct in California
Federal Status:	ST State listed Threatened	1B.1 Plants rare, threatened, or endangered in California and elsewhere; seriously threatened in California
FC Candidate species	CE Candidate Endangered	1B.2 Plants rare, threatened, or endangered in California and elsewhere; fairly threatened in California
D Delisted	CT Candidate Threatened	1B.3 Plants rare, threatened, or endangered in California and elsewhere; not very threatened in California
FE Federally listed Endangered	R Rare	2.1 Plants rare, threatened, or endangered in California, but more common elsewhere; seriously threatened in California
FT Federally listed Threatened	CSC California Department of Fish and Wildlife Species of Concern	2.2 Plants rare, threatened, or endangered in California, but more common elsewhere; fairly threatened in California
FPD Federally proposed for Delisting	FP California Department of Fish and Wildlife Protected Species (Fully)	2.3 Plants rare, threatened, or endangered in California, but more common elsewhere; not very threatened in California
PT Proposed Threatened		3.1 Plants about which we need more information; seriously threatened in California
		3.2 Plants about which we need more information; fairly threatened in California
		3.3 Plants about which we need more information; not very threatened in California
		4.1 Plants of limited distribution; seriously threatened in California
		4.2 Plants of limited distribution; fairly threatened in California
		4.3 Plants of limited distribution; not very threatened in California

Source: [1]California Department of Fish and Wildlife, Natural Diversity Data Base, Richmond USGS 7.5' Quadrangle, 15 November 2023
[2]California Native Plant Society, Rare Plant Inventory, 27 November 2023

Criteria:
Present: Species was observed in or immediately adjacent to the Study Area within the past 5 years.
High: Habitat (including vegetation, soils and elevation factors) and known historical range for the species occurs in the Study Area and a known occurrence has been recorded within 5 miles and within the past 30 years.
Moderate: Habitat for the species occurs in the Study Area and a known occurrence has been recorded between 5 and 10 miles away within the past 30 years. Or historical range for the species occurs in the Study Area and a known occurrence has been recorded within 5 miles and within the past 30 years with only two of three habitat parameters present (appropriate vegetation, soils and elevation)
Low: Limited habitat for the species occurs in the Study Area and known occurrences are greater than 10 miles from the Study Area or over 30 years old. Or habitat quality is poor with only one parameter present (appropriate vegetation, soils and elevation).
Absent: Beyond those factors listed for Low potential, the species is easily identifiable throughout the year and was not observed (i.e., most tree species).

APPENDIX C:
North Point Isabel Cap Improvement Project Noise and Vibrational Technical Study

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June 2025| Noise and Vibration Technical Study

North Point Isabel Cap Improvement Project

East Bay Regional Park District

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PLACEWORKS

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1. Introduction

This Noise and Vibration Technical Study is prepared for the East Bay Regional Park District (Park District) to evaluate the potential noise and vibration impacts pursuant to the California Environmental Quality Act (CEQA) from the development and operation of the North Point Isabel Cap Improvement Project (proposed project) in the City of Richmond. Specifically, the technical study is prepared to support the Initial Study/Mitigated Negative Declaration (IS/MND) for the North Point Isabel Cap Improvement Project. In addition, potential noise impact on the endangered/threatened special status species habitats during project construction is evaluated, with feasible noise abatement measures recommended.

1.1 PROJECT LOCATION

Point Isabel Regional Shoreline is part of the State of California's McLaughlin Eastshore State Park and is operated by the East Bay Regional Park District (Figure 1). The Eastshore State Park encompasses approximately 2,262 acres of tideland and upland area and extends roughly 8.5 miles along the shore of the San Francisco Bay from the Bay Bridge in Oakland north to the Marina Bay neighborhood in the City of Richmond.

As shown in Figure 1, *Aerial Map*, the North Point Isabel Cap Improvement Project is at North Point Isabel McLaughlin Eastshore State Park at 2701 Isabel Street in Richmond, California. North Point Isabel refers to approximately 17 acres of capped bay fill and the location of an off-leash dog area. Existing adjacent uses include the Hoffman Marsh to the east of the site, industrial uses to the south of the project site, the San Francisco Bay trail to the north and east of the project site, and the San Francisco Bay to the west of the project site.

1.2 PROJECT DESCRIPTION

Through a funding partnership with California State Parks, the proposed project seeks to restore and enhance the existing remedial cap to provide long-term, sustainable recreational use of the park through effective grading, drainage (including increased soil cover), and planting to prevent soil erosion. The proposed project has four primary goals:

- Using import soils, stabilize the cap by raising the site's elevation to effectively cap pre-existing classified soils and to provide sea level rise resilience. A paved and gravel trail network would be installed to provide universal site access.

- Grade planted slopes and install a continuous vegetated swale to reduce soil erosion and filter sediments from site-generated stormwater before discharged into the San Francisco Bay.
- Provide more site furnishings to enhance user experience of large off-leash dog area to improve visitor experience.
- For remediating the degraded landfill cap, a hybrid of Alternative 1 and 2 would be undertaken and is described below.
- Construction vehicles and equipment would access the site from the southeastern entrance point using Rydin Road. Equipment would cross Hoffman Channel using the existing bridge. The Hoffman Channel bridge has been determined by the East Bay Regional Park District to be structurally sound for use by construction equipment. During construction, equipment would be staged at the project site.
- A geomembrane liner would be installed under the perimeter path. The geomembrane would also be installed under locations where new riprap is placed over the new fill. This will work to encapsulate the lead-impacted soils present beneath the cap. New fill will be brought into the project site and placed on top of the existing cap to mitigate lead exposure and protect against sea level rise by raising the perimeter elevation of the path and riprap. During placement of the new fill, the surface of the landfill will be graded to improve drainage to existing stormwater flow catch basins. The new cap would extend the life of the park. During construction, perimeter roads would be reconstructed and/or repaved to reduce erosion and improve stormwater drainage off the cap and into existing stormwater flow catch basins. Stormwater runoff would be directed into vegetated swales prior to being discharged from the site into the local stormwater management system. Figure 2 provides details for the rise in elevation of the site surface that would result from the proposed cap improvement plus stormwater management features.

1.3 NOISE TERMINOLOGY AND DESCRIPTORS

Noise is most often defined as unwanted sound. Although sound can be easily measured, the perception of noise and the physical response to sound complicate the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as “noisiness” or “loudness.”

Source: Tetra Tech.

Figure 1
Aerial Map

1. Introduction

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1. Introduction

Source: Tetra Tech.

Site Boundary

Figure 2
North Point Isabel Park Cap Improvement Project

1. Introduction

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1. Introduction

The following are brief definitions of terminology used in this document:

- **Sound.** A disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.

- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.

- **Decibel (dB).** A unitless measure of sound, expressed on a logarithmic scale and with respect to a defined reference sound pressure. The standard reference pressure is 20 micropascals (µPa).

- **A-Weighted Decibel (dBA).** An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.

- **Equivalent Continuous Noise Level (L_{eq}); also called the Energy-Equivalent Noise Level.** The value of an equivalent, steady sound level, which, in a stated time period (often over an hour) and at a stated location, has the same A-weighted sound energy as the time-varying sound. Thus, the L_{eq} metric is a single numerical value that represents the equivalent amount of variable sound energy received by a receptor over the specified duration.

- **Statistical Sound Level (L_n).** The sound level that is exceeded "n" percent of time during a given sample period. For example, the L_{50} level is the statistical indicator of the time-varying noise signal that is exceeded 50 percent of the time (during each sampling period); that is, half of the sampling time, the changing noise levels are above this value and half of the time they are below it. This is called the "median sound level." The L_{10} level, likewise, is the value that is exceeded 10 percent of the time (i.e., near the maximum) and this is often known as the "intrusive sound level." The L_{90} is the sound level exceeded 90 percent of the time and is often considered the "effective background level" or "residual noise level."

- **Sound Exposure Level (SEL):** The cumulative exposure of sound energy over a stated period of time.

- **Maximum Sound Level (L_{max})**. The highest root mean square sound level (RMS) measured during the measurement period.

- **Root Mean Square Sound Level (RMS).** The square root of the average of the square of the sound pressure over the measurement period.

- **Day-Night Sound Level (L_{dn} or DNL).** The energy-average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the sound levels occurring during the period from 10:00 p.m. to 7:00 a.m.

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- **Community Noise Equivalent Level (CNEL).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dBA added from 7:00 p.m. to 10:00 p.m. and 10 dBA from 10:00 p.m. to 7:00 a.m. NOTE: For general community/environmental noise, CNEL and L_{dn} values rarely differ by more than 1 dBA (with the CNEL being only slightly more restrictive – that is, higher than the L_{dn} value). As a matter of practice, L_{dn} and CNEL values are interchangeable and are treated as equivalent in this assessment.

- **Peak Particle Velocity (PPV).** The peak rate of speed at which soil particles move (e.g., inches per second) due to ground vibration.

- **Sensitive Receptor.** Noise- and vibration-sensitive receptors include land uses where quiet environments are necessary for enjoyment and public health and safety. Residences, schools, motels and hotels, libraries, religious institutions, hospitals, and nursing homes are examples.

1.3.1 Characteristics of Sound

When an object vibrates, it radiates part of its energy in the form of a pressure wave. Sound is that pressure wave transmitted through the air. Technically, airborne sound is a rapid fluctuation or oscillation of air pressure above and below atmospheric pressure that creates sound waves.

Sound can be described in terms of amplitude (loudness), frequency (pitch), or duration (time). Loudness or amplitude is measured in dB, frequency or pitch is measured in Hertz (Hz) or cycles per second, and duration or time variations is measured in seconds or minutes.

Amplitude

Unlike linear units, such as inches or pounds, decibels are measured on a logarithmic scale. Because of the physical characteristics of noise transmission and perception, the relative loudness of sound does not closely match the actual amounts of sound energy. Table 1, *Noise Perceptibility*, presents the subjective effect of changes in sound pressure levels. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud). Changes of 1 to 3 dBA are detectable under quiet, controlled conditions, and changes of less than 1 dBA are usually not discernible (even under ideal conditions). A 3 dBA change in noise levels is considered the minimum change that is detectable with human hearing in outside environments. A change of 5 dBA is readily discernible to most people in an exterior environment, and a 10 dBA change is perceived as a doubling (or halving) of the sound.

Table 1 Noise Perceptibility

Change in dB	Noise Level
± 3 dB	Threshold of human perceptibility
± 5 dB	Clearly noticeable change in noise level
± 10 dB	Half or twice as loud
± 20 dB	Much quieter or louder

Source: California Department of Transportation (Caltrans). 2013, September. Technical Noise Supplement ("TeNS").

Frequency

The human ear is not equally sensitive to all frequencies. Sound waves below 16 Hz are not heard at all but are "felt" more as a vibration (predominantly in a person's chest cavity). Similarly, though people with extremely sensitive hearing can hear sounds as high as 20,000 Hz, most people cannot hear above 15,000 Hz. In all cases, hearing acuity falls off rapidly above about 10,000 Hz and below about 200 Hz.

When describing sound and its effect on a human population, A-weighted decibel (dBA) sound levels are typically used to approximate the response of the human ear. The A-weighted noise level has been found to correlate well with people's judgments of the "noisiness" of different sounds and has been used for many years as a measure of community and industrial noise.

Duration

Time variation in noise exposure is typically expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called L_{eq}), or alternately, as a statistical description of the sound level that is exceeded over some fraction of a given observation period. For example, the L_{50} noise level represents the noise level that is exceeded 50 percent of the time; half the time the noise level exceeds this level and half the time the noise level is less than this level. This level is also representative of the level that is exceeded 30 minutes in an hour. Similarly, the L_2, $L_{8,}$ and L_{25} values represent the noise levels that are exceeded 2, 8, and 25 percent of the time or 1, 5, and 15 minutes per hour, respectively. These "n" values are typically used to demonstrate compliance for stationary noise sources with many cities' noise ordinances. Other values typically noted during a noise survey are the L_{min} and L_{max}. These values represent the minimum and maximum root-mean-square noise levels obtained over the measurement period, respectively.

Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, State law, and many local jurisdictions use an adjusted 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL) or Day-Night Noise Level (L_{dn}).

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Sound Propagation

Sound dissipates exponentially with distance from the noise source. This phenomenon is known as "spreading loss." For a single-point source, sound levels decrease by approximately 6 dBA for each doubling of distance from the source (conservatively neglecting ground attenuation effects, air absorption factors, and barrier shielding). For example, if a backhoe at 50 feet generates 84 dBA, at 100 feet the noise level would be 78 dBA, and at 200 feet it would be 72 dBA. This drop-off rate is appropriate for noise generated by on-site operations from stationary equipment or activity at a project site. If noise is produced by a line source, such as highway traffic, the sound decreases by 3 dBA for each doubling of distance over a reflective ("hard site") surface, such as concrete or asphalt. Line source noise in a relatively flat environment with ground-level absorptive vegetation decreases by an additional 1.5 dBA for each doubling of distance.

Psychological and Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, thereby affecting blood pressure and functions of the heart and the nervous system. Extended periods of noise exposure above 90 dBA results in permanent cell damage, which is the main driver for employee hearing protection regulations in the workplace. For community environments, the ambient or background noise problem is widespread, though generally worse in urban areas than in outlying, less-developed areas. Elevated ambient noise levels can result in noise interference (e.g., speech interruption/masking, sleep disturbance, disturbance of concentration) and cause annoyance. Although the A-weighted scale and the energy-equivalent metric are commonly used to quantify the range of human response to individual events or general community sound levels, the degree of annoyance or other response also depends on several other perceptibility factors, including:

- Ambient (background) sound level
- General nature of the existing conditions (e.g., quiet, rural, or busy urban)
- Difference between the magnitude of the sound event level and the ambient condition
- Duration of the sound event
- Number of event occurrences and their repetitiveness
- Time of day that the event occurs

Since most people do not routinely work with decibels or A-weighted sound levels, it is often difficult to appreciate what a given sound pressure level number means. To help relate noise level values to common experience, Table 2, *Typical Noise Levels*, shows typical noise levels from familiar sources.

Table 2 Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock Band
Jet Flyover at 1,000 feet		
	100	
Gas Lawn Mower at three feet		
	90	
Diesel Truck at 50 feet, at 50 mph		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noisy Urban Area, Daytime		
	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal speech at 3 feet
Heavy Traffic at 300 feet	60	
		Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Nighttime		
	30	Library
Quiet Rural Nighttime		Bedroom at Night, Concert Hall (background)
	20	
Very Remote & Unpopulated Area Nighttime		Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source: California Department of Transportation (Caltrans). 2013, September. Technical Noise Supplement ("TeNS").

1.3.2 Characteristics of Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration is normally associated with activities stemming from operations of railroads or vibration-intensive stationary sources but can also be associated with construction equipment, such as jackhammers, pile drivers, and hydraulic hammers. As with noise, vibration can be described by both its amplitude and frequency. Vibration displacement is the

1. Introduction

distance that a point on a surface moves away from its original static position, velocity is the instantaneous speed that a point on a surface moves, and acceleration is the rate of change of the speed. Each of these descriptors can be used to correlate vibration to human response, building damage, and acceptable equipment vibration levels. During construction, the operation of construction equipment can cause groundborne vibration. During the operational phase of a project, receptors may be subject to levels of vibration that can cause annoyance due to noise generated from vibration of a structure or items in a structure.

Vibration amplitudes are usually described in terms of either the peak particle velocity (PPV) or the root mean square (RMS) velocity. PPV is the maximum instantaneous peak of the vibration signal and RMS is the square root of the average of the squared amplitude of the signal. PPV is appropriate for evaluating potential building damage.

As with airborne sound, annoyance with vibrational energy is a subjective measure, depending on the level of activity and the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Persons accustomed to elevated ambient vibration levels, such as in an urban environment, may tolerate higher vibration levels. Table 3, *Human Reaction to Typical Vibration Levels,* displays the human response and the effects on buildings resulting from continuous vibration (in terms of various levels of PPV).

Table 3 Human Reaction to Typical Vibration Levels

Vibration Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.006–0.019	Threshold of perception, possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08	Vibrations readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subjected
0.10	Level at which continuous vibration begins to annoy people	Virtually no risk of “architectural” (i.e. not structural) damage to normal buildings
0.20	Vibrations annoying to people in buildings	Threshold at which there is a risk to “architectural” damage to normal dwelling – houses with plastered walls and ceilings
0.4–0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause “architectural” damage and possibly minor structural damage

Source: California Department of Transportation (Caltrans). 2020, April. *Transportation and Construction Vibration Guidance Manual.* Prepared by ICF International.

2. Regulatory Setting

To limit people's exposure to physically and/or psychologically damaging as well as intrusive noise levels, State and local agencies have established standards and ordinances to control noise.

2.2 WILDLIFE HABITAT PROTECTION REGULATIONS

2.2.1 United States Fish and Wildlife Service

Construction and operational noise generated by the proposed project could potentially have a significant adverse effect on the California Ridgway's rail (*Rallus longirostris obsoletus*) habitat. The marsh vegetation in the Hoffman Marsh to the east of the project site is habitat for this bird species. In 1991, the U.S. Fish and Wildlife Service recommended that noise levels not exceed 60 dBA to protect the gnatcatcher (*Polioptilidae*) and other bird species (San Diego County 2002). While 60 dBA L_{eq} is used as the noise criteria to assess noise impacts for the California Least Bell's Vireo and Gnatcatcher, based on a previous biological opinion, thresholds for the project and the California Ridgway's rail off-site in the Hoffman Marsh, will be "not to exceed ambient noise level by more than 3 dBA," which essentially limits the project-related construction noise level to the current noise environment, based on the existing ambient noise levels from long-term measurements. Noise levels presented in this section and the analysis of impacts to wildlife are provided and recommended mitigation measures are included provided work would be conducted in the breeding season.

2.3 LOCAL

2.3.1 City of Richmond General Plan

The Noise Element of the General Plan establishes policies related to community noise and its control, as listed below (City of Richmond 2012).

Richmond 1994 General Plan Policies Related to Noise

Noise Element

Policy Number	Policy
NE-A.2	Develop criteria establishing proper site planning and building orientation that will lessen noise intrusion and minimize noise elements.

NE-A.3 Utilize the building code to establish standards which would require sound insulation to control sound transmission within and from outside structures.

NE-A.7 Require new developments of proposed noise sensitive uses locating in noise impacted areas of Ldn 55 or greater to provide noise study reports prepared by a qualified professional with demonstrated experience in noise control engineering.

NE-A.9 Seek to limit the impact of nuisance noise sources upon noise sensitive land uses and consider noise and vibration impacts in land use planning decisions.

NE-B.1 Work to mitigate transportation noise impacts through location and design of transportation facilities and location and design of noise sensitive uses.

2.3.2 City of Richmond Municipal Code

Chapter 9.52 of the City of Richmond Municipal Code provides for noise regulations within city limits, as follows (City of Richmond 2023):

Section 9.52.090 – Prohibited Noises.

1. Vibration. Operating or permitting the operation of any contraption or device that creates a vibration so as to create a noise disturbance or cause any violation of this chapter. This section prohibits noise within the City that is considered a noise disturbance including, but not limited to, the following:

2. Power Tools, Machinery. Operating or permitting the operation of any mechanically powered saw, drill, grinder, lawn or garden tool, leaf blower, or similar machinery at any time between the hours of 10:00 p.m. and 7:00 a.m. on weekdays and 8:00 p.m. and 8:30 a.m. on weekends and legal holidays, or at any other time so as to create a noise disturbance or cause any violation of this chapter. Any motor, machinery, generator, pump, which, by its nature or necessary function, must be operated on a continuous or regular basis, such as swimming pool equipment, or air conditioning/heating system, shall be enclosed or muffled and maintained so as not to create a noise disturbance or otherwise violate this chapter.

3. Loading and Unloading. Loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, or similar objects between the hours 10:00 p.m. and 7:00 a.m. in any residential or commercial zoning district or adjacent to any noise-sensitive uses or so as to create a noise disturbance or cause any violation of this chapter.

4. Construction Activities. Causing or permitting the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work at any time between the hours of 7:00 p.m. and 7:00 a.m. on weekdays or 6:00 p.m. and 8:30 a.m. on weekends and legal holidays in any residential or commercial zoning district or adjacent to any noise-sensitive uses or so as to create a

noise disturbance or cause any violation of this chapter. Prior to commencing any construction project, the project sponsor may meet and confer with the City Public Works Department to establish an appropriate construction schedule which is designed to minimize construction noise impacts and which is in conformity with the requirements of this subsection. Where construction activities on a construction project which is adjacent to any noise-sensitive use(s) are anticipated to last for a year or more, temporary noise barriers shall be constructed that break the line of sight between the noise-sensitive use(s) and the construction project, and that minimize noise impacts.

Section 9.52.100 – Exterior Noise Standards

1. No uses or activities shall create levels which exceed the standards in Table 4. In addition, the exterior noise limits for any source of noise within any residential zone shall be reduced by 10 dBA between 10:00 p.m. and 7:00 a.m. The exterior noise limits for any source of noise in any zone other than a residential zone shall be reduced between 10:00 p.m. and 7:00 a.m. so that when measured at the property line of a "noise-sensitive use," the noise does not exceed 50 dBA.

Table 4 Allowable Exterior Noise Levels in the City

Zoning District	Maximum Noise Level in dBA (levels not to be exceeded more than 30 minutes in any hour)		Maximum Noise Level in dBA (level not to be exceeded more than 5 minutes in any hour)
	Measured at Property Line or District Boundary	Measured at Any Boundary of a Residential Zone	Between 10 p.m. and 7 a.m.,[3] Measured at Any Boundary of a Residential Zone
Single-Family Residential	60	—	—
Multifamily Residential	65	—	—
Commercial	70	60	50 or ambient noise level
Lt. Industrial and Office Flex[1]	70	60	50 or ambient noise level
Heavy and Marine Industrial[2]	75	65	50 or ambient noise level
Public Facilities and Community Use	65	60	50 or ambient noise level
Open Space and Recreational Districts	65	60	50 or ambient noise level

Source: City of Richmond 2023. *City of Richmond Municipal Code*.
Notes:
1.For M-1 and M-2 the measurement will be at property lines.
2.For M-3 and M-4 the measurement will be at boundary of the district.
3.Restricted hours may be modified through condition of an approved conditional use permit.

2. Regulatory Setting

Section 9.52.110 – Temporary noise-generating equipment.

Where technically and economically feasible, construction activities shall be conducted in such a manner that the maximum sound levels at affected properties will generally not exceed those listed in Tables 5 and 6.

Table 5 Mobile Equipment (Standards for the City)[1]

	SFR-1, SFR-2, SFR-3 Zoning Districts (Single-Family Residential)	MR-1, MR-2, MR-3 Zoning Districts (Multi-Family Residential)	Commercial and Industrial Zoning Districts
Weekdays, 7:00 a.m. to 7:00 p.m.	75 dBA	80 dBA	85 dBA
Weekends, including legal holidays, 9:00 a.m. to 8:00 p.m.	60 dBA	65 dBA	70 dBA

Source: City of Richmond 2023. *City of Richmond Municipal Code*
Note:
1. Maximum sound levels for nonscheduled, intermittent, short-term operation (period less than 15 days) of mobile equipment.

Table 6 Stationary Equipment (Standards for the City)[1]

	SFR-1, SFR-2, SFR-3 Zoning Districts (Single-Family Residential)	MR-1, MR-2, MR-3 Zoning Districts (Multi-Family Residential)	Commercial and Industrial Zoning Districts
Weekdays, 7:00 a.m. to 7:00 p.m.	60 dBA	65 dBA	70 dBA
Weekends, including legal holidays, 9:00 a.m. to 8:00 p.m.	55 dBA	60 dBA	

Source: City of Richmond 2023. *City of Richmond Municipal Code*.
Note:
1. Maximum sound levels for respectively scheduled and long-term operation (period exceeding 15 days or more) of stationary equipment.

2.3.3 East Bay Regional Park District

The Park District's noise policy is set forth in Section 908, Declaration of Noise Policy, of Ordinance 38, Rules and Regulations, revised April 2016. The Park District's noise ordinance regulates unnecessary, excessive, annoying noises in the park boundaries. All persons entering District parkland are required to

abide by the rules and regulations of the Park District, the laws of the State of California, and local ordinances (East Bay Regional Park District 2023).

2. Regulatory Setting

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3. Environmental Setting

3.1 EXISTING NOISE ENVIRONMENT

The existing noise environment in the Project Area is primarily influenced by traffic noise on Interstate (I-) 580 and train operations on the Western Pacific and Amtrak rail line adjacent to and east of I-580. Secondary noise characteristics of the site include truck movements attributable to the industrial warehouse use to the south, San Francisco Bay Trail users, and birds.

Ambient noise monitoring was conducted around the project site from March 13 to 14, 2024. Figure 3, *Noise Monitoring Locations,* shows the six short-term (15-minute) and three long-term (24-hour) noise measurement locations. The short-term sound level meter (SLM) used (Larson Davis LxT) and the long-term SLM used Picollo II for noise monitoring satisfies the American National Standards Institute (ANSI) standard for Type I and Type II instrumentation, respectively. The meters were calibrated prior to and after each monitoring period. All short-term measurements were at least five feet above the ground and away from reflective surfaces. Long-term measurements were approximately 1.5 feet above the ground and away from the San Francisco Bay Trail. Short-term measurement results are detailed below and summarized in Table 7, *Ambient Short-Term Noise Measurements Summary*.

Table 7 Ambient Short-Term Noise Measurement Summary

Location	L_{eq} (dBA)	L_{max} (dBA)
ST1 – Northern Hoffman Marsh Boundary	58.5	64.1
ST2 – Hoffman Marsh east of project site	64.8	71.1
ST3 – Adjacent to the San Francisco Bay Trail Bridge	62.5	68.1
ST4 – Point Isabel parking lot	65.3	73.8
ST5 – Hoffman Marsh east of the San Francisco Bay Trail parking lot	66.5	72.6
ST6 – Hoffman Marsh south of project site	60.7	74.2

Source: PlaceWorks, March 13, 2024.

- **Short-Term Location 1 (ST-1)** monitoring was conducted on the northern Hoffman Marsh Boundary. The measurement location was approximately 40 feet east of the San Francisco Bay. A 15-minute noise measurement began at 7:33 p.m. on Wednesday, March 13, 2024. The noise measurement was conducted close to dusk. The noise environment is characterized primarily by traffic along I-580, Western Pacific Rail horns, and bird activity nearby. Pedestrian and cyclist activity was observed to be less prominent during this time. Noise levels generally ranged from 59 to 64 dBA.

3. Environmental Setting

- **Short-Term Location 2 (ST-2)** monitoring was conducted east of the project site in the Hoffman Marsh approximately 140 feet from the trail. A 15-minute noise measurement began at 7:02 p.m. on Wednesday, March 13, 2024. The noise measurement was conducted approaching dusk time. The noise primarily consisted of traffic along I-580, Western Pacific rail, distant plane noise, and various bird activity. In addition to traffic, sirens were observed and audible during this measurement. Noise levels generally ranged from 65 to 71 dBA.

- **Short-Term Location 3 (ST-3)** monitoring was conducted adjacent to the trail. The measurement location was approximately 20 feet east of the park. A 15-minute noise measurement began at 6:48 p.m. on Wednesday, March 13, 2024. The noise environment is characterized primarily by traffic along I-580, pedestrians walking and chatting, joggers, cyclists, dogs parking on the trail and in the nearby park, Western Pacific Rail, and bird activity nearby. Pedestrian and cyclist activity was observed to increase along the trail. Dogs barking was also observed to be more audible during this time. Noise levels generally ranged from 63 to 68 dBA.

- **Short-Term Location 4 (ST-4)** monitoring was conducted adjacent to the Point Isabel Parking Lot. A 15-minute noise measurement began at 6:27 p.m. on Wednesday, March 13, 2024. The noise measurement was conducted approaching dusk time. The noise primarily consisted of parking lot activity, traffic along I-580, Western Pacific rail, dogs barking, people chatting and walking into the park, dog washer station activity, and birds chirping. Noise levels generally ranged from 65 to 74 dBA.

- **Short-Term Location 5 (ST-5)** monitoring was conducted adjacent to the trail. The measurement location was taken in Hoffman Marsh approximately 20 feet east of the trail near the ending point of Rydin Road. A 15-minute noise measurement began at 6:02 p.m. on Wednesday, March 13, 2024. The noise environment is characterized primarily by traffic along I-580, pedestrians walking and chatting, joggers, cyclists, dog activity on the trail and in the nearby park, Western Pacific Rail, light- and heavy-duty vehicles along Rydin Road, and bird activity nearby. Noise levels generally ranged from 67 to 73 dBA.

- **Short-Term Location 6 (ST-6)** monitoring was conducted in the Hoffman Marsh south of the project site. The measurement location was taken approximately 20 feet east of the trail and approximately 55 feet of Rydin Road. A 15-minute noise measurement began at 5:33 p.m. on Wednesday, March 13, 2024. The noise environment is characterized primarily by traffic along I-580, pedestrians walking and chatting, joggers, cyclists, Western Pacific Rail, light- and heavy-duty vehicles along Rydin Road, and bird activity nearby. Noise levels generally ranged from 61 to 74 dBA.

Long-term measurement results are detailed below and summarized in Tables 8, 9, and 10, *LT-1, LT-2, and LT-3 Ambient Short-Term Noise Measurements Summary*. Average hourly noise levels at site LT-1, LT-2, and LT-3 are 66.4 dBA L_{eq}, 66.2 dBA L_{eq}, and 60.1 dBA L_{eq}, respectively.

- **Long-Term Location 1 (LT-1)** monitoring was conducted east of the trail adjacent to the entrance of the channel from Hoffman Marsh. The measurement location was approximately 50 feet east of the bridge crossing the channel. A 24-hour noise measurement was taken from Wednesday, March 13, 2024, to Thursday, March 14, 2024. The noise environment is characterized primarily by traffic along I-580, pedestrians walking and chatting, joggers, cyclists, dog activity on the trail and in the nearby park, Western Pacific Rail, and bird activity nearby. Noise levels generally ranged from 57 to 70 dBA L_{eq}.

- **Long-Term Location 2 (LT-2)** monitoring was conducted east of the trail and project site in the Hoffman Marsh. The measurement location was approximately 140 feet from the trail along the marsh berm. A 24-hour noise measurement was taken from Wednesday, March 13, 2024, to Thursday, March 14, 2024. The noise environment is characterized primarily by traffic along I-580, Western Pacific Rail, and bird activity nearby. Noise levels generally ranged from 55 to 70 dBA L_{eq}.

- **Long-Term Location 3 (LT-3)** monitoring was conducted east of the trail and in the northern portion of the Hoffman Marsh. The measurement location was approximately 280 feet from the trail. A 24-hour noise measurement was taken from Wednesday, March 13, 2024, to Thursday, March 14, 2024. The noise environment is characterized primarily by traffic along I-580, Western Pacific Rail, and bird activity nearby. Noise levels generally ranged from 51 to 64 dBA L_{eq}.

Table 8 LT-1 Ambient Long-Term Noise Measurements

Time	L_{eq} (dBA)	L_{max} (dBA)	Time	L_{eq} (dBA)	L_{max} (dBA)
6:00 AM	69.7	80	6:00 PM	66.9	77.2
7:00 AM	66.7	89.9	7:00 PM	67	80.4
8:00 AM	63.3	72.9	8:00 PM	66	78.2
9:00 AM	69	77	9:00 PM	65.3	73.1
10:00 AM	69.3	85.1	10:00 PM	65	78.2
11:00 AM	70.1	84	11:00 PM	63.7	78.8
12:00 PM	69.4	84	12:00 AM	62.3	77.1
1:00 PM	64.3	72	1:00 AM	63.2	78.4
2:00 PM	60.4	74.8	2:00 AM	62.3	73.7
3:00 PM	56.4	76.1	3:00 AM	63.7	74.1
4:00 PM	57	70.5	4:00 AM	67	78.1
5:00 PM	59	77.2	5:00 AM	68.9	76.1

Source: PlaceWorks, March 13-14, 2024.

3. Environmental Setting

Table 9 LT-2 Ambient Long-Term Noise Measurements

Time	L_{eq} (dBA)	L_{max} (dBA)	Time	L_{eq} (dBA)	L_{max} (dBA)
6:00 AM	69.6	78.9	6:00 PM	66.7	74.4
7:00 AM	66.7	83.5	7:00 PM	66.8	76.9
8:00 AM	63.2	75.1	8:00 PM	65.9	82.1
9:00 AM	69.2	76.8	9:00 PM	65.2	79.3
10:00 AM	69.3	90.1	10:00 PM	65.3	75
11:00 AM	69.6	78.9	11:00 PM	64	75.7
12:00 PM	69.4	80.7	12:00 AM	62.5	76.9
1:00 PM	63.4	73.2	1:00 AM	63.1	79.5
2:00 PM	59.4	76.3	2:00 AM	61.7	75.4
3:00 PM	55.2	71.6	3:00 AM	63.3	73.5
4:00 PM	55.1	69.6	4:00 AM	66.9	76.9
5:00 PM	59.2	72.1	5:00 AM	68.9	75.4

Source: PlaceWorks, March 13-14, 2024.

Table 10 LT-3 Ambient Long-Term Noise Measurements

Time	L_{eq} (dBA)	L_{max} (dBA)	Time	L_{eq} (dBA)	L_{max} (dBA)
6:00 AM	62.7	71.4	6:00 PM	59.9	70
7:00 AM	60.4	70.8	7:00 PM	60.5	76.1
8:00 AM	57.5	77.7	8:00 PM	59.3	72.3
9:00 AM	63.7	74.6	9:00 PM	59.3	80.2
10:00 AM	63.2	81.3	10:00 PM	59.1	68.6
11:00 AM	63.4	73.2	11:00 PM	57.4	72.2
12:00 PM	63	73.8	12:00 AM	56	70.5
1:00 PM	58	88.8	1:00 AM	57.1	74
2:00 PM	53.7	67.3	2:00 AM	55.9	70.9
3:00 PM	51.5	61.2	3:00 AM	56.7	72.1
4:00 PM	51	63.5	4:00 AM	60.1	75.8
5:00 PM	53.7	66.5	5:00 AM	61.7	71.1

Source: PlaceWorks, March 13-14, 2024.

As a result of the California Supreme Court decision regarding the assessment of the environment's impacts on projects (*California Building Industry Association (CBIA) v. Bay Area Air Quality Management District (BAAQMD)*, 62 Cal. 4th 369 (No. S 213478) issued December 17, 2015), it is generally no longer the purview of the CEQA process to evaluate the impact of existing environmental conditions on any given project. The direct effects of exterior noise from nearby noise sources relative to land use compatibility of

a future project as a result of the proposed project is no longer typically a required topic for impact evaluation under CEQA. Generally, no determination of significance is required except for certain school projects, projects affected by airport noise, and projects that would exacerbate existing conditions (i.e., projects that would have a significant operational impact).

3.2 SENSITIVE RECEPTORS

Certain land uses are particularly sensitive to noise and vibration, including residential, schools, hospitals, and open space/recreation areas where quiet environments are necessary for enjoyment, public health, and safety.

The closest sensitive receptor location is the Hoffman Marsh across the San Francisco Bay Trail from the project, where nesting habitat of endangered/threatened species exists—habitat for California Ridgway's rail (*Rallus longirostris obsoletus*). The closest residential sensitive receptors are approximately 1,300 feet east of the project site across I-580.

Source: USGS, East Bay Regional Parks District, PlaceWorks, 2024.

Figure 3
Noise Monitoring Locations

4. CEQA Thresholds

4.1 NOISE THRESHOLDS

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would result in:

N-1 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.

N-2 Generation of excessive groundborne vibration or groundborne noise levels.

N-3 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, if the project would expose people residing or working in the project area to excessive noise levels.

4.2 SIGNIFICANCE THRESHOLDS

Traffic Noise

A project will normally have a significant effect on the environment related to noise if it will substantially increase the ambient noise levels for adjoining areas. Most people can detect changes in sound levels of approximately 3 dBA under normal, quiet conditions, and changes of 1 to 3 dBA under quiet, controlled conditions. Changes of less than 1 dBA are usually indiscernible. A change of 5 dBA is readily discernible to most people in an outdoor environment. Based on this, a significant impact would occur if traffic noise increases the existing noise environment by the following:

- 1.5 dBA or more for ambient noise environments of 65 dBA CNEL and higher.
- 3 dBA or more for ambient noise environments of 60 to 64 CNEL.
- 5 dBA or more for ambient noise environments of less than 60 dBA CNEL.

Construction Noise

The City of Richmond has not established criterion for construction noise. The Federal Transit Administration (FTA) provides criteria for acceptable construction noise levels and recommends a daytime noise threshold of 80 dBA L_{eq} (eight hour) for residential uses. For the purposes of this analysis, the FTA criterion is applied to nearby residences to determine impact significance.

4. CEQA Thresholds

The marsh vegetation in the Hoffman Marsh to the east of the project site is habitat for the California Ridgway's rail (*Rallus longirostris obsoletus*). In 1991, the U.S. Fish and Wildlife Service (USFWS) recommended that noise levels not exceed 60 dBA to protect the gnatcatcher (*Polioptilidae*) and other bird species. While this threshold is commonly used for other endangered species, this project utilizes a site specific thresholds based on existing ambient noise levels from long-term measurements. A previous biological opinion suggested that project-related noise levels should not exceed "ambient noise level + 3 dBA" and essentially limit project-related construction noise level to the current ambient environment. Therefore, thresholds of 66 dBA L_{eq} (Lt-1 and Lt-2) and 60 dBA dBA L_{eq} (Lt-3) will be applied at measurement locations (Lt-1, Lt-2, and Lt-3) in Hoffman Marsh to assess noise impacts on the California Ridgway's rail off-site.

Stationary Noise

As discussed in Section 2, *Regulatory Setting*, the City's noise ordinance establishes exterior noise levels based on receiving land use. For the purposes of this analysis, these exterior noise standards are used to determine impact significance at nearby sensitive residential receptors and thresholds based on not to exceed "ambient noise levels + 3 dBA" are used to determine impact significance at sensitive habitat receptors in the Hoffman Marsh.

Vibration

The City of Richmond has not established specific limits for vibration. The FTA provides criteria for acceptable levels of groundborne vibration for various types of buildings. These criteria are shown in Table 11, *Groundborne Vibration Criteria.* For the purposes of this analysis, the FTA criterion is applied to nearby sensitive receptors to determine impact significance.

Table 11 Groundborne Vibration Criteria

Building Category	PPV (in/sec)
I. Reinforced concrete, steel, or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Nonengineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

Source: FTA 2018.
PPV = peak particle velocity

5. Environmental Impacts

5.1 METHODOLOGY

Anticipated daily haul truck trip generation associated with the proposed project is used in this analysis to estimate haul truck traffic noise increases when compared to baseline noise levels. The proposed project's average daily trips are compared to the baseline ambient noise levels to determine the traffic noise increases. The construction noise analysis uses the Roadway Construction Noise Model (RCNM) based on an anticipated equipment mix for individual construction activities verified by the applicant. The simultaneous use of the top-three loudest pieces of equipment for each construction activity is modeled from the acoustical center of the construction site to the nearest sensitive receptor property line. Groundborne vibration and vibration noise is determined using FTA methodology and reference vibration levels for typical construction equipment (FTA 2018).

5.2 IMPACTS

This section discusses the project-specific impacts related to noise and vibration.

NOI-1	**Construction activities would result in temporary noise increases in the vicinity of the proposed project that would not exceed standards. [Threshold N-1]**

Construction Vehicles

The transport of materials to and from the construction site would incrementally increase noise levels along Rydin Road. Single-event haul truck pass-bys generate noise levels of approximately 84 dBA (SEL) at 50 feet with a maximum of 77 dBA (L_{max}) (FHWA 2006). Proposed haul truck trips are modeled assuming an operating speed of 15 miles per hour over an 8-hour workday. Based on the applicant's anticipated haul truck trip estimates, the project would generate up to 80 haul truck trips per day, 10 per hour for an 8-hour workday, or 20 one-way trips per hour. Short-term measurement sites ST-2 through ST-6 are used in the analysis to represent the nearest potential nesting habitat areas in the Hoffman Marsh.

The operation of up to 20 one-way haul truck trips per hour along Rydin Road and the bridge over the Hoffman Canal would result in an hourly noise level of 53.6 dBA L_{eq} at 50 feet. Table 12, *Project Haul Truck Trip Analysis*, shows the ambient noise levels at short-term measurement locations, the combined noise level due to project haul truck trips, and the increase over ambient noise level attributable to project haul truck trips. As shown in Table 12, project haul trips would not exceed 60 dBA L_{eq} or result in a 3 dBA increase over existing conditions at any of the short-term noise measurement locations representing

5. Environmental Impacts

noise-sensitive California Ridgway's rail receptors in the Hoffman Marsh. Therefore, the proposed project would not result in significant haul truck traffic noise impacts.

Table 12 Project Haul Truck Trip Analysis

Site Measurement Location	Ambient L_{eq} (dBA)	L_{eq} Comparison (dBA)	Combined L_{eq} (dBA)	Increase Over Ambient L_{eq} (dBA)
ST-2	64.8	-11.2	65.1	0.3
ST-3	62.5	-8.9	63.0	0.5
ST-4	65.3	-11.7	65.5	0.2
ST-5	66.5	-12.9	66.7	0.2
ST-6	60.7	-7.1	61.4	0.7

Source: PlaceWorks, March 13, 2024.

Construction Equipment

Noise generated by on-site construction equipment is based on the type of equipment used, its location relative to sensitive receptors, and the timing and duration of noise-generating activities. Each phase of construction involves different types of equipment and has distinct noise characteristics. Noise levels from construction activities are typically dominated by the loudest several pieces of equipment. The dominant equipment noise source is typically the engine, although work-piece noise (such as dropping of materials) can also be noticeable.

The noise produced at each construction phase is determined by combining the L_{eq} contributions from the top-three loudest pieces of equipment used at a given time, while accounting for the ongoing time-variations of noise emissions (commonly referred to as the usage factor). Heavy equipment, such as a dozer or a loader, can have maximum, short-duration noise levels of up to 85 dBA at 50 feet (FTA 2018). However, overall noise emissions vary considerably, depending on what specific activity is being performed at any given moment.

Noise attenuation due to distance, the number and type of equipment, and the load and power requirements to accomplish tasks at each construction phase would result in different noise levels from construction activities at a given receptor. Since noise from construction equipment is intermittent and diminishes at a rate of at least 6 dBA per doubling of distance (conservatively ignoring other attenuation effects from air absorption, ground effects, and shielding effects), the average noise levels at noise-sensitive receptors could vary considerably, because mobile construction equipment would move around the site (site of each development phase) with different loads and power requirements.

Construction noise levels associated with the proposed project were modeled using RCNM from the edge of the construction site (which is conservative since construction equipment would move around the

project site and would not remain at the edge of the construction site for prolonged periods of time) to the long-term noise measurement sites LT-1 through LT-3. Long-term noise measurement sites are used in the analysis to represent the nearest potential nesting habitat areas in the Hoffman Marsh. Results are summarized in Table 13, *Proposed Project-Related Construction Noise, dBA L_{eq}*.

