OUTER HARBOR WHARF MODERNIZATION PROJECT

Initial Study/Mitigated Negative Declaration

Prepared for
Port of Oakland
530 Water Street
Oakland, California 94607

March 5, 2025

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CHAPTER 1
Introduction

1.1 Introduction

This Initial Study and proposed Mitigated Negative Declaration (IS/MND) was prepared pursuant to Article 6 Section 15070 of the California Environmental Quality Act (CEQA) Guidelines. California Public Resources Code Division 13 Section 21050 et seq., describes the CEQA process.

The Port of Oakland (Port), acting as the Lead Agency under CEQA, is proposing a series of modernization improvements to the berthing infrastructure at the Port's Outer Harbor wharves. The Port's Outer Harbor is comprised of a variety of wharves of different ages that vary in condition, some of which cannot effectively and efficiently serve the Port's existing and future fleets. The Outer Harbor Wharf Modernization Project (Proposed Project) would modernize aging wharf infrastructure from Berths 22 to 38, which would improve safety and efficiency for berthing and serving the Port's existing and future fleets, provide for greater electrical resiliency, and help the Port adhere to State requirements for reducing emissions.

The Proposed Project would include modernizing bollards, fenders, crane rail girders (girders[1]) and rails to be able to support ship-to-shore (STS) cranes capable of servicing existing and future vessels calling at the Port; modifying the curved rail and power trench alignment to enable sharing cranes between two linear wharf segments that are at angle; electrical upgrades at select berths fronting the Outer Harbor Channel; installing a floating dock at Berth 34 to enable docking of support vessels such as tugboats or emissions capture and control barges[2]; and general repair needed due to deferred maintenance on wharf structures throughout all locations of work.

1.2 Organization of the Document

This IS/MND is organized to assist the reader in understanding the potential impacts that the Proposed Project may have on the environment and to fulfill the requirements of the CEQA. The document contains the following sections:

> **Chapter 1, Introduction**, describes this document's purpose under CEQA, describes the public participation process and public distribution of the IS/MND, and summarizes the applicable regulatory requirements and CEQA Lead Agency contact information.
>
> **Chapter 2, Project Description**, provides an introduction to the Proposed Project, including Project background, needs and objectives, and proposed facilities. This chapter provides a detailed

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[1] A girder is a linear concrete structure that runs the length of the berth and serves as part of the foundation system for the wharf.

[2] Emissions capture and control barge is a barge mounted device that captures and treats ship exhaust.

description of the Proposed Project, location, components, and the required entitlements anticipated for implementation of the Proposed Project.

Chapter 3, Environmental Checklist, presents the CEQA Initial Study Environmental Checklist and therein analyzes environmental impacts resulting from the Project. The checklist identifies environmental issue areas that could be affected by the Proposed Project and lists the determination of whether the Project's potential effects on those issue areas would be significant, less than significant with mitigation, less than significant, or would have no impact. The checklist also contains the rationale and support for each determination and describes mitigation measures that would avoid or reduce potentially significant impacts on the environment resulting with the Proposed Project to less-than-significant levels.

Chapter 4, List of Preparers and Reviewers, provides the names and roles of the individuals who contributed to the development of this IS/MND.

1.3 Purpose of the Mitigated Negative Declaration

The purpose of the CEQA Initial Study Environmental Checklist is to provide a basis for deciding whether to prepare an Environmental Impact Report, a Mitigated Negative Declaration (MND), or a Negative Declaration (ND) for a proposed action. Based on the findings in this Initial Study Environmental Checklist, the Port determined that a MND would satisfy the requirements of CEQA (Public Resources Code, §21000 et seq.) and the State CEQA Guidelines (California Code of Regulations, Title 14, §15000 et seq.), as noted below.

CEQA encourages Lead Agencies to modify projects being considered to avoid significant adverse impacts to the environment. It is anticipated that this CEQA document will form the basis of State review for responsible California agencies having permitting authority or other jurisdiction over the Proposed Project: the California Department of Fish and Wildlife or the State Water Resources Control Board, Division of Drinking Water. At this time, it is anticipated that federal review under the National Environmental Policy Act (NEPA) will follow the CEQA process, as an Environmental Assessment (EA) may be prepared to support the provision of grant funding by the U.S. Maritime Administration for one or more of the Proposed Project components. For more detail regarding agency uses of this IS, refer to Section 1.6, *Agency Use of this Document*.

Section 15063(d) of the CEQA Guidelines states the content requirements of an IS as follows:

15063(d) Contents. An Initial Study shall contain in brief form:

(1) A description of the project including the location of the project;

(2) An identification of the environmental setting;

(3) An identification of environmental effects by use of a checklist, matrix, or other method, provided that entries on a checklist or other form are briefly explained to indicate that there is some evidence to support the entries;

(4) A discussion of the ways to mitigate the significant effects identified, if any;

(5) An examination of whether the project would be consistent with existing zoning, plans, and other applicable land use controls;

(6) The name of the person or persons who prepared or participated in the Initial Study.

1.4 Decision to Prepare a Mitigated Negative Declaration for this Project

As noted above, the Proposed Project is subject to the requirements of CEQA, and the Port of Oakland is the CEQA Lead Agency for this environmental process. Prior to making a decision to approve a project, the Lead Agency must identify and document the potential significant environmental effects of the project in accordance with CEQA. This IS/MND has been prepared under the direction of the Port to fulfill these requirements.

The analysis in this IS indicates that some impacts of the Proposed Project would be potentially significant, but that Proposed Project modifications (such as resource avoidance and impact minimization measures), as well as the recommended mitigation measures, would reduce impacts to less-than-significant levels. In accordance with CEQA Guidelines Section 15070, an MND is the appropriate document for this Proposed Project because the IS identifies potentially significant effects; however:

a. Revisions to the project plan were made that would avoid, or reduce, the effects to a point where clearly no significant effects would occur, and;

b. There is no substantial evidence that the project, as revised, may have a significant effect on the environment.

1.5 Public Review Process

In accordance with CEQA Guidelines Section 15105, the Port will circulate this draft IS and proposed MND (referred to throughout this document as IS/MND) for a 30-day public review period from **Wednesday, March 5, 2025 to Friday April, 4, 2025**. This IS/MND will be made electronically available on the Port website (https://www.portofoakland.com/business/bids-rfp-center/environmental-stewardship-publications-documents/). In addition, this IS/MND will be made physically available at the following Port office and public library locations:

- Port of Oakland 530 Water Street Oakland, CA 94607
- Oakland Public Library, West Oakland Branch 1801 Adeline Street Oakland, CA 94607
- Oakland Public Library, Asian Branch 388 9th Street #190 Oakland, CA 94607
- Oakland Public Library, Central Library 125 14th Street Oakland, CA 94612
- Oakland Public Library, César E. Chávez Branch 3301 E. 12th Street #271 Oakland, CA 94601
- Oakland African American Museum and Library 659 14th Street Oakland, CA 94612
- Oakland Public Library, Golden Gate Branch 5606 San Pablo Avenue Oakland, CA 94608
- Alameda Public Library, West End Branch 788 Santa Clara Avenue Alameda, CA 94501

This IS/MND will be submitted to the California State Clearinghouse. The Port will also distribute this IS/MND to interested parties that have requested a copy.

During the public review period, the general public and responsible and trustee agencies can submit comments on this IS/MND to the Port. Comments can be submitted the following ways:

By email: Email comments to: enagle@portoakland.com

By mail: Mail comments to: Port of Oakland Attn: Ms. Elizabeth Nagle, Environmental Programs and Planning 530 Water Street Oakland, CA 94607

Comments on this IS/MND must be received by **Friday, April 4, 2025, at 5:00 p.m. Pacific Standard Time**. The Port will consider the comments and will respond to the comments after the public review period.

After comments have been received from the general public and responsible and trustee agencies, the Port may adopt an MND for the Proposed Project. If the Port adopts the MND and funding is obtained, the Port could design and construct all or part of the Proposed Project.

Within 5 days of the Board of Port Commissioner's adoption of the MND and approval of the Proposed Project, the Port will file a Notice of Determination with the County Clerk and the State Clearinghouse.

1.6 Agency Use of this Document

CEQA Responsible Agencies are State and local agencies that have some responsibility or authority for carrying out or approving a project. In many instances, these public agencies must make a discretionary decision to issue an approval or permit, provide a right-of-way or encroachment, or provide funding or other resources critical to the execution of a project. Trustee agencies are State agencies that have the authority by law for the protection of natural resources held in trust for the public. The California Department of Fish and Wildlife is an example of a trustee agency anticipated to have jurisdiction over resources potentially impacted by the Proposed Project.

Following the CEQA process, a NEPA document is anticipated to be prepared to allow federal agencies, including potential funders, such as the U.S. Maritime Administration (the federal agency responsible for implementing the a Port Infrastructure Development Program (PIDP) Grant Program), and/or responsible agencies, such as the U.S. Army Corps of Engineers (USACE) (tasked with resource permitting jurisdiction), with an adequate basis of information to facilitate decision making for permitting or for potential fiscal support of the Proposed Project.

This IS/MND is intended to assist State and local agencies with some form of discretionary jurisdiction to carry out their responsibilities for permit review or approval authority over various aspects of a project. The Proposed Project would likely require specific permitting and/or review by the agencies listed in **Table 1-1**.