Table 13 Proposed Project-Related Construction Noise, dBA L_{eq}

Construction Activity Phase	RCNM Output Noise Level			Combined Noise Level with Ambient			Increase over Ambient		
	LT-1	LT-2	LT-3	LT-1	LT-2	LT-3	LT-1	LT-2	LT-3
Riprap	66.6	63.7	57.8	69.5	68.1	62.1	3.1	1.9	2.0
Trail Gravel	67.7	63.7	57.8	70.1	68.1	62.1	3.7	1.9	2.0
Grading 2 pieces of equipment	72.0	68.0	62.1	73.1	70.2	64.2	6.7	4.0	4.1
Grading 3 pieces of equipment	73.8	69.8	63.9	74.9	71.4	65.4	8.5	5.2	5.3
Landscape	64.4	60.4	54.5	68.5	67.2	61.2	2.1	1.0	1.1
Paving	66.6	62.6	56.7	69.5	67.8	61.7	3.1	1.6	1.6

Notes: Calculations performed with the FHWA's RCNM software are included in Appendix A.
Distance to sensitive habitat receptors is measured from the edge of the construction site to long-term measurement sites.

The nearest human noise-sensitive uses are more than 1,000 feet away, adjacent to I-580 and rail lines, and would not be exposed to project construction noise levels exceeding noise thresholds or cause a 3 dBA increase over the existing ambient noise levels.

As shown in Table 13, project construction noise levels would range from 54.5 dBA L_{eq} to 74.9 dBA L_{eq} at representative potential nesting habitat in the Hoffman Marsh during all construction activities. In addition, the increase over ambient noise due to project construction activities would range from 1 dBA to 8.5 dBA. As shown in Table 13, without mitigation, construction noise levels would exceed the noise thresholds established by USFWS of 60 dBA L_{eq} during daytime hours for noise-sensitive California Ridgway's rail receptors in the Hoffman Marsh, which would result in a potentially significant impact. However, implementation of Mitigation Measure NOI-1 would ensure that impacts would be reduced to a level considered less than significant.

As shown in Table 13, project construction noise levels would range from 54.5 dBA L_{eq} to 74.9 dBA L_{eq} at representative potential nesting habitat in the Hoffman Marsh during all construction activities. In addition, the increase over ambient noise due to project construction activities would range from 1 dBA to 8.5 dBA without mitigation. As shown in Table 13, construction noise levels would result in the exceedance of applied ambient noise thresholds + 3dBA at Lt-1 and Lt-2 (66 dBA L_{eq}) and at Lt-3 (60 dBA L_{eq}) during daytime hours for noise-sensitive California Ridgway's rail receptors in the Hoffman Marsh,

5. Environmental Impacts

which would result in a potentially significant impact. However, implementation of Mitigation Measure NOI-1 would ensure that impacts would be reduced to a level considered less than significant.

To determine project construction activity at construction sites C1, C2, C3, and C4, shown in Figures 4a through 4g, *Construction Noise Contours*, construction noise levels were modeled based on construction site locations and the type of construction activity. Additionally, 66 (Lt-1 and Lt-2) and 60 (Lt-3) dBA L_{eq} noise contours attributable to the different types of construction activity proposed for the project were modeled respectively in different construction phases. Table 14, *Construction Noise Contours*, shows the 66 or 60 dBA L_{eq} construction noise contours relative to construction sites C1, C2, C3, and C4. Without noise-reducing measures, the 66 or 60 dBA L_{eq} construction noise contour would range from 325 to 975 feet and expose Hoffman Marsh habitat to noise levels exceeding the threshold. Table 14 also shows that with the incorporation of a barrier, set at 12 feet and 16 feet along the eastern and northeastern boundaries of the project site, construction noise from the project site would be reduced by 8 dBA, and the resulting 66 or 60 dBA L_{eq} noise contour would range from 125 to 375 feet from on-site construction activities.

Table 14 Construction Noise Contours, dBA L_{eq}

Construction Activity Phase	Noise Level from Construction Activity Sites to Hoffman Marsh				Resulting 60 dBA L_{eq} Contour (ft)	60 dBA L_{eq} Contour (ft) with 12-ft Barrier	60 dBA L_{eq} Contour (ft) with 16-ft Barrier
	C1	C2	C3	C4			
Riprap	75.7	77.8	77.1	56.5	425	175	90
Trail Gravel	76.7	78.8	78.1	57.5	480	190	100
Grading 2 pieces of equipment	81.1	83.2	82.4	61.9	775	315	170
Grading 3 pieces of equipment	82.9	85	84.2	63.6	975	375	210
Landscape	73.4	75.5	74.8	54.2	325	125	70
Paving	75.7	77.8	77	56.5	425	175	90

Notes: Calculations performed with the FHWA's RCNM software are included in Appendix A.
Distance to sensitive habitat receptors is measured from the edge of the construction site to long-term measurement sites.

In addition, mitigation for construction noise levels mitigated at the ambient long-term noise locations were modeled using RCNM. Long-term noise measurement sites are used in the analysis to represent the nearest potential nesting habitat areas in the Hoffman Marsh. Threshold for Lt-1 and Lt-2 were determined to be 66 dBA L_{eq}, average daytime ambient noise level measured, while Lt-3 was measured to be 60 dBA

L_{eq}. Results are summarized in Table 15, *Proposed Project-Related Construction Noise With Barrier Reduction, dBA $L_{eq.}$* As shown in Table 15, the highest noise levels during construction activity would be grading with three pieces of equipment, with noise levels at 73.8 dBA L_{eq}, 69.8 dBA L_{eq} and 63.9 dBA L_{eq}, respectively. A noise barrier with a height of 12 feet would reduce noise levels at Lt-1 and Lt-2 by 8 dBA. The highest noise levels would be reduced to 65.8 and 61.8 dBA L_{eq} respectively. Furthermore, a noise barrier with a height of 10 feet would reduce noise levels up to 5 dBA L_{eq} for Lt-3. The barrier would reduce highest noise levels to 58.9 dBA L_{eq} at Lt-3. Therefore, the noise barrier set at the height of 12 feet for Lt-1 and Lt-2, and a noise barrier set at the height 10 feet for Lt-3, would reduce construction noise levels below the existing ambient noise levels and not cause a +3 dBA increase over ambient noise levels. Impacts would be less than significant with mitigation incorporated.

Table 15 Proposed Project-Related Construction With Noise Barrier Reduction, dBA Leq

	RCNM Noise Levels			Distance to nose threshold with Noise Barrier (ft)		Exceeds Thresholds With Barrier?		
Construction Activity Phase	LT-1	LT-2	LT-3	LT-1[1] and LT-2[1]	LT-3[2]	LT-1 With 66 dBA Threshold	LT 2 With 66 dBA Threshold	LT-3 With 60 dBA Threshold
Riprap	66.6	63.7	57.8	90	--	No	No	No
Trail Gravel	67.7	63.7	57.8	100	--			
Grading 2 pieces of equipment	72	68	62.1	160	450			
Grading 3 pieces of equipment	73.8	69.8	63.9	200	550			
Landscape	64.4	60.4	54.5	65	--			
Paving	66.6	62.6	56.7	90	--			

Notes:
1. A noise barrier with the height of 12 feet would reduce noise levels up to 8 dBA.
2. A noise barrier with the height of 10 feet would reduce noise levels up to 5 dBA.
Calculations performed with the FHWA's RCNM software are included in Appendix A.
Distance to sensitive habitat receptors is measured from the edge of the construction site to long-term measurement sites.

PLACEWORKS

Source: USGS, East Bay Regional Parks District, PlaceWorks

Noise Contours at 60 dBA $L_{eq.}$ With Rip Rap

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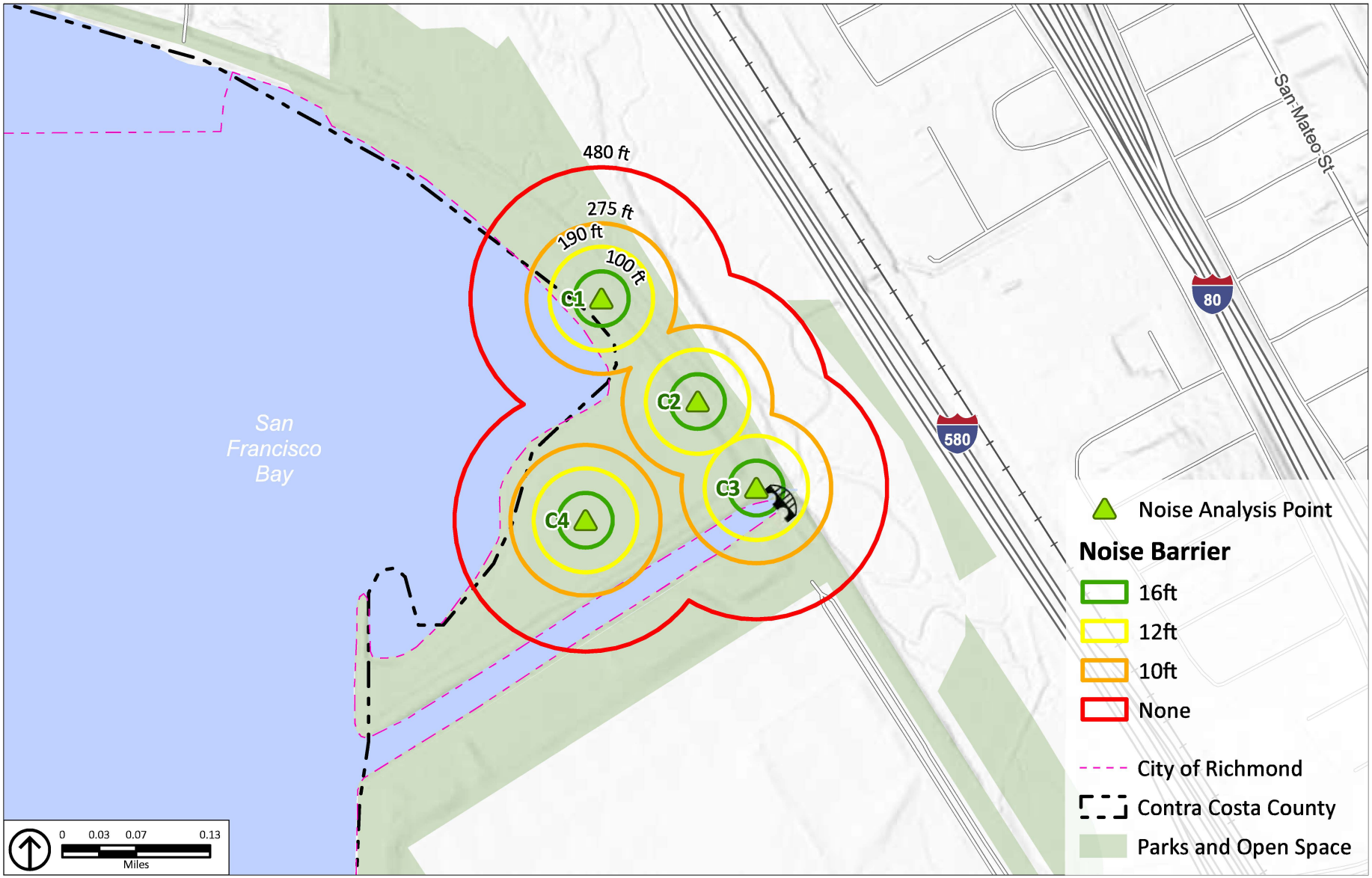
PLACEWORKS



Source: USGS, East Bay Regional Parks District, PlaceWorks

Noise Contours at 60 dBA $L_{eq.}$ With Trail Gravel

5. Environmental Impacts

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PLACEWORKS

Source: USGS, East Bay Regional Parks District, PlaceWorks

Noise Contours at 60 dBA $L_{eq.}$ With Grading 2

5. Environmental Impacts

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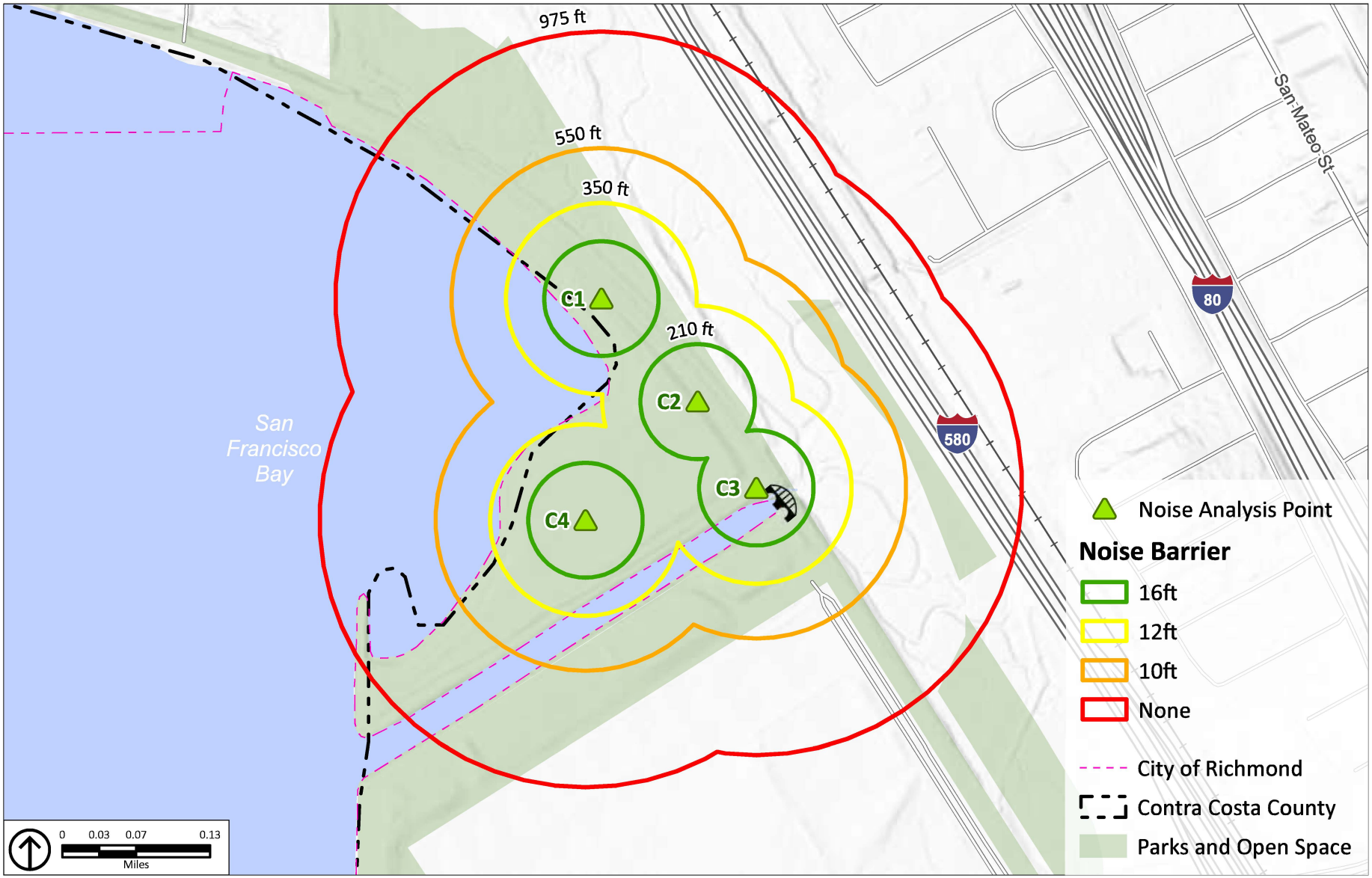

Source: USGS, East Bay Regional Parks District, PlaceWorks

Noise Contours at 60 dBA $L_{eq.}$ With Grading 3

5. Environmental Impacts

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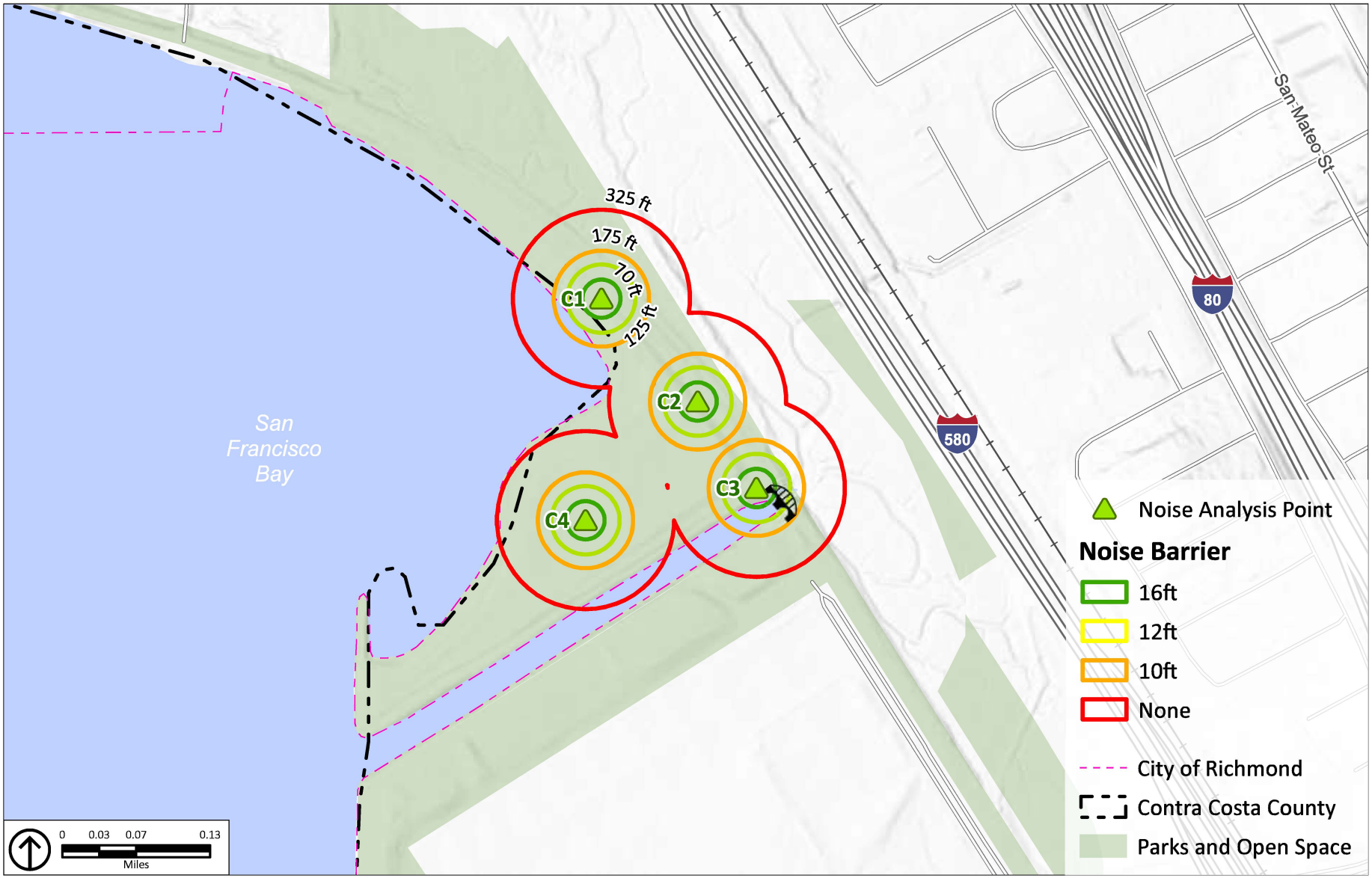

Source: USGS, East Bay Regional Parks District, PlaceWorks

Noise Contours at 60 dBA $L_{eq.}$ With Landscape

5. Environmental Impacts

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PLACEWORKS

Source: USGS, East Bay Regional Parks District, PlaceWorks

Noise Contours at 60 dBA L_{eq} With Paving

5. Environmental Impacts

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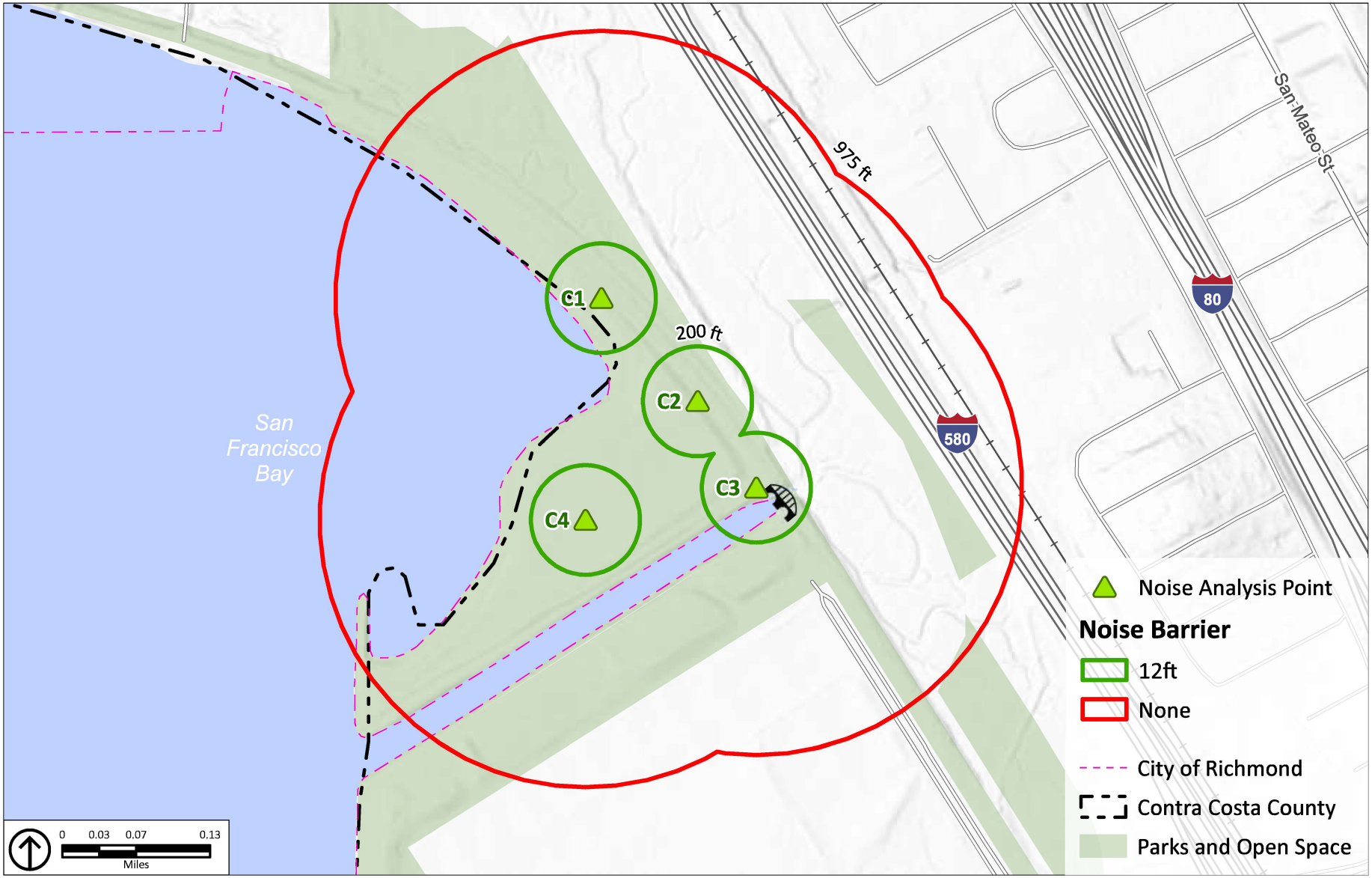

Source: USGS, East Bay Regional Parks District, PlaceWorks

Noise Contours at 66 dBA $L_{eq.}$ With Grading 3

5. Environmental Impacts

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Impact NOI-1: Construction noise generated by construction equipment could result in noise levels that exceed threshold of "ambient noise level + 3dBA (which essentially limit the project construction noise level to be 60 dBA L_{eq} at Lt-3 and 66 dBA L_{eq} at Lt-1 and Lt-2 at noise-sensitive nesting habitat for the California Ridgway's rail receptors.

Mitigation

MM NOI-1 The District shall implement the following measures during all phases of construction to ensure noise levels do not exceed 60 dBA L_{eq} along the project boundary:

- Conduct construction activities at least 90 feet from the Hoffman Marsh.
- Construct temporary noise barriers at least 16 feet in height along the eastern and northeastern boundaries of the project site west of the Hoffman Marsh.
  - The noise control curtain shall consist of durable, flexible composite material featuring a noise barrier layer bonded to sound-absorptive material on one side.
  - The noise barrier layer shall consist of a rugged, impervious material with a surface weight of at least one pound per square foot.
  - The sound absorptive material shall include a protective face and be securely attached to one side of the flexible barrier over the entire face.
  - The noise curtain material shall be weather and abuse resistant, and exhibit superior hanging and tear strength during construction.
  - The curtain's noise barrier layer material shall have a minimum breaking strength of 120 pound per square inch (lb/in.) pursuant to Federal Test Method 191 A-M5102 and minimum tear strength of 30 lb/in. pursuant to ASTM D117. Based on the same test procedures, the noise curtain absorptive material facing shall have a minimum breaking strength of 100 lb/in. and a minimum tear strength of 7 lb/in.
  - The noise curtain material shall be corrosion resistant to most acids, mild alkalies, road salts, oils, and grease. It also shall be mildew resistant, vermin proof, and non-hygroscopic.
- Limit the number and types of construction equipment during construction activity by scheduling louder pieces of equipment to occur separately from other pieces of equipment.

Significance with Mitigation: Installation of a noise barrier under Mitigation Measure NOI-1 would reduce exterior noise levels as shown in Table 14, *Construction Noise Contours, dBA $L_{eq.}$* The reductions provided by the noise barrier would ensure construction equipment noise levels would not generate noise levels in

excess of standards established by the USFWS; therefore, impacts would be considered *less than significant* after mitigation.

NOI-2	**Project implementation would result in long-term operation-related noise that would not exceed local standards. [Threshold N-1]**

Park User Noise Impacts

The proposed project would improve the recreational area amenities and landscape adjacent to the existing San Francisco Bay Trail recreation area and habitat, however and increase in park users is not expected with implementation of the project. The proposed dog park would be a similar use and consist of similar noise sources associated with the San Franciso Bay Trail and habitat area. Project park user impacts would remain the same in amount of users, and would not result in an incremental noise level increase over existing park user noise levels. In addition, the nearest noise-sensitive uses are more than 1,000 feet away, adjacent to I-580 and rail lines and would not be exposed to park user noise levels exceeding noise thresholds or cause a 3 dBA increase. Therefore, the proposed project would not result in significant park user noise impact at off-site noise-sensitive uses.

In addition, proposed project trips on the local roadway network would not result in an increase of traffic noise over existing as visitor amount would not change. Project trips would not result in a doubling of existing traffic volumes or result in a substantial increase in existing traffic noise levels. The traffic noise increase would be less than 1 dBA CNEL adjacent to uses that are not considered noise sensitive. Therefore, the proposed project would not result in significant traffic noise on the local roadway network and impacts would be considered *less than significant*.

NOI-3	**The project would create short-term or long-term groundborne vibration and groundborne noise. [Threshold N-2]**

Construction Vibration Impacts

Construction can generate varying degrees of ground vibration, depending on the construction procedures and equipment. Operation of construction equipment generates vibrations that spread through the ground and diminish with distance from the source. The effect on buildings in the vicinity of the construction site varies depending on soil type, ground strata, and receptor-building construction. The effects from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight structural damage at the highest levels. Vibration from construction activities rarely reaches the levels that can damage structures.

Table 15, *Proposed Project's Vibration Levels (in/sec PPV),* summarizes vibration levels for typical construction equipment at a reference distance of 25 feet. Typical construction equipment can generate vibration levels ranging up to 0.089 inches per second (in/sec) PPV at 25 feet. Vibration levels at a distance greater than 100 feet would attenuate to 0.01 in/sec PPV or less.

Table 15 Proposed Project's Vibration Levels (in/sec PPV)

Equipment	FTA Reference PPV (in/sec) at 25 feet	PPV (in/sec) at 100 feet
Large Bulldozer	0.089	0.011
Loaded Trucks	0.079	0.010
Jackhammer	0.035	0.004
Small Bulldozer	0.003	0.000

Source: FTA, 2018. Transit Noise and Vibration Impact Assessment, September.

The nearest structure to the site's construction activities, the United States Post Office Distribution Center, is more than 100 feet away. At this distance, construction vibration from a large bulldozer would attenuate to 0.01 in/sec or less, which would not exceed the threshold of 0.20 in/sec PPV for historic structures. Therefore, impacts from construction vibration would be *less than significant*.

NOI-4 The proximity of the project site to an airport or airstrip would not result in exposure of future residents and/or workers to excessive airport-related noise. [Threshold N-3]

The nearest airport to the project site is the Oakland International Airport, approximately 13 miles to the south. Other airports in the area include Buchanan Field to the east and San Rafael Airport to the northwest, approximately 15 miles and 14 miles, respectively (AIRNAV 2022). The proposed project would not expose people residing or working in the project area to excessive noise levels from airport-related noise and this impact would be considered *less than significant*.

5.3 MITIGATION MEASURES

Impact NOI-1 Construction noise generated by construction equipment could result in noise levels that exceed USFWS' threshold of 60 dBA L_{eq} at the off-site noise-sensitive California Ridgway's rail receptors.

MM NOI-1 The applicant shall conduct construction activities at least 90 to 550 feet from the Hoffman Marsh, based on the type of construction activity to ensure noise levels do not exceed 66 dBA L_{eq} and 60 dBA L_{eq} at the property line. The applicant shall implement some or all of the following measures to reduce the extent of the construction noise contour:

- Construct temporary noise barriers 12 feet and 10 feet in height between construction activities and the Hoffman Marsh. The 12 foot noise barrier shall be on the east boundary and the 10 foot noise barrier shall be on the northeastern boundary of the project site to reduce the construction noise contour from 90 to 550 feet from on-site construction activities.

5. Environmental Impacts

Alternatively, Construct temporary noise barriers 16 feet in height between construction activities and the Hoffman Marsh. The noise barrier shall be on the east and northeastern boundaries of the project site to reduce the 60 dBA L_{eq} construction noise contour from 70 to 210 feet from on-site construction activities. The barrier would include the following material:

- The noise control curtain shall consist of durable, flexible composite material featuring a noise barrier layer bonded to sound-absorptive material on one side. The noise barrier layer shall consist of a rugged, impervious material with a surface weight of at least one pound per square foot. The sound absorptive material shall include a protective face and be securely attached to one side of the temporary barrier over the entire face.

5. Environmental Impacts

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Appendices

Appendix A. Noise and Vibration Modeling

Appendices

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APPENDIX D:
Biological Resource Assessment

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BIOLOGICAL RESOURCE ASSESSMENT

POINT ISABEL CAP PROJECT

EAST BAY REGIONAL PARK DISTRICT, CONTRA COSTA COUNTY, CALIFORNIA

Prepared for

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July 2024

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Section 1. INTRODUCTION

Nomad Ecology (Nomad) prepared this Biological Resources Assessment for the proposed Point Isabel Cap Project (project) on behalf of East Bay Regional Park District (District). The project is located on the northern portion of Point Isabel Regional Shoreline, Contra Costa County, California (Figure 1). This report provides an assessment of existing conditions, evaluates habitat suitability for special status plant and wildlife species and sensitive natural communities, analyzes potential project impacts to biological resources, and provides recommendations for impact avoidance and minimization.

1.1. PROJECT DESCRIPTION

1.1.1 PURPOSE AND NEED

Point Isabel is a designated off-leash dog area and use of this area has expanded north to a portion of the park informally known as North Point Isabel (herein referred to as the Site). Prior to acquisition by California State Parks/East Bay Regional Park District, the Site was used as a dumping ground for construction/demolition and industrial waste. The man-made fill episode was limited to dumping on the ground. No natural landforms were used for placement of the waste at the Site. The Site became known as the Battery Point due to a large quantity of battery casings that were buried at the Site during the 1950s and 1960s (EKI Environmental & Water, 2018). The Site became the subject of an environmental cleanup in the 1980s under Abatement Order Number 84-006 used by the Regional Water Quality Control Board-San Francisco Bay (RWQCB) (Regional Water Quality Control Board-San Francisco Bay, 1984) that required preparation and implementation of a Remedial Action Plan (RAP) that required removal of battery casings and lead-impacted soils that were disposed of off-site, construction of a clay cap over the landfill and long-term monitoring of the shoreline and cap, with maintenance as required (EKI Environmental & Water, 2018). On-going monitoring requirements for the Site were identified in Abatement Order Number 87-14.

Since that time, annual inspections by the RWQCB have indicated that the landfill cap is eroding, and lead-contaminated soils have been detected in the perimeter drainage ditch, Hoffman Channel, and other areas and are likely discharging with stormwater into the San Francisco Bay. The RWQCB issued a Site Cleanup Requirement Order Number 98-072 in 1998 requiring remediation of the degraded landfill cap.

1.1.2 LOCATION

Point Isabel Regional Shoreline is part of the State of California's McLaughlin Eastshore State Park and is operated by the East Bay Regional Park District, as shown in Figure 2 *Project Components Map*, Point Isabel Regional Shoreline Cap Improvement Project Regional Setting. The Eastshore State Park encompasses approximately 2,262 acres of tideland and upland area and extends roughly 8.5 miles along the shore of the San Francisco Bay from the Bay Bridge in Oakland north to the Marina Bay neighborhood in the City of Richmond (California State Parks and Recreation, 2002).

The City of Richmond General Plan land use designation and zoning for the Site is Open Space. The area surrounding the Site is currently dominated by the Richmond Inner Harbor/San Francisco Bay to the north and west, and open space to the east and south.

Figure 1. Project Vicinity Map

>>> INSERT FIGURE HERE <<<

Figure 2. Project Components Map

>>> INSERT FIGURE HERE <<<

1.1.3 PROJECT DESCRIPTION

Through a funding partnership with California State Parks, the proposed project seeks to restore and enhance the existing remedial cap to provide long term, sustainable recreational use of the park through effective grading, drainage (including increased soil cover), and planting to prevent soil erosion. The proposed project has four primary goals:

- Using import soils, stabilize the cap by raising the Site's elevation to effectively cap pre-existing classified soils and to provide sea level rise resilience. A paved and gravel trail network would be installed to provide universal site access.
- Grade planted slopes and install a continuous vegetated swale to reduce soil erosion and filter sediments from site-generated stormwater before discharged into the San Francisco Bay.
- Provide more site furnishings to enhance user experience of large off-leash dog area to improve visitor experience.
- Install resource protection fencing to prevent dogs from reaching shorebirds in the adjacent mudflats.

2a. Construction

As part of the remediation, the East Bay Regional Park District commissioned the development of three conceptual long-term/final capping alternatives for the Site, summarized below (EKI Environmental & Water, 2018).

- Alternative 1: Install geotextile/geoweb overlain with import fill along the slope of the landfill, install geotextile/geoweb overlain with import fill or excavate existing soil in ditch, and install geotextile potentially with geoweb overlain with import fill along outboard of the road and pave road/trail with asphalt.
- Alternative 2: Place one to two feet of new, import fill along the slope, ditch, and outboard of the road and pave road/trail with asphalt.
- Alternative 3: Excavate and properly dispose of one to two feet of soil to accommodate one to two feet of new, import fill along the slope, ditch, and outboard of the new road and pave road/trail with asphalt.

For remediating the degraded landfill cap, a hybrid of Alternative 1 and 2 would be undertaken. A geomembrane liner would be installed under the perimeter path. The geomembrane would also be installed under locations where new rip rap is placed over the new fill. This will work to encapsulate the lead-impacted soils present beneath the cap. Approximately 72,500 cubic yards of new fill will be brought into the Site and placed on top of the existing cap to mitigate lead exposure and protect against sea level rise by raising the perimeter elevation of the path and riprap. During placement of the new fill, the surface of the landfill will be graded to improve drainage to existing stormwater flow catch basins. The new cap would extend the life of the park. Construction equipment associated with the proposed project could include the use of a paver, roller, flatbed truck, front end loader, dump truck, backhoe, grader, and compactor. In addition, construction of the proposed project would result in up to 80 haul truck trips per day for up to 110 days. The anticipated total construction duration of the proposed project ranges from 6 to 24 months depending on soil source availability and weather. Ideally, construction activities would take place outside of avian nesting season.

During construction, perimeter roads would be reconstructed and/or repaved to reduce erosion and improve stormwater drainage off the cap and into existing stormwater flow catch basins. Construction activity would

be conducted within the existing roadway path and would not encroach on open space parkland. Stormwater runoff would be directed into vegetated swales prior to being discharged from the Site into the local stormwater management system.

Construction vehicles and equipment would access the Site from the southeastern entrance point using Rydin Road. Equipment would cross Hoffman Channel using the existing bridge. During construction, equipment could be staged at the Site or to the west of the Site across Hoffman Channel Bridge on the northern edge of the parking lot. The potential construction staging area could be used for a variety of things including parking, equipment, and vehicle storage. Construction work would take place between the hours of 7am -7pm (or 6pm on weekend) per the City of Richmond's regulations. If work were to occur during avian nesting season, it would begin no earlier than 30 minutes after sunrise and end no later than 30 minutes before sunset.

2a(i) Project Best Management Practices

The following best management practices (BMPs) would be implemented during cap remediation activities to reduce project-related impacts to adjacent areas, maintain worker safety, minimize impacts from hazardous materials spills, maintain emergency access, protect water quality, natural resources, and prevent fires.

Construction BMPs

1. All construction activities for remediating the landfill cap shall be done from an upland position. No work shall originate from the San Francisco Bay.

2. No construction equipment is expected to be operated below the high tide line and no construction shall occur below the high tide line in Hoffman Channel.

3. No construction shall occur within 50 feet of suitable Salt Marsh Harvest Mouse or California Ridgway's rail habitat during any extreme high tide events (defined as exceeding Mean Higher High Water elevation by over 1.5 feet).

4. The San Francisco Bay Trail shall remain open as much as possible during construction and orange construction fencing shall be installed on either side of the trail. Temporary closure of the trail during peak material delivery periods may occur and shall be publicized in advance along with detour plans. Trail users may occasionally be temporarily stopped by a flagman to allow construction vehicle access to the Site. Pedestrian notices and caution signs shall be installed.

5. The project site shall be closed to public access during construction. The public would continue to have access to the southern and western portions of Point Isabel Regional Shoreline that will not be impacted by construction activities.

6. Hazardous materials used for construction shall not be stored or used where they could affect nearby properties or where they might enter Hoffman Channel, the San Francisco Bay, or the local stormwater management system.

7. The construction contractor shall prepare and implement a spill prevention and control plan to minimize the chance of spilling hazardous materials used during construction operations. Spill kits shall be present for any work adjacent to open waters. All spills of oil and other hazardous materials shall be immediately cleaned up and contained. Any hazardous materials cleaned up or used on-site shall be properly disposed of at an approved disposal facility.

8. The project shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) to limit erosion and protect water quality surrounding the Site.

9. The construction contractor shall implement erosion control measures as described in the SWPPP such as silt fencing in areas of ground disturbance.

10. Construction workers associated with the earthwork movement portion of the project shall be trained and current with Hazardous Waste Operations and Emergency Response (HAZWOPER) standards for general industry (29 CFR 1910.120) and construction (29 CFR 126.65).

11. The construction contractor and all subcontractors shall prepare a project-specific Health and Safety Plan. The Health and Safety Plan shall include an air quality monitoring plan to include lead.

12. Any materials removed during site preparation and determined to be unsuitable for re-use shall then be disposed of off-site according to current laws and regulations. If materials are characterized as hazardous waste, then a hazardous materials license contractor and transporter shall handle and transport the materials to a disposal facility permitted to receive the waste in accordance with California laws.

Air Quality BMPs

The Bay Area Air Quality Management District (BAAQMD) recommends BMPs to ensure minimal impacts on regional air quality. The contractor shall be responsible for implementing the following BMPs during construction:

1. All exposed soil surfaces (e.g., parking areas, staging areas, soil piles, graded areas) shall be watered as needed.

2. All haul trucks transporting cap material on-site and from off-site sources shall be covered.

3. All visible mud or dirt tracked-out onto adjacent public roads or the San Francisco Bay Trail shall be removed using a street sweeper at least once per day or as needed.

4. Idling times of construction equipment shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of CCR).

5. Clear signage shall be provided for construction workers at all access points.

6. All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specification.

7. A publicly visible sign with the telephone number and person to contact at the East Bay Regional Park District regarding any dust complaints shall be posted in or near the Site. The contact person will respond to complaints and take corrective action within 48 hours. The BAAQMD phone number shall also be visible to ensure compliance with applicable air quality regulations.

Noise BMPs

The contractor shall implement the following noise BMPs during construction to ensure minimal impacts on adjacent park users.

1. Construction hours shall be clearly posted on a sign at the entrance to the construction site.

2. Land uses adjacent to the construction site shall be notified of the construction schedule in writing. The East Bay Regional Park District construction manager shall be responsible for responding to any noise complaints and a contact telephone number shall be posted at the construction site.

3. All equipment used on-site shall be muffled and maintained. All internal combustion engine-driven equipment shall be fitted with mufflers that are in good condition.

4. Unnecessary idling of internal combustion engines shall be prohibited, and all equipment shall be turned off when not in use.

5. Quiet construction equipment, particularly air compressors, shall be selected whenever possible. Motorized equipment shall be fitted with proper mufflers in good working order and appropriate for the equipment.

6. Heavy equipment, such as paving and grading equipment, shall be stored on-site to minimize the need for extra heavy truck trips on local streets.

7. The contractor shall minimize the use of vehicle backup alarms. A common approach to minimizing the use of backup alarms is to design the construction site with a circular flow pattern that minimizes backing up of trucks and other heavy equipment.

2b. Park Amenities and Landscape Improvements

Once the remediation process is complete, park amenities for enhanced use of the capped landfill as an off-leash dog use area would be installed. Access to the Site would be provided in the southeastern and northeastern corners and would include a paved perimeter trail and interior compact gravel trails. Vista seating and viewing areas that would include site furnishings would be created at focal points across the Site. Log and boulder clusters would be placed in two locations within the interior of the Site. The surface of the cap would be contoured to provide more aesthetic appeal to park users.

Landscaping of the Site would be used to enhance the aesthetics once the cap has been constructed and while park amenities are being installed. Native plants would be used for the landscaped elements and chosen for their ability to grow in a non-irrigated environment. Plants with shallow-growing root systems to prevent interference with the landfill cap and capability to withstand heavy dog traffic and deer browsing would be selected. A natural grass turf would be hydroseeded on the surface of the Site between interior trails.

2c. Operations

Once the remediation process and the installation of park amenities and landscape improvements is complete, the Site would resume operation as a park. Routine landscaping maintenance and repairs to the dog park areas would be conducted by the East Bay Regional Park District.

Section 2. STUDY METHODS

2.1. DEFINITIONS

The following terms were used to evaluate the sensitivity of onsite biological resources and potential impacts of the proposed project. Terms and definitions are derived from the CEQA Guidelines and regulatory agencies, where applicable. A summary of laws, ordinances, and regulations are included in Appendix A.

Study Area The study area comprises approximately 25.2-acres and consists of a 50-foot buffer on the project impact areas including: a large project site on North Point Isabel and a potential construction staging area and two construction access routes on Point Isabel proper.

Project Impact Area The large soil cap replacement area on North Point Isabel, potential construction staging area, and two construction access routes on Point Isabel proper (Figure 2).

Assessment Area The assessment area is comprised of the Benicia, Briones Valley, Mare Island, Oakland East, Oakland West, Petaluma Point, San Francisco North, and San Quentin USGS 7 ½ Minute Quadrangles.

Direct Impact Impacts (or primary effects), which are caused by the project and occur at the same time and place [CEQA Guidelines, Title 14 CCR, Section 15358(a)(1)].

Indirect Impact Impacts (or secondary effects), which are caused by the project and are later in time or farther removed in distance but are still reasonably foreseeable. These may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems [CEQA Guidelines, Title 14 CCR, Section 15358(a)(2)].

Critical Habitat Defined by the Endangered Species Act (ESA), as amended (Code of Federal Regulations, Title 50, Section 17), as "a specific geographic area(s) that is essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery." Critical habitat designations are published in the Federal Register. The final boundaries of the critical habitat area are also published in the Federal Register for federally listed species by USFWS and NOAA Fisheries.

DPS A distinct population segment (DPS) is a vertebrate population or group of populations that are distinct from other populations of the species and significant in relation to the entire species. The ESA provides for listing species, subspecies, or distinct population segments of vertebrate species.

ESU An evolutionarily significant unit (ESU) is a population or group of populations that is substantially reproductively isolated from other conspecific populations and that represents an important component of the evolutionary legacy of the species. The ESU policy for Pacific salmon defines the criteria for identifying a Pacific salmon population as a distinct population segment (DPS), which can be listed under the ESA.

2.2. SIGNIFICANCE CRITERIA

The significance criteria are based in part on the Environmental Checklist (CEQA Guidelines Appendix A [Title 14 CCR, Section 15000-15387]). These criteria are used to determine the extent to which the proposed project would impact sensitive biological resources. The threshold of significance may vary for each species or habitat and is determined by the lead agency. Using these guidelines, the project would result in a significant impact if it would:

- 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 (CDFW) or U.S. Fish and Wildlife Service (USFWS).
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, *etc*.) through direct removal, filling, hydrological interruption, or other means.
- 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.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

2.3. DATA RESOURCES

Background information for listed and special status plant and wildlife species, and sensitive natural communities was compiled through a review of the following resources:

U.S. Fish and Wildlife Service (USFWS):

- Information for Planning and Consultation (IPaC) Online System Species List Query (USFWS 2024a) (Appendix E)
- National Wetland Inventory for the Richmond Quadrangle (USFWS 2024b)

National Oceanographic and Atmospheric Administration (NOAA Fisheries):

- Endangered and Threatened Species; Establishment of Species of Concern List, Addition of Species to Species of Concern List, Description of Factors for Identifying Species of Concern, and Revision of Candidate Species List Under the Endangered Species Act (NOAA 2004)
- Endangered and Threatened Species; Revision of Species of Concern List, Candidate Species Definition, and Candidate Species List (NOAA 2006)
- West Coast Region Critical Habitat Geodatabase (NOAA 2023)
- Essential Fish Habitat Mapper (NOAA 2021)

California Department of Fish and Wildlife (CDFW):

- California Natural Communities List (CDFW 2023)
- State and Federally Listed Endangered, Threatened and Rare Plants of California (CDFW 2024a)
- State and Federally Listed Endangered and Threatened Animals of California (CDFW 2024b)
- Special Vascular Plants, Bryophytes, Lichens List (CDFW 2024c)
- Special Animal List (CDFW 2024d)
- California Natural Diversity Database (CNDDB) RareFind 5 Query for the Benicia, Briones Valley, Mare Island, Oakland East, Oakland West, Petaluma Point, San Francisco North, and San Quentin USGS 7 ½ Minute Quads (CDFW 2024e) (Appendix D)

Other Sources:

- The California Native Plant Society's Inventory of Rare and Endangered Plants of California (CNPS 2024)
- Consortium of California Herbaria One (CCH1) (CCH1 2024)
- Consortium of California Herbaria Two (CCH2) (CCH2 2024)
- Database of Rare, Unusual, and Significant Plants of Alameda and Contra Costa Counties (Lake 2024)
- The Jepson eFlora (JFP 2024)
- The Jepson Manual: Vascular Plants of California (Baldwin et al. 2012)
- A Manual of California Vegetation (Sawyer et al. 2009)
- Contra Costa County Breeding Bird Atlas (Glover 2009)
- Contra Costa County Watershed Atlas (CCCCDD 2003)
- Annotated Checklist of the East Bay Flora (CNPS 2013)

Botanical taxonomy and nomenclature conforms to *The Jepson Manual* (Baldwin et al. 2012) with the exception of recent updates posted on the Jepson eFlora (JFP 2024) website. Common names of plant species are derived from the *Calflora Database* (Calflora 2024). Vegetation descriptions conform to *A Manual of California Vegetation* (Sawyer et al. 2009) and wetland and deepwater habitat classifications conform to *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979), where appropriate.

Taxonomy and nomenclature for special status plant species conform to the *Inventory of Rare and Endangered Plants of California* (CNPS 2024) and *Special Vascular Plants, Bryophytes and Lichens List* (CDFW 2024c). Nomenclature for common and special status wildlife conforms to the *Complete List of Amphibian, Reptile, Bird and Mammal Species in California* (CDFW 2016) with taxonomic nomenclature updates conforming to the *Special Animals List* (CDFW 2024d).

2.4. IDENTIFICATION OF POTENTIALLY OCCURRING SPECIES

The identification of species with potential to occur for this Biological Resources Assessment is based on a background review of data sources described in Section 2.3 and Appendices B and C, Nomad's expertise with the regional wildlife and flora, and habitats present within the study area. This background review resulted in the determination of the potentially occurring special status plant and wildlife species, out of those known from the region.

2.5. REGULATORY FRAMEWORK

The following section summarizes the regulatory framework related to natural resources such as sensitive natural communities and special status plants and animals.

2.5.1 SENSITIVE NATURAL COMMUNITIES

Sensitive Natural Communities are characterized as plant assemblages that are unique in constituent components, restricted in distribution, supported by distinctive edaphic conditions, considered locally rare, potentially support special status plant or wildlife species, and/or receive regulatory protection from municipal, county, state and/or federal entities. The rarity, endangerment, and distribution of natural communities are evaluated using a nature serve rarity ranking calculator through CDFW and CNPS collaboration. Natural communities with state ranks of S1[1], S2[2], and S3[3], which, are considered Sensitive Natural Communities and to be addressed in the environmental review processes of CEQA and its equivalents (CDFW 2023). Outside of state ranking designations, the regulatory framework that protects other natural communities that may be considered sensitive are derived from local, state, and federal laws and regulations including Section 10 of the federal Rivers and Harbors Act, sections 401 and 404 of the federal Clean Water Act, Section 1600 et seq. of the California Fish and Game Code, Section 15065 of the CEQA guidelines, and various other city or county codes. Implementation and enforcement of these regulations are conducted by their respective regulatory entities such as the U.S. Army Corps of Engineers, California Regional Water Quality Control Board, California Department of Fish and Wildlife, lead agency, and/or various cities or counties.

2.5.2 SPECIAL STATUS SPECIES

Special status plant and wildlife species are defined as those species listed as threatened or endangered, are proposed or candidates for listing, or are designated as fully protected species under one or more of the following regulatory statutes: Federal Endangered Species Act (ESA), as amended (Code of Federal Regulations, Title 50, Section 17), California Endangered Species Act (CESA) (California Code of Regulations Title 14, Section 670.5), California Fish and Game Code (Sections 1901, 2062, 2067, 3511, 4700, 5050 and 5515) and the Native Plant Protection Act (NPPA) of 1977. Special status species may also include locally rare species defined by CEQA guidelines 15125(c) and 15380, which may include species that are designated as sensitive, declining, rare, locally endemic or as having limited or restricted distribution by various federal, state, and local agencies, organizations, and watchlists.

The California Native Plant Society (CNPS) has developed and maintains an inventory of Rare, Threatened and Endangered plants of California. This information is published in the Rare Plant Inventory of Rare and Endangered Vascular Plants of California (CNPS 2024). The rarity ranking contained in the CNPS inventory is endorsed by the CDFW and effectively serves as and effectively serves as CDFW's California Rare Plant Rank (CRPR) /rarity ranking (CDFW 2024b, c). The following identifies the definitions of the CNPS California Rare Plant Ranks:

- Rank 1A: Plants presumed to be extinct in California;
- Rank 1B: Plants that are rare, Threatened, or Endangered in California and elsewhere;

[1] S1 = Critically imperiled; at very high risk of extirpation in the jurisdiction due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors.

[2] S2 = Imperiled; at high risk of extirpation in the jurisdiction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.

[3] S3 = Vulnerable; at moderate risk of extirpation in the jurisdiction d ue to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.

- Rank 2A: Plants presumed extirpated in California, but more common elsewhere;
- Rank 2B: Plants that are rare, Threatened, or Endangered in California, but are more common elsewhere;
- Rank 3: Plants about which more information is needed (a review list);
- Rank 4: Plants of limited distribution (a watch list).

California Rare Plant Rank 1B and 2 species are considered eligible for state listing as Endangered or Threatened pursuant to the California Fish and Game Code. As part of the CEQA process, such species should be fully considered, as they meet the definition of Threatened or Endangered under the NPPA and Sections 2062 and 2067 of the California Fish and Game Code. California Rare Plant Rank 3 and 4 species are considered to be either plants about which more information is needed or are uncommon enough that their status should be regularly monitored. Such plants may be eligible or may become eligible for state listing, and CNPS and CDFW recommend that these species be evaluated for consideration during the preparation of CEQA documents (CNPS 2001, CNPS 2024), as some of these species may meet NPPA and CESA criteria as Threatened or Endangered.

The status of these species is based on their rarity and endangerment throughout all or portions of their range. Such species are referred to as special status species or "target species" herein.

2.5.3 LOCALLY RARE PLANT SPECIES

In addition to the designations described above, CEQA requires that impacts to "resources that are rare or unique to that region" be evaluated (CEQA Guidelines 15125[c]). This includes, but is not limited to, botanical resources that are peripheral populations, disjunct subpopulations, sensitive, declining, or have a restricted distribution. These are informal terms that refer to those species that might be declining or be in need of concentrated conservation actions to prevent decline or extirpation but have no legal protection of their own. Also, CEQA Guidelines Section 15380 states "a species not included in any listing…shall nevertheless be considered to be rare or Endangered if the species is likely to become Endangered within the foreseeable future throughout all or a significant portion of its range and may be considered Threatened as that term is used in the FESA."

The East Bay chapter of CNPS since 1989 has developed and maintains a Database of Rare, Unusual, and Significant Plants of Alameda and Contra Costa Counties which tracks populations of locally rare and statewide rare plants which have limited distribution in Alameda and Contra Costa counties, including many that reach their range limit in these two counties (Lake 2024). The following identifies rarity rankings in the Database of Rare, Unusual, and Significant Plants of Alameda and Contra Costa Counties:

- *A: Statewide listed rare plants occurring in Alameda and Contra Costa Counties. Protected by CEQA. Includes species ranked *A1, *A2, *A1x, and *A1?
- A1: Species known from 1 to 3 current populations in Alameda and Contra Costa counties, or up to 6 populations if meet other multiple criteria[4]. Protected by CEQA.
- A1x: No current, naturally occurring populations in Alameda or Contra Costa counties, but historical populations known from one or both counties. Protected by CEQA.

[4] Other Criteria include aging populations with minimal regeneration, declining, disjunct, fire follower, limited and threatened habitat, narrow range in the two-county area, number of regions, range limit, small geographical range, small populations, and stressed, such as weed invasion, development, grazing, trampling, water course changes, insect invasion, etc.

- A1?: Plants that may possibly occur in Alameda and Contra Costa counties, but questions about their identification or location.
- A2: 4 to 6 current populations in Alameda and Contra Costa counties or up to 11 populations if meet other multiple crieteria[1]. Protected by CEQA.
- B: Watch List. 7 to 12 current populations in Alameda and Contra Costa counties, or up to 16 populations if meet other multiple criteria. Not protected by CEQA.
- C: Watch List. 10 to 25 current populations, but potential threats or, if more than 25 populations, still having potential threats. Not protected by CEQA.

All A-ranked species, both locally rare and statewide rare, should be considered under CEQA guidelines.

2.6. PERSONNEL AND FIELD INVESTIGATION

Nomad principal wildlife biologist Meghan Bishop, Nomad senior botanist Adam Chasey, and Nomad wildlife biologist Jared Flint conducted a reconnaissance-level site visit of the study area on January 16, 2024. While completing that task, Nomad personnel made efforts to document the biological resources present in the study area. Those efforts included searching for animals while walking throughout the study area, documenting identifiable plant species, and making observations from stationary observation points. All proposed impact areas and vegetation communities within the study area were visited and evaluated for their potential to support sensitive biological resources during this reconnaissance-level visit.

2.7. RESOURCE DOCUMENTATION AND MAPPING

Field data, including locations of special status plant species occurrences and sensitive natural communities, and vegetation community reference points were collected using Backcountry Navigator Pro or Gaia GPS on Android or Apple devices. Location accuracy on these devices was improved by Garmin GLO 2 Bluetooth GPS receivers.

2.7.1 VEGETATION MAPPING

Vegetation communities were characterized and mapped based on *A Manual of California Vegetation* (Sawyer et al. 2009). Vegetation types were mapped at the association level, where possible, and at the alliance level at a minimum. Mapping identified CDFW sensitive natural communities if present.

Data and notes collected in the field were used to heads-up digitize vegetation communities (at 1:2,000 scale) using a desktop computer Geographic Information System (GIS) platform operating ESRI ArcGIS 10.7 for creating polygons and populating attribute tables. Minimum mapping units for vegetation communities are approximately 0.10 acre.

2.8. LIMITATIONS

Based on the timing of this reconnaissance, not all potentially occurring special status plant, fish, or wildlife species can be conclusively determined to be absent. However, determinations of presence/absence within the study area were possible for: (1) specific special status plant species that would be identifiable during the January 2024 reconnaissance visit; and (2) the direct observation or presence of diagnostic sign for wildlife species. Negative findings during site assessments or focused surveys may not indicate absence unless field surveys conform to agency approved protocols.

Based on the timing of the reconnaissance visit, all plant species growing within the study area may not have been observed due to varying flowering phenologies and life forms, such as bulbs, biennials, and

annuals. Annuals may be absent in some years due to annual variations in temperature and rainfall, which influence germination and plant phenology. Colonization of new populations within an area may also occur from year to year.

Since vegetation types are based on samples from a single year, and their associate species may be subject to change if additional data are collected, annual species dominance may change depending on the sample season or year. The phrase "in part" is used to signify that vegetation descriptions may include additional annual species present if surveyed during other seasons or years. Other potentially dominant species within vegetation communities on site may be present during other times of the year.

The CNDDB tracks user-submitted occurrences of all special status species in California and is used extensively as a reference for regulatory and planning purposes (CDFW 2024d). This database may substantially under-represent actual densities of species, particularly for species that are difficult to detect and for areas that are in private land ownership and have not been surveyed. It is also likely to under-represent densities of species that are not prominent in regulatory permitting or environmental planning settings.

Several factors constrained the biologists' ability to identify all of the wildlife species that occur within the study area. Songbirds are most easily detected in the early morning or late evening, rather than during other times of the day. Similarly, owls and bats are most easily detected at night. Due to the scope of work, biologists were only on site for a short period of time to assess the general habitat within the study area and could not be present during all the optimal times for wildlife detection. Finally, one reconnaissance visit is not sufficient for identifying all wildlife that may winter, breed, forage, or migrate through the study area.

The proposed activities and work areas evaluated in this report are based on the study area provided by the District. Significant changes in the project design may warrant further analysis.

Section 3. ENVIRONMENTAL SETTING

3.1. SETTING

3.1.1 REGIONAL SETTING

The study area is located within Point Isabel Regional Shoreline, itself a part the State of California's McLaughlin Eastshore State Park and is operated by the District. It is shown on the Richmond USGS topographic quadrangle (Figure 3). The study area is within the Central Coast Subregion of the California Floristic Province (Baldwin et al. 2012). Point Isabel is in the eastern part of the Richmond Inner Harbor of the San Francisco Bay (USGS 2024).

The study area is located in the East Bay Terraces and Alluvium subsection of the Central California Coast Section (USDA 1997) as described in the *Ecological Subregions of California* (Ecoregion; USDA 1997)[5]. This subsection is described in detail below.

East Bay Terraces and Alluvium

The East Bay Terraces and Alluvium subsection is on an alluvial plain located between the East Bay Hills and San Francisco Bay. It extends from San Pablo Bay southeast to the Santa Clara Valley. The Hayward Fault runs long its northeast edge. The alluvial plain is mostly gently sloping to nearly level alluvial fans. Hills projecting above the fans are steep to moderately steep and elevations range from sea-level to about 600 feet on hills along the Hayward Fault. Late Quaternary alluvium predominates in this subsection. A few small areas of Quaternary marine sediments exist and there are a few hills of Franciscan formation rocks, both along the Hayward and others surrounded by alluvium. Fluvial erosion is the main geomorphic process in this subsection. Fluvial deposition is an important process on recent floodplain and alluvial fans, but most of the stream sediments are washed across the alluvial plain to estuaries of the San Francisco – San Pablo Bay system (USDA 1997).

Mean annual precipitation is about 20 to 30 inches, practically all of which is rain. Mean annual temperatures range from 52° to 56°F and the mean freeze-free period is about 250 to 275 days. Runoff is rapid from the hills but slow across alluvial plains. All but the larger streams are dry through most of the summer and natural lakes are absent. This subsection is greatly modified by marine influence (USDA 1997).

[5] A Manual of California Vegetation (MCV) (Sawyer et al. 2009) defines the currently recognized method of vegetation classification and mapping in California, which is accepted by CNPS and CDFW. This methodology is used to determine the rarity and endangerment of California vegetation types that can result in a sensitive natural communities designation for specific vegetation types. The Ecological Subregions of California (Ecoregion; USDA 1997) provide the boundaries used in Sawyer et al. (2009) and are the basis for describing regional variation in California alliance descriptions in the MCV.

Figure 3. Project Location on USGS Topographic Map

>>> INSERT FIGURE HERE <<<

3.1.3 LOCAL SETTING

The 25.2-acre study area includes a 50-foot buffer on the project component areas including: a large project site on North Point Isabel and a potential construction staging area and two construction access routes on Point Isabel proper (Figure and 2). The large project site occupies almost all of the upland area on North Point Isabel. The proposed construction staging area encompasses the parking lot at the northern terminus of Rydin Road. The construction access routes utilize the paved San Francisco Bay Trail and join the trail either from the parking lot or directly off of Rydin Road. Although not included in the study area or indicated on Figures 1 or 2, consideration is given to indirect impacts (i.e. noise impacts) which extend beyond the study area boundary and these impacts are assessed below. The study area is roughly triangular in shape with the narrower portion located at the southwest-most end. It is oriented in a southwest-northeast manner with a projection at the eastern-most corner for the staging area and access routes. At its longest, the study area measures approximately 0.35 miles long from its southwestern tip to the eastern edge, and approximately 0.3 miles wide from the terminus of Rydin Road to the study area's northernmost point on the San Francisco Bay Trail. The paved San Francisco Bay Trail parallels the entire eastern edge of the study area, and the North Point Isabel Trail parallels the perimeter of the northern portion of the study area and joins the San Francisco Bay Trail at near the northern and southern ends of the study area. Hoffman Channel is located along the southern edge of the larger portion of the study area and Hoffman Marsh is located to the east of the study area. Almost all the study area, except for a small strip along the eastern edge, was artificially created as a result of fill placement west of the historic shoreline as the site was historically used for the dumping of construction/demolition and industrial waste. As such, the upland habitat and adjacent marshland can be considered highly disturbed from its origin and of poor-quality habitat for native vegetation. Photos of the study area are included in Appendix F.

Location of study area (red outline) on 1949 USGS topographic map.

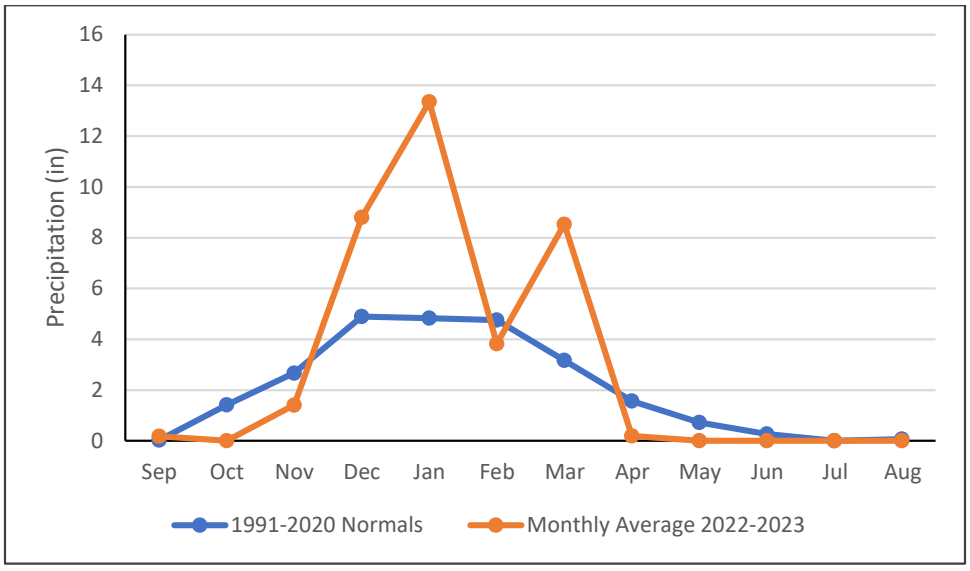
Topography

As noted above, all of the study area was artificially created as a result of fill placement and as a result, the topography of the study area is generally very flat with the exception of a small elevational change along the northwestern edge of the study area (Figure 3). Along the southern, western, and northwestern perimeter of the North Point Isabel portion of the study area, the site drops rapidly to the intertidal and tidal zones. Along the eastern edge of the study area, there is a very slight eastern-facing slope dropping to Hoffman Marsh. Elevation in the study area ranges from approximately 20 feet (6.1 meters) at its highest point in the

northwestern portion to below mean sea level in the tidal zone along the southern, western, and northwestern perimeter.

Climate

Figure 4 shows total precipitation (inches) and average monthly temperature (F) from September 2021 to August 2022 compared to 30-year Normals from 1991-2020. Weather data was collected from the El Cerrito 0.3 NW, Oakland North, and Richmond NOAA weather stations, which are the closest stations collecting relevant data (NOAA 2024). While temperature ranges during the 2022-23 period were not significantly different than 30-year Normals, precipitation values are significantly higher than 30-year normal for the months of December, January, and March due to large storm events. Precipitation received the remaining months are similar to or below 30-year Normals.



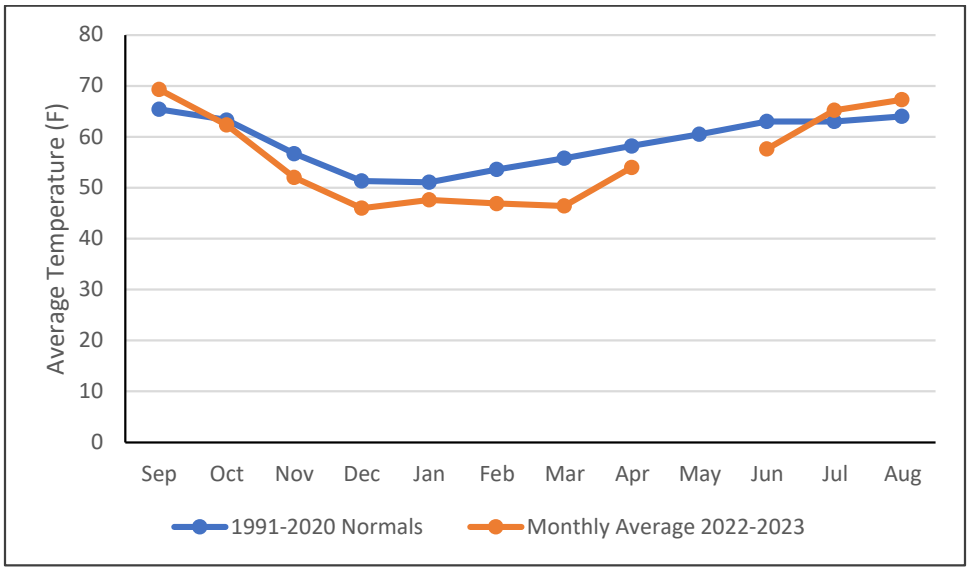


Figure 4. Local Precipitation and Temperature Against 30-Year Normals

Geology and Soils

A total of two geology mapping units are located within the study area (Graymer 2000; Figure 5; Table 1). The symbol column in this table refers to the abbreviation for these mapping units used in the geologic map. Geology units underlying the study area include mostly historic artificial fill with smaller parts water (Table 1).

Table 1. Geology Units in the Study Area

Symbol	Soil Mapping Unit	Acres in Study Area
af	artificial fill (historic)	21.36
H20	water	3.84
	Total	**25.20**

Three soil mapping units are located within the study area (USDA 2024; Figure 6; Table 2). The symbol column in this table refers to the abbreviation for these mapping units used in the soil survey. Soils of the Novato series are very deep, poorly drained soils that formed in alluvium deposited along the margins of bays. There is disagreement between current soil mapping efforts and the 1977 Soil Survey of Contra Costa County (USDA 1977) regarding the larger portion of the study on North Point Isabel, where current efforts identify this area as Novato silty clay and the 1977 effort identifying it was Reyes silty clay. Soils of both the Novato and the Reyes series are very deep, poorly drained soils formed in alluvium deposited along the margins of bays, however the Reyes soils descriptor notes it as occurring 'on reclaimed and protected marsh areas', while the Novato soil descriptor notes it as occurring 'in tidal marshes.' As noted above, this portion of the study area was artificially created as a result of fill placement west of the historic shoreline, which may be the source of this disagreement.

Table 2. Soil Mapping Units in the Study Area

Symbol	Soil Mapping Unit	Acres in Study Area
Ra	Novato silty clay	20.26
Ub	Urban land	2.25
W	Water	2.69
	Total	**25.20**

Hydrology Characteristics

Hydrology onsite is influenced by tides, precipitation, surface water runoff, geologic stratigraphy, topography, soil permeability, and plant cover. The study area drains into San Francisco Bay, either directly or via Hoffman Marsh to the east, which is hydrologically connected to the San Francisco Bay via Hoffman Channel. The northeastern-most areas of the study area drain into San Francisco Bay via an unnamed channel to the east that connects with San Francisco Bay approximately 0.4 miles northwest of the northern tip of the study area. The study area crosses Hoffman Channel via a wooden bridge with asphalt surface near the southeastern corner of the study area. There are no groundwater resources present in the study area. The exposure to wave action along the west-facing portions of the study area results in a moderately erosive shoreline environment (CA Department of Parks and Recreation 2002).

Land Use

The study area is entirely within Point Isabel Regional Shoreline. As noted above, this area has historically been used as a dumping ground for construction/demolition and industrial waste. Since cessation of

dumping activities, the primary land-uses include recreation in the form of fishing, hiking, biking, and dog-recreation. The shoreline is a designated trailhead for the San Francisco Bay Water Trail. Point Isabel Regional Shoreline is a designated off-leash dog area and it is heavily used for that purpose, with an estimated 900,000 to 1 million visitors annually, many of them accompanied by dogs (CA Department of Parks and Recreation 2002). Per EBRPD regulations, dogs are to be kept away from birds, out of marshlands, and on-leash in the parking areas and streets. The paved San Francisco Bay Trail runs along the entirety of the eastern edge of the study area and is popular with bicyclists and joggers. The surrounding areas are comprised of light industry, commerce, water treatment facilities, heavy use interstate, and mixed-density residential developments (CA Department of Parks and Recreation 2002).

Dogs negatively impact wildlife in three ways: (1) by causing direct mortality of wildlife through predatory action, (2) by disrupting normal behavior, which can affect population parameters (e.g., reproductive success), and (3) through disease transmission (Weston et al. 2014). These impacts can be significant, especially to special-status species, which are generally more prone to population decline (Weston et al. 2014).

Because many wildlife species view dogs as a threat, even leashed dogs can have adverse effects on wildlife. Banks and Bryant (2007) showed that dog walking in woodland caused a 35% reduction in bird diversity and a 41% reduction in bird abundance. Based on their review of 133 publications, Weston et al. (2014) reported: “[s]tudies presenting results on how wildlife reacts to dogs report that flushing behavior of mammals and birds is usually greater when pedestrians are accompanied by a dog compared to pedestrians walking alone.”

Figure 5. Geology Units in the Study Area

>>> INSERT FIGURE HERE <<<

Figure 6. Soil Mapping Units in the Study Area

>>> INSERT FIGURE HERE <<<

3.2. VEGETATION COMMUNITIES AND LAND COVER TYPES

Vegetation communities in the study area include Coyote Brush Scrub, Fennel Patches, Monterey Cypress – Monterey Pine Woodland Stands, Pickleweed Mats, and Wild Oats and Annual Brome Grassland. Other land cover types not described in the MCV include Intertidal Zone, Paved/Graveled, and Tidal Zone. As noted above, the majority of the study area occurs on artificial fill. As such, all vegetation communities observed and described below are considered disturbed and of anthropogenic origin to some degree, even if some are naturally recruiting and expanding at this point. The spatial distribution of vegetation communities and land cover types within the study area are depicted in Figure 7 and their respective acreages are presented in Table 3.

Table 3. Vegetation Communities in the Study Area

VEGETATION COMMUNITY	AREA (ACRES)
Natural / Semi-Natural Alliances	
Coyote Brush Scrub	0.53
Fennel Patches	0.67
Monterey Cypress – Monterey Pine Woodland Stands	0.26
Pickleweed Mats	<0.01
Wild Oats and Annual Brome Grasslands	16.72
Undescribed	
Intertidal Zone	2.41
Paved/Graveled	2.87
Tidal Zone	1.74
Total	**25.20**

This section describes vegetation on-site utilizing three vegetation classification systems: *A Manual of California Vegetation, Second edition* (MCV; Sawyer et al. 2009), *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), and *California Vegetation* (Holland and Keil 1995), Holland (1986) and Holland and Keil (1955) provide a generalized natural community-level descriptions for natural communities present within the study area. More detailed descriptions of each natural community-level are provided using MCV's (Sawyer et al. 2009) vegetation classification system based on field observations. MCV vegetation types are listed in the *California Natural Communities List* (CDFW 2023).

Table 4 relates the MCV vegetation types and Holland (1986) or Holland and Keil (1995) types identified within the study area to the *CNPS Inventory of Rare and Endangered Plants of California* (CNPS 2001) and *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). The codes used in Table 4 reflect those associated with the *California Natural Communities List* (CDFW 2023) as well as Holland (1986) types.

Figure 7. Vegetation Communities and Land Cover Types

>>> INSERT FIGURE HERE <<<

Table 4. Vegetation Community Classification Systems Comparisons

Terrestrial Communities[1]	California Vegetation[2]	CNPS Inventory[3]	Wetlands & Deepwater Habitats[4]
Upland Herbaceous Dominated Vegetation Types			
Non-Native Grassland (42200)	*Avena spp. - Bromus spp.* Herbaceous Semi-Natural Alliance (Wild Oats and Annual Brome Grasslands) (42.027.00)	Valley and Foothill Grassland	Upland
Ruderal (Holland and Keil 1995)	*Foeniculum vulgare* Herbaceous Semi-Natural Association (Fennel Patches) (45.556.02)	Valley and Foothill Grassland	Upland
Shrub Dominated Vegetation Types			
Northern Coyote Brush Scrub (32110)	*Baccharis pilularis* Shrubland Alliance (Coyote Brush Scrub) (32.060.00)	Coastal Scrub	Upland
Woodland and Forest Vegetation Types			
Urban Mix (Holland and Keil 1995)	*Hesperocyparis macrocarpa – Pinus radiata* Forest & Woodland Semi-Natural Alliance (Monterey Cypress – Monterey Pine Woodland Stands) (79.400.00)	---	Upland
Wetland Herbaceous Dominated Types			
Northern Coastal Salt Marsh (52110)	*Salicornia pacifica* Herbaceous Alliance (Pickleweed Mats) (52.215.00)	Marshes and Swamps	Estuarine Intertidal Persistent Emergent Wetland

[1] Terrestrial Natural Communities of California (Holland 1986) and California Vegetation (Holland and Keil 1995)
[2] A Manual of California Vegetation (Sawyer et al. 2009) and California Natural Communities List (CDFW 2023)
[3] CNPS Inventory of Rare and Endangered Plants of California Habitat Types (CNPS 2001)
[4] Classification of Wetlands & Deepwater Habitats of the U.S. (Cowardin et al. 1979)

3.2.1 Upland Herbaceous Dominated Vegetation Types

Non-Native Grassland

Non-native grassland is dominated by a sparse to dense cover of non-native grasses and weedy annual and perennial forbs, primarily of Mediterranean origin, that have replaced native perennial grasslands as a result of human disturbance (Holland 1986). However, where not completely outcompeted by weedy non-native plant species, scattered native wildflower species and native perennial grass species considered remnants of the original vegetation may also be common. This community occurs on fine-textured, usually clay soils, which are moist or waterlogged during the winter rainy season and very dry during the summer and fall. Germination occurs with the onset of the late fall rains while growth, flowering, and seed-set occur from winter through spring. With a few exceptions, the plants are dead through the summer and fall dry season, persisting as seeds. This community usually occurs below 3,000 feet but reaches 4,000 feet in the Tehachapi Mountains and interior San Diego County, and intergrades with coastal prairie along the Central Coast.

Non-native grassland is represented in the study area by at least one MCV type: *Avena* spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance, described below.

Wild Oats and Annual Brome Grasslands (*Avena* spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance)
As described, oats (*Avena* spp.*), annual bromes (*Bromus* spp.*), and/or hare barley (*Hordeum murinum**) are dominant or co-dominant with other non-natives in the herbaceous layer (Sawyer et al. 2009). Emergent

trees and shrubs may be present at low cover. Herbs are generally less than 1.2 meters (4 feet) in height and cover is open to continuous. According to membership rules for grasslands to be classified as wild oats and annual brome grassland, oats*, bromes*, hare barley*, and/or filaree (*Erodium* spp.*) must comprise greater than 50 percent relative cover individually or in combination. Habitat for this vegetation community in California includes foothills, waste places, rangelands, and openings in woodlands below 2,200 meters (7,218 feet) in elevation.

Wild oats and annual brome grasslands make up a majority of the study area acreage. All of this community in the study area occurs on artificial fill soil. Throughout the study area, this community is heavily disturbed by recreation activities and dogs as evidenced by heavy trampling, bare spots, and the occasional dog waste bag. This community had very low native integrity and observed species include slender wild oats (*Avena barbata**), ripgut brome (*Bromus diandrus**), hare barley (*Hordeum murinum* subsp. *leporinum**), Bermuda buttercup (*Oxalis pes-caprae**), jointed charlock (*Raphanus sativus**), filaree (*Erodium* spp.), orchard grass (*Dactylis glomerata**), English plantain (*Plantago lanceolata**), bristly ox-tongue (*Helminthotheca echioides**), curly dock (*Rumex crispus**), fiddleleaf dock (*R. pulcher**), cutleaf geranium (*Geranium dissectum**), hoary mustard (*Hirschfeldia incana**), and pineapple weed (*Matricaria discoidea*), among others. Isolated and scattered coyote brush (*Baccharis pilularis* subsp. *consanguinea*), French broom (*Genista monspessulana**), English ivy (*Hedera helix**), and Himalayan blackberry (*Rubus armeniacus**) individuals were observed at low cover throughout this community and are here considered a component of the larger grassland matrix. Throughout the study area, wild oats and annual brome grasslands is heavily impacted by anthropogenic factors and can be considered subject to consistent significant disturbance.

Ruderal

Based on the description by Holland and Keil (1995), ruderal vegetation is an assemblage of plants, often a mixture of both native and nonnative weed species that thrive in waste areas, heavily grazed pastures, cultivated and fallow fields, roadsides, parking lots, footpaths, around residences and similar disturbed sites in towns and cities and along rural roadways. Ruderal communities are difficult to characterize and are often temporary assemblages. In areas of frequent human disturbance, the majority of wild plants are often introduced weeds rather than natives. Some urban weeds are ornamentals that have escaped from cultivation. Ruderal species may at times be integrated into various other communities.

Ruderal vegetation communities are represented in the study area by at least one MCV type: *Foeniculum vulgare* Herbaceous Semi-Natural Association, described below.

Fennel Patches (*Foeniculum vulgare* Herbaceous Semi-Natural Association)

As described by Sawyer et al. (2009), fennel (*Foeniculum vulgare**), or other non-native invasive *Apiaceae* species, is dominant or co-dominant in the herbaceous layer with other non-native plants. Emergent trees and shrubs may be present at low cover, including oaks (*Quercus* spp.) and coyote brush. Herbs are generally less than 2 meters (6.6 feet) in height and cover is open to continuous. According to membership rules, fennel* must comprise greater than 50% relative cover in the herbaceous layer. This community occurs on all topographies at elevations below 1,000 meters (3,281 feet).

Within the study area, fennel patches were observed on the east side of the San Francisco Bay Trail and north of the bridge. Fennel* was characteristic and dominant in the herbaceous layer with generally low vegetative cover with a very low native integrity. Observed species include various non-native annual grasses, English plantain*, cut leaf plantain (*Plantago coronopus**) curly dock*, fiddleaf dock*, and pineapple weed, among others. Emergent coyote brush was observed at low cover and no trees were present. Soils were very rocky in this community compared to other vegetated areas within the study area.

3.2.2 SHRUB DOMINATED VEGETATION TYPES

Northern Coyote Brush Scrub

As described by Holland (1986), northern coyote brush scrub is a type of northern coastal scrub based on the dominance of coyote brush. This community comprises low shrubs, usually 1.6 meters (5.3 feet) tall, typically dense but with scattered grassy openings. It occurs on windy, exposed sites with shallow, rocky soils and is patchily distributed from southern Oregon to Point Sur in Monterey County.

Northern coyote brush scrub is represented in the study area by at least one MCV type: *Baccharis pilularis* Shrubland Alliance, described below.

Baccharis pilularis Shrubland Alliance (Coyote Brush Scrub)

Per Sawyer et al. (2009), coyote brush is dominant to co-dominant in the shrub canopy with other native shrub species including California sagebrush (*Artemisia californica*), California coffeeberry (*Frangula californica* subsp. *californica*), toyon (*Heteromeles arbutifolia*), and/or poison oak (*Toxicodendron diversilobum*). Emergent trees may be present at low cover including coast live oak (*Quercus agrifolia* var. *agrifolia*). Membership rules dictate coyote brush comprise greater than 15% shrub cover over grassy understory or comprise relative cover greater than 50% cover in the shrub layer. Within California, coyote brush scrub inhabits river mouths, stream sides, terraces, stabilized dunes of coastal bars, spits along the coastline, coastal bluffs, open slopes, and ridges below 1,500 meters (4,921.3 feet) in elevation. Soils are variable, sandy to relatively heavy clay.

Coyote brush scrub is scattered in small to medium sized patches throughout the study area. Many of these areas, especially near the restroom and bridge, are planted and maintained by the District. These areas consist of co-dominant coyote brush and California sage with smaller amounts of lizard tail (*Eriophyllum staechadifolium*), coffee berry, toyon, mugwort (*Artemisia douglasiana*), big saltbush (*Atriplex lentiformis*), hummingbird sage (*Salvia spathacea*), and California buckeye (*Aesculus californica*). Some of these maintained areas are fenced off, presumably to prevent trampling. Outside of these areas, coyote brush and California sage form small to medium sized patches of naturally recruiting shrubs scattered sporadically throughout the study area. Many of the naturally recruiting patches are along or behind fencelines or immediately adjacent to riprap, both of which may provide enough protection from trampling for seedlings to survive. The herbaceous layer within coyote brush scrub is similar in composition to the surrounding non-native grasslands. In the planted and maintained patches, planted California buckeye and coast live oak are present at low cover. Throughout the study area, coyote brush scrub is heavily impacted by anthropogenic factors and all naturally occurring patches can be considered subject to consistent significant disturbance.

3.2.3 WOODLAND AND FOREST VEGETATION TYPES

Urban Mix

Urban mix is characterized as areas where non-native plants have either escaped or been ornamentally planted, for uses such as windrows, in areas around urban or residential developments (Holland and Keil 1995). In open areas surrounded by development it is not uncommon to find mixtures of non-native and native vegetation. Common examples of non-native plants found in urban mix include Monterey cypress (*Hesperocyparis macrocarpa*[+]), Monterey pine (*Pinus radiata*[+]), and acacias (*Acacia* spp.*), along with many non-native shrubs, perennials, and ornamental vines.

[+] Denotes a species of native origin but not indigenous to the site.

Urban mix groves within the study area are characterized as at least one MCV alliance: *Hesperocyparis macrocarpa – Pinus radiata* Woodland Semi-Natural Alliance, described below.

Hesperocyparis macrocarpa – Pinus radiata Woodland Semi-Natural Alliance (Monterey Cypress – Monterey Pine Woodland Stands)
Monterey cypress – Monterey pine woodland stands are dominated in the tree canopy by Monterey cypress[+], Monterey pine[+], other pines (*Pinus* spp.), and acacias (*Acacia** spp.) (Sawyer et al. 2009). Trees reach heights of 50 meters (164 feet) with a open to continuous canopy. The shrub layer is sparse to continuous and the herbaceous layer is variable. Membership rules dictate planted or naturalized conifer species comprise greater than 50% relative cover in the tree canopy. This semi-natural alliance occurs as planted trees, groves, and windbreaks throughout California which have naturalized in coastal areas below elevations of 1,200 meters (3,937 feet). Both Monterey cypress[+] (California Rare Plant Rank (CRPR) 1B.2) and Monterey pine[+] (CRPR 1B.1) are included in the California Native Plant Society Rare Plant Inventory (CNPS 2024), however individuals and populations are only considered rare in natural stands. Natural stands of Monterey cypress are known from two native occurrences in the Monterey area. Natural stands of Monterey pine exist in only three disjunct areas in mainland California: near Año Nuevo, on the Monterey Peninsula, and at Cambria. Additional populations occur on Cedros and Guadalupe islands off central Baja California.