TABLE 1-1
ANTICIPATED PERMITS AND APPROVALS

Potential Permit or Approval	Agency
• Approval of Section 404 Permit under the Federal Clean Water Act for project impacts to jurisdictional waters of the U.S. resulting from fill in waters of the U.S. and Section 10 of the Rivers and Harbors Act for work in the waters of the United States; for alterations to shoreline revetments; and as lead for federal Endangered Species Act (ESA) and Essential Fish Habitat (EFH) and EFH consultations.	U.S. Army Corps of Engineers USACE)
• Approval involving a Section 7 Consultation/Biological Opinion may be required under the Federal Endangered Species Act for project impacts to federally-listed special status species or their habitat. Any Section 7 consultations would likely occur during NEPA review by the U.S. Maritime Administration.	U.S. Fish and Wildlife Service (USFWS)
• Approval involving a Section 7 Consultation/Biological Opinion may be required under the Federal Endangered Species Act for project impacts to federally-listed special status marine species or their marine habitat. Any Section 7 consultations would likely occur during NEPA review by the U.S. Maritime Administration.	National Marine Fisheries Service (NOAA Fisheries)
• Clean Water Act Section 401 Water Quality Certification and Notice of Intent for construction activities; • National Pollution Discharge Elimination System (NPDES) General Permit for storm water discharges associated with construction activity; • Storm Water Pollution Prevention Plan (SWPPP) for on-site storm water management and pollution prevention; and	San Francisco Bay Regional Water Quality Control Board (RWQCB)
• Lead agency review and oversight over remediation of contaminated soils or groundwater impacting the Project site, if needed, including approvals related to Remedial Action Plans, Remedial Action Completion Certifications, and No Further Action Letters.	Department of Toxic Substances Control (DTSC)
• BCDC approval would be required for Bay fill and shoreline development within 100 feet of the mean high tide line	Bay Conservation and Development Commission (BCDC)
• CDFW would review and comment on specific sensitive species aspects of the project if potential effects are found.	California Department of Fish and Wildlife (CDFW)
• BAAD review of project plans may be required.	Bay Area Air District (BAAD)
• Adoption of Mitigated Negative Declaration and Mitigation, Monitoring, and Reporting Program • Approval of the Proposed Project	Board of Port Commissioners
• City of Oakland Building Permit	City of Oakland

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CHAPTER 2

Project Description

2.1 Proposed Project Description

The Port of Oakland (Port), acting as the Lead Agency under the California Environmental Quality Act (CEQA), is proposing the Outer Harbor Wharf Modernization Project (Proposed Project) to modernize aging wharf infrastructure from Berths[1] 22 to 38, which would improve safety and efficiency for berthing and serving existing and future vessels calling at the Port, provide for greater electrical resiliency, and help the Port adhere to State requirements for reducing emissions. The Proposed Project would include modernizing bollards, fenders, crane rail girders (girders[2]), and rails to be able to support ship-to-shore (STS) cranes capable of servicing future vessels calling at the Port, modifying the curved crane rail and power trench alignment to enable sharing cranes between two linear wharf segments that are at angle; electrical upgrades at select berths fronting the Outer Harbor Channel; installing a floating dock at Berth 34 to enable docking of support vessels such as tugboats or emissions capture and control barges[3]; and general repair needed due to deferred maintenance on wharf structures throughout all locations of work.

2.2 Project Location and Setting

The Port is in the City of Oakland in Alameda County, California. The Port also owns and operates the nearby Oakland Airport, but in this document, the term "Port Area" refers only to the "Seaport" portion of the Port. **Figure 2-1** shows the regional location of the Port, and **Figure 2-2** shows an overview of the Port and its principal facilities. **Figure 2-3** shows those areas of the Port that would be modernized and that make up the Proposed Project. The area of the Port proposed for modernization under the Proposed Project is limited to those berths fronting the Oakland Outer Harbor Channel, namely, Berths 22 through 38.

The Port was established in 1927 as an independent department of the City of Oakland. Substantial development of the Port has occurred since that time. Following World War II, the Port became a pioneer in large scale, containerized maritime operations. The Port now handles more than 99 percent of the containerized goods passing through Northern California.

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[1] A berth is a ship's allotted place at a wharf or dock.

[2] A girder is a linear concrete structure that runs the length of the berth and serves as part of the foundation system for the wharf.

[3] Emissions capture and control barge is a barge mounted device that captures and treats ship exhaust.

SOURCE: ESRI

Outer Harbor Wharf Modernization Project

Figure 2-1
Regional Location

ESA

S2024\D202400106.02 - Port of Oakland_Seaport Wharf Improvements Stage 1\05 Graphics-GIS-Modeling-USE AZURE\Graphics Source Files\Illustrator

SOURCE: ESA, 2025; Google Earth, 2024

Outer Harbor Wharf Modernization Project

Figure 2-2
Port of Oakland Seaport Overview

ESA

S2024\D202400106.02 - Port of Oakland_Seaport Wharf Improvements Stage 1\05 Graphics-GIS-Modeling-USE AZURE\Graphics Source Files/Illustrator

SOURCE: The Port of Oakland, 2025

Outer Harbor Wharf Modernization Project

Figure 2-3
Project Components

ESA

Port operations are generally contained within a perimeter of freeways and waterways that surround the Port (see Figure 2-2). Interstate 80 (I-80) and the Oakland Bay Bridge lie along the northern perimeter of the Port, and the eastern portion of the Port is separated from urban uses in the City of Oakland by I-880. The southern portion of the Port is fronted by the Oakland Estuary/Harbor Channel, with the former Alameda Naval Air Station located across the channel in the City of Alameda. The western portion of the Port, where the Proposed Project's modernization activities would occur, is fronted by the Oakland Outer Harbor Channel and the San Francisco Bay.

The Port is a highly industrialized area and is focused mainly on the handling and processing of containerized goods. As can be seen in Figure 2-2, the areas under consideration for modernization as part of the Proposed Project are substantially distant from non-industrial and non-Port uses. The nearest residential uses are located one mile or more from the berths that would be improved as part of the Proposed Project. Intervening uses are all Port-related and include container processing and storage areas, railway facilities, internal Port roadways, and I-880.

2.3 Project Background and Existing Conditions Overview

The Port is one of the top ten busiest ports in the U.S. and is one of the three principal Pacific Coast gateways in the U.S. for containerized cargo, along with San Pedro Bay in Southern California and Puget Sound in the Pacific Northwest. It is the only deep container port of its kind in Northern California and services more than 99 percent of the containerized goods for Northern California. The Port generates vital economic activity, community benefits and environmental innovation, through decarbonization of its operations. Along with its industry partners, the Port supports approximately 98,345 jobs in the region and 174 billion dollars in annual economic activity.

The Port includes approximately 1,300 acres of Port-owned waterfront and inland lands, of which approximately 770 acres are marine terminals or transload/warehouse companies. The Port includes four active maritime terminals[4] that are used by more than 20 major ocean carriers. Approximately 200 acres of intermodal (rail) facilities operated by Union Pacific Railroad and Burlington Northern Santa Fe Railway are located within the Port Area and serve the Port.

The Port is primarily a container port, with a bulk construction aggregate terminal (for the movement of construction sand and gravel) expected to open in early 2027. In addition to the marine terminals and intermodal facilities noted above, the Port includes general purpose berths; layberths for vessels such as military readiness ships to tie up for extended periods of time; cargo transloading facilities, either to unload goods from one container to another or from one container into a warehouse, or to transfer cargo from one mode of transportation to another; storage facilities such as warehouses; and yards for container storage and truck parking. Once a vessel is at berth, operators in STS cranes move import containers from the vessel to land until discharge is complete and then load back export containers from land to the vessel. On the land side, containers come into and out of a terminal by truck where they are temporarily stored in stacks in the yard. A container's origin or destination can be within or outside the Port Area and can include an off-dock container storage yard, distribution warehouse, transloading facility, or railyard. The Port is a landlord port and leases land to stevedoring companies, often referred to as marine terminal

4 These include the TraPac Terminal, Ben E. Nutter Terminal, Oakland International Container Terminal, and Matson Terminal. Outer Harbor Terminal and Howard Terminal are currently not used as marine terminals and thus are considered inactive.

operators, that directly manage transferring containers between transportation modes, including water, land, and rail.

The Port's wharves were built over different periods of time and vary in condition. Some wharves have been strengthened or extended, but others have not. Many are several decades old and deferred maintenance has left some in a state of disrepair. For example, the ground under the landside crane rails at Berths 22-26 has been settling unevenly over time resulting in warped crane rails which has led to multiple instances of costly temporary repairs.

2.4 Project Objectives/Purpose and Need

The purpose of the Proposed Project is to fulfill the Port's need to modernize portions of the Port to enable efficient berthing, mooring, and servicing existing and future vessels calling at the Port; to provide additional electrical capacity for the types and quantities of cranes required to service existing and future vessels at specific locations; to provide more vessel shore power plug-in locations; and to allow for flexibility with berthing locations.

Accordingly, and based on the purpose and need for the Project described above, the Project's objectives follow:

1. Modernize aging wharf infrastructure and berthing facilities for existing and future vessels and harbor craft.
2. Strengthen crane rail girders that are deficient. Improve wharf earthquake performance as is practical along with the crane rail girder strengthening.
3. Increase the safety of berthing and mooring for existing and future vessels calling at the Port.
4. Improve electrical resiliency for crane operational efficiencies and reliability and assist the Port's compliance with State requirements for reducing air quality emissions via shore power, with resultant benefits to nearby communities and the region.
5. Enhance the continued economic viability of the Port by providing berthing facilities that meet the needs of the modern worldwide shipping industry.

2.5 Project Description

2.5.1 Project Elements

As noted above, the Proposed Project consists of modernizing aging wharf infrastructure from Berths 22-38, which includes modernizing bollards, fenders, crane rail girders (girders) and rails; modifying the curved rail and power trench alignment to enable crane transfer between two linear wharf segments that are at an angle; electrical upgrades at select berths fronting the Outer Harbor Channel; installing a floating dock at Berth 34 to enable docking of support vessels such as tugboats or emissions capture and control barges; and general repair needed due to deferred maintenance on wharf structures throughout all locations of work. See **Figures 2-4** and **2-5** for a graphic depicting a wharf with some of the Proposed Project components. Minor Project components include replacing crane stops with stronger stops and installing stronger crane stowage pin sockets. Major components are described in detail below.