Within the study area, Monterey cypress – Monterey pine woodland stands were present scattered throughout the study area but concentrated near the parking lot off of Rydin Road. These areas were dominated in the canopy by Monterey cypress[+], Monterey pine[+], acacia*, and various other non-native tree species. Many of these areas are obviously planted and maintained by the District, while others appear to be naturally recruiting. The shrub layer is generally absent except in areas where understory species have been planted for landscaping values. The herbaceous layer is similar in composition to surrounding non-native grassland community. Many of these areas are enclosed by fences or immediately adjacent to paved areas, and all are anthropogenically impacted to varying degrees.

3.2.4 WETLAND HERBACEOUS DOMINATED VEGETATION TYPES

Northern Coastal Salt Marsh

As described in Holland (1986), northern coastal salt marsh is comprised of highly productive, herbaceous and suffrutescent, salt-tolerant hydrophytes which form moderate to dense cover and reach heights of 1 meter (3.3 feet). Most species are active in the summer and dormant in the winter. Species are usually segregated with *Spartina* spp. nearer the open water, *Salicornia* spp. at mid-littoral elevations, and a rich mixture closer to higher ground. This community is usually found along sheltered inland margins of bays, lagoons, and estuaries, and the hydric soils are subject to regular tidal inundation by salt water for at least part of the year.

Northern coastal salt marsh is represented in the study area by at least one MCV type: *Salicornia pacifica* Herbaceous Alliance, described below.

Salicornia pacifica Herbaceous Alliance (Pickleweed Mats)
Pickleweed mats are characterized by pickleweed (*Salicornia pacifica*) as dominant or co-dominant in the subshrub or herbaceous layers with salt grass (*Distichlis spicata*), gumweed (*Grindelia stricta*), marsh jaumea (*Jaumea carnosa*), sea lavender (*Limonium* spp.), and/or cord grass (*Spartina* spp.) present (Sawyer et al. 2009). Herbs reach heights of 1.5 meters (4.9 feet) and cover is intermittent to continuous. Membership rules dictate pickleweed comprise greater than 30% relative cover with salt grass and marsh jaumea present. Within California, pickleweed mats occur in coastal salt marshes and alkaline flats at elevation below 2 meters (6.6 feet).

Within the study area, pickleweed mats were observed at two locations along the eastern edge of the study area. At both locations, only very minute areas of pickleweed mats are present in the study area. Where observed, pickleweed was co-dominant with salt grass in the herbaceous layer, with smaller amounts of marsh jaumea and gumweed present. Very low tree cover of planted California buckeye was present. Signs of anthropogenic disturbance were observed in this community including concrete debris and pipe set in the soil for unknown reasons.

3.2.5 OTHER

Intertidal Zone

As mapped in the study area, the intertidal zone is comprised of loose, medium to large pieces of rock and concrete fill debris along the shoreline. The intertidal zone is mapped along the exterior of the study area on its southern, western, and northern edges. While ruderal plant species may sometimes take root among the rock/concrete pieces, the intertidal zone provides little to no habitat for terrestrial or semi-terrestrial plant life and vegetative cover in is generally limited to macro-algae and overhanging vegetation from immediately adjacent communities. A number of gopher burrows were observed in and on the edge of the intertidal zone.

Paved/Graveled

The paved/graveled cover type is used here for paved roadways and graveled roads used for multiuse recreation and motor vehicle access to the park itself. Paved areas include Rydin Road, the parking area off of Rydin Road, the area immediately around the restrooms, and the San Francisco Bay Trail along the entirety of the eastern edge of the study area. Areas mapped as graveled roads comprise the entirety of the North Point Isabel Trail, a circular route which parallels the perimeter of the northern portion of the study area and joins the San Francisco Bay Trail near the northern and southern ends of the study area. These areas are almost entirely devoid of vegetative growth and provide little to no habitat value for plant or wildlife species.

Tidal Zone

Within the study area, the tidal zone is mapped in areas below the high-tide line that are under water during high tides and comprised primarily of exposed tidal mud flats during low tides. For the most part, these areas are absent of any rooted plants and any vegetative life is comprised of microscopic algae and green macro-algae.

3.3. MOVEMENT CORRIDORS AND WILDLIFE USE

Habitat loss, fragmentation, and degradation resulting from land use changes or habitat conversion can alter the use and viability of wildlife movement corridors (i.e. linear habitats that naturally connect and provide passage between two or more otherwise disjunct larger habitats or habitat fragments). In general, studies suggest that habitat corridors provide connectivity for and are used by wildlife, and as such, are an important conservation tool (Beier and Noss 1998). According to Beier and Loe (1992), wildlife habitat corridors should fulfill several functions. They should maintain connectivity for daily movement, travel, mate-seeking, and migration; plant propagation; genetic interchange; population movement in response to environmental change or natural disaster; and recolonization of habitats subject to local extirpation.

The suitability of a habitat as a wildlife movement corridor is related to, among other factors, the habitat corridor's dimensions (length and width), topography, vegetation, exposure to human influence, and the species in question (Beier and Loe 1992). Species utilize movement corridors in several ways. "Passage species" are those species that use corridors as thru-ways between outlying habitats. The habitat requirements for passage species are generally less than those for corridor dwellers. Passage species use corridors for brief durations, such as for seasonal migrations or movement within a home range. As such,

movement corridors do not necessarily have to meet any of the habitat requirements necessary for a passage species' everyday survival. Large herbivores, such as deer, and medium-to-large carnivores, such as coyotes, bobcats and mountain lions, are typically passage species. "Corridor dwellers" are those species that have limited dispersal capabilities – a category that includes most plants, insects, reptiles, amphibians, small mammals, and birds – and that use corridors for a greater length of time. As such, wildlife movement corridors must fulfill key habitat components specific to a species' life history requirements in order for them to survive (Beier and Loe 1992). In general, however, the suitability and/or utility of the landscape – specifically, of the landscape as corridor habitat – is best evaluated on a species-level (Beier and Noss 1998).

While the study area consists primarily of habitat suitable for grassland species, the study area is isolated from other habitat by a dense urban matrix including I-580 to the north and east, and the San Francisco Bay to the south and west; together these features act as a complete passage barrier for most terrestrial species and the study area does not likely act as a wildlife movement corridor. Furthermore, while there are no obvious barriers to movement of wildlife within the study area itself, heavy human activity and the abundance of off-leash dogs undoubtedly has a negative effect on wildlife use of the area (Banks and Bryant 2007, Weston et al. 2014), including its ability to function as a wildlife corridor.

The "Terrestrial Connectivity" dataset is one of the four key components of the California Department of Fish and Wildlife's Areas of Conservation Emphasis (ACE) suite of terrestrial conservation information. The Terrestrial Connectivity dataset summarizes information on terrestrial connectivity, including the presence of mapped corridors or linkages and the juxtaposition to large, contiguous, natural areas. The dataset was developed to support conservation planning efforts by allowing users to spatially evaluate the relative contribution of an area to terrestrial connectivity based on the results of statewide, regional, and other connectivity analyses. All terrestrial areas in the state have been assigned an ACE Terrestrial Connectivity rank ranging from 1 (Limited Connectivity Opportunity) to 5 (Irreplaceable and Essential Corridors). The study area, and all surrounding areas, have a rank of 1. ACE Rank 1 areas are areas where land use may limit options for providing connectivity (e.g., agriculture, urban) or no connectivity importance has been identified in models (CDFW 2019a).

Section 4. ASSESSMENT AND FINDINGS

In evaluating on-site habitat suitability for special status plant and wildlife species within the study area, relevant literature, knowledge of regional biota, and observations made during the field investigations were applied as analysis criteria. Criteria determinations for occurrence potential of special status species are divided into the five categories described below. Special status species are discussed below if they were determined to meet the determination criteria for Present, Possible, or if they are Not Expected but suitable habitat is present in the study area and it is a species prominent in the current regulatory environment. It should be noted that species occurrence references refer to the CNDDB Occurrence number (EONDX #) which is a unique number given to each occurrence record for each species. Factors influencing which determination category is applied to each species are detailed below.

- None denotes a complete lack of habitat suitability, local range restrictions, and/or regional extirpations.
- Not Expected denotes situations where suitable habitat or key habitat elements may be present but may be of poor quality or isolated from the nearest extant occurrences. Incompatible habitat suitability refers to elevation, geology, soil chemistry and type, vegetation communities, microhabitats, and degraded/significantly altered habitats. These factors create unsuitable ecological conditions for the consideration of even a low occurrence potential within the study area.
- Absent indicates specified taxa not observed during field investigations which were consequently ruled out. This category also refers to diagnostic vegetative material of perennial species not observed on site. *This category refers only to plant species*.
- Possible indicates the presence of suitable habitat or key habitat elements that potentially support a specific species or taxa.
- Present indicates the target species was either observed directly or its presence was confirmed by diagnostic sign (*i.e*. tracks, scat, burrows, carcasses, castings, prey remains, *etc*.) during field investigations.

4.1. SENSITIVE NATURAL COMMUNITIES

During the 2024 reconnaissance, one sensitive natural community currently recognized by CDFW (2023) was observed within the study area: *Salicornia pacifica* Herbaceous Alliance (pickleweed mats). Although not considered sensitive natural communities by CDFW (2023), the areas mapped as intertidal zone and tidal zone are included here as they may be considered potentially jurisdictional waters regulated by the Army Corps of Engineers and the California State Water Resources Control Board. These communities and their acreage appear in Table 5 and their locations are depicted in Figure 7.

Table 5. Sensitive Natural Communities Within the Study Area

VEGETATION TYPE	CONSERVATION STATUS RANK	ACREAGE
WETLAND HERBACEOUS VEGETATION TYPES		
Salicornia pacifica Herbaceous Alliance	S2	<0.01
Other		
Intertidal Zone	---	2.41
Tidal Zone	---	1.74

Vegetation Type	Conservation Status Rank	Acreage
	Total	**4.15**

[1]**Explanation of Status Codes**
State Codes
S2 - Imperiled

Salicornia pacifica Herbaceous Alliance is considered of high inventory priority as it has a Conservation Status Rank of S2 (CDFW 2023). A rank of S2 indicates a vegetation alliance or association is "Imperiled" because of rarity due to very restricted range, very few populations, steep declines, or other factors making it very vulnerable to extirpation from its jurisdiction (NatureServe 2024). *Salicornia pacifica* Herbaceous Alliance is present along the edge of Hoffman Marsh in the southeastern portion of the study area.

Although not considered a sensitive natural community by CDFW (2023), areas mapped as tidal zone are treated as sensitive natural communities as they may be considered potentially jurisdictional waters. Tidal zone was mapped along the southern, western and norther edges of the study area.

4.2. Special Status Plants

A total of 101 special status plant species are known to occur in the project vicinity[6]. Based on field investigations, habitats within the study area, a review of available databases and literature listed in Section 2.3, and familiarity with the regional flora, it was determined that no special status plant species had the potential to occur within the study area. Special status plant species were ruled out as potentially occurring on site based on lack of suitable habitat including vernal pools, playas, coastal dunes, cismontane woodland, coniferous forest, chaparral, and/or serpentine soils. Species were also ruled out due to the high level of anthropogenic disturbance, lack of appropriate elevation ranges, and distributional limits, or if they would have been recognizable during the February site visit. A complete list of all 101 species considered as part of this assessment, their regulatory status, habitat requirements, local distribution, and potential for occurrence are listed in Appendix B. Special status plant species recorded in the project vicinity from the CNDDB are depicted in Figure 8. The CNDDB and USFWS species lists are shown in Appendices D and E.

4.2.1 Federally and/or State Listed and California Rare Plant Species

Of the 101 special status plant species known from the vicinity, 21 are federally and/or state listed species. Based on the field investigations, review of available databases and literature, familiarity with local flora, and on-site habitat suitability, none of federally and/or state listed and California rare plant species were considered to have the potential to occur within the study area. No federally and/or state listed species were observed during the 2024 site visit.

[6] Vicinity is defined as the area included within the nine U.S. Geological Survey (USGS) 7.5-minute topographic quadrangles that are centered on the study area, including San Francisco North, Oakland West, Oakland East, San Quentin, Richmond, Briones Valley, Petaluma Point, Mare Island, and Benicia.

Figure 8. California Natural Diversity Database Special Status Plant Species Occurrences within 5 Miles of the Project

>>> INSERT FIGURE HERE <<<

4.2.2 California Rare Plant Rank Species

All 101 of the special status plant species are included in the California Native Plant Society Rare Plant Inventory (CNPS 2024). Based on the field investigations, review of available databases and literature, familiarity with local flora, and on-site habitat suitability, none of federally and/or state listed and California rare plant species were considered to have the potential to occur within the study area. No federally and/or state listed species were observed during the 2024 site visit.

4.3. Special Status Wildlife

Based on the field investigation, review of available databases and literature listed above in Section 2.3, familiarity with local fauna, and on-site habitat suitability, a total of 84 special status fish and wildlife species were considered as part of this assessment. Of these, nine were determined to have potential to occur within the study area and could be affected by the project as proposed (Table 6). These include federally or state-listed threatened and endangered species and California Department of Fish and Wildlife designated Species of Special Concern (SSC), which are of concern because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction. The remaining taxa were ruled out based on the lack of suitable habitat (e.g., serpentine, interior sand dunes, vernal pools), local extirpations, lack of connectivity between areas of suitable and occupied habitat, incompatible land use, and habitat degradation. A complete list of all 84 species considered as part of this assessment, their regulatory status, habitat requirements, local distribution, and potential for occurrence are listed in Appendix C. The species with no potential to occur within the study area are not discussed further in the body of this report. Special status animal species recorded in the project vicinity from the CNDDB are depicted in Figure 9. The CNDDB and USFWS species lists are shown in Appendices D and E.

Table 6. Potentially Occurring Special Status Fish and Wildlife Species

Species	Listing Status[1]	Potential for Occurrence
Invertebrates		
Bombus caliginosus Obscure bumble bee	Federal: None State: SA	Possible
Bombus crotchii Crotch bumble bee	Federal: None State: SCE	Possible
Fish		
Oncorhynchus tshawytscha pop.7 Chinook salmon winter-run ESU	Federal: FE State: SE	Possible
Acipenser medirostris Green sturgeon – southern DPS	Federal: FT State: SSC	Possible
Acipenser transmontanus White sturgeon	Federal: None State: SCT, SSC	Possible
Birds		
Athene cunicularia Burrowing owl (wintering or nesting)	Federal: None State: SSC	Possible
Circus hudsonius Northern harrier (nesting)	Federal: None State: SSC	Possible
Melospiza melodia pusillula Alameda song sparrow	Federal: None State: SSC	Possible
Rallus obsoletus obsoletus California Ridgway's rail	Federal: FE State: SE, FP	Possible
Mammals		
Reithrodontomys raviventris Salt marsh harvest mouse	Federal: FE State: SE, FP	Possible

[1]**Explanation of State and Federal Listing Codes:**

U.S. Fish and Wildlife Service – Federal Endangered Species Act (FESA):

FE	Federally Endangered
FT	Federally Threatened

California Department of Fish and Wildlife – California Endangered Species Act (CESA):

FP	Fully Protected
SA	Special Animal
SCE	Candidate for state listing as Endangered
SCT	Candidate for state listing as Threatened
SE	California Endangered
SSC	Species of Special Concern

Figure 9. California Natural Diversity Database Special Status Wildlife Species Occurrences within 5 Miles of the Project

>>> INSERT FIGURE HERE <<<

4.3.1 INVERTEBRATES

Two special status invertebrates, both bumble bee species, have the potential to occur in the study area.

Special Status Bumble Bees

The following special status bumble bee species have the potential to occur within the study area:

- Obscure bumble bee (*Bombus caliginosus*) – Included on CDFW's Special Animals List (State rank S1S2)
- Crotch bumble bee (*Bombus crotchii*) – State candidate for listing as endangered

Status, Distribution and Habitat Requirements

Specific habitat requirements for these two bumble bee species are variable and not fully understood, but habitat requisites include floral resources throughout the flight season, and undisturbed nest sites and overwintering sites. Bumble bees often nest belowground in abandoned rodent burrows, but they are also known to nest aboveground in tufts of grass, old bird nests, in tree cavities in dead trees, and under rock piles. Studies of flight distance show that bumble bee species vary in how far they typically forage from the nest, with estimates ranging from 900 feet to 2,460 feet.

Both bumble bee species may occur in grasslands, scrub, or open woodlands. The obscure bumble bee occurs along the Pacific Coast from southern California to southern British Columbia, with scattered records from the east side of California's Central Valley. The Crotch bumble bee historically occurred across southern California, from the coast and coastal ranges, through the Central Valley, and to the adjacent foothills; it is now nearly absent from the Central Valley (CDFW 2019b). Widespread use of pesticides in agricultural lands and habitat fragmentation are thought to have led to severe declines of these species (COSEWIC 2014, CDFW 2019b).

Occurrence Data and Habitat Suitability

Potential habitat for bumble bee species is present within the study area, as they may build nests underground or in decaying material anywhere within the grassland on site. The CNDDB has 11 occurrence records of obscure bumble bee and 26 occurrence records of Crotch bumble bee within the assessment area. The nearest occurrence of obscure bumble bee is from 1983 in the general vicinity of El Cerrito (EONDX #97899). The nearest Crotch bumble bee occurrence is from 1992 and was recorded approximately 0.5 miles northwest of the study area at the U.C. Berkeley – Richmond Field Station (EONDX #100053).

Occurrences of all bumble bee species are also tracked by Bumble Bee Watch, a collaborative project between several universities and non-profit entities that accepts and vets bumble bee sightings submitted by the public. Bumble Bee Watch has recorded several recent verified observations of obscure bumble bee in the Pt. Reyes and Tomales Bay area made in 2023 (Bumble Bee Watch 2024) and of Crotch bumble bee near Fairfield, Solano County (2014), in Berkeley, Alameda County (2015), in Santa Teresa County Park, Santa Clara County (2019), in San Jose, Santa Clara County (2021), and Laguna Seca, Santa Clara County (2023) (Bumble Bee Watch 2024). This suggests that the Crotch bumble bee and obscure bumble bee are still extant in portions of the greater San Francisco Bay Area.

Potential Project-Related Effects

Grading or any other ground-disturbing activities associated with the project could damage or destroy underground nests of bumble bees. The entrances to underground nests could also be covered by fill material or damaged by vehicles as a result of project activities. These impacts are potentially significant. Impacts to special status bumble bee species potentially occurring onsite will be reduced to less-than-

significant levels through implementation of mitigation measures BIO-1 (Worker Environmental Awareness Training), BIO-7 (Bumble Bee Mitigation), and BIO-8 (Biological Monitoring).

Fish

Three special status fish species were determined to have the potential to occur within the study area. These species are discussed below.

Chinook Salmon, Sacramento River Winter-run ESU (*Oncorhynchus tshawytscha* pop.7)

Status, Distribution and Habitat Requirements

The Chinook salmon winter-run ESU is a federally and state listed endangered species. The Sacramento River winter-run Chinook salmon historically spawned in cold spring-fed tributaries of the upper Sacramento River Basin. Spawning is now primarily restricted to the mainstem Sacramento River between the Keswick Dam and Red Bluff Diversion Dam. Newly hatched fish (alevins) normally remain in the gravel for four to six weeks until the yolk sac has been absorbed. Juvenile Chinook salmon then reside in the river for several weeks to a year before migrating to the Gulf of Farallon Islands through the Delta and San Francisco Bay (NMFS 2014).

Occurrence Data and Habitat Suitability

San Francisco Bay waters north of the San Francisco-Oakland Bay Bridge have been designated critical habitat for the Chinook salmon winter-run ESU because northern San Francisco Bay provides essential foraging habitat and food resources for migrating salmon. The study area does not contain suitable spawning or rearing habitat for the species. There are no CNDDB records of the Chinook salmon winter-run ESU in the assessment area.

Potential Project Related Effects

Project construction activities will be confined to upland areas and therefore the project will not have any direct impacts on the Chinook salmon or its habitat. Indirect impacts to Chinook salmon could occur during construction if sediment from the project site is transported (e.g., via wind or rain) into adjacent aquatic habitats. This could degrade habitat by temporarily increasing turbidity in waters within and adjacent to the study area. This potentially significant impact would be reduced to a less-than-significant level through implementation of the project's BMPs and the biological monitoring in mitigation measure BIO-8. The project would provide a long-term indirect benefit to Chinook salmon by preventing lead-contaminated soils from discharging into Hoffman Chanel and the San Francisco Bay.

Green Sturgeon *(Acipenser medirostris)*

Status, Distribution and Habitat Requirements

The green sturgeon, southern DPS, is a federally threatened species and a California Species of Special Concern. It is an anadromous fish that is found in marine waters from the Bering Sea to Ensenada, Mexico. The southern DPS includes all spawning populations south of the Eel River (exclusive), principally including the Sacramento River population (71 FR 17757). Locally, green sturgeon inhabit the Suisun, San Pablo, and San Francisco Bays, and coastal bays and estuaries from Monterey Bay north to Puget Sound. Spawning occurs in the Sacramento River between March and June; it may extend slightly longer, into July, in the Klamath River. Green sturgeon reach maturity at around 15 years of age and can live to be 70 years old. Unlike salmon, they may spawn several times during their long lives, returning to their natal rivers every 3-5 years. During spawning runs, adult fish enter San Francisco Bay between mid-February and early May and migrate rapidly up the Sacramento River. Spawning mainly occurs in cool sections of the upper Sacramento River with deep, turbulent flows. Green sturgeon spawn when water temperature is between 12-15 °C. In the fall, adults move back down the river and re-enter the ocean. After hatching, larvae and

juveniles migrate downstream toward the Sacramento-San Joaquin Delta and estuary. After rearing in the delta and estuary for several years, they move out to the ocean.

The Sacramento River is an important migratory corridor for larval and juvenile sturgeon during their downstream migration to the San Francisco Bay Delta and Estuary. The San Francisco Bay Delta and Estuary provide year-round rearing habitat for juveniles, as well as foraging habitat for non-spawning adults and subadults in the summer months (NMFS 2008). Critical habitat includes coastal California waters from Monterey Bay, California, North to Cape Flattery, Washington; San Francisco Bay; Sacramento River and lower Feather River; Eastern reaches of the Sacramento-San Joaquin Delta; specified bays and estuaries in California, Oregon and Washington (74 FR 52300). Critical habitat does not include any freshwater tributaries feeding into these water bodies (74 FR 52300).

Occurrence Data and Habitat Suitability

While the study area does not contain suitable spawning habitat for the species, coastal waters within and adjacent to the study area may be utilized by adult green sturgeon as foraging habitat. The waters within and surrounding the study area are within the San Francisco Bay Critical Habitat Unit for the species, which encompasses all waters within the San Francisco Bay. There are two CNDDB occurrences of the species within the assessment area, the nearest of which is mapped to an area overlapping a portion of the study area (EONDX #121221). There is also one research grade iNaturalist occurrence in the vicinity of the study area (OID #177215661); it is from 2023 and located approximately 0.8 miles south of the study area (iNaturalist 2024).

Potential Project Related Effects

Project construction activities will be confined to upland areas and therefore the project will not have any direct impacts on the green sturgeon or its habitat. Indirect impacts to green sturgeon could occur during construction if sediment from the project site is transported (e.g., via wind or rain) into adjacent aquatic habitats. This could degrade habitat by temporarily increasing turbidity in waters within and adjacent to the study area. This potentially significant impact would be reduced to a less-than-significant level through implementation of the project's BMPs and the biological monitoring in mitigation measure BIO-8. The project would provide a long-term indirect benefit to green sturgeon by preventing lead-contaminated soils from discharging into Hoffman Chanel and the San Francisco Bay.

White Sturgeon *(Acipenser transmontanus)*

Status, Distribution and Habitat Requirements

The white sturgeon is a California Species of Special Concern and it is a candidate for listing as threatened under CESA. White sturgeon are native to the west coast of North America, where they may be found in coastal waters from Ensenada, Mexico, to Alaska. However, spawning only occurs in a few large rivers from the Sacramento-San Joaquin system northward. White sturgeon primarily live in estuaries of large rivers but migrate to spawn in fresh water and often make long ocean movements between river systems (Moyle et al. 2015). They commonly aggregate in deep, soft-bottomed areas of estuaries, where they move about in response to changes in salinity. White sturgeon move into intertidal areas during high tides to feed, with most prey taken on or near the estuary substrate (Moyle et al. 2015). Young white sturgeon prefer amphipods (*Corophium* spp.) and opossum shrimp (*Neomysis mercedis*). The diet of older sturgeon is dominated by benthic invertebrates (e.g., shrimp, crabs, and clams), but they also consume fish and a variety of other food items (Moyle et al. 2015).

White sturgeon in California spawn every 1-2 years for males and every 2-4 years for females. Adults migrate from the estuary into the river starting in December, spawn from February to June, and return to the estuary after spawning. The early life of white sturgeon in the wild is not well understood and needs additional research. However, current evidence indicates that dispersed, fertilized eggs settle to the bottom

and stick to hard surfaces. Eggs hatch into the larval stage after about 12 days. The newly hatched larvae swim actively for several days before settling to the bottom. Juveniles move rapidly down-river, taking up residence in the freshwater region of the estuary. As adults, white sturgeon move throughout the San Francisco Bay Estuary, occasionally making forays into coastal waters. Currently, white sturgeon in the Sacramento-San Joaquin system represent the southernmost spawning population of the species. Primary threats to the white sturgeon are habitat loss and climate change. Other factors that threaten white sturgeon include entrainment of early life stages into water diversions, contaminants from pollution and terrestrial runoff, and poaching and illegal fishing for meat and eggs. In 2022, a harmful algal bloom was responsible for the deaths of over 850 sturgeon in San Francisco Bay (CDFW 2025).

Occurrence Data and Habitat Suitability

While the study area does not contain suitable spawning habitat for the white sturgeon, the species may occur in estuarine waters within and adjacent to the study area. The CNDDB does not contain any occurrence records of the white sturgeon. However, the species is known to occur in San Francisco Bay, and the iNaturalist database has several research grade records of the species in the vicinity of the study area (iNaturalist 2024).

Potential Project Related Effects

Project construction activities will be confined to upland areas and therefore will not have any direct impacts on the white sturgeon or its habitat. During construction of the project, sediment from the project site could be transported (e.g., via wind or rain) into adjacent aquatic habitats. Whereas some fish species are adversely affected by increased water turbidity, white sturgeon evolved physiologically and behaviorally to survive and reproduce in turbid waters (Gadomski and Parsley 2005). Nevertheless, the project incorporates BMPs that would avoid or minimize sediment transfer into aquatic habitats. The project would provide a long-term indirect benefit to white sturgeon by preventing lead-contaminated soils from discharging into Hoffman Chanel and the San Francisco Bay.

4.3.2 BIRDS

Four special status bird species were determined to have the potential to occur within the study area. These species are discussed below, followed by a discussion of migratory birds protected under the Migratory Bird Treaty Act.

Burrowing Owl (*Athene cunicularia*)

Status, Distribution and Habitat Requirements

The burrowing owl is a California Species of Special Concern. It is a year-round resident throughout much of California, including the Central Valley, San Francisco Bay region, Carrizo Plain, and Imperial Valley. Burrowing owls that nest at higher elevations (e.g., Modoc Plateau) migrate to lower elevations in winter. In addition, migrants from other parts of western North America may augment resident lowland populations in winter (Shuford and Gardali 2008).

Throughout their range, burrowing owls require habitats with three basic attributes: (1) open, well-drained terrain; (2) short, sparse vegetation generally lacking trees; and (3) underground burrows or burrow-like structures (e.g., culverts) (Klute et al. 2003, Shuford and Gardali 2008). The burrowing owl is well adapted to open, relatively flat expanses (CDFG 2012). Grassland, shrub steppe, and desert are naturally occurring habitat types used by the species (CDFG 2012).

Once considered “abundant” and “common” throughout California, the burrowing owl has been declining since at least the 1940s (Shuford and Gardali 2008, Wilkerson and Siegel 2010). Analyses of regional patterns for breeding populations of burrowing owls have detected declines both locally in their central and

southern coastal breeding areas, and statewide where the species has experienced modest breeding range retraction. In California, threat factors affecting burrowing owl populations include habitat loss, degradation and modification, and eradication of ground squirrels resulting in a loss of burrows required for nesting, protection from predators, and shelter (CDFG 2012).

Occurrence Data and Habitat Suitability

Scientific evidence indicates burrowing owls no longer breed in western Contra Costa or western Alameda County (Townsend and Lenihan 2003, Wilkerson and Siegel 2010, CNDDB 2024). Abundant human activity and free roaming dogs preclude burrowing owls from using the grassland habitat within the study area (Thomsen 1971, Cavalli et al. 2016, iNaturalist 2024, eBird 2024). The rip rap along the south end of the study area (along the Hoffman Channel) is protected by fencing, which protects the area from dogs and other predators. Burrowing owls are commonly observed overwintering in this area and in burrows and rip rap adjacent to San Francisco Bay (iNaturalist 2024, eBird 2024). These birds, which occur immediately adjacent to the dog park, are acclimated to human and dog activity near their burrows.

The iNaturalist database has 51 research grade occurrences of the species within the study area; however, many of these occurrence records are of the same birds, all of which were overwintering individuals detected between October and March. Based on the records in the iNaturalist and eBird databases, only one or two owls overwinter in the study area each year. There is one CNDDB occurrence within the assessment area; it is from 2004 and is located 0.6 miles northwest of the study area in a waste clean-up area in Richmond (EONDX #72456).

Potential Project Related Effects

The project could result in the temporary loss of potential foraging habitat for burrowing owls that use the study area for overwintering. Direct impacts to burrows used by burrowing owls are not anticipated because the owls use burrows in the rip rap, which will not be impacted by construction activities. The wintering burrowing owls that occur in the study area are acclimated to human activity (and noise) in the vicinity of their burrows. However, construction equipment and sustained human activity in the vicinity of burrows may constitute a novel source of disturbance to the owls. This could indirectly impact burrowing owls and either cause them to flush from their burrows or abandon the burrows completely. This could make the owls more susceptible to predation or force them into lower quality habitat. These impacts would be potentially significant, but would be reduced to less-than-significant levels through implementation of mitigation measures BIO-1 (Worker Environmental Awareness Training), BIO-5 (Burrowing Owl Mitigation), and BIO-8 (Biological Monitoring).

Northern Harrier (*Circus cyaneus*)

Status, Distribution and Habitat Requirements

The northern harrier is a California Species of Special Concern. It is a year-round resident of coastal California and the Central Valley (MacWhirter and Bildstein 1996). However, the species occurs more broadly and in much greater numbers during migration and winter than during the breeding season (Shuford and Gardali 2008). Northern harriers appear to be nomadic, ranging widely, both within the breeding season and across years (Shuford and Gardali 2008).

Northern harriers breed and forage in a variety of open (treeless) habitats that provide adequate vegetative cover; an abundance of suitable prey (mostly small mammals); and scattered hunting, plucking, and lookout perches such as shrubs or fence posts. In California, such habitats include freshwater marshes, brackish and saltwater marshes, wet meadows, weedy borders of lakes, rivers and streams, annual and perennial grasslands, weed fields, ungrazed or lightly grazed pastures, some croplands, sagebrush flats, and desert sinks (MacWhirter and Bildstein 1996). Harriers nest on the ground, mostly within patches of dense, often tall, vegetation in undisturbed areas (MacWhirter and Bildstein 1996). The species is highly susceptible to

disturbance; human activity (including walking) and off-leash dogs are a significant source of nest failures (Shuford and Gardali 2008). The primary threats to breeding harriers are loss and degradation of nesting and foraging habitat, nest failure from human disturbance, predator-control projects, agricultural practices, and unnatural predation pressure (Shuford and Gardali 2008).

Occurrence Data and Habitat Suitability

The study area does not provide potential nesting habitat for northern harriers due to the lack of suitable nesting substrates and the abundance of humans and dogs. Potential nesting habitat for the northern harrier is present within Hoffman Marsh adjacent to the study area. There are three CNDDB occurrences of the species within the assessment area, the nearest of which is was located 2.3 miles south in the McLaughlin Eastshore State Park in 2002 (EONDX #46866). The iNaturalist database has three research grade occurrences of the species within the vicinity of the study area, including one occurrence within the study area in December 2023 (iNaturalist 2024). The eBird database has multiple records of the species occurring within the vicinity of the study area, including one within the study area in November 2021 (eBird 2024). These occurrences were outside of the nesting season, indicating the birds observed were not nesting.

Potential Project Related Effects

The project would not have any direct impacts on the northern harrier because the study area does not provide potential nesting habitat for the species. However, noise and human activity associated with the project could interfere with reproductive efforts or cause northern harriers to abandon their nests if any nests are located in portions of Hoffman Marsh near the study area. This indirect impact is potentially significant, but would avoided through implementation of mitigation measures BIO-1 (Worker Environmental Awareness Training), BIO-4 (Nesting Bird Mitigation), BIO-8 (Biological Monitoring), and NOI-1 (Noise Mitigation).

Alameda Song Sparrow (*Melospiza melodia pusillula*)

Status, Distribution and Habitat Requirements

The Alameda song sparrow is a California Species of Special Concern. It is one of four subspecies of the wide-spread song sparrow (*Melospiza melodia*) and is distinguished from other subspecies of song sparrow by its morphology, plumage, and molecular markers. The Alameda song sparrow is endemic to California, where it is restricted to tidal salt marshes, primarily on the fringes of the south San Francisco Bay. The subspecies ranges from the south of Richmond, Contra Costa County, to Palo Alto and Alviso, Santa Clara County; the largest concentration of the subspecies occurs in the tidal salt marshes near Dumbarton Point, Alameda County. The Alameda song sparrow prefers tidally influenced habitat. For nesting, it requires upper marsh vegetation so that nests remain dry during all but the highest tides. Exposed ground is required for foraging. The subspecies tends to occur most densely along the upland edges of large marshes. Primary threats to the subspecies include habitat loss, and the loss of native marsh habitat to invasive cord grass (*Spartina* spp.) (Shuford and Gardali 2008). The subspecies begins breeding in April and is often triple-brooded (Baicich and Harrison 2005).

Occurrence Data and Habitat Suitability

Suitable tidal marsh habitat for Alameda song sparrows is present within the study area at the eastern edge of the Point Isabel Regional shoreline (i.e., along the marsh-upland ecotone within the project buffer zone) and adjacent to the study area in Hoffman Marsh. There are 10 CNDDB occurrences of the species within the assessment area, the nearest of which is from Hoffman Marsh in 1940 (EONDX #60988). There are no occurrences of the *Melospiza melodia pusillula* subspecies in the iNaturalist or eBird databases, probably because it is very difficult to distinguish the Alameda song sparrow from other song sparrow subspecies. However, both databases have records of *M. melodia* occurring within the study area, including during the

breeding season. Based on the occurrence of these observations within the range of the Alameda song sparrow, some of these observations may be of the *pusillula* subspecies.

Potential Project Related Effects

The project would not have any direct impacts on the Alameda song sparrow because no construction activities will occur in areas containing potential nesting habitat for the subspecies. However, noise and human activity associated with construction of the project could interfere with reproductive efforts or cause Alameda song sparrows to abandon their nests if any nests are located near the eastern edge of the study area in potential habitat at Hoffman Marsh. This indirect impact is potentially significant, but would be reduced to a less-than-significant level through implementation of mitigation measures BIO-1 (Worker Environmental Awareness Training), BIO-4 (Nesting Bird Mitigation), BIO-8 (Biological Monitoring), and NOI-1 (Noise Mitigation).

California Ridgway's Rail (*Rallus obsoletus obsoletus*)

Status, Distribution and Habitat Requirements

The California Ridgway's rail is a federally and state listed endangered species. The greatest historical and present threat to the California Ridgway's rail is the loss, fragmentation, and degradation of tidal marsh habitat (USFWS 2013a). Formerly known as the California clapper rail (*Rallus longirostris obsoletus*), the California Ridgway's rail was once abundant in all tidal and brackish marshes in San Francisco Bay, as well as larger tidal estuaries from Marin County to San Luis Obispo County. The species is now restricted to the San Francisco Bay Estuary, where it inhabits tidal and brackish marsh communities with unrestricted tidal flows. California Ridgway's rails utilize the lower, middle, and high marsh zones for foraging and refugial habitat, especially small tidal channels with banks covered in dense vegetation. Ridgway's rails construct well concealed nests on an elevated platform surrounded by vegetation and often on *Sarcocornia pacifica* or *Grindelia* spp. in the upper-middle tidal marsh plain or high tidal marsh zone (USFWS 2013a). In the northern portion of its range, abundance of the species within tidal marsh habitat has been found to be positively correlated with tidal channel density or the total channel length per unit area of marshland. Habitat requirements for wintering are the same as for breeding (USFWS 2013b). The breeding period of the California Ridgway's rail is prolonged. Pair bonding and nest building are generally initiated by mid-February. Nesting may begin as early as late February or early March, and extends into August in the North Bay. There appears to be a break in nesting between mid-May through late June in the North Bay, a period that corresponds to the highest summer tides. Two peaks in nesting activity occur: a greater peak between mid-April and early-May and a lesser peak between late-June and early-July. The second nesting peak has been interpreted as attempts by late nesters, second attempts after initial nesting failures, or second broods (USFWS 2013a).

Ridgway's rails are diurnally active for 75 to more than 90 percent of the day. Activity peaks in the early morning and late evening, when rails forage in marsh vegetation in and along creeks and mudflat edges. Rails often roost at high tide during the day. During the non-breeding season, much of the day is spent roosting and preening (USFWS 2013a).

Occurrence Data and Habitat Suitability

While the small salt marsh patches within the study area are likely too close to human activity and lack the suitable cover for California Ridgway's rail nest sites, suitable nesting and foraging habitat is present in salt marsh vegetation within Hoffman Marsh adjacent to the eastern portion of the study area. The marsh-upland ecotone in the study area is too steep, narrow, and weedy to be high quality refugia for Ridgway's rails. Nevertheless, Ridgway's rails could enter the eastern edge of the study area while seeking upland refugia during extreme high tide events.

There are 23 CNDDB occurrences of the species within the assessment area, including an occurrence within Hoffman Marsh in 2019 (EONDX #30340). The species was observed by Nomad biologists Scott Cashen and Meghan Bishop during biological monitoring for the Hoffman Bridge repairs that occurred in December 2018 and January 2019. Olofson Environmental, Inc. has conducted annual surveys for Ridgway's rails and black rails since 2006 for the Invasive Spartina Project. During annual surveys in 2022, Olofson biologists confirmed occupancy of at least three Ridgway's rails in Hoffman Marsh between January 15 and April 15 (Olofson Environmental, 2023a). No Ridgway's rails were detected during the 2023 surveys and only one individual was detected in 2021 (Olofson Environmental, 2022, 2023b). The iNaturalist database has several research grade occurrence records of the species, including three occurrences within 200 feet of the study area from 2019 and 2020 (most recent OID #62374849) (iNaturalist 2024). The eBird database has six occurrence records of the species in the study area between 2015 and 2023 (eBird 2024).

Potential Project Related Effects

The project would not have any direct impacts on habitat for the California Ridgway's rail because no ground disturbance or vehicle activities will occur in salt marsh habitat or the marsh-upland ecotone. During extreme high tide events, rails could seek cover in the vicinity of the San Francisco Bay Trail (a short segment of which will be used as an access route for construction vehicles). If this occurs, construction vehicles could strike rails or cause them to flush from cover, making them more susceptible to predation. This potentially significant impact would be avoided through implementation of mitigation measure BIO-6 (California Ridgway's Rail and Salt Marsh Harvest Mouse Mitigation).

Ridgway's rails vary in their sensitivity to human disturbance, both individually and between marshes (USFWS 2013a). Ridgway's rails have been documented nesting in areas with high levels of disturbance, including areas adjacent to trails, levees, and roads heavily used by pedestrian and vehicular traffic. In contrast, direct human-caused disturbance is known to occur at some locations. For example, Albertson (1995) documented a rail abandoning its territory shortly after a repair crew worked on a nearby transmission tower. California Ridgway rail reactions to disturbance may vary with season; however, both breeding and nonbreeding seasons are critical times. During the breeding season, human disturbance primarily affects survival of eggs and chicks, while during the winter (nonbreeding season), disturbance may cause adult mortality, particularly during high tide and storm events when rails are most vulnerable to predators (USFWS 2013a).

The USFWS has determined that noise and human activities within 700 feet of a Ridgway's rail nest (or activity center of a vocalizing rail) could impact the species (e.g., USFWS 2011). Based on information provided in eBird records and Nomad's personal observations, the Ridgway's rails that occur in Hoffman Marsh appear to be relatively habituated to human activity. To reduce the potential for project-related disturbance, project construction activities would not occur in the early morning and late evening, when Ridgway's rails are most active (physically and vocally). Nevertheless, noise and human activity associated with construction of the project could significantly impact rails by affecting essential breeding, foraging, or sheltering activities. Potentially significant impacts to California Ridgway's rails will be reduced to less-than-significant levels through implementation of mitigation measures BIO-1 (Worker Environmental Awareness Training), BIO-2 (Delineation of Sensitive Resources), BIO-6 (California Ridgway's Rail and Salt Marsh Harvest Mouse Mitigation), BIO-8 (Biological Monitoring), and NOI-1 (Noise Mitigation).

Migratory Birds

In addition to the special status bird species discussed above, numerous bird species that have no special status may also occur within the study area. Protection is afforded to these species by the Migratory Bird Treaty Act (16 U.S.C. 703-712; MBTA) administered by the U.S. Fish and Wildlife Service (Division of Migratory Bird Management), which makes it unlawful, unless expressly authorized by permit pursuant to

federal regulations, to "pursue, hunt, take, capture, kill, attempt to take, capture or kill, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export at any time, or in any manner, any migratory bird, or any part, nest, or egg of any such bird." This includes direct and indirect acts, with the exception of harassment and habitat modification, which are not included unless they result in direct loss of birds, nests or eggs. In addition, the Migratory Bird Treaty Reform Act (Division E, Title I, Section 143 of the Consolidated Appropriations Act, 2005, PL 108–447; MBTRA), excludes all non-native migratory birds. It defines a native migratory bird as a species present within the U.S. and its territories as a result of natural biological or ecological processes. Birds receive further protection under state law through California Fish and Game Code §3503, prohibiting the take, possession, or needless destruction of the nest or eggs of any bird; §3503.5 prohibiting the take, possession, or needless destruction of any nests, eggs or birds in the orders Falconiformes (new world vultures, hawks, eagles, ospreys and falcons, among others) or Strigiformes (owls); §3511 prohibiting the take or possession of fully protected birds; and §3513 prohibiting the take or possession of any migratory nongame bird or part thereof as designated in the federal MBTA.

Habitat Suitability

Birds protected under the MBTA have the potential to nest in the study area. However, the abundance of nesting bird in the study area is probably very low. The study area provides limited nesting substrates for birds that nest in trees and shrubs. In addition, most ground-nesting species either avoid the study area or fail to successfully reproduce due to trampling and other types of disturbance associated with humans and dogs.

Potential Project Related Effects to Migratory Birds

Construction activities have the potential to directly impact nesting birds through trampling, vehicle strikes, and vegetation removal. Because the existing dog park will be closed during construction of the project, there will be less human activity at the project site compared to currently existing conditions. However, human activity and noise associated with the project could indirectly impact birds, causing nest abandonment or disruption of brooding behaviors essential to viability of eggs and survival of chicks. The project's direct and indirect impacts on migratory birds are potentially significant but would be mitigated to less-than-significant levels through implementation of mitigation measures BIO-1 (Worker Environmental Awareness Training), BIO-4 (Nesting Bird Mitigation), BIO-8 (Biological Monitoring), and NOI-1 (Noise Mitigation).

4.3.3 MAMMALS

One special status mammal species was determined to have the potential to occur within the study area. This species is discussed below.

Salt Marsh Harvest Mouse *(Reithrodontomys raviventris)*

Status, Distribution and Habitat Requirements

The salt marsh harvest mouse is listed as endangered under FESA and CESA. The principal reason for listing the salt marsh harvest mouse was habitat loss. There are two subspecies: the northern salt marsh harvest mouse (*Reithrodontomys raviventris halicoetes*), which lives in the marshes of the San Pablo and Suisun bays, and the southern salt marsh harvest mouse (*R. r. raviventris*), which is found in the marshes of Corte Madera, Richmond and South San Francisco Bay. The salt marsh harvest mouse is generally restricted to saline or subsaline marsh habitats around the San Francisco Bay Estuary and, with some exception, mixed saline or brackish areas in the Suisun Bay area. The basic habitat of the salt marsh harvest mouse is pickleweed-dominated vegetation (*Sarcocornia*). In natural systems, salt marsh harvest mice typically occur in the middle and upper portions of tidal marshes. However, salt marsh harvest mice may occur in grasslands adjacent to marsh habitat, but only if the grassland provides suitable cover. Although

the species is considered a strong swimmer, upland refugia is an essential habitat component during high tide events. During these events, salt marsh harvest mice remain in their home ranges and will swim or cling to taller emergent portions of vegetation or floating debris (USFWS 2013a). Mice in flooded areas or at the upper edges of marshes are especially vulnerable to predation by avian predators (e.g., herons, egrets, gulls and raptors), while mice in the wetland-upland transition zone are vulnerable to terrestrial predators (e.g., foxes, free-roaming cats, skunks, and raccoons). Although the species is active during daylight hours (especially on warmer days), it is primarily a nocturnal species with most activity beginning about half an hour after sunset and stopping about half an hour before sunrise (USFWS 2013a).

Occurrence Data and Habitat Suitability

Potential habitat for salt marsh harvest mouse occurs within the study area at the eastern edge of the Point Isabel Regional shoreline where pickleweed is present. Potential habitat is also present in pickleweed within Hoffman Marsh adjacent to the eastern portion of the study area and it is possible that the species may occur within the study area in pickleweed or in habitat immediately adjacent to the marsh. Salt marsh harvest mouse may also enter the study area from Hoffman Marsh while seeking upland refugia during high tide events. The project impact area, however, does not contain potential habitat for the salt marsh harvest mouse (even during high tide events) due to the lack of cover and the relatively steep, open banks that occur between the marsh and the project site. No salt marsh harvest mice were detected during trapping surveys at Hoffman Marsh in 1976 and 1990 (H.T. Harvey & Associates 2001). We were unable to find evidence that any other salt marsh harvest mouse surveys have been conducted in Hoffman Marsh. There are 13 CNDDB occurrences of the species within the assessment area, the nearest of which is from 1986 and located 4.5 miles northwest of the study area in Wildcat Creek Marsh (EONDX #14555).

Potential Project Related Effects

Salt marsh harvest mice would not be directly impacted by the project because there is no potential habitat for the species within the project impact area. The USFWS has issued Biological Opinions for numerous projects potentially impacting the salt marsh harvest mouse. Several of these Biological Opinions state that loud noise or the presence and movement of people and heavy equipment near salt marsh harvest mouse habitat may disturb mice by altering foraging, sheltering, and dispersal activities. While these impacts are plausible, they have not been studied, nor is there any scientific information suggesting noise and human activity near salt marsh harvest mouse habitat are significant threats to the species (*see* USFWS 2021). The existing dog park will be closed during construction of the project. As a result, human activity near marsh habitat will be less than the currently existing conditions. The project incorporates mitigation measure NOI-1 to minimize potentially significant impacts associated with construction noise. For these reasons, impacts on the salt marsh harvest mouse due to noise and human activity would be less than significant.

Ground disturbing activities could result in injury or mortality of individual salt marsh harvest mice if mice are forced into the project impact area during extreme high tide event. This potentially significant impact will be avoided through implementation of mitigation measures mitigation measures BIO-1 (Worker Environmental Awareness Training), BIO-6 (California Ridgway's Rail and Salt Marsh Harvest Mouse Mitigation), and BIO-8 (Biological Monitoring).

Section 5. CONCLUSIONS, IMPACT ANALYSIS, AND AVOIDANCE AND MINIMIZATION MEASURES

5.1. CONCLUSIONS

5.1.1 CRITICAL HABITAT

The study area is within the San Francisco Bay Critical Habitat Unit for the southern DPS of the green sturgeon and the San Francisco Bay, San Pablo Bay, Suisun Bay and Delta Critical Habitat Unit for the Sacramento River winter-run Chinook salmon where the study area extends into the waters of the San Francisco Bay. No construction work will occur in aquatic habitats and therefore the project would not have any direct effects on critical habitat for the green sturgeon or Chinook salmon. The project incorporates BMPs and mitigation measures to prevent sediment transfer or other potentially significant indirect impacts to fish habitat in San Francisco Bay. Overall, the project would provide a long-term benefit to critical habitat by preventing the lead-contaminated soils at the site from entering San Francisco Bay.

5.1.2 SENSITIVE NATURAL COMMUNITIES

Although not considered a sensitive natural community by CDFW (2023) the areas mapped as intertidal zone and tidal zone are treated as sensitive natural communities as they are potentially jurisdictional waters regulated by the Army Corps of Engineers and the California State Water Resources Control Board.

There will be no impacts to pickleweed mats (a sensitive natural community) during project construction because the community does not occur within the project footprint. Mitigation measures BIO-1 (Worker Environmental Awareness Training), BIO-2 (Delineation of Sensitive Resources), and BIO-8 (Biological Monitoring) would prevent construction equipment and personnel from inadvertently entering marsh habitat where the pickleweed mats are located. In addition, the project incorporates BMPs and mitigation measures to prevent sediment transfer, invasive plants, and other potentially significant indirect impacts to sensitive natural communities.

5.1.3 SPECIAL STATUS PLANT SPECIES

Based on a review of available databases and literature (USFWS 1999, 2014, 2022; CDFW 2024a, 2024c, 2024d; CNPS 2024; Baldwin et al. 2012); familiarity with the regional flora; and presence of specific vegetation types, no special status plant species were determined to have the potential to occur in the study area. Therefore, the project would have no impact on special status plants.

5.1.4 SPECIAL STATUS WILDLIFE

Based on the field investigations, review of available databases and literature, familiarity with local fauna, and on-site habitat suitability, nine special status wildlife species were determined to have the potential to occur within the study area. They are: obscure bumble bee, Crotch bumble bee, Sacramento River Winter-run Chinook salmon, green sturgeon, burrowing owl, northern harrier, Alameda song sparrow, California Ridgway's rail, and salt marsh harvest mouse. Project impacts on these species would be reduced to less than significant levels through implementation of the BMPs and mitigation measures recommended herein.

5.1.5 WILDLIFE HABITAT AND MOVEMENT CORRIDORS

The project site is heavily disturbed, surrounded by urban land uses, and serves as an off-leash dog park. These variables preclude the site from functioning as a landscape-level movement corridor for terrestrial wildlife. Due to the absence of potential habitat, the project site does not function as a movement corridor for any special-status species. The project site may overlap the home range of mesopredators (e.g., striped skunk, racoon) and other wildlife species commonly found in urban environments. Project construction activities could have temporary impacts on these species, but the impacts would not be more severe than impacts associated with the existing dog park. For these reasons, the project would not have a significant impact on wildlife movement corridors.

5.2. IMPACT ANALYSIS

5.2.1 INVASIVE PLANTS

Invasive plants threaten biodiversity, alter ecosystem processes (Vitousek 1990, Theoharides and Dukes 2007), and can cause extinction of native species (Gurevitch and Padilla 2004). Indeed, next to habitat loss, invasive species pose the greatest threat to the nation's biodiversity and natural resources (U.S. Department of the Interior 2013).

Three things are required for an invasive plant to become established in an area: (1) a vector for transporting the plant or its propagules from one place to another; (2) suitable conditions for invasive plant colonization; and (3) a suitable environment for the invasive plant to survive, reproduce, and spread. The best defense against invasive plants is maintenance of native plant cover (California Department of Food and Agriculture 2005).

Construction sites can be highly susceptible to invasive plant colonization. Construction vehicles and equipment are common vectors for transporting invasive plant propagules from one place to another. In addition, soil and vegetation disturbance associated with construction activities creates suitable conditions for the establishment of invasive plants (Cal-IPC 2012). If an invasive plant propagule is transported to the project site (e.g., by construction equipment), the plant could become established at the site and subsequently spread into adjacent habitats (e.g., Hoffman Marsh). Although the project site would temporarily provide conditions conducive to invasive plant colonization, all areas that are disturbed by project construction activities would subsequently be hydroseeded or covered by native plantings, thereby reducing the potential for establishment and survival of invasive plants. As a result, impacts associated with invasive plants would be less than significant.

5.2.2 RIPARIAN HABITAT OR OTHER SENSITIVE NATURAL COMMUNITY

The *Salicornia pacifica* Herbaceous Alliance (pickleweed mats) and greater Hoffman Marsh comprise a sensitive natural community. The project does not involve ground disturbance activities within the sensitive natural community. However, the community could be directly impacted if construction equipment or personnel inadvertently stray into the marsh. In addition, the sensitive natural community could be indirectly impacted through accidental discharge of chemicals (e.g., equipment fuel and oil) or transport of loose sediment (via wind or rain) from the project site into the marsh. These impacts are potentially significant, but would be mitigated to less-than-significant levels through implementation of the project's BMPs, and through implementation of mitigation measures BIO-1 (Worker Environmental Awareness Training), BIO-2 (Delineation of Sensitive Resources), and BIO-8 (Biological Monitoring).

5.2.3 WETLANDS OR OTHER JURISDICTIONAL WATERS

The Tidal and Intertidal Zones in the study area are jurisdictional waters regulated by the Army Corps of Engineers and the California State Water Resources Control Board. The project does not involve ground disturbance or any other work activities within jurisdictional waters. Rip rap and relatively steep banks are located between project work areas and jurisdictional waters. These features would prevent construction equipment and personnel from inadvertently straying into the jurisdictional waters. For these reasons, the project would not have any direct impacts on jurisdictional waters.

The project would have a beneficial impact on jurisdictional waters by eliminating (or significantly reducing) the lead-contaminated soils that have been entering the perimeter drainage ditch, Hoffman Channel, and San Francisco Bay. However, the project could negatively impact jurisdictional waters through accidental discharge of construction-related chemicals (e.g., equipment fuel and oil) or transport of loose sediment (via wind or rain) from the project site into jurisdictional waters. These indirect impacts are potentially significant but would be mitigated to a less-than-significant level through implementation of the project's BMPs, and through implementation of mitigation measures BIO-1 (Worker Environmental Awareness Training), BIO-2 (Delineation of Sensitive Resources), and BIO-8 (Biological Monitoring).

5.2.4 PROJECT CONSTRUCTION NOISE ON WILDLIFE

The effects of noise on wildlife depend on the nature of the noise stimulus (Francis and Barber 2013). Chronic and frequent noise can impair an animal's sensory capabilities, thereby masking biologically relevant sounds used for communication, detection of threats or prey, and spatial navigation (Ortega 2012, Francis and Barber 2013). Intermittent and unpredictable "impulse" noise stimuli that startle animals are perceived as threats and generate self-preservation responses such as fleeing or hiding (Wright et al 1020, Francis and Barber 2013). Most noise-related impacts appear to involve behavioral responses across four categories: (1) changes in temporal patterns, (2) alterations in spatial distributions or movements, (3) decreases in foraging or provisioning efficiency coupled with increased vigilance and anti-predator behavior, and (4) changes in mate attraction and territorial defense (Francis and Barber 2013). These disturbance-, distraction-, and masking-mediated behavioral changes could directly impact individual survival and fitness or lead to physiological stress that may then compromise fitness. Irrespective of whether the noise is perceived as a threat or masks biologically relevant sounds, increases in noise intensity (loudness or amplitude) increase the severity of the impact(s).

Several metrics can be used to characterize the noise environment. Time-averaged values, such as equivalent continuous sound level (Leq), can be extremely informative to describe sounds that are chronic or frequent; however, Leq measurements do not properly characterize loud, infrequent sounds. These impulse sounds are best characterized by the metric Lmax, which captures the highest instantaneous sound level measured during a specified period.

Wildlife response to noise varies among taxa and species. For example, an impulse noise that causes a bird to flush from its nest may have no measurable effect on a reptile. Among birds, some species tolerate noisy environments and have learned to communicate by adjusting their song frequency levels, whereas other species will avoid the noisy environment altogether. Finally, there may be variance at the individual level, whereby some individuals tolerate the noise stimuli, but others do not.

The existing level of ambient noise is a critical variable in the effect additional anthropogenic noise has on wildlife (Dooling and Popper 2007, Barber et al. 2010). In its analysis of the impacts of human disturbance on the California Ridgway's rail and salt marsh harvest mouse, the USFWS determined that significant impacts to these species would occur if project noise levels in marsh habitat either: (1) exceeded 80 decibels (dBA), or (2) exceeded the ambient noise level by 3 dBA (USFWS 2013a, 2020a). The first threshold was derived from a report prepared by the Transportation Noise Control Center in 1997. Subsequent research

suggests that impacts occur at much lower noise levels, and that a 60-dBA threshold would be appropriate for birds and mammals in an area with relatively high ambient noise levels (e.g., Barber et al. 2010, Dooling and Popper 2016, Shannon et al. 2016). Therefore, we used the USFWS's thresholds to assess noise impacts from the proposed project, except the first threshold was lowered to 60 dBA.

PlaceWorks conducted a Noise and Vibration Technical Study ("noise study") for the proposed project (see PlaceWorks 2025 in Appendix A to the IS/MND). Short-term (15-minute) noise measurements were taken at six locations near the project site. Five of these locations were along the western edge of Hoffman Marsh. In addition, long-term (24-hour) noise measurements were taken at three locations that were both near the project site and the western edge of Hoffman Marsh. Data from these nine sampling locations were used to characterize ambient noise conditions and assess potential impacts to special status animals that may occur in Hoffman Marsh. According to the noise study:

- Single-event haul (dump) truck trips associated with the project would generate intermittent, maximum noise levels of approximately 77 dBA (Lmax) at 50 feet (from the truck). Project haul trips would not exceed 60 dBA Leq or result in a 3 dBA increase over the existing Leq conditions at any of the short-term noise measurement locations.

- Without mitigation, project construction noise levels would range from 54.5 dBA Leq to 74.9 dBA Leq at the western edge of Hoffman Marsh. The increase over ambient noise due to project construction activities would range from 1.0 dBA to 8.5 dBA, depending on the specific location and type of construction activity. This increase above ambient conditions would result in a potentially significant impact on special status animals in Hoffman Marsh. Installation of a temporary noise barrier, as described in the project's noise study (Placeworks 2025), would reduce construction noise impacts to a level considered less than significant.

- Maximum ambient noise levels (Lmax) at the eight sampling locations near Hoffman Marsh ranged from 64.1 dBA (at location ST-1) to 82.1 dBA (at location LT-2). Maximum noise levels (Lmax) due to construction of the project could reach 69-73 dBA at these locations.

Although the project's haul trucks would generate maximum noise levels comparable to ambient conditions, it would greatly increase the frequency and abundance of these loud impulse noise events. In addition, chronic noise levels at Hoffman Marsh would exceed the 60-dBA threshold when construction activities are occurring in the eastern portion of the project site, and they could exceed ambient conditions by more than 3 dBA (i.e., the second threshold). These impulse and chronic noise events associated with construction of the project could have a significant impact on the Ridgway's rail and other special status animals in Hoffman Marsh. Installation of a temporary noise barrier, as described in the project's noise study (Placeworks 2025), would reduce construction noise impacts to a level considered less than significant.

5.2.5 WILDLIFE MOVEMENT CORRIDORS

Scientific evidence, the geographic setting of the study area, and the surrounding land uses all indicate that the study area does not function as a landscape-level corridor or linkage for wildlife. Any impacts to wildlife use of the study area (e.g., due to construction activities) would be temporary; wildlife would be able to continue utilizing the study area after project construction is complete. Wildlife movement with potential to be temporarily affected would involve common species such as Virginia opossum (*Didelphidae virginiana*), racoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*). Due to the absence of potential habitat, the project site does not function as a movement corridor for special-status species. For these reasons, project impacts on wildlife movement corridors would be less than significant.

5.2.6 CONFLICT LOCAL POLICIES OR ORDINANCES PROTECTING BIOLOGICAL RESOURCES

The project site is an existing closed landfill that is used as an off-leash dog park; it would remain a closed landfill and off-leash dog park after project completion. The project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. As a result, the project would have no impacts on (conflicts with) local policies or ordinances protecting biological resources.

5.2.7 CONFLICT WITH THE PROVISIONS OF AN ADOPTED HABITAT CONSERVATION PLAN, NATURAL COMMUNITY CONSERVATION PLAN, OR OTHER APPROVED LOCAL, REGIONAL, OR STATE HABITAT CONSERVATION PLAN

The project site is not located within an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. No impact would occur.

5.3. AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

Nomad recommends the subsequent mitigation measures to avoid and minimize potentially significant impacts on sensitive biological resources. No impacts to aquatic resources are expected, and therefore no permits from the U.S. Army Corps of Engineers or Regional Water Quality Control Board are anticipated to be required.

5.3.1 DEFINITIONS

A *qualified biologist* shall be defined as an individual with: (a) a degree in wildlife biology (or closely related field); (b) the ability to identify, by sight and sound, the special status species that have the potential to occur in project area; (c) knowledge of the life history and behavior of the special status species that have the potential to occur in the project area; and (d) professional experience with biological monitoring at construction sites. Unless specified otherwise, the qualified biologist shall function as the onsite *biological monitor.*

A *qualified avian biologist* shall be defined as an individual with the following expertise: (a) the ability to identify, by sight and sound, the avian species that have the potential to occur in project area; (b) knowledge of the life history and behavior of the avian species that have the potential to occur in project area; and (c) at least 10 weeks of field experience conducting nesting bird surveys (nest searches).

A *bumble bee biologist* shall be defined as an individual with at least two years of experience working with and identifying California bumble bees and who independently holds a Memorandum of Understanding (MOU) in accordance with F&G Code 2081(a) and a Scientific Collecting Permit (SCP) for bumble bees.

A *bumble bee monitor* shall be defined as an individual who has successfully completed at least one CDFW-approved California bumble bee training course.

5.3.2 MEASURES

BIO-1: Worker Environmental Awareness Training

A *qualified biologist* shall conduct an environmental awareness training session for all work crews and contractors. The training session shall be conducted prior to initiating any work on the Project, and upon the arrival of any new workers. The training shall include information on the sensitive biological resources that occur (or could occur) at the project site; the environmental regulations pertaining to the project; the locations of sensitive areas or exclusion zones; the role and authority of the biological monitor and other project members; and the project's BMP's and mitigation measures. Construction personnel will be

informed that noise and human activity in the vicinity of Hoffman Marsh shall be confined to the minimum level necessary to complete the project (e.g., workers should not congregate near the marsh during breaks). The qualified biologist shall maintain a record of all personnel that have undergone the environmental awareness training.

BIO-2: Delineation of Sensitive Resources

Prior to the start of construction activities, a qualified biologist shall use flagging or temporary fencing to demarcate aquatic features, pickleweed mats, and other sensitive resource areas (e.g., Hoffman Marsh) so as to minimize the potential for inadvertent intrusion by construction equipment or personnel. In association with BIO-8 (biological monitoring), the biologist shall conduct regular inspections of the material(s) used to demarcate sensitive resource areas to ensure their integrity (visibility).

BIO-3: Preconstruction Surveys

A *qualified biologist* shall conduct a preconstruction "clearance" survey for wildlife immediately prior to initial construction commencement activities. The purpose of the survey is to minimize potential impacts to common wildlife species; additional surveys (discussed further below) are required to avoid or minimize impacts to special status animals. During the survey, the biologist will thoroughly search areas that will be subject to ground-disturbing activities. If any common (i.e., not special status) wildlife species are detected during the survey, the biologist shall devise a strategy for avoiding impacts (e.g., animal relocation), if, in the biologist's opinion, the animal is unlikely to successfully flee the project impact area once construction begins (e.g., animals with low vagility).

BIO-4: Nesting Birds

Ground disturbance and vegetation removal activities shall be conducted outside of the avian nesting season (which occurs between approximately February 1 – August 31), to the extent practicable.

A *qualified avian biologist* shall conduct a nesting bird survey no more than 7 days prior to the initiation of any construction activities that will occur during the avian nesting season. The nesting bird survey shall include the entire project site and all potential nest substrates within 500 feet of the project boundary. At a minimum, the survey shall occur: (a) in the first 4 hours after sunrise when birds are most active, and (b) when weather conditions are conducive to bird detection (e.g., not during periods of high winds, sustained rain, or heavy fog). Given the size of the survey area, the survey will require multiple site visits, multiple avian biologists, or both. The avian biologist(s) shall employ a variety of nesting searching techniques, as described by Martin and Geupel (1993). These include incidental flushing of an adult from the nest, watching parental behavior (e.g., carrying nest material or food), and systematically searching potential nesting substrates. To prevent damage to marsh vegetation, surveyors shall not enter Hoffman Marsh. Because marsh nesting birds construct well concealed nests that are very difficult the locate, the avian biologist shall use behavioral cues to infer potential nest locations in the marsh. These potential nest locations shall be treated as occupied nests. All nest or potential nest locations detected during the survey shall be recorded with a GPS unit and depicted on a map. If no nests are found within the survey area, no further action is necessary.

The biologist shall use flagging, temporary fencing, or other conspicuous materials to demarcate construction activity exclusion zones (buffers) around all active or potentially active nests (i.e., nests with eggs or young present). The default buffer size shall be 500 feet for raptors and 250 feet for all other bird taxa. However, the avian biologist shall have the authority to increase or decrease the buffer distance(s) based on: (a) the nest location, topography, and cover; (b) an evaluation of the birds' behavior to determine their sensitivity to human disturbance; (c) the specific construction activities that would occur in the vicinity of the nest; and (d) whether the temporary noise barrier shields the nest from construction activities. No

work shall occur within an exclusion zone until the avian biologist has determined that the young have fledged.

BIO-5: Burrowing Owl

During each year of project construction, a qualified biologist shall conduct non-breeding season surveys for burrowing owls according to the survey protocol described in CDFW's *Staff Report on Burrowing Owl Mitigation* (CDFG 2012).

If an occupied burrowing owl burrow is detected during the surveys, or at any other time during construction of the project, the project biologist shall use flagging, temporary fencing, or other conspicuous materials to demarcate construction activity exclusion zones (buffers) around the burrow, if the burrow is located within 150 meters of the project site. The buffer size shall be determined by a qualified biologist taking into consideration existing noise levels, activities in vicinity and / or any noise attenuation and visual screening devices to be installed. Prior to establishing the buffer, the biologist shall monitor the owl's behavior to determine if it has been sensitized to human disturbance. If the owl exhibits signs of being intolerant to human disturbance, the buffer shall be extended to 100 meters (328 feet) or more, depending on the type of construction activities that would occur in the vicinity of the burrow and the individual owl's level of sensitivity. The activity exclusion zone shall be maintained until the biologist determines the owl has vacated the site for the season.

BIO-6: California Ridgway's Rail and Salt Marsh Harvest Mouse

The District shall install a temporary noise barrier at least 16 feet in height along the eastern and northeastern boundaries of the project site, west of the Hoffman Marsh. The barrier shall adhere to the specifications described in MM NOI-1 (*see* PlaceWorks 2025). The barrier shall be installed outside of the Ridgway's rail breeding season (which extends from February to August) and prior to initiating project construction activities. Prior to or during installation of the noise barrier, the barrier shall be modified to prevent avian predators from being able to perch on it. The barrier (and associated perch deterrents) shall be properly maintained and shall not be removed until project construction activities are complete.

Construction activities shall temporarily cease within 50 feet of suitable refugia habitat for the California Ridgway's rail and salt marsh harvest mouse during the 2 hours before and after a predicted extreme high tide event. An extreme high tide event is defined as a tidal event with a high tide peak of greater than 6.5 feet relative to the mean low water line measured at the Golden Gate tidal station.

BIO-7: Bumble Bees

A qualified biologist with demonstrated ability to identify locally occurring bumble bee species shall survey for bumble bees no more than 14 days prior to the commencement of construction activities during the colony active period or the gyne flight season (approximately March through October). The survey shall occur at least two hours after sunrise or two hours before sunset when air temperatures are between 60 °F and 90 °F and there is no rain. The survey area shall include the project boundaries and a surrounding 100-foot buffer area where accessible and suitable habitat is present. The survey duration shall be a minimum of one person-hour of searching per three acres of suitable habitat. At a minimum, the survey methods shall include the following:

- Search areas with flowering plants for foraging bumble bees. Observed foraging activity may indicate a nest is nearby, and therefore, the survey duration shall be increased when foraging bees are present.
- Watch any bumble bees present and observe their flight patterns. Attempt to track their movements between foraging areas and the nest.

- Visually look for nest entrances. Observe burrows, any other underground cavities, logs, or other possible nesting habitat.
- Look for concentrated bumble bee activity.
- Listen for humming of nest colony.
- If bumble bees are observed, attempt to identify the species by taking a picture.
- If foraging bees are present and a nest has not been found, floral resources within the project's disturbance footprint may be carefully removed with hand-held tools to minimize foraging bee presence during project activities. The continuation of bumble bee activity once such floral resources are removed may be an indication that a nest is present.
- The biologist conducting the survey shall record when the survey was conducted, a general description of any suitable foraging habitat/floral resources present, a description of observed bumble bee activity, a description of any vegetation removed to facilitate the survey, and their determination on whether the survey observations suggest a special status bumble bee nest may be present or if construction activities could otherwise harm the species.

If any sign(s) of a bumble bee nest is observed, and if it cannot be established whether the nest is associated with a special status species, then construction shall not commence within 50 feet of that location until it has definitively been determined through an additional survey that the species present is not of special-status, waiting until the colony active season ends, obtaining take authorization, or other appropriate actions to ensure a nest of a special-status bumble bee species is not harmed.

BIO-8: Biological Monitoring

When construction activities are occurring, a qualified biologist shall inspect the site at least twice per week to ensure implementation of, and compliance with, all mitigation measures specified herein, and with the BMPs specified in Section 2a(i) of the MND. If the biologist observes any instances of non-compliance, the biologist will: (a) take immediate actions to rectify the issue, and (b) provide a written report (with recommended remedial actions) to the project team (including the construction contractor's foreman and the District's project manager).

In addition to monitoring construction activity and compliance with mitigation measures and BMPs, the biologist shall:

a) Monitor the behavior and status of birds associated with construction activity exclusion zones (e.g., around burrowing owl burrows or active nest sites). Monitoring shall occur for a duration sufficient to determine the bird's sensitivity to human disturbance. At a minimum, monitoring shall occur during the first 5 days construction activity occurs within 100 feet of the exclusion zone; thereafter monitoring may be reduced to twice per week. If, based on the behavior of the bird, the biologist determines a larger exclusion zone is warranted, the biologist will extend the exclusion zone and immediately inform the construction crew.

b) Search for new bird nests that may have been established since completion of the nesting bird survey. If any new nests are detected, the biologist shall establish a construction activity exclusion zone around the nest, as described in BIO-4.

c) Scan for bumble bees within the project footprint. If any bumble bees are detected, the biologist shall halt any construction activities that could harm (e.g., kill) the bumble bees. If the bumble bees are (or could be) a special status species and a nest is potentially present, MM BIO-7 shall be reinitiated. If the bumbles bees are not a special status species, construction may recommence.

If a previously undetected special status animal species is detected within the construction area, construction shall be halted until the animal leaves the construction area on its own volition. If a special status species is detected outside of the construction area, the biologist shall monitor the behavior and movement of the animal. If the biologist determines the animal might move into the construction area, or could be indirectly impacted by project activities, the biologist shall either halt or modify construction activities to avoid any potential impacts to the animal.

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APPENDIX A LAWS, ORDINANCES & REGULATIONS

Laws, Ordinances & Regulations

FEDERAL REGULATIONS

FEDERAL ENDANGERED SPECIES ACT (FESA)

The Federal Endangered Species Act of 1973, as amended (FESA), was created to "conserve the ecosystems upon which endangered and threatened species depend." The U.S. Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration, National Marine Fisheries Service have authority over projects that may result in a "take" of a species listed as threatened or endangered under the FESA. Under the FESA, plant and wildlife species, including all lower taxa including subspecies and varieties, are listed threatened or endangered based on (A) the present or threatened destruction, modification, or curtailment of their habitat or range, (B) overutilization for commercial, recreational, scientific, or educational purposes, (C) disease or predation, (D) the inadequacy of existing regulatory mechanisms, or (E) other natural or manmade factors affecting their continued existence. FESA listing categories include endangered, threatened and candidates for listing.–FESA provides protection for species listed as endangered, and prohibits the "take" of such species in areas under federal jurisdiction or in violation of state law. A "take" is defined as any action to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Species listed as threatened do not warrant listing as endangered and are not provided the same protection under Section 9; however, USFWS often applies the same protection as authorized by Section 4(d) of the FESA. Section 4(d) also allows for exceptions to the take rule under special circumstances. If a project would result in a take of a federally listed species, either an incidental take permit, under Section 10(a) of the FESA, or a federal interagency consultation under Section 7 of FESA, is required prior to the take. Current inventories published for species listed under the FESA include the *Endangered and Threatened Wildlife and Plant*s (USFWS 1999a), *Endangered and Threatened Wildlife and Plants; Review of Native Species That are Candidates or Proposed for Listing as Endangered or Threatened; Annual Notice of Findings on Resubmitted Petitions; Annual Description of Progress on Listing Actions;* , *Endangered and Threatened Species; Establishment of Species of Concern List, Addition of Species to Species of Concern List, Description of Factors for Identifying Species of Concern, and Revision of Candidate Species List Under the Endangered Species Act* (NOAA 2004).

CLEAN WATER ACT OF 1977

The U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (EPA) have jurisdiction over "Waters of the United States, which include navigable waters of the United States, interstate waters, all other waters where the use or degradation or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries. Waters of the United States include marine waters, tidal areas, and stream channels. Under federal regulations, wetlands are defined as "those areas that are inundated or saturated by surface or groundwater 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 soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" [33 C.F.R. §328.3(b)]. Presently, to be considered a wetland, a site must exhibit three criteria: hydrophytic vegetation, hydric soils, and wetland hydrology existing under the "normal circumstances" for the site.

Wetlands that are non-navigable, isolated, and intrastate only may not be subject to USACE jurisdiction under Section 404 of the CWA, pursuant to the "SWANCC" decision, *Solid Waste Agency of Northern Cook County vs. United Stated Army Corps of Engineers* (2001) 531 U.S. 159. Although isolated wetlands may not be subject to USACE jurisdiction under Section 404, they are considered "waters of the State" under California's Porter-Cologne Water Quality Control Act (Cal. Water Code §§ 13020, et seq.) and, as

such, are subject to regulation by Regional Water Quality Control Boards (RWQCB). There are nine RWQCBs under the State Water Resources Control Board.

Policies regulating the loss of wetlands generally stress the need to compensate for wetland acreage losses by creating wetlands from non-wetland habitat on at least an acre-for-acre basis. That is, mitigation requiring a no-net-loss of wetland functions and values is typically required. Projects that cause the discharge of dredged or fill materials in Waters of the United States require permitting by the USACE. Actions affecting small areas of jurisdictional Waters may qualify for a Nationwide Permit, provided conditions of the permit are met (such as avoiding impacts to threatened or endangered species or to important cultural sites). Projects that do not meet the Nationwide Permit conditions, or projects that disturb a larger area, require an Individual Permit. The process for obtaining an Individual Permit requires a detailed alternatives analysis and development of a comprehensive mitigation/monitoring plan.

Section 401 of the Clean Water Act is discussed below.

WATERS OF THE UNITED STATES

"Waters of the United States", which includes "wetlands" and "other waters", are defined by 33 CFR §328.3 as follows:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide.
- All interstate waters including interstate wetlands.
- All "other waters" such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
    - which are or could be used by interstate or foreign travelers for recreational or other purposes; or
    - from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
    - which are used or could be used for industrial purpose by industries in interstate commerce.
- All impoundments of waters otherwise defined as waters of the United States under the definition.
- Tributaries of waters identified above.
- The territorial seas.
- Wetlands adjacent to waters (other than wetlands) identified above.

The Corps generally does not consider the following waters to be "waters of the United States." However, the Corps reserves the right on a case-by-case basis to determine that a particular water body within these categories of waters is a water of the United States. The Environmental Protection Agency also has the right to determine on a case-by-case basis if any of these waters are "waters of the United States."

- Non-tidal drainage and irrigation ditches excavated on dry land.
- Artificially irrigated areas which would revert to upland if the irrigation ceased.
- Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.

- Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons.
- Water filled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States [see 33 CFR 328.3(a)].

Wetlands
Corps jurisdictional "wetlands", as defined by 33 CFR §328.3(b), are those areas which 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 soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Ordinary High Water Mark
The Corps' jurisdiction over "other waters" extends to the limit of the Ordinary High Water Mark or the upward extent of any adjacent wetland. The Ordinary high water mark, as defined by 33 CFR §328.3(e), is the visible line on the shore/bank established by the fluctuations of water and indicated by physical characteristics such as:

- A clear, natural line impressed on the bank;
- shelving;
- changes in the character of soil;
- destruction of terrestrial vegetation;
- the presence of litter and debris; or
- other appropriate means that consider the characteristics of the surrounding areas.

RIVERS AND HARBORS ACT

Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the Secretary of the Army, acting through the U.S. Army Corps of Engineers, to construct any structure in or over any "navigable water of the United States." Structures or work outside the limits defined as navigable waters requires a Section 10 permit if the structure or work affects the course, location, or condition of the water body. The law applies to dredging or disposal of dredged materials, excavation, filling, rechannelization, or any other modification of a navigable water of the United States. It includes without limitation, any wharf, dolphin, weir, boom breakwater, jetty, groin, bank protection (*e.g.* riprap, revetment, bulkhead), mooring structures such as pilings, aerial or subaqueous power transmission lines, intake or outfall pipes, permanently moored floating vessel, tunnel, artificial canal, boat ramp, aids to navigation, and any other permanent, or semi-permanent obstacle or obstruction.

Navigable waters are generally defined as waters of the United States that are subject to the ebb and flow of the tide, shoreward to the mean high water mark, and/or are presently used, or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce, as defined in 32 CFR §322.2(a).

MIGRATORY BIRD TREATY ACT (MBTA)

The Migratory Bird Treaty Act (16 U.S.C. 703-712), administered by the U.S. Fish and Wildlife Service, implements four treaties between the United States and Canada, Mexico, Japan and Russia, respectively, to manage and conserve migratory birds that cross national borders. The Migratory Bird Treaty Act makes it unlawful in any manner, unless expressly authorized by permit pursuant to federal regulations, to pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to barter, barter,

offer to purchase, purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage, or export at any time, or in any manner, any migratory bird, or any part, nest, or egg of any such bird. The definition of "take" is defined as any act to "pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture or collect." This includes most actions, direct and indirect, that could result in "take" or possession, whether it is temporary or permanent, of any protected species (APLIC and USFWS 2005d). Although harassment and habitat modification do not constitute a take in themselves under the Migratory Bird Treaty Act or Fish and Game Code, such actions that result in direct loss of birds, nests or eggs including nest abandonment or failure are considered take under such regulations. A list of migratory birds protected under the Migratory Bird Treaty Act, available in Section 10.13 of Title 50 of the Code of Federal Regulation, excludes nonnative species that have not been introduced into the U.S. or its territories, and species that belong to the families not listed in any of the four treaties underlying the Migratory Bird Treaty Act, such as wrentit (*Chamaea fasciata*), European starling (*Sturnus vulgaris*), California quail (*Callipepla californica*), Ring-necked Pheasant (*Phasianus colchicus*) and Chukar (*Alectoris chukar*), among other species less common in California.

On December 8, 2004 the U.S. Congress passed the Migratory Bird Treaty Reform Act (Division E, Title I, Section 143 of the Consolidated Appropriations Act, 2005, PL 108–447; MBTRA), which excludes all migratory birds nonnative or have been human introduced to the U.S. or its territories. It defines a native migratory bird as a species present within the U.S. and its territories as a result of natural biological or ecological processes. The USFWS published a list of the bird species excluded from the Migratory Bird Treaty Act on March 15, 2005 (70 FR 12710), which included two species commonly observed in the U.S., the rock pigeon (*Columba livia*) and domestic goose (*Anser anser* '*domesticus'*).

BALD AND GOLDEN EAGLE PROTECTION ACT

The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d; June 8, 1940) as amended, provides protection for the bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) by prohibiting the taking, possession and commerce of such birds, their nests, eggs or feathers unless expressly authorized by permit pursuant to federal regulations. The Act also provides criminal and civil penalties for violations of the Act and defines take as any action to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.

STATE REGULATIONS

CALIFORNIA ENDANGERED SPECIES ACT (CESA)

The California Endangered Species Act of 1984, administered by the California Department of Fish and Wildlife (CDFW), recognizes that certain species of fish, wildlife and plants are in danger of, or threatened with, extinction because their habitats are threatened with destruction, adverse modification, or severe curtailment, or because of overexploitation, disease, predation, or other factors. The Legislature recognized that these species of fish, wildlife and plants are of ecological, educational, historical, recreational, aesthetic, economic and scientific value to the people of the state, and the conservation, protection and enhancement of these species and their habitat is of statewide concern. The CESA built on the California Native Plant Protection Act (NPPA) (discussed below) and increased regulatory protection for plant species to parallel the CESA. Listing categories under the CESA include endangered, threatened, rare or candidate for listing (Cal. Fish and Game Code §§ 2062, 2067 and 2068). The current inventories published for plants listed under the CESA are the *State and Federally Listed Endangered, Threatened and Rare Plants of California* CDFW (2015d) and the *Special Vascular Plants, Bryophytes and Lichens List* CDFW (2015b). Current inventories for fish and wildlife species include *State and Federally Listed Endangered and Threatened Animals of California* (CDFW 2015c) and the *Special Animals* (CDFW 2015e).

CESA requires state agencies to consult with the CDFW when preparing California Environmental Quality Act (CEQA) documents to ensure that the state lead agency actions do not jeopardize the existence of listed species. It directs agencies to consult with CDFW on projects or actions that could affect listed species, directs CDFW to determine whether jeopardy would occur, and allows CDFW to identify "reasonable and prudent alternatives" to the project consistent with conserving the species.

CESA prohibits the taking of state-listed endangered or threatened plant and wildlife species. CDFW exercises authority over mitigation projects involving state-listed species, including those resulting from CEQA mitigation requirements. CDFW may authorize a taking through an incidental take permit, if the impacts of the take are minimized and fully mitigated. Mitigation often takes the form of an approved habitat management plan or management agreement that avoids or compensates for possible jeopardy. CDFW requires preparation of mitigation plans in accordance with published guidelines.

CALIFORNIA FISH AND GAME CODE

The California Fish and Game Code provides protection for California's plant and wildlife species and precludes taking of species listed as fully protected by the CDFW. Section 86 defines take as any action to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill. Unless expressly authorized under Chapter 1.5, Article 3, Section 2081, which outlines exceptions for taking of endangered and threatened species, endangered, threatened and fully protected species shall not be taken for any purpose. Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird; §3503.5 prohibits the take, possession, or needless destruction of any nests, eggs or birds in the orders Falconiformes (new world vultures, hawks, eagles, ospreys and falcons, among others)or Strigiformes (owls); §3511 prohibits the take or possession of fully protected birds; and §3513 prohibits the take or possession of any migratory nongame bird or part thereof as designated in the Migratory Bird Treaty Act. Section 4700 provides protection for fully protected mammals unless expressly authorized under §2081.7. Fully protected mammals include Morrow Bay kangaroo rat, bighorn sheep, except Nelson bighorn sheep (*Ovis canadensis nelsoni*), northern elephant seal, Guadalupe fur seal, ring-tailed cat, Pacific right whale, salt-marsh harvest mouse, southern sea otter and wolverine. Section 5050 provides protection for fully protected amphibians and reptiles unless expressly authorized under §2081.7. Fully protected amphibians and reptiles include blunt-nosed leopard lizard, San Francisco garter snake, Santa Cruz long-toed salamander, limestone salamander and black toad. Section 5515 provides protection for fully protected fish unless expressly authorized under §2081.7. Fully protected fish include Colorado River squawfish, thicktail chub, Mohave chub, Lost River sucker, Modoc sucker, shortnose sucker, humpback sucker, Owens River pupfish, unarmored threespine stickleback and rough sculpin.

PORTER-COLOGNE WATER QUALITY CONTROL ACT AND SECTION 401 OF THE CLEAN WATER ACT

The Regional Water Quality Control Board administers both the Porter-Cologne Water Quality Control Act and Section 401 of the Clean Water Act. The Porter-Cologne Water Quality Control Act requires "any person discharging waste, or proposing to discharge waste, within any region that could affect the 'waters of the State' to file a report of discharge" with the RWQCB (Cal. Water Code Section 13260). Waters of the State are "any surface water or groundwater, including saline waters, within the boundaries of the state" [Cal. Water Code Section 13050(e)].

Pursuant to Section 401 of the Clean Water Act, the RWQCBs consider waters of the State to include (without limitation) rivers, streams, lakes, bays, marshes, mudflats, unvegetated seasonally ponded areas, drainage swales, sloughs, wet meadows, natural ponds, vernal pools, diked bay lands, seasonal wetlands, and riparian woodlands. The RWQCBs have also claimed jurisdiction and exercised discretionary authority over "isolated waters", as discussed above.