Figure 2-4
Fender, Bollard, and Power Plug-in

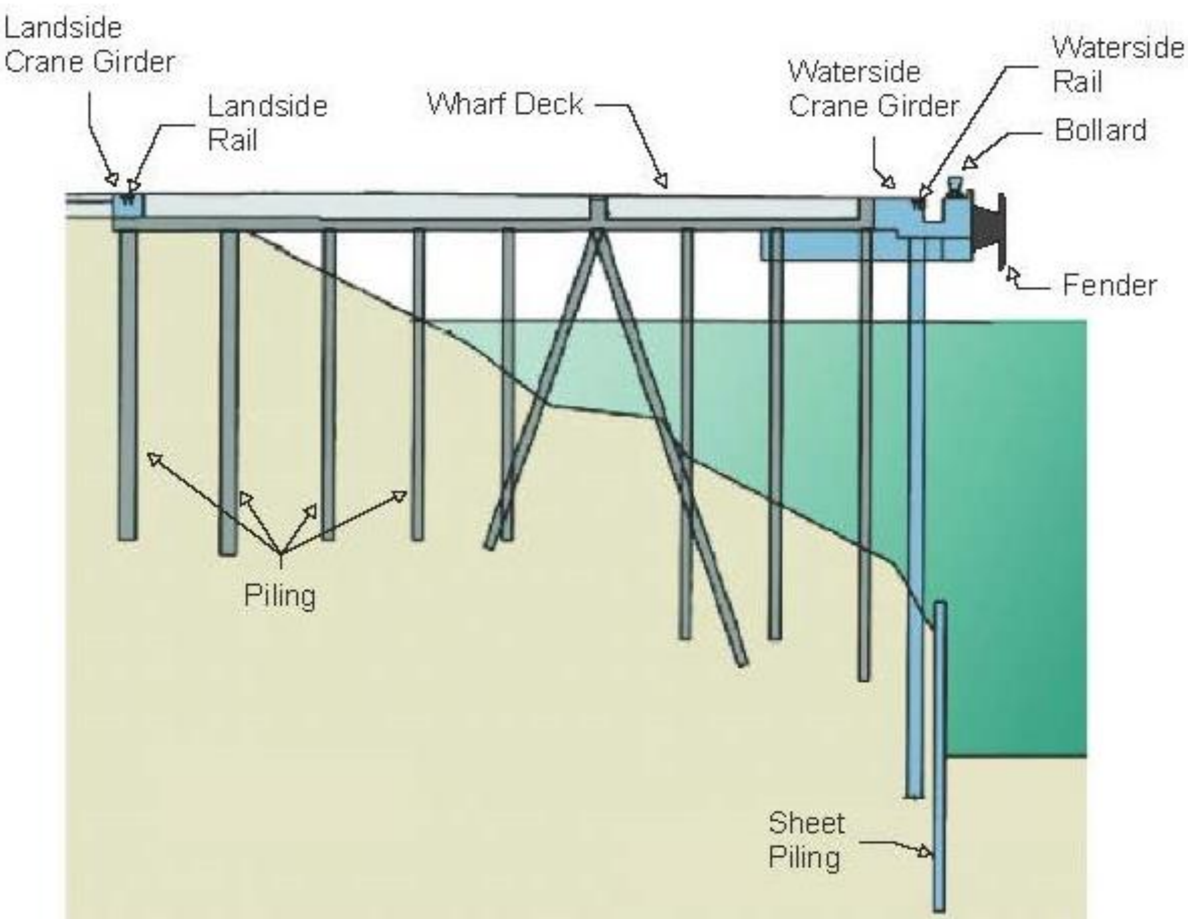

Figure 2-5
Typical Wharf Layout

2.5.1.1 Fender and Bollard Modernization

When a vessel berths at a dock, fenders cushion the impact by absorbing significant energy, limiting the berthing reaction and preventing damage to the wharf and the vessel. The vessel mooring lines (ropes) are used to secure the vessel to the wharf using bollards. Larger more modern vessels require fenders that can absorb larger energies and larger frontal frames (bearing panels) to limit the berthing pressures on the vessel hull. Modern vessels also require stronger bollards as the mooring line loads are larger.

Required modernization for berthing and mooring existing and forecasted vessels calling at the Port includes replacing existing berthing and mooring systems at most berths with stronger fenders and bollards. At some locations, additional new bollards may be needed. Fender and bollard enhancements would occur at Berths 22 to 26, 30 to 33, and 35 to 37. These upgrades would require little or no local strengthening of the wharf structure and may be able to reuse some of the existing bollard anchor bolts.

2.5.1.2 Crane Rail Girders and Crane Rails

Two parallel rails run 100 feet apart lengthwise along the wharf structure and provide for movement of the STS cranes along the wharf. The waterside rail is located closest to the edge of the dock, and the landside rail is located farther landside from the edge of the dock. Cranes move along the rails to where they are needed to load or unload containers from moored vessels. The rails are secured to and supported

by large reinforced concrete girders their entire length. The girders are typically supported by piles driven into the underlying soils. Girders at some locations require strengthening due to deficiencies ranging from inadequate pile strength, inadequate girder structure strength, or to address girder settlement issues that have occurred over the years, as described below.

All areas of the wharf that involve girder strengthening would include removal of Asphalt Concrete (AC) paving. New paving would be installed after the strengthening work is completed. Paving thickness would vary from about two inches to approximately six inches depending on the wharf design.

Berths 23 to 25 Landside Girder and Crane Rails

The existing girder was a part of the original construction of the wharves in 1976. The existing landside girder is relatively small: two feet deep by five feet wide. This girder is not currently pile supported but a “spread-footing” bearing on the ground. Due to increasing crane loads over time, the landside girder has settled into the ground differentially up to about five inches. The Port has had to repair the girder on two occasions by pressure injecting grout under the girder to correct the more severe settlement locations. Despite the repairs, portions of the landside rail are still below their correct elevation, as can be seen in the photo in **Figure 2-6**, which was taken by Port staff after a recent rainy day (low areas of the rail are submerged).

Approximately 2,808 linear feet of the existing girder supported by spread-footing would be either strengthened with soil improvements involving mixing grout into the soils below the girder or replaced with a significantly stronger pile-supported reinforced concrete girder. For the purposes of a conservative analysis, this IS/MND assumes replacement with a new pile-supported girder would be required. In this case, new piles would be needed on average every six feet to support the new landside girder. The new girder would be connected to the existing wharf at approximately 48-foot intervals with shallow reinforced concrete beams to laterally connect the girder with the wharf for improved earthquake performance. Following installation of the girders, new crane rails would be installed atop the girder system.

Figure 2-6
Typical Submerged Landside Crane Rail

Berth 26 Landside Girder and Crane Rails

The existing 468-foot landside girder at Berth 26 would be removed and two additional piles would be installed every 18 feet. A new and stronger girder would be constructed that would connect to the wharf deck and to the original and new piles. This modification would also improve the wharf's earthquake performance and accommodate the crane loads without settlement. New crane rails would be installed.

Berths 23 to 25 Waterside Girder and Crane Rails

Approximately 2,808 feet of existing waterside girder would be strengthened by installing additional piles and connection beams at locations where existing pile capacity is not adequate. This would occur selectively along Berths 23 to 25 and would improve earthquake performance.

2.5.1.3 Curved Crane Rails

The wharf from Berths 22-26 is approximately 4,300 linear feet. A bend separates it from about 2,800 linear feet of wharf at Berths 30-32. The existing curved rail system does not accommodate crane travel between Berths 26 and 30 due to inadequate power and required strengthening of the waterside girder.

The Proposed Project would modify the curved girders and associated power transfer trench to allow cranes to shift around the corner and deploy where they are needed to accommodate the needs of future vessels calling at the Port. The goal is to efficiently serve the vessels at the modernized terminal with at least eight STS cranes from Berths 22-26 and at least four STS cranes at Berths 30-33. The proposed curved crane rails would require installing a new cable-powered trench system (e.g., Panzerbelt®) around the curve and strengthening of the waterside girder with additional piles.[5]

2.5.1.4 Electrical Infrastructure Modernization

Electrical Infrastructure Modernization at Berths 22 to 33

A modern container handling crane with a shore hoist system demands up to approximately three megawatts (MW) of power. The average electrical demand of each operating crane is typically around one MW. The actual instantaneous electrical demand varies significantly for each crane from much more than three MW while accelerating for short periods to regenerating power back into the grid in excess of one MW when slowing. The total electrical demand for multiple cranes is a function of “diversity,” which is the number of cranes and concurrent operating conditions

A modern container terminal should be able to assign five or six cranes to a ship and berth two or more vessels simultaneously. The previously mentioned curved rail would allow cranes to traverse between the two angled lengths of wharf, providing needed flexibility for the terminal operator to assign cranes to ships as needed. To achieve the required flexibility to deploy cranes where needed, the electrical system in the Berth 22-26 segment would need enough power to serve eight to twelve cranes simultaneously, while the system at Berth 30-33 would need enough power to serve four to six cranes simultaneously.

Power Supply Modernization Berths 22 to 26

The existing electrical infrastructure at Berths 22 to 26 provides five MW of power to the cranes, limiting the simultaneous operation of cranes at certain locations. There are currently seven cranes at Berths 22-26. However, four of these cranes are out of service, as they are functionally obsolete. To effectively deploy STS cranes for modern container terminal operations, the available crane power at each berth must be increased to provide operational flexibility such that simultaneous operation of cranes at certain locations is not limited.

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5 Panzerbelt® is a style of cover system for cable protection that incorporates a continuous semi-flexible belt fabricated from rubber with inlaid steel reinforcement, which lies over a channel cast in the wharf. The belt is riveted to the wharf surface along one edge, while the other remains free to be raised by a cable guide and belt-lifting device fitted to the crane.

The crane electrical power to Berths 22 to 26 is provided from substation SS-C-48, located within Berth 24. This substation distributes crane power through existing underground electrical duct banks. The substation is three years old and is suitable for continued use. However, the feeder cable to substation SS-C-48 is at capacity and is the limiting factor in delivering more power to the berths. Modernization would include installing new crane power substations for cranes at Berths 22 to 26 and installing new upgraded cabling in existing conduits from substation SS-C-48 to Berths 22 to 26. New cables with greater electrical capacities would be installed in the existing electrical trenches from the existing substation SS-C-48 to Berths 22 to 25 crane power substations. New substation equipment would be installed.

Trench at Berths 22 to 33

The existing electrical system for delivering power to the cranes at Berths 22 to 33 would be replaced with a higher voltage system that uses cables to power each crane. A new cable-powered trench system would be installed at Berths 22 to 33. The new system would be installed by either repurposing the existing trench waterside of the waterside rail, or by adding a new trench cut into the existing wharf deck a few feet landside of the waterside rail. The location would be determined after evaluating each option. For the purposes of a conservative analysis, this IS/MND assumes a new trench would be installed.

Shore Power at Berths 22 to 23

All container ships in California are required to reduce emissions by plugging into shore power when they are at berth or by using an alternative, such as an emissions capture and control barge. Shore power allows ships to turn off their diesel engines and instead use grid power for the systems onboard (such as keeping refrigerated containers cold). Shore power is one of the Port’s most effective ways to reduce harmful diesel emissions. The Proposed Project would add up to three shore power outlet vaults and a mobile shore power outlet to make berthing arrangements as flexible as possible.

Electrical infrastructure modernization at Berths 22 to 26 would also include installing a new underground power line from the substation SS-C-48 to Berth 23 for a new shore power substation with up to three outlets, either mobile or fixed.

A ship’s shore power system must be lined up within three feet of the fixed vault to enable a connection and ships sometimes have problems lining up exactly with shore power outlets installed in vaults at fixed locations on the wharf. These alignment issues can lead to missed plug-in opportunities. A mobile shore power outlet is a new technology that is intended to improve shore power flexibility and functionality. A mobile outlet solves this problem because the outlet is mounted on a track on the wharf face and moves lengthwise along the wharf to the precise location where it is needed (see Figure 2-4, above). This provides needed flexibility for different size and positioning of vessels along the berth and also improves operational efficiencies at a marine container terminal.

2.5.1.5 Berth 34 Floating Dock

The Berth 34 area of the Outer Harbor lies partially above the Bay Area Rapid Transit (BART) system’s underwater Transbay Tube. This limits the activities that can occur at Berth 34, including prohibiting pile driving above or near the tube. In addition, Berth 34 does not have any associated backlands or storage area to support cargo operations.