NATIVE PLANT PROTECTION ACT (NPPA)

The Native Plant Protection Act of 1977, which is implemented by the CDFW, was created to "preserve, protect and enhance rare and endangered plants in this State." The NPPA gave the CDFW the authority to designate native plants as endangered or rare and to regulate, through permits, activities such as collecting, transporting, or selling plants protected by the NPPA. The NPPA also provides the definitions of native, threatened and endangered plants in Section 1901 of the California Fish and Game Code.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

The California Environmental Quality Act of 1970 requires public agencies to evaluate the environmental implications of their actions, and to prevent environmental effects by avoiding or reducing significant impacts of their decisions, where feasible. CEQA was intended to assist public agencies in systematically identifying both the significant effects of proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects. In enacting CEQA, the Legislature expressed a policy that public agencies should not approve projects as proposed if there are such feasible alternatives or mitigation measures. Among its goals, CEQA was intended "to preserve for future generations representations of all plant and animal communities" (Cal. Pub. Res. Code §21001c). Through this process impacts and mitigation to state and federally listed plant species are discussed.-

The California Native Plant Society (CNPS) has developed and maintains an inventory of rare, Threatened and Endangered plants of California. This information is published in the Inventory of Rare and Endangered Vascular Plants of California. The inventory presents a ranking system for rare plants within the state known as California Rare Plant Ranks. The CNPS inventory is endorsed by the CDFW and effectively serves as its list of "candidate" plant species. The following identifies the definitions of the California Rare Plant Ranks:

- Rank 1A: Plants presumed to be extinct in California;
- Rank 1B: Plants that are rare, Threatened, or Endangered in California and elsewhere;
- Rank 2: Plants that are rare, Threatened, or Endangered in California, but are more numerous elsewhere;
- Rank 3: Plants about which more information is needed (a review list): and
- Rank 4: Plants of limited distribution (a watch list).

Rank 1B and 2 species are considered eligible for state listing as Endangered or Threatened pursuant to the California Fish and Game Code. As part of the CEQA process, such species should be fully considered, as they meet the definition of Threatened or Endangered under the NPPA and Sections 2062 and 2067 of the California Fish and Game Code. Rank 3 and 4 species are considered to be either plants about which more information is needed or are uncommon enough that their status should be regularly monitored. Such plants may be eligible or may become eligible for state listing, and CNPS and CDFW recommend that these species be evaluated for consideration during the preparation of CEQA documents (CNPS 2001), as some of these species may meet NPPA and CESA criteria as Threatened or Endangered.

In addition, CEQA requires that impacts to "resources that are rare or unique to that region" be evaluated [CEQA Guidelines 15125(c)]. This includes botanical resources that are, but not limited to, peripheral populations and disjunct subpopulations. These are informal terms that refer to those species that might be declining or be in need of concentrated conservation actions to prevent decline, but have no legal protection of their own. Also, CEQA Guidelines Section 15380 states "a species not included in any listing…shall nevertheless be considered to be rare or Endangered if the species is likely to become Endangered within

the foreseeable future throughout all or a significant portion of its range and may be considered Threatened as that term is used in the ESA."

APPENDIX B SPECIAL STATUS PLANT SPECIES KNOWN TO OCCUR OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

SPECIES NAME COMMON NAME	FEDERAL, STATE, CRPR RANK[1]	HABITAT PREFERENCES, DISTRIBUTION INFORMATION, & ADDITIONAL NOTES*	FLOWERING PHENOLOGY/ LIFE FORM	HABITAT SUITABILITY & LOCAL DISTRIBUTION	POTENTIAL FOR OCCURRENCE
FEDERAL/STATE ENDANGERED OR THREATENED AND CALIFORNIA RARE PLANT RANK SPECIES					
Arctostaphylos franciscana Franciscan manzanita	Fed: FE CA: None CEQA: 1B.1	Occurs on serpentine substrate in coastal scrub at elevations at elevations between 60 and 300 meters. Known from SFO county.	February-April perennial evergreen shrub	Although suitable vegetation associations are present in the study area, the preferred serpentine substrates are absent, this species is not known to occur outside of SFO county, and the study area is too low in elevation for this species. The nearest CNDDB occurrence (EONDX # 12698) is a non-specific record from Laurel Hill Cemetery in San Francisco approximately 10.3 miles southwest of the study area. This occurrence is extirpated. This species would have been identifiable during the January site visit.	Absent
Arctostaphylos montana subsp. *ravenii* Presidio manzanita	Fed: FE CA: None CEQA: 1B.1	Occurs on serpentine substrate in chaparral, coastal prairie, and coastal scrub at elevations at elevations between 45 and 215 meters. Known from SFO county.	February-March perennial evergreen shrub	Although suitable vegetation associations are present in the study area, the preferred serpentine substrates are absent, this species is not known to occur outside of SFO county, and the study area is too low in elevation for this species. The nearest CNDDB occurrence (EONDX # 20230) is a non-specific record from Laurel Hill Cemetery in San Francisco approximately 10.3 miles southwest of the study area. This occurrence is extirpated. This species would have been identifiable during the January site visit.	Absent

Species Name Common Name	Federal, State, CRPR Rank[1]	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Habitat Suitability & Local Distribution	Potential for Occurrence
Arctostaphylos pallida pallid manzanita	Fed: FT CA: SE CEQA: 1B.1	Occurs on siliceous shale, sandy, or gravelly sites in broadleaf upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub at elevations between 185 and 465 meters in elevation. Known from fewer than 9 locations in ALA and CCA counties.	December-March perennial evergreen shrub	Although suitable vegetation associations are present in the study area, the preferred substrates are absent and the study area is too low in elevation for this species. The nearest CNDDB occurrence (EONDX # 20172) is a specific record from the northeast corner of Tilden Park approximately 3.9 miles east-southeast of the study area. This species would have been identifiable during the January site visit.	Absent
Arenaria paludicola marsh sandwort	Fed: FE CA: SE CEQA: 1B.1	Occurs in brackish and freshwater marshes and swamps at elevations between 3 and 170 meters. Known from MRN, SCR, SLO, LAX, SBD, and RIV counties.	May-August perennial stoloniferous herb	Although suitable vegetation associations are present in the study area, this species is not known to occur in CCA county. The nearest CNDDB occurrence (EONDX # 21260) is a non-specific record from Fort Point in San Francisco approximately 9.5 miles southwest of the study area.	Not Expected
Calochortus tiburonensis Tiburon mariposa-lily	Fed: FT CA: ST CEQA: 1B.1	Occurs in valley and foothill grassland with serpentine substrates at elevations between 50 and 150 meters. Known only from MRN county.	March-June perennial bulbiferous herb	Although suitable vegetation associations are present in the study area, this species is not known to occur in the East Bay, the preferred serpentine substrates are absent, and the study area is too low in elevation for this species. The nearest CNDDB occurrence (EONDX # 12396) is a specific record from Ring Mountain approximately 8.8 miles west of the study area.	Not Expected
Castilleja affinis var. *neglecta* Tiburon paintbrush	Fed: FE CA: ST CEQA: 1B.2	Occurs in valley and foothill grassland with serpentine substrates at elevations between 60 and 400 meters. Known from NAP, MRN, and SCL counties.	April-June perennial herb (hemiparasitic)	Although suitable vegetation associations are present in the study area, this species is not known to occur in the East Bay, the preferred serpentine substrates are absent, and the study area is too low in elevation for this species. The nearest CNDDB occurrence (EONDX # 9456) is a specific record from Old Saint Hillary's approximately 7.0 miles west of the study area.	Not Expected

Species Name Common Name	Federal, State, CRPR Rank[1]	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Habitat Suitability & Local Distribution	Potential for Occurrence
Chloropyron molle subsp. *molle* soft bird's-beak	Fed: FE CA: SR CEQA: 1B.2	Occurs in coastal salt marshes and swamps at elevations below 3 meters. Known from fewer than 27 locations in CCA, NAP, and SOL counties. Presumed extirpated in MRN, SAC, and SON counties.	July-November annual herb (hemiparasitic)	Although suitable vegetation associations are present in the study area, planned work activities will only occur above the high-tide line while suitable vegetation associations for this species are only present below the high-tide line in the study area and out of the impact areas. The nearest CNDDB occurrence (EONDX # 16872) is a specific record from Point Pinole approximately 6.7 miles north of the study area.	Not Expected
Chorizanthe robusta var. *robusta* robust spineflower	Fed: FE CA: None CEQA: 1B.1	Occurs on sandy or gravelly sites in maritime chaparral, cismontane woodland, coastal dunes, and coastal scrub at elevations between 3 and 300 meters. Known from fewer than 20 locations in MNT, SCR, and SFO counties. Uncertain about distribution or identity in MRN county; presumed extirpated from ALA, SCL, and SMT counties.	April-September annual herb	Although suitable vegetation associations are present, they are of a heavily degraded nature not considered appropriate for this species to occur, this species is not known to occur in CCA county, and other East Bay (ALA county) occurrences are presumed extirpated. The nearest CNDDB occurrence (EONDX # 30367) is a non-specific record from the city of Alameda approximately 9.5 miles south of the study area.	Not Expected
Clarkia franciscana Presidio clarkia	Fed: FE CA: SCE CEQA: 1B.1	Occurs on serpentine sites in coastal scrub and valley and foothill grassland at elevations between 25 and 335 meters. Known from fewer than 4 locations in ALA and SFO counties.	May-July annual herb	Although suitable vegetation associations are present in the study area, the preferred serpentine substrates are absent and the study area is below the preferred elevation gradient of this species. The nearest CNDDB occurrence (EONDX # 18846) is a non-specific record from the Presidio approximately 10.2 miles southwest of the study area.	Not Expected

Species Name Common Name	Federal, State, CRPR Rank[1]	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Habitat Suitability & Local Distribution	Potential for Occurrence
Hesperolinon congestum Marin western flax	Fed: FT CA: ST CEQA: 1B.1	Occurs in chaparral and valley and foothill grassland on serpentine substrates at elevations between 5 and 370 meters. Known from SMT, MRN, and SFO counties.	April-July annual herb	Although suitable vegetation associations are present in the study area, the preferred serpentine substrates are absent and this species is not known to occur in the East Bay. The nearest CNDDB occurrence (EONDX # 18629) is a specific record from Old Saint Hillary's approximately 7.0 miles west of the study area.	Not Expected
Holocarpha macradenia Santa Cruz tarplant	Fed: FT CA: SE CEQA: 1B.1	Occurs often on clay and sandy sites in coastal prairie, coastal scrub, and valley and foothill grassland between at elevations 10 and 220 meters. Known from fewer than 37 locations in MNT, SCR, and SOL Counties. Presumed extirpated from ALA, CCA, and MRN counties.	June-October annual herb	Although suitable vegetation associations are present in the study area, natural populations of this species are presumed extirpated in the East Bay and the study area is below the preferred elevation gradient of this species. The nearest CNDDB occurrence (EONDX # 12756) is non-specific record from Berkeley approximately 3.1 miles south of the study area. This record is presumed extirpated.	Not Expected
Lasthenia conjugens Contra Costa goldfields	Fed: FE CA: None CEQA: 1B.1	Occurs on mesic sites in cismontane woodland, alkaline playas, valley and foothill grassland, and vernal pools at elevations below 470 meters. Known from fewer than 36 locations in ALA, CCA, MNT, MRN, NAP, SOL, and SON counties. Presumed extirpated from MEN, SBA, and SCL counties.	March-June annual herb	Although suitable vegetation associations are present in the study area, they are of a heavily degraded nature not considered appropriate for this species to occur. The nearest CNDDB occurrence (EONDX # 29059) is a specific record from Rodeo Creek approximately 8.7 miles northeast of the study area.	Not Expected
Layia carnosa beach layia	Fed: FT CA: SE CEQA: 1B.1	Occurs in coastal dunes and sandy coastal scrub at elevations between 0 and 60 meters. Known from HUM, SFO, MRN, SMT, MNT, and SBA counties.	March-July annual herb	Although suitable vegetation associations are present, this species is not known to occur in the East Bay. The nearest CNDDB occurrence (EONDX # 35407) is a non-specific record from the San Francisco sand dunes mapped approximately 7.2 miles southwest of the study area.	Not Expected

Species Name Common Name	Federal, State, CRPR Rank[1]	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Habitat Suitability & Local Distribution	Potential for Occurrence
Lessingia germanorum San Francisco lessingia	Fed: FE CA: SE CEQA: 1B.1	Occurs in remnant dunes within coastal scrub at elevations between 25 and 110 meters. Known from SFO and SMT counties.	(June) July-November annual herb	Suitable remnant dune habitat is not present in the study area.	None
Lilaeopsis masonii Mason's lilaeopsis	Fed: None CA: SR CEQA: 1B.1	Occurs in brackish or freshwater marshes and swamps and riparian scrub at elevations below 10 meters. Known from fewer than 198 locations in ALA, CCA, MRN, NAP, SAC, SJQ, SOL, and YOL counties.	April-November perennial herb (rhizomatous)	Although suitable vegetation associations are present in the study area, this species is not known to occur in San Francisco Bay and the preferred deltaic hydrology is absent. The nearest CNDDB occurrence (EONDX # 8656) is a specific record from Mare Island approximately 12.2 miles north-northeast of the study area.	Not Expected
Pentachaeta bellidiflora white-rayed pentachaeta	Fed: FE CA: SE CEQA: 1B.1	Occurs in cismontane woodland and valley and foothill grassland, often on serpentinite, at elevations between 35 and 620 meters. Known from MRN, SMT, and SCR counties.	March-May annual herb	Although suitable vegetation associations are present in the study area, this species is not known to occur in the East Bay and the study area is below the preferred elevation gradient for this species. The nearest CNDDB occurrence (EONDX # 16683) is a non-specific record mapped around Marin City approximately 9.6 miles west of the study area.	Not Expected
Plagiobothrys diffusus San Francisco popcorn-flower	Fed: None CA: SE CEQA: 1B.1	Occurs in coastal prairie and valley and foothill grassland at elevations between 60-360 meters. Known from fewer than 17 locations in ALA, SBT, SCR, and SMT counties. Presumed extirpated from SFO County.	March-June annual herb	Although suitable vegetation associations are present in the study area, they are of a heavily degraded nature not considered appropriate for this species to occur, this species is not known to occur in CCA county, the study area is below the preferred elevation gradient. The nearest CNDDB occurrence (EONDX # 45398) is a non-specific record from the Oakland Hills mapped approximately 10.7 miles southeast of the study area.	Not Expected

Species Name Common Name	Federal, State, CRPR Rank[1]	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Habitat Suitability & Local Distribution	Potential for Occurrence
Sanicula maritima adobe sanicle	Fed: None CA: SR CEQA: 1B.1	Occurs on clay or serpentine sites in chaparral, coastal prairie, meadows and seeps, and valley and foothill grassland at elevations between 30-240 meters. Known from fewer than 17 locations in MNT and SLO counties. Presumed extirpated from ALA and SFO counties.	February-May perennial herb	Although suitable vegetation associations are present the study area is below the preferred elevation gradient for this species and this species is presumed extirpated from the East Bay. The nearest CNDDB occurrence (EONDX # 61072) is a non-specific record mapped in the vicinity of Alameda Island approximately 9.5 miles south of the study area. This record is presumed extirpated.	Not Expected
Streptanthus glandulosus subsp. *niger* Tiburon jewelflower	Fed: FE CA: SE CEQA: 1B.1	Occurs in valley and foothill grassland on serpentine substrates at elevations at elevations between 30 and 150 meters. Known from two occurrences on the Tiburon Peninsula, MRN county.	May-June annual herb	Although suitable vegetation associations are present in the study area, the preferred serpentine substrates are absent, the study area is below the preferred elevation gradient for this species, and this species is not known to occur outside of the Tiburon Peninsula. The nearest CNDDB record (EONDX # 13256) is a specific record from Old Saint Hillary's approximately 7.2 miles west of the study area.	Not Expected
Suaeda californica California seablite	Fed: FE CA: None CEQA: 1B.1	Occurs in coastal salt marshes and swamps at elevations below 15 meters. Known from fewer than 18 locations in SLO county. Natural populations are presumed extirpated from ALA, CCA, SCL, and SFO counties. Reintroduction sites exist in ALA county.	July-October perennial evergreen shrub	Although suitable vegetation associations are present in the study area, natural populations of this species are presumed extirpated in the East Bay. The nearest CNDDB occurrence (EONDX # 14726) is a non-specific record from near Fleming Point and mapped approximately 0.2 miles southeast of the study area. This occurrence is likely extirpated. This species would have been identifiable during the January site visit.	Absent

Species Name Common Name	Federal, State, CRPR Rank[1]	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Habitat Suitability & Local Distribution	Potential for Occurrence
Trifolium amoenum two-fork clover	Fed: FE CA: None CEQA: 1B.1	Occurs in coastal bluff scrub and valley and foothill grassland (sometimes on serpentine) at elevations between 5 and 415 meters. Known from MRN, NAP, SMT, SOL, and SON counties. Rediscovered in 1993.	April-June annual herb	Although suitable vegetation associations are present in the study area, they are of a heavily degraded nature not conducive to this species and this species is not known to occur in the East Bay. The nearest CNDDB occurrence (EONDX # 19160) is a non-specific record from Corte Madera approximately 13.6 miles west of the study area. This occurrence is presumed extirpated.	Not Expected
California Rare Plant Rank Species					
Amorpha californica var. *napensis* Napa false indigo	Fed: None CA: None CEQA: 1B.2	Occurs in broadleafed upland forest openings, chaparral, and cismontane woodland at elevations between 50 and 2,000 meters. Known from LAK, MRN, NAP, and SON counties.	April-July perennial deciduous shrub	Suitable vegetation associations are not present in the study area.	None
Amsinckia lunaris bent-flowered fiddleneck	Fed: None CA: None CEQA: 1B.2	Occurs in coastal bluff scrub, cismontane woodland and valley and foothill grassland at elevations between 3 and 500 meters. Many collections are old. Known from ALA, CCA, COL, LAK, MRN, NAP, SBT, SCL, SCR, SMT, SON, SUT, and YOL counties. May be present in SIS and SHA counties.	March-June annual herb	Although suitable vegetation associations are present in the study area, this species is not known to occur in immediate bayside habitats. The nearest CNDDB occurrence (EONDX # 62475) is a non-specific record from San Pablo Ridge approximately 3.5 miles east of the study area.	Not Expected
Androsace elongata subsp. *acuta* California androsace	Fed: None CA: None CEQA: 4.2	Occurs in chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, and valley and foothill grassland at elevations between 150 and 1,305 meters. Known from ALA, COL, CCA, FRE, GLE, KRN, LAX, MER, MNT, RIV, SBT, SBD, SDG, SJQ, SLO, SMT, SCL, SIS, STA, and TEH counties.	March-June annual herb	Although suitable vegetation associations are present in the study area, this species is not known to occur in immediate bayside habitats and the study area is below the preferred elevation gradient. The nearest herbarium voucher is a 1902 Tracy collection (# 1344) from the Berkeley Hills.	Not Expected
Aphyllon robbinsi Robbins' broomrape	Fed: None CA: None CEQA: 1B.1	Occurs in rocky, sandy sites of coastal bluff scrub and possibly coastal dunes at elevations below 100 meters. Known from MNT, MRN, SCR, SFO, SLO, and SMT counties.	April-July annual herb	Suitable vegetation associations are not present in the study area.	None

Species Name Common Name	Federal, State, CRPR Rank[1]	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Habitat Suitability & Local Distribution	Potential for Occurrence
Arabis blepharophylla coast rockcress	Fed: None CA: None CEQA: 4.3	Occurs in broadleafed upland forest, coastal bluff scrub, coastal prairie, and coastal scrub in rocky substrates at elevations between 3 and 1,100 meters. Known from CCA, MRN, MNT, SFO, SMT, SCR, and SON counties.	February-May perennial herb	Although suitable vegetation associations are present in the study area, this species is not known to occur off of Mount Diablo in the East Bay. The nearest herbarium voucher is an 1892 Jepson collection (#13386) from Red Rock, San Francisco.	Not Expected
Aspidotis carlotta-halliae Carlotta Hall's lace fern	Fed: None CA: None CEQA: 4.2	Occurs in chaparral and cismontane woodland, usually on serpentine substrates, at elevations between 100 and 1,400 meters. Known from ALA, BUT, MRN, MNT, SBT, SLO, and SCL counties.	January-December perennial rhizomatous herb	Suitable vegetation associations and preferred serpentine substrates are not present in the study area.	None
Astragalus nuttallii var. *nuttallii* ocean bluff milk-vetch	Fed: None CA: None CEQA: 4.2	Occurs in coastal bluff scrub and coastal dunes at elevations between 3 and 120 meters. Known from MRN, MNT, SFO, SLO, SMT, and SBA counties.	January-November perennial herb	Suitable vegetation associations are not present in the study area and this species is not known to occur in the East Bay.	None
Astragalus tener var. *tener* alkali milk-vetch	Fed: None CA: None CEQA: 1B.2	Occurs on alkaline substrates in playas, valley and foothill grassland on adobe clay, and vernal pools at elevations between 1 and 60 meters. Known from ALA, MER, NAP, SOL and YOL counties. Presumed extirpated from CCA, MNT, SBT, SCL, SFO, SJQ, SON, and STA counties.	March-June annual herb	Although suitable vegetation associations are present in the study area, they are of a heavily degraded nature not considered appropriate for this species to occur and this species is presumed extirpated from CCA county. The nearest CNDDB occurrence (EONDX # 51723) is a non-specific record mapped in the vicinity of Stege which overlaps partially with the study area. This occurrence is presumed extirpated.	Not Expected
Blepharizonia plumosa big tarplant	Fed: None CA: None CEQA: 1B.1	Occurs in valley and foothill grassland, usually on clay substrates, at elevations between 30 and 505 meters. Known from ALA, CCA, SJQ, and STA counties. Presumed extirpated in SOL county.	July-October annual herb	Although suitable vegetation associations are present in the study area, this species is not known to occur west of Walnut Creek in CCA county and the study area is below the preferred elevation gradient for this species. The nearest CNDDB occurrence (EONDX # 2736) is a non-specific record from Walnut Creek approximately 12.4 miles east of the study area.	Not Expected

Species Name Common Name	Federal, State, CRPR Rank[1]	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Habitat Suitability & Local Distribution	Potential for Occurrence
Calochortus pulchellus **Mt. Diablo fairy-lantern**	Fed: None CA: None CEQA: 1B.2	Occurs in chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland at elevations between 30 and 840 meters. Known from ALA and CCA counties.	April-June perennial herb (bulbiferous)	Although suitable vegetation associations are present in the study area, this species is not known to occur west of Briones Regional Preserve in the East Bay and the study area is below the preferred elevation gradient for this species. The nearest CNDDB occurrence (EONDX # 109392) is a non-specific record from Buckeye Ranch approximately 10.4 miles east of the study area.	Not Expected
Calochortus umbellatus Oakland star-tulip	Fed: None CA: None CEQA: 4.2	Occurs in broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forests, and valley and foothill grassland, often on serpentine substrates, at elevations between 100 and 700 meters. Known from ALA, CCA, MRN, SMT, and SCL counties.	March-May perennial bulbiferous herb	Although suitable vegetation associations are present in the study area, it is below the preferred elevation gradient for this species. The nearest herbarium voucher is a 1926 Peirson collection (# 6639) from "the summit of hills back of Albany."	Not Expected
Calystegia purpurata* subsp. *saxicola **coastal bluff morning-glory**	Fed: None CA: None CEQA: 1B.2	Occurs in coastal bluff scrub, coastal dunes, coastal scrub, and north coast coniferous forest at elevations below 105 meters. Known from CCA, LAK, MEN, MRN, and SON counties.	March-September perennial herb	Although suitable vegetation associations are present in the study area, they are of a heavily degraded nature not conducive to this species. The nearest CNDDB occurrence (EONDX # 49852) is a non-specific record from Brooks Island approximately 1.5 miles west of the study area.	Not Expected
Carex comosa bristly sedge	Fed: None CA: None CEQA: 2B.1	Occurs in coastal prairie, on the margins of lakes, marshes, and swamps, and valley and foothill grassland below elevations of 625 meters. Known from CCA, LAK, MEN, SAC, SCR, SHA, SJQ, and SON counties. Presumed extirpated from SBD and SFO counties.	May-September perennial rhizomatous herb	Although suitable vegetation associations are present in the study area, this species is not known to occur in western CCA county. The nearest CNDDB occurrence (EONDX # 67249) is a non-specific record from the swamps near San Francisco mapped approximately 7.3 miles southwest of the study area. This occurrence is presumed extirpated.	Not Expected

Species Name Common Name	Federal, State, CRPR Rank[1]	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Habitat Suitability & Local Distribution	Potential for Occurrence
Castilleja ambigua var. *ambigua* johnny-nip	Fed: None CA: None CEQA: 4.2	Occurs in coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, and vernal pool margins at elevations between 0 and 435 meters. Known from ALA, CCA, DNT, HUM, MEN, MRN, NAP, SCR, SMT, SOL, and SON counties.	March-August annual herb (hemiparasitic)	Although suitable vegetation associations are present in the study area, they are of a heavily degraded nature not considered appropriate for this species to occur. The nearest herbarium voucher is a 1901 Evans collection (s.n.) from West Berkeley.	Not Expected
Centromadia parryi subsp. *congdonii* Congdon's tarplant	Fed: None CA: None CEQA: 1B.2	Occurs on alkaline soils in valley and foothill grassland at elevations between 1 and 230 meters. Known from ALA, CCA, MNT, SCL, SLO, and SMT counties. Presumed extirpated from SCR and SOL counties.	June-November annual herb	Although suitable vegetation associations are present in the study area, this species is not known to occur in CCA county west of Walnut Creek. The nearest CNDDB occurrence (EONDX # 14135) is a non-specific record from Walnut Creek approximately 13.5 miles east of the study area.	Not Expected
Chloropyron maritimum subsp. *palustre* Point Reyes bird's-beak	Fed: None CA: None CEQA: 1B.2	Occurs in coastal salt marshes and swamps at elevations below 10 meters. Known from fewer than 76 locations in HUM, MRN, SFO, and SON counties. Presumed extirpated from ALA, SCL, and SMT counties.	June-October annual herb (hemiparasitic)	Although suitable vegetation associations are present, this species is presumed extirpated from the East Bay. The nearest CNDDB occurrence (EONDX # 42169) is a non-specific record from the Emeryville/Berkeley Shoreline mapped approximately 1.9 miles south of the study area. This occurrence is presumed extirpated.	Not Expected
Chorizanthe cuspidata var. *cuspidata* San Francisco Bay spineflower	Fed: None CA: None CEQA: 1B.2	Occurs on sandy sites in coastal bluff scrub, coastal dunes, coastal prairie, and coastal scrub between 3 and 215 meters in elevation. Known from fewer than 17 locations in MRN, SFO, and SMT counties. Presumed extirpated from ALA County; uncertain about distribution or identity in SON County.	April-August annual herb	Although suitable vegetation associations are present in the study area, this species is presumed extirpated in the East Bay. The nearest CNDDB occurrence (EONDX # 30355) is a non-specific record from west of Lake Merritt mapped 5.5 miles south of the study area. This occurrence is presumed extirpated.	Not Expected

Species Name Common Name	Federal, State, CRPR Rank[1]	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Habitat Suitability & Local Distribution	Potential for Occurrence
Cicuta maculata var. *bolanderi* Bolander's water-hemlock	Fed: None CA: None CEQA: 2B.1	Occurs in coastal marshes and swamps in fresh or brackish water at elevations below 200 meters. Known from fewer than 17 locations in CCA, MRN, SAC and SOL counties. Presumed extirpated from SBA County.	July-September perennial herb	Although suitable vegetation associations are present in the study area, this species is not known occur west of Martinez in CCA county. The nearest CNDDB occurrence(EONDX # 75861) is a non-specific record from the vicinity of Martinez mapped 11.6 miles northeast of the study area.	Not Expected
Cirsium andrewsii Franciscan thistle	Fed: None CA: None CEQA: 1B.2	Occurs on mesic and sometimes serpentine sites in broadleafed upland forest, coastal bluff scrub, coastal prairie, and coastal scrub at elevations below 150 meters. Known from fewer than 31 locations in CCA, MRN, SFO, and SMT counties. Occurrence confirmed, but possibly extirpated from SON County.	March-July perennial herb	Although suitable vegetation associations are present in the study area, this species is not known to occur west of the Berkeley Hills in CCA county. The nearest CNDDB occurrence (EONDX # 56757) is specific record from San Pablo ridge approximately 4.4 miles east of the study area.	Not Expected
Clarkia concinna subsp. *automixa* Santa Clara red ribbons	Fed: None CA: None CEQA: 4.3	Occurs in chaparral and cismontane woodland between at elevations 90 and 1500 meters. Known from ALA, SCL, and SCR counties.	April-July annual herb	Suitable vegetation associations are not present in the study area.	None
Collinsia corymbose round-headed Chinese-houses	Fed: None CA: None CEQA: 1B.2	Occurs in coastal dunes at elevations between 0 and 20 meters. Known from HUM, MRN, MEN, SFO, SMT, and SCL counties.	April-June annual herb	Suitable vegetation associations are not present in the study area.	None
Collinsia multicolor San Francisco collinsia	Fed: None CA: None CEQA: 1B.2	Occurs in closed-cone coniferous forest and coastal scrub, sometimes on serpentine substrates, at elevations between 30 and 275 meters. Known from MRN, MNT, SFO, SMT, SCL, and SCR counties.	(February) March-May annual herb	Although suitable vegetation associations are present in the study area, this species is not known to occur in the East Bay. The nearest CNDDB occurrence (EONDX # 81188) is a non-specific record from Angel Island State Park approximately 5.8 miles west-southwest of the study area.	Not Expected
Collomia diversifolia serpentine collomia	Fed: None CA: None CEQA: 4.3	Occurs in chaparral and cismontane woodland on gravelly, rocky serpentine (sometimes) soils at elevations between 200 and 600 meters. Known from CCA, COL, GLE, HUM, LAK, MEN, MRN, NAP, ORA, SHA, SON, STA, TEH, and YOL counties.	May-June annual herb	Suitable vegetation associations and the preferred serpentine substrate are not present in the study area.	None

Species Name Common Name	Federal, State, CRPR Rank[1]	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Habitat Suitability & Local Distribution	Potential for Occurrence
Dirca occidentalis western leatherwood	Fed: None CA: None CEQA: 1B.2	Occurs on mesic sites in broadleaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest, and riparian woodland at elevations between 50 and 395 meters. Known from ALA, CCA, MRN, SCL, SMT, and SON counties.	January-April deciduous shrub	Suitable vegetation associations are not present in the study area.	None
Eleocharis parvula small spikerush	Fed: None CA: None CEQA: 4.3	Occurs in marshes and swamps at elevations between 1 and 3,020 meters. Known from ALA, CCA, HUM, MRN, NAP, ORA, SLO, SOL, SON, and VEN counties.	(April) June-August (September) perennial herb	Although suitable vegetation associations and tidal hydrology are present in the study area, the planned work activities will only occur above the high-tide line while suitable vegetation associations for this species are only present below the high-tide line in the study area. The nearest herbarium voucher is a 2012 Hillman collection (s.n.) from Alameda Island.	Not Expected
Equisteum palustre marsh horsetail	Fed: None CA: None CEQA: 3	Occurs in marshes and swamps at elevations between 45 and 1,000 meters. Known from NAP and SFO counties. May exist in LAK and SMT counties.	Unknown perennial herb	Although suitable vegetation associations are present in the study area, this species is not known to occur in the East Bay and the study area is lower than the preferred elevation gradient for this species. The nearest herbarium voucher is a 1934 Lee collection (# 841) from Lake Merced.	Not Expected
Eriogonum luteolum var. *caninium* Tiburon buckwheat	Fed: None CA: None CEQA: 1B.2	Occurs on serpentinitic, sandy, or gravelly sites in chaparral, cismontane woodland, coastal prairie, and valley and foothill grassland at elevations below 700 meters. Known from ALA, CCA, and MRN counties. Possibly occurs in SON County. Not clearly distinguishable from var. *luteolum* north of Tiburon. *E. luteolum* is similar to *E. gracile* to the south and *E. vimineum* to the northeast.	May-September annual herb	Although suitable vegetation associations are present in the study area, the preferred serpentine substrates are absent. The nearest CNDDB occurrence (EONDX # 71282) is a specific record from Old Saint Hillary's approximately 7.0 miles west of the study area.	Not Expected
Erysimum franciscanum San Francisco wallflower	Fed: None CA: None CEQA: 4.2	Occurs in chaparral, coastal bluff scrub, coastal dunes, and coastal prairie at elevations between 0 and 185 meters. Known from DNT, HUM, MEN, and SON counties.	March-June perennial herb	Although suitable vegetation associations are present, this species is not known to occur in the East Bay. The nearest herbarium voucher is a 2000 Preston collection (# 1331) from a roadcut near Waldo Tunnel in Marin County.	Not Expected

Species Name Common Name	Federal, State, CRPR Rank[1]	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Habitat Suitability & Local Distribution	Potential for Occurrence
Eryngium jepsonii Jepson's coyote thistle	Fed: None CA: None CEQA: 1B.2	Occurs on clay sites in valley and foothill grassland and vernal pools at elevations between 3 and 300 meters. Known from fewer than 10 locations in ALA, AMA, CAL, CCA, FRE, NAP, SMT, SOL, STA, TUO and YOL counties.	April-August perennial herb	Although suitable vegetation associations are present, they are of a heavily degraded nature not considered appropriate for this species to occur. The nearest CNDDB occurrence (EONDX # 103678) is a non-specific record mapped around Orinda approximately 6.9 miles east-southeast of the study area.	Not Expected
Erythranthe laciniata cut-leaved monkeyflower	Fed: None CA: None CEQA: 4.3	Occurs in mesic sites on granitic substrates in chaparral, lower montane coniferous forest, and upper montane coniferous forest at elevations between 490 and 2,950 meters. Known to occur in ALA, AMA, CAL, ELD, FRE, MAD, MPA, TUL, and TUO counties.	April-July annual herb	Suitable vegetation associations and preferred granitic substrates are absent from the study area.	None
Erythranthe nudata bare monkeyflower	Fed: None CA: None CEQA: 4.3	Occurs in seeps and on serpentine substrates in chaparral and cismontane woodland at elevations between 200 and 700 meters. Occurs in COL, GLE, LAK, MEN, NAP, SBA, and SON counties.	May-June annual herb	Suitable vegetation associations and preferred serpentine substrates are absent from the study area.	None
Extriplex joaquinana San Joaquin spearscale	Fed: None CA: None CEQA: 1B.2	Occurs on alkaline substrates in chenopod scrub, meadows and seeps, playas, and valley and foothill grassland at elevations between 1 and 835 meters. Known from ALA, CCA, COL, FRE, GLE, MER, MNT, NAP, SBT, SOL, and YOL counties. Presumed extirpated from SCL and SJQ counties. Uncertain about distribution or identity of occurrences in SLO county. Uncertain about distribution in TUL county but presumed extirpated if once present.	April-October annual herb	Although suitable vegetation associations are present in the study area, this species is not known to occur west of Concord in CCA county. The nearest CNDDB occurrence (EONDX # 62775) is a non-specific record mapped around Oakland approximately 5.6 miles south of the study area. This occurrence is noted as likely extirpated.	Not Expected
Fissidens pauperculus fissidens moss	Fed: None CA: None CEQA: 1B.2	Occurs in North coast coniferous forest at elevations between 10 and 1,024 meters. Known from ALA, BUT, DNT, HUM, MEN, MRN, SCR, SMT, SON, and YUB counties.	moss	Suitable vegetation associations are not present in the study area.	None

Species Name Common Name	Federal, State, CRPR Rank[1]	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Habitat Suitability & Local Distribution	Potential for Occurrence
Fritillaria liliacea fragrant fritillary	Fed: None CA: None CEQA: 1B.2	Occurs on clay or serpentine sites in cismontane woodland, coastal prairie, coastal scrub, valley, and foothill grassland near the coast at elevations between 3 and 410 meters. Known from ALA, CCA, MNT, MRN, SBT, SCL, SFO, SMT, SOL and SON counties.	February-April perennial herb (bulbiferous)	Although suitable vegetation associations are present in the study area, they are of a heavily degraded nature not considered appropriate for this species to occur. The nearest CNDDB occurrence (EONDX # 51588) is a non-specific record mapped in the vicinity of Stege. The large buffer on this occurrence overlaps partially with the study area.	Not Expected
Gilia capitata subsp. *chamissonis* blue coast gilia	Fed: None CA: None CEQA: 1B.1	Occurs in coastal dunes and coastal scrub at elevations between 2 and 200 meters. Known from SON, MRN, and SFO counties.	April-July annual herb	Although suitable vegetation associations are present in the study area, this species is not known to occur in the East Bay. The nearest CNDDB occurrence (EONDX # 55578) is a specific record from Yerba Buena Island approximately 6.9 miles southwest of the study area.	Not Expected
Gilia millefoliata dark-eyed gilia	Fed: None CA: None CEQA: 1B.2	Occurs in coastal dunes at elevations between 2 and 30 meters. Known from DNT, HUM, MEN, SON, SFO, SMT, ALA, CCA, and MRN counties.	April-July annual herb	Suitable vegetation associations are not present in the study area.	None
Grindelia hirsutula var. *maritima* San Francisco gumplant	Fed: None CA: None CEQA: 3.2	Occurs in coastal bluff scrub, coastal scrub, and valley and foothill grassland on rocky, sometime on sandy or serpentine substrates, at elevations between 15 and 400 meters. Known from MRN, SFO, SLO, and SMT counties.	June-September perennial herb	Although suitable vegetation associations are present in the study area, this species is not known to occur in the East Bay. The nearest CNDDB occurrence (EONDX # 16952) is a non-specific record mapped in the Presidio approximately 10.1 miles southwest of the study area.	Not Expected
Helianthella castanea Diablo helianthella	Fed: None CA: None CEQA: 1B.2	Occurs in broadleaved upland forest, chaparral cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland at elevations between 60 and 1,300 meters. Known from ALA, CCA, and SMT counties. Presumed extirpated from MRN and SFO counties.	March-June perennial herb	Although suitable vegetation associations are present in the study area, it is below the preferred elevation gradient of this species. The nearest CNDDB occurrence (EONDX # 9503) is a specific record from San Pablo Ridge approximately 3.8 mile east of the study area.	Not Expected

Species Name Common Name	Federal, State, CRPR Rank[1]	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Habitat Suitability & Local Distribution	Potential for Occurrence
Hemizonia congesta subsp. *congesta* congested-headed hayfield tarplant	Fed: None CA: None CEQA: 1B.2	Occurs in valley and foothill grassland, sometimes on roadsides, at elevations between 20 and 560 meters. Known from LAK, MEN, MRN, SFO, SMT, and SON counties.	April-November annual herb	Although suitable vegetation associations are present in the study area, this species is not known to occur in the East Bay. The nearest CNDDB occurrence (EONDX # 73834) is a non-specific record mapped around San Francisco approximately 7.2 miles southwest of the study area.	Not Expected
Hesperevax caulescens hogwallow starfish	Fed: None CA: None CEQA: 4.2	Occurs in mesic, clay substrates in valley and foothill grassland and shallow vernal pools sometimes on alkaline soils at elevations between 0 and 505 meters. Known from ALA, BUT, CCA, COL, FRE, GLE, KRN, MER, MNT, MPA, SAC, SDG, SJQ, SLO, SOL, SON, STA, SUT, TEH, TUO, YOL, and YUB counties.	March-June annual herb	Although suitable vegetation associations are present in the study area, they are of a heavily degraded nature not considered appropriate for this species to occur. The nearest herbarium voucher is a 1936 Ewan collection (# 9496) from Wildcat Creek near Orinda Bridge.	Not Expected
Heteranthera dubia water star-grass	Fed: None CA: None CEQA: 2B.2	Occurs in alkaline (pH of 7 or higher), still or slow-moving, and usually slightly eutrophic water within marshes and swamps at elevations between 30 and 1,495 meters. Known from BUT, COL, MRN, MOD, SFO, SMT, SHA, and SUT counties.	July-October perennial herb (aquatic)	Although suitable vegetation associations are present in the study area, this species is not known to occur in the East Bay. The nearest CNDDB occurrence (EONDX # 92019) is a non-specific record mapped around San Francisco approximately 7.2 miles southwest of the study area.	Not Expected
Hosackia gracilis harlequin lotus	Fed: None CA: None CEQA: 4.2	Occurs in broadleafed upland forest, cismontane woodland, closed-cone coniferous forest, coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, meadows and seeps, North Coast coniferous forest, and valley and foothill grassland at elevations between 0 and 700 meters. Known from DNT, HUM, MEN, MNT, MRN, SCL, SCR, SFO, SLO, SMT, and SON counties.	March-July perennial rhizomatous herb	Although suitable vegetation associations are present in the study area, this species is not known to occur in the East Bay. The nearest herbarium voucher is a 1908 Brandegee collection (s.n.) from San Francisco.	Not Expected
Hoita strobilina Loma Prieta hoita	Fed: None CA: None CEQA: 1B.1	Occurs usually on serpentine and mesic sites in chaparral, cismontane woodland, and riparian woodland at elevations between 30 and 860 meters in elevation. Known from CCA, SCL, and SCR counties. Presumed extirpated from ALA County	May-October perennial herb	Suitable vegetation associations are not present in the study area.	None

Species Name Common Name	Federal, State, CRPR Rank[1]	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Habitat Suitability & Local Distribution	Potential for Occurrence
Horkelia cuneata var. *sericea* Kellogg's horkelia	Fed: None CA: None CEQA: 1B.1	Occurs on sandy or gravelly sites in openings of closed-cone coniferous forest, maritime chaparral, coastal dunes, and coastal scrub at elevations between 10 and 200 meters. Known from MNT, SBA, SCR, SLO, and SMT counties. Presumed extirpated from ALA, MRN, SFO counties. The remaining plants are less distinct from subsp. *cuneata* than those formerly occurring near San Francisco.	April-September perennial herb	Although suitable vegetation associations are present, this species is presumed from the East Bay. The nearest CNDDB occurrence (EONDX # 30354) is a non-specific record mapped around Oakland approximately 5.7 miles south of the study area. This occurrence is noted as likely extirpated.	Not Expected
Hypogymnia schizidiata island tube lichen	Fed: None CA: None CEQA: 1B.3	Occurs on the bark and wood of hardwoods and conifers in closed-cone coniferous forest and chaparral at elevations between 360 and 405 meters. Known from MEN, MRN, and SON counties.	foliose lichen	Suitable vegetation associations are not present in the study area.	None
Iris longipetala coast iris	Fed: None CA: None CEQA: 4.2	Occurs in coastal prairie, lower montane coniferous forest, and meadows and seeps at elevations between 0 and 600 meters. Known from ALA, CCA, ELD, GLE, HUM, MEN, MER, MNT, MRN, SCL, SCR, SFO, SMT, SOL, SON, and VEN counties.	March-May (June) perennial rhizomatous herb	Although suitable vegetation associations are present in the study area, they are of a heavily degraded nature not considered appropriate for this species to occur. The nearest herbarium voucher is an 1897 Davy collection (s.n.) from Point Isabel.	Not Expected
Isocoma arguta Carquinez goldenbush	Fed: None CA: None CEQA: 1B.1	Occurs on alkaline soils in valley and foothill grassland at elevations between 1 and 20 meters. Known from CCA and SOL counties.	August-December perennial shrub	Although suitable vegetation associations are present in the study area, this species is not known to occur in the East Bay. The nearest CNDDB occurrence (EONDX # 84836) is a non-specific record centered on Carquinez Strait from approximately 7.7 miles northeast of the study area.	Not Expected
Juglans californica Southern California black walnut	Fed: None CA: None CEQA: 4.2	Occurs in chaparral, cismontane woodland, coastal scrub, and riparian woodland at elevations between 500 and 900 meters. Known from ALA, CCA, FRE, KRN, LAX, ORA, RIV, SBT, SBD, SDG, SBA, SCL, and VEN counties.	March-August perennial deciduous tree	Although suitable vegetation associations are present in the study area, this species would have been identifiable during the January site visit. The nearest herbarium voucher of a wild specimen is a 2003 Kelch collection (# 03.135) from Pinole Creek.	Absent