The Proposed Project would bring in a floating dock structure which would be pinned in place using five to eight new steel piles which would be driven in the water outside the envelope of the Transbay Tube. The floating dock would be used for temporary berthing (or "lay berthing") of up to four smaller harbor craft that would be used to support cargo operations, such as tugboats and barges (for example an emissions capture and control barge). The floating dock would be equipped with utilities with sufficient power so that the harbor craft would not need to run diesel engines while tied up. See **Figure 2-7** for a preliminary depiction of the proposed floating dock at Berth 34.

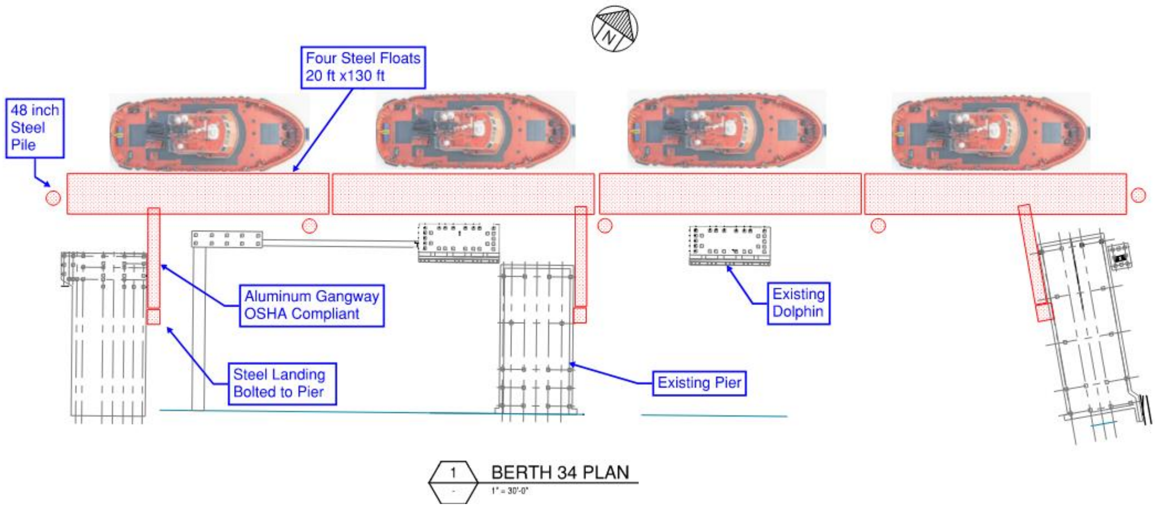

Figure 2-7
Proposed Floating Dock at Berth 34

2.5.1.6 General Wharf Maintenance and Repairs

Many portions of the wharves in the Project area are several decades old yet are in reasonably good condition. However, there are locations with damage. Reinforced concrete damage typically is from corrosion of the reinforcing steel and damage of the concrete cover. Steel sheet pilings used as a seawall between the landside of the wharf and land often have corrosion and section loss on the waterside. Repairs are required as part of the Proposed Project to restore or maintain adequate strength and prevent accelerated corrosion rates. Repairs would include a variety of mitigation methods to help ensure structural performance. Examples include adding anodes to protect steel seawalls from corrosion, anodes in repaired areas of concrete, and concrete surface sealants to limit concrete cover corrosion.

2.5.2 Construction

Techniques that would be used to construct each element of the Proposed Project are described below. Conservative estimates were used for the purpose of this analysis, and the final numbers may differ as a result of detailed design.

For each Proposed Project component, where needed, temporary work platforms would be installed by being fixed to the wharf, hung from bollards or forklifts, or floated below work areas. The temporary platforms would be used to support workers, equipment, and to collect construction debris to be disposed of or recycled offsite. For some Proposed Project elements, temporary barriers would be installed to retain any freed materials. No materials would enter the water. Construction debris, such as steel and concrete, would be recycled within the Port Area whenever possible. When recycling is not feasible, construction debris would be appropriately disposed of offsite.

Where needed, drilling equipment would be brought in by truck and handled with a small crane or forklift.

2.5.2.1 Fender and Bollard Modernization Construction

Fenders

The existing fender system would be removed. The removed system would be placed onto a truck using a small crane or forklift. If needed, the wharf structure would be strengthened locally, like the bollards as described below. All components of the new fender systems would arrive at the Port by container and be trucked to a particular fender work location.

Bollards

The existing bollards would be removed. The existing bollard anchors may be removed if they have significant corrosion or have insufficient strength. The removed bollards and anchors would be placed onto a truck using a small crane or forklift and may be taken to a recycling facility within the Port Area. New bollards and anchors would be brought in by truck, moved into position with a small crane or forklift, and installed into the wharf. Either before or after bollard installation, if needed, the wharf structure would be strengthened locally.

2.5.2.2 Crane Rail Girders and Crane Rails Construction

Landside and waterside girders and rails involve different construction methods. Details of each are provided below.

Berths 23 to 25 Landside Girder and Crane Rail

The existing rail system would be removed and trucked to a recycling facility within the Port Area. The existing girder would be broken into pieces, placed into trucks, and disposed of offsite at an approved landfill. If opportunities exist, the concrete would be crushed and recycled.

New piles would be required to support new girders that would either be auger cast piles or precast concrete piles. The locations and number of piles would not change for either pile type. Based on past construction experience, precast piles are more likely to be used.

If auger cast piles are used, they would be installed following removal of the existing rail and girder system. Their construction would involve drilling two 24-inch diameter holes with a soil auger every 12 feet, down to a competent layer of sand, estimated at approximately 100 feet deep. Removed soil would be tested for contaminants and disposed of offsite at a regulated facility permitted to receive such material. Soil removed to create forms for the new girders would also be tested for contaminants and disposed of offsite at a regulated facility permitted to receive such material.

If precast piles are used, they would be driven in the same locations. However, no soil would be removed because these piles would displace the existing soil. Precast piles would be cast offsite in a fabrication yard, loaded on a barge, towed to the site, and offloaded from the barge using cranes. The piles could be delivered in one barge trip; however, due to logistical issues there would probably be several barge deliveries due to the schedule of pile production and driving. For the purposes of a conservative analysis, this IS/MND assumes precast piles would be used.

Girder and rail construction involve removing fill, building temporary forms, and installing reinforcing steel into landside face of the existing wharf every 48 feet. Once forms are built, construction would involve adding reinforcing steel, pouring concrete, and removing forms. A new rail system would be installed into the rail trench and AC paving fill would be installed on either side of the rail. The sides of the poured girder and precast tie beams would be filled with compacted gravel. AC paving would be installed as needed to facilitate local repairs.

Berths 23 to 25 Waterside Girder and Crane Rail

Construction at Berths 23 to 25 would involve creating holes at select locations using a jack hammer. New concrete precast piles, fabricated offsite and delivered to the site by barge, would be installed through the holes by driving through the hole in the wharf deck. A reinforced concrete beam would be constructed under the wharf and atop a temporary construction platform to connect the new pile with the wharf deck to provide additional support. After all concrete has set, the underdeck forms and the platform would be removed.

Berth 26 Landside Girder and Crane Rail

Construction of the Berth 26 landside girder would be similar to the construction of Berths 23 through 25 landside girder except auger cast pilings would not be considered as they cannot be used at this location.

2.5.2.3 Curved Crane Rail Construction

Curved rail modernization would include removal of steel crane stops and installing a new power transfer trench around either the landside of the waterside rail or waterside of the waterside rail involving removing a vertical trench in the waterside girder. Both methods would involve removing reinforced concrete using a jackhammer and cutting torch, and concrete off haul. Reinforcing steel would be added to replace damaged or removed girder steel. The cable-powered system would be positioned in the trench. Plywood forms would be installed and concrete would be poured to fill around the cable trench and connect it with the girder.

In addition, new concrete precast piles would be required to strengthen the waterside crane girder. Construction associated with installing these new piles would be similar to the construction description for the Berths 23 to 25 waterside girder above.

2.5.2.4 Electrical Infrastructure Modernization Construction

Shore Power

Additional cables would be installed in existing electrical trenches between SS-C-48 and the wharf area to expand the electrical capacity at four existing substations (one per berth). Construction activities would include pavement, concrete, electrical transformer, and switchgear removal; excavation; concrete-encased duct bank installation; backfill; compaction; and repaving. New underground electrical trenches, vaults, and grounding systems, as well as new concrete footings and pads, fencing and bollards, and new electrical equipment would be installed.

Trench at Berths 22 to 26 and 30-33

An electrical busbar is a metal conductor bar that sits within the power transfer trench and distributes power. The electrical busbar system currently powering the cranes along Berths 22 to 26 and 30 to 33 (which excluded the curved crane rail) would be supplanted by a new cable-powered system. A trench for the new cable-powered system would be constructed along Berths 22 to 26 and 30 to 33 in one of two ways depending on location.

If the new cable-powered system were to be installed waterside of the waterside rail, it would be installed in the existing trench. Construction would involve pouring concrete fill around the system installed in the existing trench. If the new cable-powered system were to be installed landside of the waterside rail, a new trench would be created by removing AC paving, concrete, wharf reinforcing material and drilling drainage holes through the wharf every 30 feet. New reinforcement would be installed on either side of the trench before installing the cable-powered system. Construction would involve pouring concrete fill around the bottom and upper portion of the trench and repairing AC paving.

For either potential cable trench location option, construction would include installing approximately nine cable connection vaults to provide power cable connections for cranes along Berths 22 to 26 and 30 to 33. Construction would involve jack hammering to remove wharf deck, removing reinforcing, lifting the vaults in place via crane, adding reinforcing, pouring concrete and installing remaining hardware.

2.5.2.5 Berth 34 Floating Dock Construction

Construction of the Berth 34 floating dock would include installing four approximately 20-foot by 130-foot steel floats that would be fabricated offsite. The floats would either be shipped from outside the area and floated through the bay to the Proposed Project site or towed to the Proposed Project site from a local shipyard. Five to eight steel piles would be delivered to the Proposed Project site by barge. Three steel landing platforms would be trucked to the Proposed Project site on a single truck. Three aluminum gangways would be trucked to the Proposed Project site on a single truck.

The piles would be installed with a vibratory hammer. Some of the concrete curbs on existing piers would be removed by jack hammer and repaired with new concrete or grout. Landings for the floating dock would be bolted onto the existing piers. The floats would be connected to one another and to the steel piles. Gangways would extend between the piers and floats. A gangway is a bridge-like structure that connects floating structures like docks to the shore or other landside structures. It provides a stable path for people to embark and disembark and has wheels at the float end and hinges at the shore end that allow it to accommodate changing water levels. Utilities would be connected from landside along the existing pier across the landing, gangway, and down to the floating docks.