Species Name Common Name	Federal, State, CRPR Rank[1]	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Habitat Suitability & Local Distribution	Potential for Occurrence
Lathyrus jepsonii var. *jepsonii* Delta tule pea	Fed: None CA: None CEQA: 1B.2	Occurs in brackish and freshwater marshes and swamps at elevations between 0 and 5 meters. Known from CCA, NAP, SAC, SJQ, SOL, SON, and YOL counties.	May-July (August-September) perennial herb	Although suitable vegetation is present in the study area, the preferred deltaic hydrology is absent and this species is not known to occur in San Francisco Bay. The nearest CNDDB occurrence (EONDX # 6414) is a non-specific record from Carquinex Strait approximately 11.4 miles north-northeast of the study area.	Not Expected
Leptosiphon aureus bristly leptosiphon	Fed: None CA: None CEQA: 4.2	Occurs in chaparral, cismontane woodland, coastal prairie, and valley and foothill grassland at elevations between 55 and 1,500 meters. Known from ALA, BUT, COL, HUM, KRN, LAK, MRN, MEN, NAP, PLA, SBT, SMT, SCL, SCR, SOL, SON, and YUB counties.	April-June annual herb	Although suitable vegetation associations are present in the study area, it is below the preferred elevational gradient of this species. The nearest herbarium voucher is a 1900 Tracy collection (# 764) from the Berkeley Hills.	Not Expected
Leptosiphon grandiflorus large-flowered leptosiphon	Fed: None CA: None CEQA: 4.2	Occurs in (usually) sandy substrates in coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal dunes, coastal prairie, coastal scrub, and valley and foothill woodland at elevations between 5 and 1,220 meters. Known from ALA, CCA, HUM, KRN, LAK, MRN, MEN, MER, MNO, MNT, SBT, SDG, SFO, SLO, SMT, SBA, SCL, SCR, SON, and STA counties. Presumed extirpated from SBA county.	April-August annual herb	Although suitable vegetation associations are present in the study area, they are of a heavily degraded nature not considered appropriate for this species to occur. The nearest herbarium voucher is a 1998 Hillyard collection (s.n.) from Tilden Park.	Not Expected
Leptosiphon rosaceus rose leptosiphon	Fed: None CA: None CEQA: 1B.1	Occurs in coastal bluff scrub at elevations between 0 and 100 meters. Known from SON, MRN, SFO, and SMT counties.	April-July annual herb	Although suitable vegetation associations are present in the study area, this species is not known to occur in the East Bay. The nearest CNDDB occurrence (EONDX # 46066) is a non-specific record from San Francisco approximately 7.3 miles southwest of the study area.	Not Expected

Species Name Common Name	Federal, State, CRPR Rank[1]	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Habitat Suitability & Local Distribution	Potential for Occurrence
Lessingia hololeuca woolly-headed lessingia	Fed: None CA: None CEQA: 3	Occurs on clay and serpentine soils in broadleafed upland forest, coastal scrub, lower montane coniferous forest, and valley and foothill grassland at elevations between 15 and 305 meters. Known from ALA, FRE, MEN, MNT, MRN, NAP, SCL, SCR, SDG, SMT, SOL, SON, TEH, TUO, and YOL counties.	June-October annual herb	Although suitable vegetation associations are present in the study area, this species is not known to occur in the East Bay. The nearest herbarium voucher of a wild specimen is 1961 Penalosa collection (# 2212) from the Tiburon Peninsula.	Not Expected
Micropus amphibolus Mt. Diablo cottonweed	Fed: None CA: None CEQA: 3.2	Occurs in rocky areas of broadleafed upland forest, chaparral, cismontane woodland, and valley and foothill grassland at elevations between 45 and 825 meters. Known from LAK, MNT, MRN, NAP, SCR, and SJQ counties.	March-May annual herb	Although suitable vegetation associations are present in the study area, it is below the preferred elevation gradient of this species. The nearest herbarium voucher is a 1936 Stebbins collection (# 1547) from the Berkeley Hills.	Not Expected
Meconella oregana Oregon meconella	Fed: None CA: None CEQA: 1B.1	Occurs in coastal prairie and coastal scrub at elevations between 250 and 620 meters. Known from CCA and SCL counties.	March-April annual herb	Although suitable vegetation associations are present, the study area is below the preferred elevation gradient of this species. The nearest CNDDB occurrence (EONDX # 52605) is a specific record from the area around Vollmer Peak approximately 4.9 miles east of the study area.	Not Expected
Microseris paludosa marsh microseris	Fed: None CA: None CEQA: 1B.2	Occurs in cismontane woodland, closed-cone coniferous forest, coastal scrub, and valley and foothill grassland at elevations between 5 and 355 meters. Known from MEN, MNT, MRN, SCR, SFO, SLO, SMT, SOL, and SON counties.	April-June (July) perennial herb	Although suitable vegetation associations are present in the study area, this species is not known to occur in the East Bay. The nearest CNDDB occurrence (EONDX # 53623) is a non-specific record from the vicinity of the Presidio approximately 9.7 miles southwest of the study area. This record is recorded as Extirpated by CNDDB.	Not Expected
Monardella antonina subsp. *antonina* San Antonio Hills monardella	Fed: None CA: None CEQA: 3	Occurs in chaparral and cismontane woodland at elevations between 320 and 1,000 meters. Known to occur in CCA, FRE, and MNT counties.	June-August perennial herb	Suitable vegetation associations are not present in the study area.	None

Species Name Common Name	Federal, State, CRPR Rank[1]	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Habitat Suitability & Local Distribution	Potential for Occurrence
Monolopia gracilens woodland woollythreads	Fed: None CA: None CEQA: 1B.2	Occurs on serpentine soil in broadleaved upland forest, chaparral, cismontane woodland, North Coast coniferous forest, and valley and foothill grassland at elevations between 100 and 1,200 meters. Known from ALA, CCA, MNT, SBT, SCL, SCR, SLO, and SMT counties.	February-July annual herb	Although suitable vegetation associations are present in the study area, the preferred serpentine substrates are absent and the study area is lower than the preferred elevation gradient of this species. The nearest CNDDB occurrence (EONDX # 80201) is a non-specific record from the Oakland Hills mapped approximately 8.5 miles southeast of the study area.	Not Expected
Navarretia leucocephala subsp. *bakeri* Baker's navarretia	Fed: None CA: None CEQA: 1B.1	Occurs in mesic cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, and vernal pools at elevations between 5 and 1,740 meters. Known from COL, GLE, HUM, LAK, LAS, MEN, MRN, NAP, SOL, SON, SUT, TEH, and YOL counties. May be more widespread.	April-July annual herb	Although suitable vegetation associations are present in the study area, this species is not known to occur in the East Bay. The nearest CNDDB occurrence (EONDX # 13247) is a specific record from Mount Burdell approximately 22 miles northwest of the study area.	Not Expected
Piperia michaelii Michael's rein orchid	Fed: None CA: None CEQA: 4.2	Occurs in coastal bluff scrub, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub, and lower montane coniferous forest at elevations between 3 and 915 meters. Known from ALA, CCA, LAK, MRN, MER, MNT, SBT, SLO, SMT, SCR, TUO, and VEN counties.	April-August perennial herb	Although suitable vegetation associations are present in the study area, this species is not known to occur west of Mount Diablo in CCA county. The nearest herbarium voucher is a 1935 Bowerman collection 3004 from Mount Diablo.	Not Expected
Plagiobothrys chorisianus var. *chorisianus* Choris' popcornflower	Fed: None CA: None CEQA: 1B.2	Occurs on mesic sites in chaparral, coastal prairie, and coastal scrub between elevations of 3 to 160 meters. Known from fewer than 32 locations in MNT, SCL, SCR, SFO and SMT counties. Presumed extirpated from ALA County.	March-June annal herb	Although suitable vegetation associations are present in the study area, this species is presumed extirpated from the East Bay. The nearest CNDDB occurrence (EONDX # 57052) is a non-specific record from Oakland mapped approximately 5.6 miles south of the project area. This record is presumed extirpated.	Not Expected

Species Name Common Name	Federal, State, CRPR Rank[1]	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Habitat Suitability & Local Distribution	Potential for Occurrence
Plagiobothrys glaber hairless popcorn flower	Fed: None CA: None CEQA: 1A	Occurs in alkaline meadows and seeps and coastal salt marshes and swamps between 15 and 180 meters. Presumed extirpated from ALA, MRN, SBT, and SCL counties- last confirmed sighting in 1954.	March-May annual herb	Although suitable vegetation associations are present in the study area, this species is presumed extinct in the wild. The nearest CNDDB (EONDX # 22580) is a non-specific record from the community of Manzanita in MRN county approximately 9.8 miles west of the study area. This record is presumed extirpated.	Not Expected
Polemonium carneum Oregon polemonium	Fed: None CA: None CEQA: 2B.2	Occurs in coastal prairie, coastal scrub, and lower montane coniferous forest at elevations between 0 and 1,830 meters. Known from ALA, DNT, HUM, MRN, SFO, SMT, SIS, and SON counties.	April-September perennial herb	Although suitable vegetation associations are present in the study area, this species is not known to occur in the immediate coastal zone in CCA county. The nearest CNDDB occurrence (73962) is a non-specific record from Angel Island approximately 5.7 miles west-southwest of the study area.	Not Expected
Polygonum marinense Marin knotweed	Fed: None CA: None CEQA: 3.1	Occurs in coastal salt or brackish marshes and swamps at elevations below 10 meters. Known from fewer than 32 locations in ALA, HUM, MRN, NAP, SOL, and Son counties.	April-October annual herb	Although suitable vegetation associations are present in the study area, this species is not known to occur in CCA county. The nearest CNDDB occurrence (EONDX # 89212) is a non-specific record from the vicinity of Oakland mapped approximately 3.1 miles south of the study area.	Not Expected
Ranunculus lobbii Lobb's aquatic buttercup	Fed: None CA: None CEQA: 4.2	Occurs in mesic cismontane woodland, North Coast coniferous forest, valley and foothill grassland, and vernal pools at elevations between 15 and 470 meters. Known from ALA, CCA, LAK, MEN, MNT, MRN, NAP, SAC, SCL, SCR, SMT, SOL, and SON counties.	February-May annual herb (aquatic)	Although suitable vegetation associations are present, the preferred hydrology is absent from the study area. The nearest herbarium voucher is a 1901 Chandler collection (# 787) from the Berkeley Hills.	Not Expected
Senecio aphanactis chaparral ragwort	Fed: None CA: None CEQA: 2B.2	Occurs in chaparral, cismontane woodland, and coastal scrub sometimes on alkaline soils at elevations between 15 and 800 meters. Known from ALA, CCA, FRE, LAX, MER, MNT, ORA, RIV, SBA, SBD, SBT, SCL, SCR, SCT, SCZ, SDG, SFO, SLO, SMT, SOL, SRO, TUL and VEN counties.	January-April annual herb	Although suitable vegetation associations are present in the study area, they are of a heavily degraded nature not considered appropriate for this species to occur.	Not Expected

Species Name Common Name	Federal, State, CRPR Rank[1]	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Habitat Suitability & Local Distribution	Potential for Occurrence
Spergularia macrotheca var. *longistyla* long-styled sand-spurrey	Fed: None CA: None CEQA: 1B.2	Occurs on alkaline substrate in meadows and seeps and marshes and swamps at elevations below 255 meters. Known from ALA, CCA, NAP, and SOL counties.	February- May perennial herb	Although suitable vegetation associations are present in the study area, they are of a heavily degraded nature not considered appropriate for this species to occur. The nearest CNDDB occurrence (EONDX # 109305) is a non-specific record from North Richmond approximately 4.2 miles north of the study area.	Not Expected
Stebbinsoseris decipiens Santa Cruz microseris	Fed: None CA: None CEQA: 1B.2	Occurs in openings in broadleafed upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, and valley and foothill grasslands, sometimes on serpentine substrates, at elevations between 10 and 500 meters. Known from MRN, MNT, SFO, SMT, and SCR counties.	April-May annual herb	Although suitable vegetation associations are present in the study area, this species is not known to occur in the East Bay. The nearest CNDDB occurrence (EODNX # 40838) is a non-specific record from Angel Island approximately 5.9 miles west-southwest of the study area.	Not Expected
Streptanthus albidus subsp. *peramoenus* most beautiful jewelflower	Fed: None CA: None CEQA: 1B.2	Occurs on serpentine soils in chaparral, cismontane woodland, and valley and foothill grassland at elevations from 95 to 1,000 meters. Known from ALA, CCA, MNT, SCL and SLO counties. This species is no longer recognized in TJM2, as it has been synonomized with *Streptanthus glandulosus* subsp. *glandulosus*	March-October annual herb	Although suitable vegetation associations are present in the study area, the preferred serpentine substrates are absent and the study area is below the preferred elevation gradient of this species. The nearest CNDDB occurrence (EONDX # 63268) is a non-specific record from the vicinity of Claremont Canyon and Fish Ranch Road approximately 5.5 miles east-southeast of the study area.	Not Expected
Stuckenia filiformis subsp. *alpina* slender-leaved pondweed	Fed: None CA: None CEQA: 2B.2	Occurs in assorted shallow freshwater marshes and swamps from elevations of 300 to 2,150 meters. Known from ALA, BUT, CCA, ELD, LAS, MER, MNO, MOD, MPA, NEV, PLA, SCL, SHA, SIE, SMT, SOL, and SON counties.	May-July perennial rhizomatous herb	Suitable vegetation associations are not present in the study area.	None

Species Name Common Name	Federal, State, CRPR Rank[1]	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Habitat Suitability & Local Distribution	Potential for Occurrence
Symphyotrichum lentum Suisun Marsh aster	Fed: None CA: None CEQA: 1B.2	Occurs in brackish and freshwater marshes and swamps at elevations at elevations between 0 and 3 meters. Known from CCA, NAP, SAC, SJQ, SOL, and YOL counties.	(April) May-November perennial rhizomatous herb	Although suitable vegetation associations are present in the study area, planned work activities will only occur above the high-tide line while suitable vegetation associations for this species are only present below the high-tide line in the study area. The nearest CNDDB occurrence (EONDX # 62606) is a non-specific record from Point Molate approximately 5.9 miles northwest of the study area.	Not Expected
Trifolium hydrophilum saline clover	Fed: None CA: None CEQA: 2B.2	Occurs in marshes and swamps, on mesic and alkaline sites in valley and foothill grassland, and in vernal pools below 300 meters in elevation. Known from ALA, CCA, LAK, MNT, NAP, SAC, SBT, SCL, SCR, SJQ, SLO, SMT, SOL, SON, and YOL counties. Possibly occurs in COL County.	April-June annual herb	Although suitable vegetation associations are present, they are of a heavily degraded nature not considered appropriate for this species to occur. The nearest CNDDB occurrence (EONDX # 84588) is a non-specific record mapped in the vicinity of Stege which partially overlaps with the study area.	Not Expected
Triphysaria floribunda San Francisco owl's-clover	Fed: None CA: None CEQA: 1B.2	Occurs in coastal prairie, coastal scrub, and valley and foothill grassland, usually on serpentine substrates, at elevations between 10 and 160 meters. Known from MRN, SFO, and SMT counties.	April-June annual herb	Although suitable vegetation associations are present in the study area, this species is not known to occur in the East Bay. The nearest herbarium voucher is an 1892 Brandegee collection (s.n.) from San Francisco.	Not Expected
Triquetrella californica coastal triquetrella	Fed: None CA: None CEQA: 1B.2	Occurs on soil in coastal bluff scrub and coastal scrub at elevations between 10 and 100 meters. Known from CCA, DNT, MEN, MRN, SDG, SFO, SMT, and SON counties.	moss	Although suitable vegetation associations are present in the study area, this species is not known to occur west of Mount Diablo in CCA county. The nearest CNDDB occurrence (EONDX # 74493) is a non-specific record from Ring Mountain approximately 8.2 miles west of the study area.	Not Expected

Species Name Common Name	Federal, State, CRPR Rank[1]	Habitat Preferences, Distribution Information, & Additional Notes*	Flowering Phenology/ Life Form	Habitat Suitability & Local Distribution	Potential for Occurrence
Viburnum ellipticum *oval-leaved viburnum*	Fed: None CA: None CEQA: 2B.3	Occurs on chaparral, cismontane woodland, and lower montane coniferous forest at elevations between 215 and 1,400 meters. Known from CCA, FRE, ELD, GLE, HUM, MEN, NAP, SHA, and SON counties.	May-June shrub (deciduous)	Suitable vegetation associations are not present in the study area.	None

[1]Explanation of State and Federal Listing Codes

Federal listing codes:
- FE Federally listed as Endangered
- FT Federally listed as Threatened
- FPE Federally proposed for listing as Endangered
- FPT Federally proposed for listing as Threatened
- FPD Federally proposed for delisting
- FC Federal candidate species (former Category 1 candidates)
- SC Species of Concern – No longer maintained by USFWS

California listing codes:
- SE State listed as Endangered
- ST State listed as Threatened
- SR State listed as Rare
- SCE State candidate for listing as Endangered
- SCT State candidate for listing as Threatened

California Rare Plant Rank codes:
- 1A Presumed extinct in California
- 1B Rare or endangered in California and elsewhere
- 2 Rare or endangered in California, more common elsewhere
- 3 Plants for which we need more information - Review list
- 4 Plants of limited distribution - Watch list

California Rare Plant Rank Threat Codes:
- .1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
- .2 Moderately endangered in California (20-80% occurrences threatened)
- .3 Not very endangered in California (<20% of occurrences threatened or no current threats known)

Notes: CRPR 1A and some CRPR 3 plant species lacking any threat information receive no threat code extension.

EONDX is the CNDDB Element Occurrence Index number which corresponds to unique records in the California Natural Diversity Database.

Abbreviations

AMA Amador
BUT Butte
CAL Calaveras
CCA Contra Costa
CNDDB CA Natural Diversity Database
CNPS CA Native Plant Society
COL Colusa
DNT Del Norte
ELD El Dorado
FRE Fresno
GLE Glenn
HUM Humboldt
KRN Kern
LAK Lake
LAS Lassen
LAX Los Angeles
MAD Madera
MEN Mendocino
MER Merced
MNT Monterey
MPA Mariposa
MOD Modoc
MRN Marin
NAP Napa
NEV Nevada
ORA Orange
PLA Placer
PLU Plumas
RIV Riverside
SAC Sacramento
SBA Santa Barbara
SBD San Bernardino
SBT San Benito
SCL Santa Clara
SCR Santa Cruz
SCT Santa Catalina Island
SCZ Santa Cruz Island
SDG San Diego
SFO San Francisco
SHA Shasta
SIE Sierra
SIS Siskiyou
SJQ San Joaquin
SMI San Miguel Island
SMT San Mateo
SNI San Nicolas Island
SOL Solano
SON Sonoma
SRO Santa Rosa Island
TEH Tehama
TRI Trinity
TUL Tulare
VEN Ventura
YOL Yolo
YUB Yuba

APPENDIX C SPECIAL STATUS FISH AND WILDLIFE SPECIES KNOWN TO OCCUR OR POTENTIALLY OCCURRING IN THE PROJECT VICINITY

SPECIES NAME COMMON NAME	LISTING STATUS[1]	HABITAT REQUIREMENTS & ADDITIONAL NOTES	HABITAT SUITABILITY & LOCAL DISTRIBUTION	POTENTIAL FOR OCCURRENCE
FEDERAL/STATE LISTED, PROPOSED, CANDIDATE AND/OR FULLY PROTECTED SPECIES				
INVERTEBRATES:				
Bombus crotchii Crotch bumble bee	SC	This species occurs from coastal California east to the Sierra Nevada Cascade crest. It occurs at relatively warm and dry sites in open grassland and scrub habitats. Colonies are annual and only the new, mated queens overwinter. Nests are often located underground in abandoned rodent nests, or above ground in tufts of grass, old bird nests, rock piles, or cavities in dead trees.	May occur in grassland habitat throughout the study area. There is one CNDDB occurrence of the species within the assessment area (EONDX #7892); it is from 2015 and was recorded approximately 2.3 miles southeast near Berkeley.	Possible
Bombus occidentalis western bumble bee	SC	A medium-sized (1 – 2 cm) bumble bee with a short head. The abdomen is color variable, but all individuals have a transverse band of yellow hair on the thorax in front of the wing bases, and the tip of the abdomen is almost always white. Western Bumble Bee lives in a diverse range of habitats, including mixed woodlands, farmlands, urban areas, montane meadows and into the western edge of the prairie grasslands. Like many bumble bees, it typically nests underground in abandoned rodent burrows or within hollows in decaying wood (COSEWIC 2014). Widespread use of pesticides in agricultural lands and habitat fragmentation are thought to have led to severe declines of the species.	Suitable habitat is present within the study area. Although the historic range of the species included the San Francisco Bay Area, the study area is outside of the current range of the species, mapped by California Department of Fish and Wildlife in 2023.	Not Expected

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Danaus plexippus pop. 1 monarch	FC	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Host plant is the milkweed (*Asclepius* spp.). Lifespan reaches >9 months. Fall migration occurs from August-October. Overwintering roosts in California commonly occur on Eucalyptus trees. Milkweed is the species' host plant.	There are no suitable wind-protected tree groves present within the study area for overwintering habitat and milkweed is not likely to occur within the study area due to the disturbed nature of the grassland areas. There are no known roosting sites within the study area and the species is not expected to occur except for an occasional migrant passing through. There are 19 CNDDB occurrences of the species within the assessment area, the nearest of which is from 1992 and was recorded approximately 0.5 miles northwest of the study area at the U.C. Berkeley – Richmond Field Station (EONDX #5271). The iNaturalist database has several research grade occurrence records of individual monarchs in the vicinity of the study area, however, there are no records of nearby wintering populations (iNaturalist 2024).	Not Expected
Euphydryas editha bayensis Bay checkerspot butterfly	FT	A California endemic butterfly restricted to open grasslands with serpentine and similar soils supporting larval and adult host plants (73 FR 50406). Larval host plants include the dwarf plantain (*Plantago erectaas*), owl's clover (*Castilleja densiflora*), purple owl's clover (*Castilleja exserta*), and Indian paintbrush (*Castilleja affinis*) (73 FR 50406). Species also requires variability in slope and aspect to accommodate favorable feeding conditions and larval development due to variations in weather conditions and plant senescence (73 FR 50406). The adult flight season generally occurs from late February to early May (73 FR 50406). Species is restricted to six locals in San Francisco (San Bruno Mountain State & County Park), San Mateo (Edgewood County Park and El Corte de Madera) and Santa Clara (Kirby, Metcalf, San Felipe & Silver Creek Hills) counties (52 FR 35366, USFWS 1998). Designated critical habitat encompasses 13 units totaling 18,293 acres in Santa Clara and San Mateo counties (73 FR 50406).	Serpentine soils not present within the study area; the study area is outside of the species' known range.	None

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Icaricia icarioides missionensis Mission blue butterfly	FE	A small butterfly measuring 1- ½ inches. Host plants include the silver lupine (*Lupinus albifrons*), the summer lupine (*L. formosus*), and the varied lupine (*L. variicolor*). Adult nectar plants include California Phacelia (*Phacelia californica*), bluedicks (*Dichelostemma capitatum*), false goldenaster (*Heterotheca villosa*), seaside buckwheat (*Eriogonum latifolium*), and a variety of native and nonnative thistles (TRA 1982). Mission blue butterflies are relatively weak flyers and can move approximately 0.25 miles between habitat patches. The flight season occurs from March through July. Remaining populations are restricted to the Marin headlands in Marin County, and Milagra Ridge, San Bruno Mountain and Crystal Springs Watershed in San Mateo County.	The study area is outside of the species' known range. Study area is disturbed and not likely to support the host or nectar species.	None
Speyeria callippe callippe callippe silverspot butterfly	FE	A medium-sized butterfly that is endemic to native grasslands with the host plant Johnny jump-up (*Viola pedunculata*). Violas typically grow on hilltops. The active adult period occurs between May and July. Current distribution is restricted to seven locals in San Mateo, Sonoma and Alameda counties (USFWS 2020b).	The study area is outside of the species' known range. Study area is disturbed and not likely to support the host or nectar species.	None
FISH:				

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Acipenser medirostris green sturgeon - southern DPS	FT SSC	The green sturgeon, southern DPS, is an anadromous fish that is found in marine waters from the Bering Sea to Ensenada, Mexico. The southern DPS includes all spawning populations south of the Eel River (exclusive), principally including the Sacramento River population; NMFS "Special Concern" designation refers to the northern DPS which includes spawning populations north of the Eel River (inclusive) (71 FR 17757). Locally, green sturgeon inhabit Suisun, San Pablo, and San Francisco bays, and coastal bays and estuaries from Monterey Bay north to Puget Sound. Spawning occurs in the Sacramento River between March and June; it may extend slightly longer, into July, in the Klamath River. Critical habitat includes coastal California waters from Monterey Bay, California, North to Cape Flattery, Washington; San Francisco Bay; Sacramento River and lower Feather River; Eastern reaches of the Sacramento-San Joaquin Delta; specified bays and estuaries in California, Oregon and Washington (74 FR 52300). Critical habitat does not include any freshwater tributaries feeding into these water bodies (74 FR 52300).	Suitable habitat present in the coastal waters within and adjacent to the study area; waters within the study area are within designated critical habitat for the species. There are two CNDDB occurrences of the species within the assessment area, the nearest of which is mapped to an area overlapping a portion of the study area (EONDX #121221). There is also one research grade iNaturalist occurrence in the vicinity of the study area (OID #177215661); it is from 2023 and located approximately 0.8 miles south of the study area (iNaturalist 2024).	Possible
Acipenser transmontanus white sturgeon	SCT, SSC	White sturgeon are native to the west coast of North America, where they may be found in coastal waters from Ensenada, Mexico, to Alaska. However, spawning only occurs in a few large rivers from the Sacramento-San Joaquin system northward. White sturgeon primarily live in estuaries of large rivers but migrate to spawn in fresh water and often make long ocean movements between river systems (Moyle et al. 2015). They commonly aggregate in deep, soft-bottomed areas of estuaries, where they move about in response to changes in salinity. White sturgeon move into intertidal areas during high tides to feed, with most prey taken on or near the estuary substrate (Moyle et al. 2015).	While the study area does not contain suitable spawning habitat for the white sturgeon, the species may occur in estuarine waters within and adjacent to the study area. The CNDDB does not contain any occurrence records of the white sturgeon. However, the species is known to occur in San Francisco Bay, and the iNaturalist database has several research grade records of the species in the vicinity of the study area (iNaturalist 2024).	Possible

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Eucyclogobius newberryi tidewater goby	FE	A California endemic fish that inhabits brackish coastal lagoons, estuaries and marshes. Range extends from the Smith River in Del Norte County to Agua Hedionda Lagoon in San Diego County. Species is typically an annual species. The Greater Bay Area recovery unit extends from north of Bodega Head in Sonoma County to the Salinas River Valley in Monterey County (USFWS 2005b). Critical habitat is limited to coastal habitat in Humboldt, Mendocino, Sonoma, Marin, San Mateo, Santa Cruz, Monterey, San Luis Obispo, Santa Barbara, Ventura and Los Angeles Counties in California (73 FR 5920).	Suitable habitat is present in the coastal waters within and adjacent to the study area; waters within the study area are within the Greater Bay Area Recovery Unit for the species (GB 4). There are two CNDDB occurrence of the species within the assessment, the nearest of which is from 1950 and was recorded approximately 2.9 miles south of the study area at the Berkeley Aquatic Park (EONDX #13134). The species is thought to be extirpated from San Francisco Bay	Not Expected
Hypomesus transpacificus delta smelt	FT SE	Inhabits brackish water in the Sacramento-San Joaquin Delta. Known from Sacramento/San Joaquin Delta, Sacramento River as high as the confluence with the Feather River, Mokelumne River, Cache Slough, Montezuma Slough, San Pablo Bay, Suisun Bay, Suisun Marsh, Carquinez Strait, and Napa River and Marsh. Spawns in freshwater habitat from February to August in shallow water areas with submersed aquatic plants, suitable substrates and refugia. Important spawning habitat include Barker, Lindsey, Cache, Prospect, Georgiana, Beaver, Hog, and Sycamore sloughs and the Sacramento River in the Delta, and tributaries of northern Suisun Bay. Critical habitat includes: areas of all water and all submerged lands below ordinary high water and the entire water column bounded by and contained in Suisun Bay (including Grizzly and Honker Bays); Goodyear, Suisun, Cutoff, First Mallard and Montezuma sloughs; and the existing contiguous waters contained within the Delta (59 FR 65256).	While waters surrounding the study area are within the species' historic range, the population is now generally limited to hatchery fish released into the Sacramento-San Joaquin Delta and the species is not expected to occur. There are two CNDDB occurrences of the species within the assessment area, the closest of which is from 2006 (EONDX #80738) and located in San Pablo Bay approximately 10.5 miles north of the study area.	Not Expected

SPECIES NAME COMMON NAME	LISTING STATUS[1]	HABITAT REQUIREMENTS & ADDITIONAL NOTES	HABITAT SUITABILITY & LOCAL DISTRIBUTION	POTENTIAL FOR OCCURRENCE
Oncorhynchus mykiss irideus pop 8 steelhead - Central California Coast DPS	FT	An anadromous fish that spend several years in the ocean; returning to freshwater rivers and tributaries to spawn and rear. Listing includes all naturally spawned anadromous steelhead populations below natural and manmade impassable barriers in California streams from the Russian River (inclusive) to Aptos Creek (inclusive), and the drainages of San Francisco, San Pablo, and Suisun Bays eastward to Chipps Island at the confluence of the Sacramento and San Joaquin Rivers (70 FR 37160). Tributary streams to Suisun Marsh including Suisun Creek, Green Valley Creek, and an unnamed tributary to Cordelia Slough (commonly referred to as Red Top Creek), excluding the Sacramento-San Joaquin River Basin, as well as two artificial propagation programs: the Don Clausen Fish Hatchery, and Kingfisher Flat Hatchery/ Scott Creek (Monterey Bay Salmon and Trout Project) steelhead hatchery programs (70 FR 37160). Designated critical habitat encompasses 1,465 miles streams, 386 square miles estuary habitat in Lake, Mendocino, Sonoma, Napa, Marin, San Francisco, San Mateo, Santa Clara, Santa Cruz, Alameda, Contra Costa, and San Joaquin counties (70 FR 52488). The Laguna de Santa Rosa, Santa Rosa, Berkeley, San Mateo Bayside, East Bay cities, Guadalupe River, Novato, Pinole, Suisun Creek, Benicia, Pittsburg, and Martinez watersheds, and Suisun Bay entire unit were excluded from the designation based on their potential economic impact (70 FR 52488).	Known to occur in San Francisco Bay and its tributaries, however the study area provides suitable foraging habitat for outmigrating smolts only. There are no CNDDB occurrences of the species within the assessment area.	Not Expected

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Oncorhynchus mykiss irideus pop. 11 steelhead – California Central Valley DPS	FT	An anadromous fish that spend several years in the ocean; returning to freshwater rivers to spawn and rear. Listing includes all naturally spawned anadromous steelhead populations (and their progeny) below natural and manmade impassable barriers in the Sacramento and San Joaquin Rivers and their tributaries, excluding steelhead from San Francisco and San Pablo Bays and their tributaries, as well as two artificial propagation programs: the Coleman NFH, and Feather River Hatchery steelhead hatchery programs (70 FR 37160). Designated critical habitat encompasses 2,308 miles streams, 254 square miles estuary habitat in Tehama, Butte, Glenn, Shasta, Yolo, Sacramento, Solano, Yuba, Sutter, Placer, Calaveras, San Joaquin, Stanislaus, Tuolumne, Merced, Alameda, Contra Costa counties (70 FR 52488). The North Diablo Range watershed and South San Francisco Bay entire unit were excluded from the designation based on their potential economic impact (70 FR 52488).	While the species may migrate through the San Francisco Bay, the study area provides suitable foraging habitat for outmigrating smolts only. There are no CNDDB occurrences of the species within the assessment area.	Not Expected
Oncorhynchus tshawytscha pop. 7 chinook salmon - Sacramento River winter-run ESU	FE SE	The Chinook salmon is an anadromous fish that spends 1-3 years in the ocean and returns to perennial freshwater streams during the winter to spawn. ESU includes all naturally spawned populations of winter-run Chinook salmon in the Sacramento River and its tributaries downstream to the Carquinez Strait, as well as two artificial propagation programs: winter-run Chinook from the Livingston Stone National Fish Hatchery (NFH), and winter run Chinook in a captive broodstock program maintained at Livingston Stone NFH and the University of California Bodega Marine Laboratory. Migrates up Sacramento River to spawn primarily upstream of Red Bluff. Juveniles rear in the Sacramento River throughout the year. Spawns and rears in Sacramento River and tributaries where gravelly substrate and shaded riparian habitat occurs. Primary constituent elements for designated critical habitat include: (1) freshwater spawning sites, (2) freshwater rearing sites, (3) freshwater migration corridors free of obstructions, (4) estuarine areas free of obstructions, and (5) nearshore marine areas free of obstructions (70 FR 52488).	The study area provides suitable foraging habitat for migrating adults and outmigrating juveniles. There are no CNDDB occurrences of the species within the assessment area.	Possible

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Oncorhynchus tshawytscha pop. 11 chinook salmon - Central Valley spring-run ESU	FT ST	The Chinook salmon is an anadromous fish that spends 1-3 years in the ocean and returns to perennial freshwater streams during the spring to spawn. ESU includes all naturally spawned populations of spring-run Chinook salmon in the Sacramento River and its tributaries to the Carquinez Strait, including the Feather River, as well as the Feather River Hatchery spring-run Chinook program. Juveniles rear in the Sacramento and San Joaquin Rivers and tributaries throughout the year.	While the species may migrate through the San Francisco Bay, the study area provides suitable foraging habitat for outmigrating smolts only. There are no CNDDB occurrences of the species within the assessment area.	Not Expected
Spirinchus thaleichthys longfin smelt	FC ST	The longfin smelt is a pelagic (lives in open water) estuarine fish that typically measures 3.5 to 4.3 inches standard length, although third-year females may grow up to 5.9 inches. The longfin smelt (*Spirinchus thaleichthys*) belongs to the true smelt family Osmeridae, and is one of three species in its genus. Longfin smelt occupy different habitats of the estuary at various stages in their life cycle. Longfin smelt generally spawn in freshwater and then move downstream to brackish water to rear. Juvenile and adult longfin smelt have been found throughout the year in salinities ranging from pure freshwater to pure seawater, although once past the juvenile stage, they are typically collected in waters with salinities ranging from 14 to 28 parts per thousand (ppt) (Baxter 1999). Longfin smelt are thought to be restricted by high water temperatures, generally greater than 22 degrees Celsius (°C) (71 degrees Fahrenheit (°F)) (Baxter et. al. 2010), and will move down the estuary (seaward) and into deeper water during the summer months, when water temperatures in the Bay-Delta are higher. The known range of the longfin smelt extends from the San Francisco Bay-Delta in California northward to the Cook Inlet in Alaska.	While waters within the study area are accessible to the species, the species prefers pelagic habitat and is unlikely to utilize coastal waters along the margins of the bay. There are six CNDDB occurrences of the species within the assessment area, the nearest of which is from 2012 and mapped to an area that overlaps the study area but described as being located within the center of the bay (EONDX #90735).	Not Expected

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Thaleichthys pacificus eulachon - southern DPS	FT	Eulachon are an anadromous forage fish and are endemic to the northeastern Pacific Ocean; they range from northern California to southwest and south-central Alaska and into the southeastern Bering Sea. The southern DPS of eulachon is comprised of fish that spawn in rivers south of the Nass River in British Columbia to, and including, the Mad River in California. Adult eulachon typically spawn at age 2-5 in the lower portions of rivers. Many rivers within the range of eulachon have consistent yearly spawning runs; however, eulachon may appear in other rivers only on an irregular or occasional basis. The spawning migration usually occurs between December and June.	Study area is outside of the species' known range.	None
AMPHIBIANS:				
Ambystoma californiense pop. 1 California tiger salamander – central California DPS	FT ST WL	A large terrestrial salamander that inhabits seasonal/semi-permanent water sources (3-4 months in duration) and adjacent upland habitat with small fossorial mammal activity in lowland grasslands, oak savannah and mixed woodlands. Range includes the Central Valley and Central Coast ranges from Colusa County south to San Luis Obispo and Kern counties from sea level to 3,460 feet (1,054 meters) in elevation with two disjunct populations within Sonoma County and Santa Barbara County. Species have been documented traveling distances up to 1 mile (1.6 km) (Austin and Shaffer 1992). Designated critical habitat encompasses 199,109 acres in 20 counties and is grouped into 4 regions: Central Valley, Southern San Joaquin, East Bay and Central Coast (70 FR 49380). The East Bay Region includes Alameda County, south to Santa Benito and Santa Clara counties, and west to the eastern portions of San Joaquin and Merced counties (70 FR 49380). Primary constituent elements include: (1) standing bodies of fresh water that support inundation during winter rains and hold water for a minimum of 12 weeks in a year of average rainfall; (2) upland habitats adjacent and accessible to breeding ponds that contain small mammal burrows or other underground habitat; and (3) accessible upland dispersal habitat between occupied locations that allow for movement between such sites (70 FR 49380).	Study area is outside of species' known range, and the surrounding suburban matrix presents movement barriers to extant populations. There is no suitable freshwater breeding habitat in the vicinity of the study area. The nearest CNDDB occurrence is a record from 1886 of an extirpated population found on Alameda Island 12 miles south of the study area (EONDX # 45661).	None

SPECIES NAME COMMON NAME	LISTING STATUS[1]	HABITAT REQUIREMENTS & ADDITIONAL NOTES	HABITAT SUITABILITY & LOCAL DISTRIBUTION	POTENTIAL FOR OCCURRENCE
Rana boylii pop. 4 foothill yellow-legged frog - central coast DPS	FPT SE SSC	A medium-sized frog that inhabits rocky, cascading streams in woodland, chaparral and coniferous forests from the Oregon border to San Luis Obispo County and the western foothills of the Sierra Nevada below 6000 feet.	Suitable rocky, cascading streams not present within the study area.	None
Rana draytonii California red-legged frog	FT SSC	A medium-sized frog that inhabits lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation (Jennings and Hayes 1994, Bulger et al. 2003, Stebbins 2003).	There is no suitable freshwater aquatic habitat within the vicinity of the study area. Aquatic habitat adjacent to the study within Hoffman Marsh, which is tidal in nature, is too high in salinity to support the species. The suburban and urban development surrounding the study area presents movement barriers to extant populations in Contra Costa and Alameda counties.	None
REPTILES:				
Actinemys marmorata northwestern pond turtle	FP SSC	A moderate sized freshwater turtle that inhabits permanent or nearly permanent bodies of water and low gradient slow moving streams below 6,000 feet elevation. Range extends from Washington to northern California south along the Sierra Nevada Mountains and the Coast Range down to Monterey and Kern Counties. Formally a recognized subspecies the western pond turtle along with the southwestern pond turtle, now recognized as *A. pallida*. which ranges from the coastal areas south from Monterey County. Species interbreed within the gradation zone that defines the two species.	There is no suitable freshwater aquatic habitat within the study area or surrounding vicinity. Although turtles can handle some salinity in brackish water, the aquatic habitat adjacent to the study area within Hoffman Marsh is tidal in nature, with salinity more than 18 parts per million, which is too saline for turtles to be in consistently. The study area is also surrounded by urban development which present movement barriers to extant populations in Contra Costa and Alameda counties. Additionally, the disturbed nature of the upland habitat would not allow for successful breeding of pond turtles at this location.	None

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Masticophis lateralis euryxanthus Alameda whipsnake	FT ST	The Alameda whipsnake is a subspecies of the California whipsnake, *Masticophis lateralis*, which inhabits the foothills and mixed deciduous and pine forests of the Sierra Nevada and Coast Range mountains from Siskiyou County in northern California to the flatland desert in Cañon de Los Reyes in southern Baja California (Stebbins 2003). The Alameda whipsnake inhabits the inner Coast Ranges in western and central Contra Costa and Alameda counties (Jennings 1983, McGinnis 1992, Swaim 1994). Habitat fragmentation has restricted its range into five recognized subpopulations: Tilden-Briones population, Oakland-Las Trampas population, Hayward-Pleasanton Ridge population, Mount Diablo-Black Hills population, and Sunol-Cedar Mountain population. Designated critical habitat encompasses 154,834 acres in Alameda, Contra Costa and Santa Clara counties (71 FR 58176). Primary constituent elements include: (1) scrub/shrub communities with a mosaic of open and closed canopy; (2) woodland or annual grassland plant communities contiguous to lands containing PCE 1; and (3) lands containing rock outcrops, talus, and small mammal burrows within or adjacent to PCE 1 and or PCE 2 (71 FR 58176).	Scrub habitat not present or adjacent to the study area. Outside of the species' known range.	None
Birds:				
Agelaius tricolor tricolored blackbird (nesting colony)	BCC SC SSC	Highly colonial species; nest in emergent vegetation within aquatic and riparian habitats. Nesting season is from March to late-August.	Tricolored blackbird colonies have very rarely occurred in salt marsh habitats. Hoffman Marsh adjacent to the northeastern portion of the study area does not contain the tall, thick emergent or riparian vegetation (ie cattails, tules, willows) required for nesting. There is one CNDDB occurrence of the species within the assessment area; it is from 1987 and located 15.7 miles northeast of the study area (EONDX #30790).U	Not Expected
Aquila chrysaetos golden eagle	BCC FP	A large diurnal raptor that nests on cliffs and in large trees in open areas. Forages in open terrain including grasslands, deserts, savannahs and early successional stages of forest and shrub habitats (Kochert et al. 2002). A year-round resident in the greater Bay Area. Breeding activities begin in December in California.	Large trees not present within the study area; the species generally avoids urban areas such as that surrounding the study area.	None

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Charadrius nivosus nivosus western snowy plover	FT BCC SSC	Inhabits beaches, mud flats, estuaries, salt evaporation ponds and inland river channels with banks for foraging. Breeds on sandy beaches, dunes, levees, river banks and dry salt evaporation beds along the California coastline typically in areas with minimal human disturbance. San Francisco Bay is within USFWS Recovery Unit 3 (USFWS 2005a). Breeding begins in March; double-brooded (Baicich and Harrison 2005). Federal listing applies only to the Pacific coastal population that nests within 50 miles of the Pacific Ocean on the mainland coast, peninsulas, offshore islands, bays, estuaries, or rivers of the U.S. and Baja, CA; "Species of Special Concern" designation refers to both the coastal and interior populations (USFWS 2007). Critical habitat was revised on June 19, 2012 and encompasses 4 units and 6,077 acres in Washington, 9 units and 2,112 acres in Oregon, and 47 units and 16,337 acres in California. Counties in California with designated critical habitat include: Del Norte, Humboldt, Mendocino, Marin, Napa, Alameda, San Mateo, Santa Cruz, Monterey, San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Orange and San Diego Counties (77 FR 36728).	The species is not known to nest within the study area, and the study area does not provide suitable sandy beach coastal habitat for the species to nest or overwinter. There are no CNDDB occurrences of the species nesting within the assessment area, however, there are multiple occurrences of the species in the vicinity of the study area on eBird, the nearest of which is from October 2023 and located approximately 500 ft south of the study area at Point Isabel (eBird 2024). The species could possibly occur foraging in the winter in the marsh but there is no suitable nesting habitat known within the study area.	Not Expected
Coccyzus americanus occidentalis western yellow-billed cuckoo	FT SE	The western yellow-billed cuckoo inhabits low elevation, well-developed riparian habitat typically consisting of cottonwoods (*Populus* spp.) and willows (*Salix* spp.) with a dense understory. Cottonwood trees often provide important foraging habitat where they feed largely in insects. Home range size within nesting habitat along the Sacramento River have been reported to occupy 25-99 acres per breeding pair (Gaines 1974, Halterman 1991). Breeding season begins in late May in the north and are typically single-brooded. Yellow-billed cuckoos overwinter from Venezuela to northern Argentina.	Riparian forest habitat not present within the study area.	None

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Elanus leucurus white-tailed kite	FP	Inhabits grasslands, agriculture fields, oak woodlands, savannah and riparian habitats in rural and urban areas. Typically nests in trees surrounded by open foraging habitat.	While marginally suitable foraging habitat may be present within the study area, the handful of trees within the study area are within heavily disturbed habitat and are furthermore not likely to support raptors due to the heavy human and dog presence within the study area.	Not Expected
Falco peregrinus anatum American peregrine falcon	BCC FP	Nest on cliffs, rocky outcrops, bare ground and man-made structures such as bridges, buildings and other tall, prominent structures (Baicich and Harrison 2005). They feed primarily on birds; however, they may also consume many small mammals including bats and various rodents.	Preferred cliff habitat or man-made structures not present within the study area.	None
Haliaeetus leucocephalus bald eagle	BCC SE FP	Winters at lakes, reservoirs, river systems and some rangelands and coastal wetlands. Nests in large conifers near aquatic sources. Breeding begins in May; single-brooded (Baicich and Harrison 2005).	Trees within the study area are within heavily disturbed habitat and are not likely to support eagles due to the heavy human and dog presence within the study area.	None

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Laterallus jamaicensis coturniculus California black rail	BCC ST FP	The California black rail is State-listed as threatened and designated as fully protected by §3511 of the California Fish and Game Code. It is the smallest subspecies inhabiting North America and is distinguished by its slender bill and darker brown coloration on its crown and back. California black rails are secretive and inhabit shallow, tidal and freshwater marshes and wetlands characterized by tall, dense stands of emergent vegetation such as cattails (*Typha* spp.) and bulrushes (*Scirpus* spp.). It occurs most commonly in tidal emergent wetlands dominated by pickleweed, or in brackish marshes supporting bulrushes in association with pickleweed. In the Bay Area, black rails prefer habitat associated with alkali heath (*Frankenia grandifolia*), and high insect and low amphipod abundance (Eddleman et al. 1994). Within Central California, black rails are year-round residents that occur throughout the San Francisco Bay estuary, Bodega Bay, Tomales Bay, Morro Bay, and Bolinas Lagoon (Eddleman et al. 1994). Nests are built on the ground in tufts of grass or *Salicornia* spp. beginning in mid-March (Baicich and Harrison 2005). The breeding season lasts through mid-July and are typically single-brooded. Precocial young leave the nest within 24 hours of hatching (Baicich and Harrison 2005).	Hoffman Marsh, adjacent to the study area, provides suitable tidal marsh habitat. There are 23 CNDDB occurrences of the species within the assessment area, the nearest of which is a historic occurrence from 1922 and located 2.9 miles southeast of the study area in Berkeley (EONDX #26181). The nearest recent occurrences are from 2011 and 2013 in Wildcat Canyon Creek Marsh, five miles northwest of the study area (EONDX #25787 and #105478). The Invasive Spartina Project has been conducting annual surveys in Hoffman Marsh since 2006 and have not detected any black rails (Olofson Environmental Inc., 2022, 2023a, 2023b). This indicates that although there is suitable habitat, it appears that black rails have not utilized Hoffman Marsh for nesting in the recent past. Hoffman Marsh may not meet specific habitat preferences of the species, preventing it from occupying the marsh. If work is to proceed in the nesting season, transect point count surveys with broadcast of vocalizations will be conducted for Ridgway's rails and California black rails, to ensure no California black rails are detected within Hoffman Marsh prior to the start of the project	Not Expected

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Rallus obsoletus obsoletus California Ridgway's rail	FE SE FP	Restricted to the San Francisco Bay Area. Inhabits coastal wetlands dominated by pickleweed (*Salicornia* spp.) and cordgrass (*Spartina* spp.). Wintering habitat similar to breeding habitat. Breeding begins in March; single-brooded (Baicich and Harrison 2005).	Suitable nesting habitat may be present in pickleweed within Hoffman Marsh adjacent to the eastern portion of the study area. There are 23 CNDDB occurrences of the species within the assessment area, including an occurrence within Hoffman Marsh from 2019 (EONDX #30340). There are also several research grade occurrences of the species on iNaturalist, including three occurrences from 2019 and 2020 (most recent OID #62374849) that are within 200 feet of the study area (iNaturalist 2024). The species has also been detected year-round in the study area on eBird where there are six occurrences from 2015-2023 within the study area (eBird 2024).	Possible
Riparia riparia bank swallow	ST	Nests in colonies in vertical banks with friable soils. Breeds from April to August. Most of California's nesting colonies occur along the upper Sacramento River. Breeding begins in April; double-brooded (Baicich and Harrison 2005).	River bank habitat not present within the study area.	None
Sternula antillarum browni California least tern (nesting colony)	FE SE FP	Breeds in colonies on bare soil, sand and mudflats along the California coast and the San Francisco Bay Area. Winters south to Mexico. Breeding begins in May; single-brooded (Baicich & Harrison 2005).	Suitable mudflat habitat is present at the edges of and adjacent to the study area. There is one CNDDB occurrence within the assessment area; it is from 1996 and located 8.2 miles south at the Alameda Naval Air Station (EONDX #13784). There is also one research grade occurrence of the species within the breeding season on iNaturalist in the vicinity of the study area (OID #51378738); it is from June 2020 and located approximately 0.8 miles southeast of the study area (iNaturalist 2024). There is also an eBird observation from July 2023 located approximately 500 ft away from the study area (eBird 2024). However, the California least tern nesting colonies are well documented along the east bay shoreline and due to the lack of nearby documentation they are not expected to nest in the marsh adjacent to the study area.	Not Expected
MAMMALS:				

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Enhydra lutris nereis southern sea otter	FT SSC FP	Inhabits the California coastal water, bays and estuaries from Half Moon Bay south to Point Conception with the largest concentration occurring between Pismo Beach and Año Nuevo Island. Individuals rarely venture into open water exceeding 30 meters in depth. Breeding occurs throughout the year with no discernable peak.	Study area is outside of the species' known range.	None
Reithrodontomys raviventris salt marsh harvest mouse	FE SE FP	A small endemic, pickleweed (*Salicornia* spp.) obligate species of tidal marshes of the San Francisco Bay Area. Requires adjacent upland tidal zones for escape cover during floods. Two recognized subspecies, *R. r. halicoetes* that inhabits San Pablo and Suisun bays and *R. r. raviventris* that inhabits the South San Francisco Bay including Corte Madera and Richmond marshes (Shellhammer 2000).	Suitable pickleweed habitat is present in pickleweed within Hoffman Marsh adjacent to the eastern portion of the study area, and it is possible that the species may occur within the study area while dispersing between suitable habitat. However the species has not been detected before in Hoffman Marsh. There are 13 CNDDB occurrences of the species within the assessment area, the nearest of which is from 1986 and located 4.5 miles northwest of the study area in Wildcat Creek Marsh (EONDX #14555).	Possible
Sensitive and Locally Rare Species				
Invertebrates:				
Adela oplerella Opler's longhorn moth	SA	A small day-flying moth (~0.5 inch) that feeds primarily on its host plant, California cream cups (*Platystemon californicum*), within serpentine habitats with one exception near Scott's Valley. Species occurs in the Bay Area from Marin to Santa Cruz counties. Their active period occurs from mid-March to late April.	Serpentine soils not present within the study area.	None
Bombus caliginosus obscure bumble bee	SA	Occurs along the Pacific Coast from southern California to southern British Columbia, with scattered records from the east side of California's Central Valley.	May occur in grassland habitat throughout the study area. There are 11 CNDDB occurrences of the species within the assessment area, including one occurrence from 1983 mapped to an area overlapping the study area and described as in the general vicinity of El Cerrito (EONDX #97899).	Possible

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Cicindela hirticollis gravida sandy beach tiger beetle	SA	Likely historically widespread along the immediate coast from north of San Francisco to northern Mexico, the subspecies is assumed extirpated from most of its former range. Extant populations have been documented in Marin, San Luis Obispo, Ventura, Santa Barbara and San Diego Counties with around one known population or metapopulation in each (Knisley 2004).	Study area is outside of species' known range, CNDDB within assessment area is from 1922 (EONDX #60075).	None
Gonidea angulata western ridged mussel	SA	The western ridged mussel is yellowish-brown to black in color and has an outer shell consisting of two valves reaching up to five inches in length. Once found in coastal basins in from San Diego County to British Columbia and as far east as Idaho, the mussel is now only found in California in rivers north of San Francisco Bay, with the Russian River being the southernmost observation point of the species. Like other freshwater mussels, the western ridged mussel requires abundant, connected aquatic habitats with stable substrates, perennial inundation, and protection from scour and disposition. Specifically, it inhabits rivers with wide floodplains, low slope, large components of sand and gravel substrate, and large boulders (Blevins et al. Selvaggio 2020).	Freshwater habitat not present within the study area; the study area is outside the known range for the species.	None
Helminthoglypta nickliniana bridgesi Bridges' coast range shoulderband	SA	Inhabits open hillsides in Alameda and Contra Costa counties; tends to colonize under tall grasses and weeds.	Suitable open hillside habitat is present within the study area, however the study area's history as a landfill and the lack of connectivity to known populations and limited dispersal capabilities of the species make it unlikely for the species to occur.	Not Expected
Icaricia icarioides pheres Pheres blue butterfly	SA	Known only from the sand dunes of western San Francisco and near Lobos Creek in the Presidio of San Francisco; considered extinct since the 1940s/50s (Emmel et al. 1998).	Study area is outside of the species' known range.	None
Lichnanthe ursina bumblebee scarab beetle	SA	Occurs in open expanses of coastal sand dunes and slopes of sand dunes near vegetation (Poole and Gentili 1996).	Sand dune habitat not present within the study area; study area is outside of species' known range.	None

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Microcina leei Lee's micro-blind harvestman	SA	Small, blind harvestman known from two locations near Berkeley in Alameda County, California, USA. Described as associated with "grassland biomes" and may be more widespread than the single (holotype) occurrence (Briggs and Ubick 1989).	While suitable grassland habitat is present within the study area, the species is not likely to occur based on the study area's history as a landfill and the species' limited dispersal capabilities. There are two CNDDB occurrences of the species within the assessment area, the nearest of which is from 1981 and located 5 miles southeast of the study area in Woolsey Canyon, Berkeley (EONDX #58432).	Not Expected
Microcina tiburona Tiburon micro-blind harvestman	SA	Small, blind harvestman known from three occurrences in serpentine soil grasslands on the Tiburon Peninsula, Marin County. It is possible that additional populations exist within serpentine soils in the San Francisco Bay Area (LSA 2010).	Suitable serpentine soil not present within the study area; study area is outside of the species' known range.	None
Pomatiopsis californica Pacific walker	SA	Amphibious snail that occurs in wet, vegetative riparian areas and leaf litter as well as flowing or still water in shallow mud banks, marshy seepages, and springs. Restricted to coastal Oregon and California to San Mateo County (Hatfield et al. 2015).	Species is only known in the area from a historical occurrence dated before 1899 (EONDX #120913); the species is considered extirpated from the area.	None
Trachusa gummifera San Francisco Bay Area leaf-cutter bee	SA	Predominately black bee that nests in tunnels bug into semiarid hillsides vegetated with shrubbery or tall grass. Tunnel entrances are associated with a tumulus. Known from 5 males and 39 females collected west of the San Francisco Bay (Grigarick and Strange 1968).	Semiarid hillside not present within the study area; CNDDB occurrence within the assessment area is from 1957 (EONDX #59993).	None
Tryonia imitator mimic tryonia (=California brackishwater snail)	SA	Inhabits perennial brackish water sources including coastal lagoons, estuaries and salt marshes. Ranges from Sonoma County south to San Diego County. Exhibits high salinity tolerance.	Species thought to be extirpated from the area, CNDDB occurrences area from before 1900 (EONDX #12935, 57942).	None
Vespericola marinensis Marin hesperian	SA	This species inhabits riparian, mixed evergreen and moist coastal scrub and chaparral communities in Marin County. The Marin Hesperian snail is often found in leaf litter and on the underside of leaves, bark and logs. Characteristics that differentiate *V. marinensis* from other Vespericola species: "the inner part of the basal lip is gently curved forward" and the base is "tumid and solid-looking" (Roth 2003).	Study is outside of the species' known range; suitable riparian, mixed evergreen, coastal scrub, or chaparral not present within study area.	None
Fish:				

SPECIES NAME COMMON NAME	LISTING STATUS[1]	HABITAT REQUIREMENTS & ADDITIONAL NOTES	HABITAT SUITABILITY & LOCAL DISTRIBUTION	POTENTIAL FOR OCCURRENCE
Archoplites interruptus Sacramento perch	SCC	Historically found in the sloughs, slow-moving waters, and lakes of the Central Valley; prefers warm water, aquatic vegetation is essential for young. Extant native populations restricted to the Sacramento-San Joaquin Delta, Pajaro and Salinas River drainages, and Clear Lake.	The study area is outside of the species' known range.	None
Pogonichthys macrolepidotus Sacramento splittail	SSC	Endemic to the lakes and rivers of the Central Valley, but now confined to the Delta, Suisun Bay, lower Napa River, lower Petaluma River, the mouth of Coyote Creek in Santa Clara County (rare), and during high outflow years, margins of the Central and South Bay (occasionally) (Moyle et. al. 2004). Inhabits slow-moving river sections, dead-end sloughs; requires flooded vegetation for spawning and foraging for young. Spawning occurs from late February to early July; peaking March through April (Moyle 2002). Yolo and Sutter bypasses are important spawning grounds for this species (Moyle 2002).	The study area is outside of the species' known range.	None
AMPHIBIANS:				
Dicamptodon ensatus California giant salamander	SSC	Large, stocky terrestrial salamander. Occur primarily in humid coastal forests from Santa Cruz County to southern Mendocino and Lake Counties. Found near streams in damp conditions; aquatic adults and larvae inhabit cool, rocky streams and occasionally lakes and ponds (Zeiner et al. 1990).	Coastal forest habitat not present within the study area.	None
BIRDS:				
Accipiter cooperii Cooper's hawk	WL	Inhabits dense stands of oak woodlands, riparian deciduous forests, or other forest habitats often near water and suburban areas. Hunts in broken woodlands along forest edges. Breeding begins in April; single-brooded (Baicich and Harrison 2005).	While marginally suitable foraging habitat may be present within the study area, the study area lacks dense stands of trees necessary for nesting. Trees within the study area are within heavily disturbed habitat and are furthermore not likely to support raptors due to the heavy human and dog presence within the study area. There are four CNDDB occurrences of the species within the assessment area, the nearest of which is from 2014 and located 3.2 miles west of the study area at the Miller Knox Regional Shoreline (EONDX #104469).	Not Expected

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Ardea alba great egret (rookery site)	SA	A large wading bird that inhabits a variety of aquatic habitats including shores, tideflats, marshes, swamps, ponds, lakes, rivers and streams. Nests colonially in large trees near water bodies. Breeding begins in March; single-brooded (Baicich and Harrison 2005).	Trees within the study area are within heavily disturbed habitat and are furthermore not likely to support colonies due to the heavy human and dog presence within the study area; colony not observed during reconnaissance or documented in the vicinity of Hoffman Marsh. There is one CNDDB occurrence of the species within the assessment area; it is from 1988 and located 9.2 miles northwest of the study area on West Marin Island (EONDX #25936). Individual great egrets do occur in Hoffman Marsh and the study area, but no rookery sites are present.	Not Expected
Ardea herodias great blue heron (nesting colony)	SA	A large wading bird that inhabits a variety of aquatic habitats including shores, tideflats, marshes, swamps, ponds, lakes, rivers and streams. Nests colonially in large trees near water bodies. Breeding begins in March; single-brooded (Baicich and Harrison 2005).	Trees within the study area are within heavily disturbed habitat and are furthermore not likely to support colonies due to the heavy human and dog presence within the study area; colony not observed during reconnaissance There are three CNDDB occurrence of the species within the assessment area; the nearest is from 1982 and located 10.5 miles northwest of the study area in San Rafael (EONDX #25953). Individual great blue herons do occur in Hoffman Marsh and the study area, but no rookery sites are present.	Not Expected
Asio flammeus short-eared owl	BCC SSC	Inhabits open grasslands, prairies, marshes and agricultural fields with sufficient vegetative cover and abundant small mammal prey. Nests on the ground in a shallow depression. Breeds in Great Basin, Sacramento-San Joaquin Delta, San Joaquin Valley, and isolated areas along the southern California Coast (Shuford and Gardali 2008). Breeds from March through July; single-brooded (Baicich & Harrison 2005, Shuford and Gardali 2008).	Suitable habitat is present within Hoffman Marsh adjacent to the study area, however the study area is outside of the species' known range, is too disturbed by human and dog presence, and lacks sufficient vegetative cover. There is one CNDDB occurrence of the species within the assessment area; it is from 1986 and located 4.5 miles northwest of the study area in Wildcat Creek Marsh (EONDX #25540).	None

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Athene cunicularia burrowing owl	BCC SSC	Valley bottoms and foothills with low vegetation and fossorial mammal activity. Listing includes wintering observations with/without a burrow in San Francisco, Ventura, Sonoma, Marin, Napa and Santa Cruz counties. Breeding begins in March; single-brooded (Baicich and Harrison 2005).	Burrowing owl are commonly observed overwintering within the study area (iNaturalist 2024, eBird 2024). There are a total of 51 research grade occurrences of the species within the study area on iNaturalist made between 2018 and 2023 within the study area (most recent OID #195483380), only seven of which occur within the breeding season. There are also seven observations of burrowing *owls* within the study area on eBird from 2020-2023 and one CNDDB occurrence within the assessment area; it is from 2004 and located 0.6 miles northwest of the study area in waste clean-up area in Richmond (EONDX #72456). Although breeding has not been documented here it is possible that breeding could occur in the future.	Possible
Branta hutchinsii leucopareia cackling (=Aleutian Canada) goose	WL	The only subspecies of *Branta hudsonii* in California and was once considered a subspecies of the Canada Goose. Preferred habitats include lacustrine, fresh emergent wetlands, and moist grasslands, croplands, pastures, and meadows. This species occurs mainly in these habitats during winter in Del Norte County, the San Francisco Bay-Delta, and southern Central Valley (Zeiner et. al. 1990).	Freshwater habitat not present within the study area.	None
Circus hudsonius northern harrier	BCC SSC	Inhabits both freshwater and saltwater marshes and adjacent upland grasslands. Nests on the ground in tall grasses in grasslands and meadows.	Suitable nesting habitat is present within Hoffman Marsh adjacent to the eastern portion of the study area. There are three CNDDB occurrences of the species within the assessment area, the nearest of which is from 2002 and located 2.3 miles south in the McLaughlin Eastshore State Park (EONDX #46866). There are three research grade occurrences of the species in the vicinity of the study area on iNaturalist, including one occurrence within the study area from December 2023 (OID #193769965); there are also several occurrences on eBird within the vicinity of the study area, including one within the study area from November 2021 (iNaturalist 2024, eBird 2024).	Possible

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Coturnicops noveboracensis yellow rail	BCC SSC	Highly secretive, breeds in northeastern California in wet meadows and sedge marshes. May winter in tidal marshes in the greater San Francisco Bay Area (Shuford and Gardali 2008).	This species is known to breed in northeastern California in freshwater marshes and is not been known to nest within the San Francisco Bay region (Shuford and Gardali 2008). Overwintering habitat may be present within marsh habitat within Hoffman Marsh. However, this species is sensitive to disturbance and is very rare and has only been documented twice in the San Francisco East Bay in the last 20 years (eBird 2024). There are only historic CNDDB occurrences of the species within the assessment area, the nearest of which is from 1905 and located 9.5 miles southeast of the study area on Alameda Island (EONDX #106945).	Not Expected
Egretta thula snowy egret (nesting colony)	SA	Inhabits shallow estuaries, marshes, ponds, rivers and wetlands. Breeds in rookeries near water in trees often in dense thickets or protected areas. Breeding season varies, typically begins in mid-April in California; single-brooded (Baicich and Harrison 2005).	Large trees suitable for colonial nesting not present within the study area, colony not observed during reconnaissance. There are two CNDDB occurrences of the species within the assessment area, the nearest of which is from 1990 and located 1.6 miles west of the study area on Brooks Island (EONDX #12101). Snowy egret individuals are present in Hoffman Marsh, but no known nesting colonies occur in the vicinity.	Not Expected

SPECIES NAME COMMON NAME	LISTING STATUS[1]	HABITAT REQUIREMENTS & ADDITIONAL NOTES	HABITAT SUITABILITY & LOCAL DISTRIBUTION	POTENTIAL FOR OCCURRENCE
Geothlypis trichas sinuosa saltmarsh common yellowthroat	BCC SSC	One of four California-endemic subspecies of the common yellowthroat (*Geothlypis trichas*), the saltmarsh common yellowthroat is endemic to the greater San Francisco Bay region. Breeds within brackish marshes, salt marshes, riparian woodland/swamp, freshwater marshes, and upland areas surrounding these habitat types, often occupying the ecotone between moist and upland habitats. Inhabits dense vegetation in wetlands, marshes, estuaries, prairies and riparian areas of San Francisco and San Pablo bays, and along the coastal areas of Marin, San Francisco, and San Mateo counties (Shuford and Gardali 2008). Breeds from mid-March to late July; double-brooded (Baicich and Harrison 2005, Shuford and Gardali 2008).	Marginal *s*uitable nesting habitat is present adjacent to the eastern boundary of the study area within Hoffman Marsh. However this species' known nesting range does not overlap with the study area (Shuford and Gardali 2008). There are seven CNDDB occurrences of the saltmarsh common yellowthroat within the assessment area, the nearest of which is from 1989 and located 5.3 miles south of the study area at the Bay Bridge Toll Booth (EONDX #59848). There are no occurrences of the saltmarsh common yellowthroat *Geothlypis trichas sinuosa* subspecies on iNaturalist or eBird. There are 29 occurrences of *Geothlypis tricha* on eBird from 1979-2023, the nearest of which are approximately 200 feet from the study area. None of the observations were during the breeding season (eBird 2024). Based on the occurrence of these observations within the range of the saltmarsh common yellowthroat, all or some of these observations may be of the *Geothlypis trichas sinuosa* subspecies.	Not Expected

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Hydroprogne caspia Caspian tern (nesting colony)	SA	The largest of the terns, a colonial breeder and a seasonal migrant to the San Francisco Bay Area. Breeds on beaches and sparsely vegetated shorelines and tidal marshlands. Breeding begins in April; single-brooded (Baicich and Harrison 2005).	Marginal disturbed shoreline and marsh habitat is present at the edges of the study area. There is one CNDDB occurrences of the species within the assessment area, it is from 1990 and located 1.6 miles west of the study area on Brooks Island (EONDX #12101), where there is a known caspian tern nesting colony. There were four known breeding colonies of Caspian terns in the San Francisco Bay area in 2008, where a total of approximately 1,000 breeding pairs nested; these locations are Brooks Island, Eden Landing, Agua Vista Park, and Stevens Creek (USACE 2010). There are several research grade occurrences of the species on iNaturalist in the vicinity of the study area, including one within the study area from July 2021 (iNaturalist 2024, OID #87297444), and several occurrences of the species in the vicinity of the study area on eBird (eBird 2024). However no nesting colonies are known to occur in the vicinity of the study area and Caspian tern nesting colony locations are well documented in the San Francisco Bay Area.	Not Expected
Melospiza melodia maxillaris Suisun song sparrow	BCC SSC	A medium-sized sparrow that inhabits marshes containing cattails, tules, and other sedges, and *Salicornia*; also known to frequent tangles bordering sloughs. One of four subspecies in the San Francisco Bay Area. Endemic to the Suisun Marsh tidal marshlands from the Carquinez Strait to Sherman Island and Big Break (Shuford and Gardali 2008). Breeding begins in April; often treble-brooded (Baicich and Harrison 2005).	Study area is outside of the species' known range.	None

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Melospiza melodia pusillula Alameda song sparrow	BCC SSC	One of four subspecies in the San Francisco Bay Area. Endemic to the southern San Francisco Bay tidal marshlands. Breeding begins in April; often triple-brooded (Baicich & Harrison 2005).	Suitable tidal marshland present within Hoffman Marsh adjacent to the study area. There are ten CNDDB occurrences of the species within the assessment area, the nearest of which is from 1940 and mapped to an area within Hoffman Marsh and overlapping the study area (EONDX #60988). There are no occurrences of the *pusillula* subspecies on iNaturalist or eBird, however there are five research grade occurrences of *Melospiza melodia* on iNaturalist (most recent OID #82371713) within the study area from 2020-2021, including one occurrence in the breeding season. There are also five occurrences of *Melospiza melodia* on eBird within the study area, including one occurrence during the breeding season (eBird 2024).	Possible
Melospiza melodia samuelis San Pablo song sparrow	BCC SSC	A medium-sized sparrow that inhabits marshes containing cattails, tules, and other sedges, and *Salicornia*; also known to frequent tangles bordering sloughs. One of four subspecies in the San Francisco Bay Area. Endemic to the north San Francisco Bay and San Pablo Bay. Breeding begins in April; often triple-brooded. Breeding begins in April; often treble-brooded (Baicich and Harrison 2005).	Study are is outside of the species' known range.	None
Nannopterum auritum double-crested cormorant (nesting colony)	WL	Rookery sites are located near large water bodies and on small islands, shorelines, and cliff ledges. Nest consists of a structure of twigs and plant material in a tree or tall manmade structures. Breeding begins in early March to mid-June; single-brooded (Baicich and Harrison 2005).	Very few trees and no tall structures available for nesting colonies. The area is heavily disturbed by human and dog presence. There are two CNDDB occurrences of the species within the assessment area, the nearest of which is from 1993 and located 5.2 miles northwest of the study area (EONDX #27369).	Not Expected
Nycticorax nycticorax black-crowned night heron (nesting colony)	SA	Colonial nester in sites near fresh, brackish, or salt water in all types of vegetation; also in marshes in Phragmites, cattails, grass tussocks, and *Scirpus*. Breeding begins in winter to April; usually single-brooded (Baicich and Harrison 2005).	Suitable marsh habitat present in Hoffman Marsh adjacent to the study area. Trees within the study area are within heavily disturbed habitat and are furthermore not likely to support colonies due to the heavy human and dog presence within the study area. There are two CNDDB occurrences of the species within the assessment area, the nearest of which is from 1990 and located 1.6 miles west of the study area on Brooks Island (EONDX #12100).	Not Expected

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Pandion haliaetus osprey	WL	Inhabits rivers, lakes and coastal habitats. Nest in tall trees near water bodies with sufficient prey. Range is almost cosmopolitan throughout California. Breeding begins in March; single-brooded (Baicich and Harrison 2005).	Marginally suitable foraging habitat for the species may be present within the study area, as it is adjacent to the San Francisco Bay. However the handful of trees within the study area are within heavily disturbed habitat and are not likely to support nesting ospreys. There are 11 CNDDB occurrences within the study area, the nearest of which is from 2016 and located 7.8 miles northwest of the study area (EONDX #108158).	Not Expected
Xanthocephalus xanthocephalus yellow-headed blackbird	SSC	Inhabits lakes, reservoirs, sloughs, marshes, and ponds with tall emergent vegetation typically cattails (*Typha* spp.) or tules (*Scirpus* spp.) in the Central Valleu and east of the Sierras (Shuford and Gardali 2008). Nests built in vegetation over water in nesting colonies. Breeds from mid-April through late July; single-brooded (Baicich and Harrison 2005, Shuford and Gardali 2008).	Study area is outside of the species' known nesting range.	None
Mammals:				
Antrozous pallidus pallid bat	SSC WBWG-H	Inhabits rocky terrain in open areas in lowlands, foothills and mountainous areas near water throughout California below 2,000 meters. Roost in caves, rock crevices, mines, hollow trees, buildings and bridges in arid regions in low numbers (<200). Active from March-November; migrates in some areas, but may hibernate locally.	Rocky terrain in lowlands, foothills and mountainous areas not present within the study area, however marginally suitable habitat may be present in trees hollows within the study area. There are ten occurrences of the species within the study area made between 1891 and 1967, the nearest of which is from 1943 and located 0.01 miles east of the study area (EONDX #66594). The 1967 occurrence is located 7.2 miles southeast of the study area in Orinda (EONDX #66599).	Not Expected

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Corynorhinus townsendii Townsend's big-eared bat	SSC WBWG-H	An obligate cave rooster and moth specialist. Inhabits caves and mines, but may also use bridges, buildings, rock crevices and tree hollows in coastal lowlands, cultivated valleys and nearby hills characterized by mixed vegetation throughout California below 3,300 meters. Exhibits high site fidelity and is highly sensitive to disturbance. Forages along edge habitats near water; may travel long distances during foraging bouts.	Preferred cave habitat, manmade structures, and freshwater mesic habitat (required for drinking water due to poor urine-concentrating abilities), are not present within the study area, however marginal habitat may be present in tree hollows within the study area. There are four occurrences of the species within the study area, the nearest of which is a historic occurrence from 1938 and located 3.8 miles southeast of the study area (EONDX #93555). The two most recent occurrences of the species are located between 6 and 7 miles away on Angel Island and are from 2008 (EONDX #79574) and 2018 (EONDX #115237).	Not Expected
Dipodomys heermanni berkeleyensis Berkeley kangaroo rat	SA	Inhabits open grass hilltops and open spaces in chaparral and blue oak/foothill pine woodlands; needs fine, deep, well-drained soils for burrowing. Past collections of the species have been made in the vicinity of Mount Diablo, the Berkeley Hills, Strawberry Canyon, Orinda Park Pool, Calaveras Reservoir, and Siesta Valley. More recent – and as-yet unconfirmed – kangaroo rat occurrences have been reported in the Sunol Valley Regional Wilderness well within the species recognized range. Populations in the vicinity of the Berkeley Hills are considered extirpated due to predation by domestic cats.	Chaparral and woodland habitat not present within the study area.	None
Erethizon dorsatum North American porcupine	SA	Large quill-covered rodent that commonly inhabits coniferous and mixed forested areas, occasionally shrubland and tundra. Makes dens in hollow trees or rocky areas.	Forested habitat not present within the study area.	None
Eumetopias jubatus Steller sea lion	SSC	Endemic to the north Pacific Ocean. Occurs along the Pacific coastline south to San Miguel Island. A large, carnivorous sea-lion. Forages for fish in deep waters off shorelines.	Species not known to frequent the waters surrounding the study area and species is considered possibly extirpated from the region; CNDDB occurrence is from 1982 and located in San Francisco (EONDX #117601).	Not Expected

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Lasionycteris noctivagans silver-haired bat	SA WBWG-M	Inhabits conifer and mixed conifer forests, especially old growth throughout the mountainous coastal and Sierra Nevada regions of northern California. Roosts in cavities and hollows in near the tops of trees and in caves. Forages in open areas such as meadows, above the canopy and within riparian zones for a variety of ground and airborne insects and arthropods.	Conifer forest and freshwater drinking sources not present within the study area. Riparian and meadow habitat for foraging also not present. The study area is out of the species' known range, and the species would only occur briefly within the study area while migrating during the summer or fall (CDFW 2021). The two occurrences of the species within the study area are from 1920 and 1982, the most recent also being the nearest; this occurrence is located 2.7 miles east of the study area in Tilden Regional Park (EONDX #68905).	None
Lasiurus cinereus hoary bat	SA WBWG-M	A solitary foliage rooster that prefers evergreens, but will use deciduous trees in forested habitats, particularly in edge habitat (Bolster 2005).	Preferred forested habitat not present within the study area, however marginally suitable habitat may be present in trees within the study area, The study area also lacks fresh drinking water, which is required for the species due to its poor urine-concentrating abilities and further marginalizes tree habitat within the study area for the species (CDFW 2021). There are five CNDDB occurrences within the assessment area, one of which is from 1969 and mapped to a non-specific area overlapping the study area (EONDX #68778). The most recent occurrence of the species within the assessment area is from 1987 and located 12 miles southwest of the study area in Golden Gate Park, San Francisco (EONDX #68872).	Not Expected
Lasiurus blossevillii western red bat	SSC WBWG-H	Primarily associated with intact riparian habitat. Roosts individually in foliage within trees along riparian areas, orchards and suburban areas. Favors cottonwoods, willows, sycamores, and walnut trees (Bolster 2005).	Riparian habitat not present within the study area. None of the preferred tree species for roosting are present. There is one occurrence of the species in the assessment area, it is from 2000 and located 12 miles southwest of study area in Golden Gate Park, San Francisco (EONDX #69792); it consisted of a single individual observed in a cultivated tree.	Not Expected
Microtus californicus sanpabloensis San Pablo vole	SSC	Inhabits salt marshes of San Pablo Creek, on the south shore of San Pablo Bay; constructs burrows in soft soils, feeds on grasses, sedges, and herbs; forms a network of runways leading from the burrow.	Study area is outside of the species' known range.	None

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	SSC	Inhabits oak and riparian woodlands with a well-developed understory in the San Francisco Bay Area. They exhibit high site fidelity and may live in the same nest community for generations. Nest structures are key indicator of their presence and are easily identified by their conical appearance.	Oak and riparian woodland not present within the study area.	None
Nyctinomops macrotis big free-tailed bat	SSC	A member of the Molossidae (free-tailed bat) family ranging from sea level to 2,600 meters (8,500 feet) in southern Utah, Nevada, and California, southern and western Texas, north and central Colorado, Arizona and New Mexico southward to South America (Navo 2005). Inhabits rugged and rocky arid landscapes in desert scrub, woodland and evergreen habitats (Navo 2005). Roosts primarily in cliff crevices, but will also use buildings, caves and tree cavities (Navo 2005).	Desert scrub, woodland or evergreen habitat not present within the study area. The species is rare in California and does not likely breed within the state; occurrences of the species within the state outside of the San Diego Co. consist of vagrants found in fall in winter. The species is known in Alameda Co. from one 1916 record now considered suspect (CDFW 2021). There are two occurrences of the species within the assessment area, the nearest of which is the 1916 occurrence (EONDX #59604), the second of which is from 1979 and located 11.6 miles northeast in Martinez (EONDX #59559).	None
Scapanus latimanus insularis Angel Island mole	SA	Mole species known only from Angel Island in the San Francisco Bay (Hall 1981).	Study area is outside of the species' known range.	None
Scapanus latimanus parvus Alameda Island mole	SSC	One of eleven subspecies of broad-footed moles endemic to Alameda Island in Alameda County. Inhabits moist, rich soils with sparse vegetation (Verts and Carraway 2001). Individuals are rarely seen above the surface; presence is often determined based on the network of raised surface runways (Verts and Carraway 2001).	Study area is outside of the species' known range.	None

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Sorex ornatus sinuosus Suisun shrew	SSC	Salt marsh shrews are associated with the middle salt marsh zone, near the mean high water elevation around San Francisco, San Pablo, and Suisun bays. Habitat in brackish marshes may occasionally be used by salt marsh shrews. The physical features of the habitat seem to be more important than the specific plant composition. The upper half of the middle marsh zone is typically inundated only by higher high tides, and contains abundant vegetation cover, surface moisture, and organic detritus, with abundant amphipods and other crustaceans. This appears to be optimum and extremely important habitat for salt marsh shrews (Johnston and Rudd 1957, Owen and Hoffmann 1983). Thick stands of vegetation and adjacent marsh areas are thought to provide refuge from extreme high tides and Hays and Lidicker (2000) documented Suisun shrews along the ecotone between high marsh and ungrazed annual grassland. The current distribution of the Suisun shrew appears to be limited to the isolated tidal salt and brackish marshes on the perimeters of San Pablo Bay and Suisun Marsh. Its range is bounded on the west by Tubbs Island in Sonoma County and on the east by Collinsville in Solano County.	Study area is outside of the species' current known range.	None
Sorex vagrans halicoetes salt-marsh wandering shrew	SSC	A small, insectivorous rodent that inhabits tidal marshes of the South San Francisco Bay. Typically found in areas with dense cover dominated by pickleweed (Californian spp.), abundant prey and fairly continuous ground moisture. Salt marsh wandering shrews have not been detected in grassy upland areas (Newman 1970).	While the study area is within the historic range of the species; the species has not been detected within the study area or the adjacent Hoffman marsh (Collins 1998). And while salt marsh habitat is present near the southeast edge of the study area and in Hoffman Marsh adjacent to the study area, the species is only known to utilize the low and middle marsh tidal zone and is not expected to occur within the study area (Collins 1998). There are two CNDDB occurrences of the species within the assessment area, the nearest and most recent of which is from 1980 and located 5.2 miles northwest of the study area in the San Pablo Creek Salt Marsh (EONDX #24358).	Not Expected

Species Name Common Name	Listing Status[1]	Habitat Requirements & Additional Notes	Habitat Suitability & Local Distribution	Potential for Occurrence
Taxidea taxus American badger	SSC	Inhabits open areas with friable soils within woodland, grassland, savannah and desert habitats. A fossorial mammal that preys predominately on ground squirrels (*Ammospermophilus* and *Spermophilus* spp.) and pocket gophers (*Thomomys* spp.).	While the study area contains marginally suitable grassland habitat, the study area is not adjacent to habitat where the species is known to occur, and the species is not likely to disperse through the area due to it being surrounded by development.	None
Zapus trinotatus orarius Point Reyes jumping mouse	SSC	Restricted to the Point Reyes Peninsula; occurs in wet, marshy coastal meadows, humus-filled dark soils associated with coast redwood forests, thickets of deciduous woody vegetation along streams and seepage areas, and, less frequently, in grassy areas beneath open-canopied coniferous forests (Collins 1998).	Study area is outside of the species' known range.	None

[1] Explanation of State and Federal Listing Codes

Federal listing codes:

FE	Federally listed as Endangered
FT	Federally listed as Threatened
FPE	Federally proposed for listing as Endangered
FPT	Federally proposed for listing as Threatened
FPD	Federally proposed for delisting
FC	Federal candidate species (former Category 1 candidates)
SC	Species of Concern (NOAA Fisheries regulated species only)
CH	Critical Habitat (Proposed or Final) is designated
SSC	Species of Special Concern designated by the Marine Mammal Commission

California listing codes:

SE	State listed as Endangered
ST	State listed as Threatened
SCE	State candidate for listing as Endangered
SCT	State candidate for listing as Threatened
SCD	State candidate for delisting
SSC	California Species of Special Concern
FP	Fully Protected
WL	Watch List

ABC	The American Bird conservancy maintains a Green List of all the highest priority birds for conservation in the continental United States and Canada. Based off the species assessments prepared by Partners in Flight (PIF) and has been expanded to include shorebirds, waterbirds and waterfowl.
AFS	American Fisheries Society identifies marine, estuarine and diadromous fish species that are at risk of extinction in North America. The AFS has designated the following four classifications in order of conservation importance E – Endangered, T – Threatened, V – Vulnerable, and CD – Conservation Dependent.
BCC	U.S. Fish and Wildlife Service Birds of Conservation Concern. List of migratory and nonmigratory bird species (beyond those already designated as federally threatened or endangered) that represent the Service's highest conservation priorities.
SA	"Special Animals" is a general term that refers to all of the 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 Department of Fish and Game considers the taxa on this list to be those of greatest conservation need.
WBWG	Western Bat Working Group: H – High Priority indicates species that are imperiled or are at high risk of imperilment based on available information on distribution, status, ecology and known threats; M – Medium Priority indicates a lack of information to assess the species' status; L – Low Priority indicates relatively stable populations based on available data. The WBWG also uses intermediary designations including MH – Medium-High and LM – Low-Medium priorities.
Xerces	Xerces Society for Invertebrate Conservation. Red List identifies endangered, threatened or at-risk pollinator species. PE – Possibly Extinct indicates species only known from historical occurrences; CI – Critically Imperiled indicates species at very high risk of extinction; I – Imperiled indicates species at high risk of extinction; V – Vulnerable indicates species at moderate risk of extinction; DD – Data Deficient indicates lack of information to sufficiently assess status.

APPENDIX D CALIFORNIA NATURAL DIVERSITY DATABASE SPECIES LIST

APPENDIX E U.S. FISH AND WILDLIFE SERVICE SPECIES LIST

APPENDIX F SITE PHOTOGRAPHS

Photo 1. View northwest over wild oats and annual brome grassland in the study area.

Photo 2. Looking south at fennel patches along the San Francisco Bay Trail at the eastern edge of the study area.

Photo 3. Naturally recruiting coyote brush scrub along fenceline above Hoffman Channel in the study area.

Photo 4. Planted area of coyote brush scrub with California sage and big saltbush along the San Francisco Bay Trail.

Photo 5. Planted area of Monterey cypress – Monterey pine woodland stand near parking lot.

Photo 6. Small area of pickleweed mats present along eastern edge of study area.

Photo 7. Area mapped as intertidal zone along the northern edge of the study area.

Photo 8. Looking east along North Point Isabel Trail in the study area mapped as paved/graveled.

Photo 9. Exposed mud flats mapped as tidal zone in the western portion of the study area.