2.5.3 Construction Phasing

Phasing of the Proposed Project’s construction would generally occur as funding becomes available for each component. Currently, the crane rail girder modernization and cable-powered system conversion at Berths 24 through 26 have funding earmarked from a Port Infrastructure Development Program (PIDP) grant administered by the U.S. Maritime Administration. While receipt of those monies is contingent upon completion of environmental review under the National Environmental Policy Act (NEPA), it is likely that this component would be constructed first. Grant applications and funding requests for the remaining work are underway, and the next Project components to be constructed would likely be the remainder of the crane rail girder modernization, followed by completion of the remaining electrical upgrade work, and bollard and fender replacements at the berths identified above. Any remaining work would be subject to funding availability (See Table 3.3-2 in Section 3.3, *Air Quality*, for a tentative construction schedule).

2.5.4 Construction Staging and Equipment

Temporary construction staging areas would be used for construction worker parking, construction trailers, and staging and storing of construction materials and equipment. These areas would be located on portions of the existing paved areas of the wharves or other convenient locations near the area of work. Security, such as temporary fencing and lighting, would be provided, as needed. As noted in the above descriptions, some work could occur from barges positioned alongside the wharves.

Construction equipment used to complete the Proposed Project would include, but would not be limited to, the following: air compressors, backhoes, bucket loaders, compactors, concrete trucks, cranes, dump trucks, hand-held power tools, forklifts skids teers, jackhammers, and sweepers. Pile driving equipment would include a crane, hammer, and guides for precast piles, drilling equipment for auger cast piles.

2.5.5 Operation and Maintenance

Once constructed, the modernized components would facilitate the berthing of container vessels in a manner similar to what occurs currently at other terminals within the Port Area. Maintenance would be minimal.

2.5.6 Best Management Practices

This section summarizes best management practices (BMPs), organized by resource area, that would be implemented as part of the Proposed Project. This list is not exhaustive of all Proposed Project features, commitments, regulatory requirements, and permit conditions that would be implemented during construction and operation.

Prior to the start of construction activities, the Port would require the construction contractor to develop all or most of the following plans, as applicable:

- Stormwater Pollution Prevention Plan (SWPPP)
- Site Management Plan
- Health and Safety Plan
- Spill Prevention and Control Plan
- Soil and Groundwater Management Plan
- Solid and Hazardous Waste Management Plan
- Dust Control Plan (if needed)
- Traffic Control Plan (if needed)
- Debris Containment Plan
- Construction and Demolition Debris Waste Reduction and Recycling Plan

The Health and Safety Plan and the Solid and Hazardous Waste Management Plan would address site-specific work practices to ensure that workers and the environment are protected if contaminated soil is uncovered.

The Spill Prevention Plan would: (a) address management and protective measures, emergency response measures, and methods to capture fuel spills; (b) require a staging area for heavy construction vehicles that would prevent leaks into the soil or water; and (c) require that maintenance of heavy construction vehicles be conducted off-site.

The Solid and Hazardous Waste Management Plan and Site Management Plan would also address handling and reuse/disposal of asphalt and other demolition waste which may be contaminated due to contact with underlying contaminated soil.

The Dust Control Plan (if needed) would address measures to minimize dust generated during ground disturbing activities.

In addition to the previously listed construction plans, the Project would implement appropriate BMPs to minimize emissions of fugitive dust during construction of the Proposed Project.

2.5.6.1 Other Best Management Practices During Construction

To further reduce impacts that may occur during construction, the proposed Project would also implement the following measures:

Aesthetics

- The Project would comply with the Port's Exterior Lighting Policy and incorporate lighting measures to minimize lighting impacts from development and operations and to conserve energy.
- The Project would also incorporate outdoor lighting controls so that lights are turned off during daytime hours and during times when lighting is not needed.

Air Quality

The Port would implement the BMPs recommended by the Bay Area Air District (BAAD) in Table 5-2 of its CEQA Guidelines to minimize and reduce fugitive dust from the Proposed Project (BAAD 2022). Other BMPs would also be implemented to minimize equipment and vehicle exhaust emissions. These BMPs include the following:

- Limitations on vehicles idling when unnecessary, minimizing unnecessary construction vehicle trips and properly maintaining equipment.
- All exposed surfaces (such as parking areas, staging areas, soil piles, graded areas, and unpaved access roads) would be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material offsite would be covered.
- All visible mud or dirt trackout onto adjacent public roads would be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds in unpaved areas would be limited to 15 miles per hour (mph).

- All areas to be paved would be completed as soon as possible.
- All excavation, grading, and/or demolition activities would be suspended when average wind speeds exceed 20 mph.
- All trucks and equipment, including their tires, would be washed or other suitable dirt removal from tire mechanisms to minimize occurrences of track out before leaving the Proposed Project site.
- Equipment would be maintained according to manufacturers' specifications.
- Vehicle idling times would be minimized either by shutting off equipment when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of the California Code of Regulations).
- Minimize unnecessary construction vehicle trips.
- Use construction equipment with Tier 4 engines or better where commercially available and economically feasible, unless there is a unique and specific piece of equipment required for the Proposed Project construction that is not available as a Tier 4 engine.

Biological Resources

The Port's *Port-wide Maintenance Manual* from October 2018 includes the following BMPs for ongoing maintenance work:

- **Debris Capture and Containment**: During work in or over water in which there is the likelihood of small to medium-sized debris being generated, Port staff will deploy a floating debris boom around the work area to capture floating debris. Crew in a small work boat navigate around the work site removing fallen debris from the water and collecting material contained within the floating boom. The work boat carries absorbent pads to contain any oil sheens and may also deploy oil-absorbent boom within the debris boom as needed. Debris and any used absorbent are collected, contained, and disposed at an appropriate off-site facility.

- **Treated Wood**: The Port also follows NMFS guidance regarding use of treated wood, including ensuring that to the greatest extent possible treated wood is not cut over water and that cutting and application of preservative to exposed cuts is done indoors or well away from water before wood is taken to the over water area for installation to minimize the potential for dropping sawdust or preservative into water (BMP #11). In the event that cutting treated wood over water cannot be avoided, Port staff position a drip pan or other containment to capture any sawdust, wood chips, or drips from applied preservative.

Cultural Resources

- In the unlikely event that archaeological resources or human remains are uncovered during excavation, the Proposed Project would follow the requirements detailed in the Port's Emergency Plan of Action for Discoveries of Unknown Historic or Archaeological Resources (Port of Oakland) in **Appendix A** to this IS/MND. The Emergency Plan includes provisions for the actions to follow in the unlikely event historic or archaeological resources are uncovered during Project implementation. In the event of a potential discovery, the contractor shall immediately suspend all construction activities within 50 yards of that location and notify the Port. Work shall not resume in that location until approval by a professionally qualified archeologist and the Port Project Environmental Coordinator has been given to continue. In the event of a discovery of potential human remains, all work shall halt, the materials should be left alone, along with the entire associated deposit, until the County Coroner arrives for assessment of the remains according to State regulations.

Greenhouse Gas Emissions

- The Proposed Project would implement BMPs during construction, such as limitations on vehicles idling when unnecessary, minimizing unnecessary construction vehicle trips, and properly maintaining equipment, which would reduce GHG emissions.

Hazards and Hazardous Materials

- Soil and groundwater generated from the Proposed Project construction would be managed in accordance with the Port-Wide Soil Management Protocol (Port of Oakland, 2010) and the Port's Hazardous Materials Management Guide (Port of Oakland, 2019).
- The contractor would be required to dispose of construction debris in accordance with all relevant laws and regulations.
- The contractor would be required to notify the Port's qualified Hazardous Materials Specialist if contamination is encountered in the field.
- Any excavated soils when known to be, or found to be, contaminated would be stored immediately adjacent to the excavation, placed on plastic sheeting, and covered with plastic sheeting. Stockpiled soil would be covered with plastic and secured from human contact. Any such soil would be processed and disposed of in accordance with applicable regulations.

Hydrology and Water Quality

- The Proposed Project would develop and implement a Stormwater Pollution Prevention Plan (SWPPP). At a minimum, the SWPPP would include a description of construction materials, practices, and equipment storage and maintenance; a list of pollutants likely to contact stormwater; site-specific erosion and sedimentation control practices; a list of provisions to eliminate or reduce discharge of materials to stormwater; BMPs; and an inspection and monitoring program.
- The Proposed Project would comply with the Port's Post-Construction Design Manual to reduce offsite stormwater runoff and include the preparation and implementation of a post-construction stormwater management plan.
- The contractor would be required to keep a clean and safe workplace. Good housekeeping procedures would include: locating fueling and equipment maintenance activities at least 100 feet away from San Francisco Bay, in one designated location on the site; avoiding spills through employee training; and cleaning up accidental spills of construction-related materials (such as concrete, equipment fuel, hydraulic fluid, etc.) immediately, so they do not contaminate soil or groundwater, or leave residue on paved surfaces.
- The contractor would be required to regularly inspect onsite vehicles and equipment for leaks and repair; never hose down "dirty" pavement or surfaces where materials have spilled; use dry cleanup methods whenever possible; and dispose of all wastes properly.
- Training employees and subcontractors on a daily basis during tailgate safety meetings.
- Implementing any other Best Management Practices as outlined in the California Stormwater Quality Association's Construction Handbook (CASQA, 2019), as appropriate.

2.6 References

Bay Area Air District (BAAD). 2022. CEQA Thresholds and Guidelines Update. Accessed online at: https://www. baaqmd. gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines. Accessed January 12, 2025.

California Stormwater Quality Association (CSQA). 2019. 2019 Construction Best Management Practices Handbook. https://www.casqa.org/resources/bmp-handbooks/construction-bmp.

Port of Oakland. n. d. Emergency Plan of Action for Discoveries of Unknown Historic or Archaeological Resources.

Port of Oakland. 2010. Port-Wide Soil Management Protocol: Part of Port of Oakland Materials Management Plan. Available online at: https://www. portofoakland. com/wp-content/uploads/2024/05/Y5395-05. 01234. SMP_. fnl_. pdf. Accessed January 12, 2025.

Port of Oakland. 2019. Hazardous Materials Management Guide. Available online at: https://www. portofoakland. com/wp-content/uploads/2024/05/FINAL-2019-Hazmat-Management-Guide. pdf. Accessed January 12, 2025.

CHAPTER 3
Environmental Checklist and Analysis

1. **Project Title:** Outer Harbor Wharf Modernization Project

2. **Lead Agency Name and Address:** Port of Oakland, 530 Water Street, Oakland, CA 94607

3. **Contact Person and Phone Number:** Elizabeth Nagle, (510) 627-1222

4. **Project Location:** Port of Oakland

5. **Project Sponsor's Name and Address:** Port of Oakland, 530 Water Street, Oakland, CA 94607

6. **General Plan Designation(s):** Exempt Public Agency

7. **Zoning:** Not applicable

8. **Description of Project:** (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)

   The Port, acting as the Lead Agency under CEQA, is proposing a series of modernization improvements to the berthing infrastructure at the Port's Outer Harbor wharves. The Port's Outer Harbor is comprised of a variety of wharves of different ages that vary in condition, some of which cannot accommodate and/or effectively serve existing and future vessels calling at the Port. The Proposed Project would modernize aging wharf infrastructure from Berths 22 to 38, which would improve safety and efficiency for berthing and serving existing and future vessels calling at the Port, provide for greater electrical resiliency, and help the Port adhere to State requirements for reducing emissions. The Proposed Project would include modernizing bollards, fenders, crane rail girders (girders) and rails to be able to support ship-to-shore (STS) cranes capable of servicing the Port's existing and future fleets; modifying the curved rail and power trench alignments to enable sharing cranes between two linear wharf segments that are at angle; electrical upgrades at select berths fronting the Outer Harbor Channel; installing a floating dock at Berth 34 to enable docking of support vessels such as tugboats or emissions capture and control barges; and general repair needed due to deferred maintenance on wharf structures throughout all locations of work.

9. **Surrounding Land Uses and Setting.** (Briefly describe the project's surroundings.)

   Open water of the Oakland Outer Harbor Channel to the north and west, industrial maritime Port facilities to the east and south.

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)

ANTICIPATED PERMITS AND APPROVALS

Potential Permit or Approval	Agency
• Approval of Section 404 Permit under the Federal Clean Water Act for project impacts to jurisdictional waters of the U.S. resulting from fill in waters of the U.S. and Section 10 of the Rivers and Harbors Act for work in the waters of the United States; for alterations to shoreline revetments; and as lead for federal Endangered Species Act (ESA) and Essential Fish Habitat (EFH) and EFH consultations.	U.S. Army Corps of Engineers USACE)
• Approval involving a Section 7 Consultation/Biological Opinion may be required under the Federal Endangered Species Act for project impacts to federally-listed special status species or their habitat. Any Section 7 consultations would likely occur during NEPA review by the U.S. Maritime Administration.	U.S. Fish and Wildlife Service (USFWS)
• Approval involving a Section 7 Consultation/Biological Opinion may be required under the Federal Endangered Species Act for project impacts to federally-listed special status marine species or their marine habitat. Any Section 7 consultations would likely occur during NEPA review by the U.S. Maritime Administration.	National Marine Fisheries Service (NOAA Fisheries)
• Clean Water Act Section 401 Water Quality Certification and Notice of Intent for construction activities; • National Pollution Discharge Elimination System (NPDES) General Permit for storm water discharges associated with construction activity; • Storm Water Pollution Prevention Plan (SWPPP) for on-site storm water management and pollution prevention; and	San Francisco Bay Regional Water Quality Control Board (RWQCB)
• Lead agency review and oversight over remediation of contaminated soils or groundwater impacting the Project site, if needed, including approvals related to Remedial Action Plans, Remedial Action Completion Certifications, and No Further Action Letters.	Department of Toxic Substances Control (DTSC)
• BCDC approval would be required for Bay fill and shoreline development within 100 feet of the mean high tide line	Bay Conservation and Development Commission (BCDC)
• CDFW would review and comment on specific sensitive species aspects of the project if potential effects are found.	California Department of Fish and Wildlife (CDFW)
• BAAD review of project plans may be required.	Bay Area Air District (BAAD)
• Adoption of Mitigated Negative Declaration and Mitigation, Monitoring, and Reporting Program • Approval of the Proposed Project	Board of Port Commissioners
• City of Oakland Building Permit	City of Oakland

11. 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, has consultation begun?

Consultation letters were sent on January 17, 2025 via certified U.S. Mail to area tribal contacts as identified by the Native American Heritage Commission. To date, two tribes have requested consultation with the Port, and that consultation is ongoing.

Environmental Factors Potentially Affected

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

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

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial study:

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

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

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

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

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

Environmental Checklist

3.1 Aesthetics

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

Environmental Setting

The Proposed Project is located along the wharves of the Outer Harbor, specifically Berths 22 through 38. The Proposed Project site is within a working seaport and cargo terminal, and no portion of the site is publicly accessible. The existing conditions of the Proposed Project site consist of paved wharf areas and associated crane rails and cranes. Areas inland of the wharves are used for container handling, container storage, and transport staging.

The Proposed Project site’s immediate vicinity is characterized by maritime industrial uses associated with the Port. In general, the area of the Port where the Proposed Project site is located contains flat expansive asphalt-paved areas notable for moored vessels, working cranes, stacked shipping containers, other facilities associated with Port maritime activities, trucks, and the presence of nearby railroad tracks, resulting in the heavily and distinctive maritime industrial visual character of the Proposed Project site and vicinity. Floodlighting on high mast structures and cranes is present in the Port area for nighttime operations and security. The Proposed Project site contains sparse vegetation limited to grasses that have pushed through cracks in the concrete. The overall visual quality of the Proposed Project site is considered low because of the visual dominance of features associated with heavy industrial uses in the area, and lack of native surface or environmental setting. Given the flat topography of this part of Oakland, the majority of the Proposed Project site is visible only from locations in its immediate vicinity. Areas of the City that are higher in elevation are a relatively long distance away (i.e., several miles distant). Therefore, from those higher elevations, the Proposed Project site is not easily discernible when viewed within the context of the larger landscape.

Based on the location of the Proposed Project site, primary public views of the site are only from Interstate 80 (I-80) between Oakland and Yerba Buena Island. A frontage road running along the south side of I-80, and the Bay Bridge Trail along I-80, also provide public views of the Project site from across the Outer Harbor. These areas range from 0.25 mile to 1 mile from the Proposed Project site. Port View Park and Middle Harbor Shoreline Park are the nearest parks and are located on Port property approximately 0.25 mile south of the Proposed Project site. However, the parks are immediately adjacent to active terminals with structures and containers that obstruct the view of the Proposed Project site. The Proposed Project site is not visible from any other parks.

The nearest designated scenic highway is Interstate 580 (I-580), approximately 2 miles northeast of the Proposed Project site. The Proposed Project site would not be distinguishable from other Port areas at this distance.

Regulatory Setting

There are no federal or state regulations applicable to this topic or the Proposed Project.

Local

The Port is a department of the City of Oakland with the exclusive authority to control and manage certain lands of the City, referred to as the Port Area, in conformity with the Charter and the General Plan. The City of Oakland General Plan Open Space Conservation and Recreation (OSCAR) Element (City of Oakland, 1996) outlines various goals and policies intended to preserve and protect areas of the City that are potentially scenic, or that would promote access to scenic areas. Some of these policies would, under conventional circumstances, apply to a project like the one evaluated in this environmental document. However, the Proposed Project would be implemented on Port property, which is currently not publicly accessible and would remain so after Proposed Project implementation because of safety and security considerations. In addition, the visual quality of the Proposed Project site is currently low and is not considered scenic. Policies in the OSCAR Element relevant to the Proposed Project include Policy OS-10.2, which states that new development should minimize “adverse visual impacts” and encourage “opportunities for new vistas and scenic enhancement,” and Policy OS-10.3, which promotes enhancement to the City’s underused visual resources, including waterfronts (City of Oakland, 1996).

The Port has an Exterior Lighting Policy to reduce the impacts of exterior lighting on the surrounding community and to conserve energy. Under this policy, the Port’s tenants comply with established lighting measures to minimize lighting impacts from development and operations and to conserve energy. The Port’s policy also includes the Senate Bill 5X standards. The standards require that outdoor lighting be automatically controlled so that it is turned off during daytime hours and during times when it is not needed.

Discussion

a, b) The Proposed Project site is not a part of any officially designated scenic vista and would not damage any scenic resources, including trees, rock outcroppings or historic buildings within a state scenic highway. No impact would occur.

c) The Proposed Project site and its vicinity are part of an urbanized area of the City of Oakland that is characterized by heavy maritime industrial uses. As a result, the level of visual quality in the area is low.

During construction, observers from publicly accessible areas might see construction equipment, barges, and vehicles associated with the Proposed Project's construction. The items, however, would not look out of place in the area's maritime industrial setting of moored vessels, cranes, and container storage, and from the distant locations from which they could be viewed (0.25 mile to 1 mile) they would not be readily apparent among the existing workings of the Port.

After construction, the Proposed Project would not change the visual character of the Proposed Project site. The girder and rail modernization and electrical improvements would all occur on or below the ground surface and would not look substantially different from what is present currently. The piles that would be installed to support the Proposed Project would be below the ground surface and would not be visible. Areas of replacement asphalt concrete and the new bollards and fenders would represent an improved condition over what is present currently, since some of these existing components are in need of refurbishment and would be replaced or refurbished as part of the Project.

Overall, the Proposed Project site would look much the same as it does currently, but with a slightly improved appearance or visual quality. These modestly improved visual conditions, however, would not be readily visible from public viewpoints given their distance from the Project site (0.25 mile to 1 mile), their location at ground level, and the flat topography of the area. As noted previously, the Proposed Project site is not visible from parks or scenic highways. Moreover, the Proposed Project would not be substantially different in character from what is present on the site currently or from the existing maritime industrial uses in adjacent areas of the Port. Because the Proposed Project's changes in visual quality visual character, or public views would not conflict with regulations governing scenic quality, impacts would be less than significant.

d) No changes to the existing lighting within the Proposed Project site along Outer Harbor Berths 22 to 38 are contemplated as part of the Proposed Project. The conditions that exist currently would remain unchanged. No impact would occur.

References

City of Oakland. 1996. City of Oakland General Plan Open Space, Conservation, and Recreation Element. Available: https://cao-94612.s3.us-west-2.amazonaws.com/documents/oak035254.pdf. Accessed February 3, 2025.

3.2 Agriculture and Forestry Resources

Issues (and Supporting Information Sources):	***Potentially Significant Impact***	***Less Than Significant with Mitigation Incorporated***	***Less Than Significant Impact***	***No Impact***
II. 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 Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Environmental Setting

The Proposed Project is located within an urban industrial setting. There are no lands designated as farmland or forested or timberlands in the Port or in adjacent areas, including the Proposed Project site. The Proposed Project site is classified as "Urban and Built-up Land" by the California Department of Conservation (California Department of Conservation, 2022). No agricultural or forestry operations occur on the Project Site or in any adjacent area.

Regulatory Setting

No federal or state laws or regulations pertaining to agriculture and forest resources were identified that are relevant to the Proposed Project. Goals, policies, and regulations in the City of Oakland General Plan related to agriculture are not applicable to the Proposed Project site.

Discussion

a-e) The Proposed Project would have no impact on Prime Farmland, Unique Farmland, or Farmland of Statewide Importance because no current or planned agricultural uses are at the Proposed Project site. The Proposed Project would not conflict with land use designations for agriculture because the Proposed Project site is designated as General Industrial and Transportation. The Proposed Project site is not operated under a Williamson Act contract with any local governments for the purpose of restricting specific parcels of land to agricultural or related open space use. Similarly, there are no forest lands or timberlands located on or in the vicinity of the Proposed Project site, and no impact to forest lands or timberlands would occur. No impact would occur to agricultural and forestry resources.

References

California Department of Conservation. 2022. Alameda County Important Farmland, 2022. Available: https://www.conservation.ca.gov/dlrp/fmmp/Pages/Alameda.aspx. Accessed February 3, 2025.

3.3 Air Quality

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

Environmental Setting

The Proposed Project site is located at the Port of Oakland, within the San Francisco Bay Area Air Basin (SFBAAB or Bay Area). The Proposed Project area's proximity to both the Pacific Ocean and the San Francisco Bay has a moderating influence on the climate. The San Francisco Bay Area is characterized by a large, shallow basin surrounded by coastal mountain ranges tapering into sheltered inland valleys. The SFBAAB is bounded by the Pacific Ocean to the west, and includes complex terrain consisting of coastal mountain ranges, inland valleys, and bays, which affect wind flow patterns. The coastal mountain ranges have a gap on the western side, the Golden Gate, and another gap on the eastern side, the Carquinez Strait. These gaps allow air to flow in and out of the SFBAAB and the Central Valley (BAAD, 2017a).

The Federal Clean Air Act and the California Clean Air Act both require the establishment of standards for ambient concentrations for criteria air pollutants, called Ambient Air Quality Standards (AAQS). National AAQS have been established for seven criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter less than 10 microns and 2.5 microns (PM_{10} and $PM_{2.5}$), and lead. In addition, California has established state standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

The SFBAAB experiences occasional violations of ozone and particulate matter (PM_{10} and $PM_{2.5}$) standards. Therefore, the Project area currently is designated as a non-attainment area with respect to the state 1-hour and 8-hour ozone standards, the federal ozone 8-hour standard, the state 24-hour and annual average standards for PM_{10}, the state annual average standard for $PM_{2.5}$, and the federal $PM_{2.5}$ 24-hour standard. The Proposed Project area is designated as attainment for all other state and federal standards (BAAD, 2017a).

In addition to criteria air pollutants, individual projects may also emit toxic air contaminants (TACs). Collectively, TACs refer to a diverse group of air pollutants that may cause chronic (i.e., of long duration) and acute (i.e., severe but short-term) adverse effects on human health, including birth defects, neurological damage, cancer, and death. There are hundreds of different types of TACs with varying degrees of toxicity.

Thus, individual TACs vary greatly in the health risk they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another.

Unlike criteria air pollutants, TACs are not subject to ambient air quality standards but are regulated by air districts using a risk-based approach to determine which sources and which pollutants to control as well as the degree of control. The California Air Resources Board (CARB) identified diesel particulate matter (DPM) as a TAC in 1998, primarily based on evidence demonstrating cancer (chronic) effects in humans.

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others, due to the types of population groups or activities involved. Heightened sensitivity may be caused by health problems, proximity to the emissions source, and/or duration of exposure to air pollutants. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Sensitive receptors are typically defined as facilities where these population groups are likely to be located. Accordingly, land uses that are typically considered to be sensitive receptors include residences, schools, childcare centers, retirement homes, convalescent homes, and hospitals.

The Bay Area Air Quality Management District (BAAD) defines sensitive receptors as facilities where sensitive receptor population groups (children, off-site workers, the elderly, the acutely ill and the chronically ill) are likely to be located. These land uses include residences, school playgrounds, child-care centers, retirement homes, convalescent homes, hospitals and medical clinics.

The Proposed Project is not located in the immediate vicinity of any sensitive receptor locations. The nearest sensitive receptor site is Port View Park, which is located approximately 1,400 feet from the nearest Proposed Project location, and the Middle Harbor Shoreline Park is located approximately 1,050 feet from the Project site. The nearest residences, east of Pine Street in the City of Oakland, are located more than 5,100 feet from the Project site.[1]

Odors

Odors are generally regarded as an annoyance rather than a health hazard. The ability to detect odors varies considerably among the population and people may have different reactions to the same odor. Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word “strong” to describe the intensity of an odor. Odor intensity depends on the concentration in the air. When an odor sample is progressively diluted, the odor concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odor reaches a level that is no longer detectable.

[1] These distance estimates represent the amount of space between the berths and receptor locations. Some construction activities associated with the Electric Utility Improvements (EUIs) may take place closer to receptors; however, the construction work associated with EUIs would be short-term and transient (e.g., associated with the installation of additional cabling) in comparison to berth-modernization work, which is where the majority of construction activities would take place.

Regulatory Setting

Federal

Federal Clean Air Act

The Clean Air Act authorized the establishment of federal air quality standards and set deadlines for their attainment. The Clean Air Act identifies specific emission reduction goals, requires both a demonstration of reasonable further progress towards attainment, and incorporates more stringent sanctions for failure to meet interim milestones. Violations of NAAQS for each pollutant are determined based on air pollutant monitoring data. Areas that do not violate ambient air quality standards are considered to have attained the standard. The SFBAAB is currently designated as a non-attainment area with respect to the federal 8-hour ozone standard and the federal $PM_{2.5}$ (24-hour) standard. The USEPA has deemed the area as attainment/unclassified for all other air pollutants, including CO and PM_{10} (BAAD 2017a).

State

California Clean Air Act

The California Clean Air Act (California Health and Safety Code Sections 39600 et seq.), like its federal counterpart, calls for the designation of areas as attainment or non-attainment, based on whether areas within the state have achieved the California ambient air quality standards. Similar to the federal requirements, the California Clean Air Act requires each air district in which state air quality standards are exceeded to prepare a plan that documents reasonable progress towards attainment. If an air basin (or portion thereof) exceeds the state standard for a particular criteria air pollutant, it is considered to be a non-attainment area until the area can demonstrate compliance. The SFBAAB is currently designated as a non-attainment area with respect to the state ozone, PM_{10} and $PM_{2.5}$ standards (BAAD 2017a).

Regional and Local

BAAD CEQA Guidelines

The BAAD *California Environmental Quality Act Air Quality Guidelines* (CEQA Guidelines) is an advisory document that provides lead agencies, consultants, and project proponents with procedures for assessing air quality impacts and preparing environmental review documents (BAAD 2023). The document describes the criteria that the BAAD uses when reviewing and commenting on the adequacy of environmental documents. It recommends thresholds for use in determining whether projects and plans would have significant adverse environmental impacts, describes methods for predicting project emissions and impacts, and identifies measures that can be used to avoid or reduce air quality impacts.

The BAAD's most recent update to its CEQA Guidelines (2022 CEQA Guidelines) was adopted in April 2023 (BAAD 2023). These guidelines provide recommended quantitative significance thresholds along with direction on recommended analysis methods. The BAAD states that the quantitative significance thresholds are "advisory and should be followed by local governments at their own discretion," and that lead agencies are fully within their authority to develop their own thresholds of significance. However, the BAAD offers these thresholds for lead agencies to use to inform environmental review for development projects in the Bay Area. Lead agencies may also reference the *CEQA Thresholds Options and Justification Report* developed by the BAAD staff in 2009 and included as Appendix A to the 2022 CEQA Guidelines.

According to the CEQA Guidelines, a project would be considered to have a significant impact to existing air quality conditions within the SFBAAB if emissions from construction and operation of a project were to exceed the significance thresholds shown in **Table 3.3-1**.

To determine the significance of fugitive dust emissions, the BAAD recommends taking a qualitative approach. According to the BAAD CEQA Guidelines, a project would have a less-than-significant impact with regard to emissions of fugitive dust if it were to implement the *Basic Best Management Practices (BMPs) for Construction-Related Fugitive Dust Emissions* recommended by the BAAD in Section 5.2.2 of the BAAD 2022 CEQA Guidelines (BAAD 2023). These Basic BMPs for Construction-Related Fugitive Dust Emissions are described in Section 2.5.6.1 of this IS/MND.

TABLE 3.3-1
BAAD THRESHOLDS OF SIGNIFICANCE

Emissions	ROG	NOx	PM_{10}	$PM_{2.5}$
Construction	54 ppd	54 ppd	82 ppd (exhaust only)	54 ppd (exhaust only)

NOTES:
ppd = pounds per day; ROG = reactive organic gases; NO_x = oxides of nitrogen, PM = particulate matter

SOURCE: BAAD 2023.

BAAD 2017 Clean Air Plan

The *2017 Clean Air Plan: Spare the Air, Cool the Climate* (2017 Clean Air Plan) was adopted on April 19, 2017, by the BAAD in cooperation with the Metropolitan Transportation Commission, the San Francisco Bay Conservation and Development Commission, and the Association of Bay Area Governments to provide a regional strategy to improve air quality within the SFBAAB and meet public health goals (BAAD 2017b). The control strategy described in the 2017 Clean Air Plan includes a wide range of control measures designed to: 1) reduce emissions and lower ambient concentrations of harmful pollutants, 2) safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, and 3) reduce greenhouse gas emissions (GHGs) to protect the climate.

The 2017 Clean Air Plan addresses four categories of pollutants including ground-level ozone and its key precursors: ROG and NO_X; PM, primarily $PM_{2.5}$, and precursors to secondary $PM_{2.5}$; air toxics; and GHG emissions. The control measures are categorized based on the economic sector framework including stationary sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, and water.

The air district has permit authority over most types of stationary emission sources and can require stationary sources to obtain permits, and can impose emission limits, set fuel or material specifications, or establish operational limits to reduce air emissions. The air district also regulates new or expanding stationary sources of TACs and requires air toxic control measures for many sources emitting TACs.

BAAD Rules and Regulations

Construction activities associated with the project would be subject to BAAD rules and regulations governing criteria pollutants, TACs, and odorous compounds, even though permits may not be required. BAAD rules and regulations applicable to the project may include, but are not limited to:

- **Regulation 6, Rule 1.** Establishes that no person shall discharge quantities of air contaminants or other materials which cause injury, detriment, nuisance or annoyance to any considerable number or person or the public; or which endangers the comfort, repose, health or safety of any such person or the public.
- **Regulation 6, Rule 6.** Controls the track-out of solid materials onto paved, public roads from three types of sites: large bulk material sites, large construction sites, and large disturbed area sites.
- **Regulation 8, Rule 3.** Regulates the quantity of (volatile organic compounds) VOCs in architectural coatings supplied, sold, offered for sale, applied, solicited for application, or manufactured.

West Oakland Community Action Plan

Assembly Bill 617, known as the Community Air Protection Program (CAPP), requires that communities and Air Districts collaborate to reduce air pollution and associated health effects in certain impacted communities like West Oakland. Pursuant to AB 617, the BAAD and the West Oakland Environmental Indicators Project (WOEIP) together developed a community emissions reduction plan for West Oakland, referred to as the WOCAP, which includes the Port. The plan identifies 89 potential community-level strategies and control measures intended to reduce criteria pollutant and TAC emissions and decrease West Oakland residents' exposure to these TAC emissions, with the goal of improving community health by eliminating disparities in exposure to local air pollution. Specifically, the plan sets forth equity-based targets for cancer risk, DPM, and $PM_{2.5}$ concentrations in the seven "impact zones" with the highest pollution levels in the City. These targets are: (1) by 2025, all neighborhoods in West Oakland have the same air quality as the average neighborhood in West Oakland has today; and (2) by 2030, all neighborhoods in West Oakland have the same air quality as the "cleanest" neighborhood in West Oakland has today (BAAD and WOEIP, 2019a).

The BAAD conducted a technical analysis to support the WOCAP pursuant to AB 617. This analysis spatially maps the contribution of emissions from major pollutant sources to pollutant concentrations within the community. The analysis evaluated $PM_{2.5}$ concentrations and the potential health impacts (cancer risk) from directly emitted $PM_{2.5}$ and TAC emissions (including DPM), which are the primary air pollutants that pose the greatest risk to the health of residents in West Oakland.

The WOCAP CEQA document was certified on October 2, 2019 (BAAD and WOEIP 2019a). The BAAD adopted the WOCAP on October 2, 2019, and CARB approved Resolution 19-29 adopting the WOCAP on December 5, 2019.[2] Specific strategies and emissions reduction measures are organized under the following categories: Health Programs, Land Use, Mobile Sources, and Stationary Sources. Selected measures and strategies that may be relevant to the project include, but are not limited to, the following (BAAD and WOEIP 2019a):

Land Use Strategies

Action 9: The City of Oakland develops a plan to limit the hours that trucks can operate in the community.

Action 26: The City and Port of Oakland will work to establish permanent locations for parking and staging of Port related trucks and cargo equipment, i.e., tractors, chassis, and containers. Such facilities will provide long-term leases to parking operators and truck owner-operators at

[2] California Air Resources Board Resolution 19-29 (December 5, 2019).

competitive rates. Such facilities will be at the City or Port logistics center or otherwise not adjacent to West Oakland residents.

Mobile Sources Strategies

Action 40: The City of Oakland, consistent with the West Oakland Truck Management Plan, implements, in consultation with West Oakland residents, traffic calming measures to keep truck traffic off residential streets.

Discussion

The following analysis focuses on construction impacts associated with the Proposed Project. Potential operational impacts are unlikely to substantially differ from what is occurring currently or from activities that have previously been evaluated in other Port CEQA documents.

a) The 2017 Clean Air Plan is the applicable air quality plan for the SFBAAB within which the Project area is located. The BAAD CEQA Guidelines recommend that a project's consistency with the current air quality plan be evaluated using the following three criteria:

1) The project supports the goals of the air quality plan;
2) The project includes applicable control measures from the air quality plan; and
3) The project does not disrupt or hinder implementation of any control measures from the air quality plan.

The primary goals of the 2017 Clean Air Plan are to protect air quality and public health at the regional and local scale and protect the climate by reducing regional criteria air pollutant emissions and reducing local air quality-related health risks (by meeting state and national ambient air quality standards). To meet these goals, the 2017 Clean Air Plan includes 85 control measures aimed at reducing air pollutants in the SFBAAB. These control measures are grouped into the following sectors: stationary (industrial) sources, transportation, energy, buildings, agriculture, natural and working lands, and waste management.

The vast majority of the control measures included in the 2017 Clean Air Plan are not directly applicable to the Project, because they target facilities or land uses that do not currently exist on the Project site or are not a part of the Proposed Project (e.g., energy generation, waste management, agricultural, forest or pasture lands); vehicles or equipment that would not be employed in the Project area (e.g., airplanes, farming equipment); and/or involve rulemaking or other actions under the jurisdiction of agencies not directly involved with design and approval of the Proposed Project and its related actions. For example, the Agriculture, Natural and Working Lands, and Water measures address emissions sources not applicable to the Project, but rather the BAAD's own programs and regional air quality planning and are less applicable to local agencies' decisions and projects. The Proposed Project would be consistent with, and not obstruct the implementation of:

- **Control Measure SS36: PM from Trackout**, which called for the development and adoption of BAAD Rule 6, Regulation 6: Trackout. The Project would comply with this adopted regulation and others applicable to the activities being proposed.

- **Control Measure SS38: Fugitive Dust**, which identifies the need for the BAAD to consider applying the Air District's proposed fugitive dust visible emissions limits to a wider array of sources. Although this Control Measure identifies an action item on the Air District's part, the Project would not conflict with this Control Measure, because the Project would implement the BAAD's Basic BMPs for Construction-Related Fugitive Dust Emissions during all construction activities (see Section 2.5.6.1).

As indicated above, the Proposed Project would not hinder, or delay implementation of any applicable control measures contained in the 2017 Clean Air Plan. Therefore, the Proposed Project would be considered to support the primary goals of the 2017 Clean Air Plan.

In addition to the 2017 Clean Air Plan, the Proposed Project also would not conflict with the WOCAP. The Proposed Project proposes construction activities that require the use of trucks to import materials to the site as well and remove soils generated during Proposed Project construction. These truck trips would comply with the provisions set forth in the WOCAP and applicable requirements adopted in response to its implementation.

The Project would be consistent with the 2017 Clean Air Plan and the WOCAP. No impact would occur.

b) Emissions associated with the construction activities of the Proposed Project would primarily be generated by on-road mobile sources (e.g., work trips, deliveries, material off-haul, etc.), land-based off-road equipment (e.g., land-based crane, forklift, and backhoe), and water-based equipment (e.g., barge-mounted crane, sea skiff, diesel impact hammer, and vessel used to deliver piles).

As provided in the Project Description, the phasing of each Proposed Project components would generally occur as funding becomes available; only the girder modernization and cable-powered trench system conversion at Berths 24 through 26 have funding earmarked at this time. **Table 3.3-2** summarizes the various Proposed Project elements, start dates, and durations analyzed in this analysis.

TABLE 3.3-2
TENTATIVE PROJECT CONSTRUCTION SCHEDULE

Location	Activity	Start Date[a]	Duration
Berths 24 – 26	CGCR, CPTS, and EUI[b]	Late 2026	21 Months
Berths 22 – 23	CGCR. CPTS, and EUI[b]	Mid 2028	18 Months
Berths 22 – 24, 30 – 33, and 35 and 37	Bollard and Fender	Early 2030	36 Months
Berth 26 and 30	CGCR (Curved Rail)	Early 2030	9 Months
Berth 34	Floating Dock	Early 2030	9 Months

ABBREVIATIONS:
CGCR = Crane Girders and Crane Rails; CPTS = Cable-powered Trench System Conversion; EUI – Electrical Utility Upgrades;
NOTES:
a. With the exception of the CGCR work at Berths 22 – 24, start dates identified in this table represent tentative timelines. These other Project elements are contingent on funding and are likely to occur further out in the future than identified in this table.
b. The emissions modeling for the CPTS and EUI improvements also include construction of shore power infrastructure for Berths 22 through 26.
c. Berth 38 is not included as it will only undergo general repairs.
SOURCE: Liftech 2025 a and 2025b, and Port of Oakland 2025a.

The Proposed Project's emissions were estimated using phasing, equipment, and trip generation information provided by the Project Engineer and the Port (Liftech, 2025 a and 2025b; Port of Oakland, 2025a). CalEEMod was used to estimate emissions from on-road mobile sources and land-based off-road equipment. Emissions from water-based equipment and the diesel impact hammer were estimated using information and emission rates from the Port's 2020 Seaport Emission Inventory, CARB's OFFROAD2021 (V. 1.0.9) Emissions Inventory, and the *Oakland Harbor Turning Basins Widening EIR* (Port of Oakland 2021, 2023a, and 2023b). The Proposed Project's estimated construction emissions are shown in **Table 3.3-3**. See **Appendix B-1** for detailed construction phasing and equipment information.

TABLE 3.3-3
AVERAGE DAILY CONSTRUCTION-RELATED POLLUTANT EMISSIONS (POUNDS/DAY) - UNMITIGATED

Emissions	ROG	NOx	Exhaust PM_{10}[a]	Exhaust $PM_{2.5}$[a]
2026	0.5	4.7	6.7	0.1
2027	1.5	14.0	16.7	0.9
2028	0.9	8.2	0.5	0.5
2029	1.0	8.3	0.3	0.3
2030	1.3	11.3	0.5	0.5
2031	0.9	7.2	0.3	0.2
2032	0.9	6.9	0.2	0.2
2033	0.2	2.9	0.4	0.3
BAAD Construction Thresholds	54	54	82	54
Significant?	No	No	No	No

ABBREVIATIONS:
ROG = reactive organic gases; NO_X = oxides of nitrogen; PM_{10} = particulate matter with diameter equal to or less than 10 microns; $PM_{2.5}$ = particulate matter with diameter equal to or less than 2.5 microns.

NOTE:
a. The BAAD's construction-related significance thresholds for PM_{10} and $PM_{2.5}$ apply to exhaust emissions only and not to fugitive dust.

SOURCE: ESA 2025.

As shown in Table 3.3-3, construction emissions from the Proposed Project would not exceed the BAAD's regional criteria air pollutant thresholds. Regarding the emissions estimates in Table 3.3-3:

- The BAAD considers fugitive dust emission generated by construction activities to be potentially significant, regardless of the quantity of PM emitted, unless the BAAD's recommended fugitive dust BMPs are implemented. As described in Section 2.5.6.1, the Proposed Project would implement these recommended fugitive dust BMPs.
- The emissions presented in Table 3.3-3 reflect only the quantity of emissions that would be generated and emitted in the BAAD's jurisdiction. However, the Proposed Project would also generate emissions outside of the SFBAAB. These emissions would be associated with concrete piers imported via barge from Stockton (brought in via a water-based vessel), steel piers imported from Mare Island, and, potentially, emissions from haul trucks used to dispose of materials at appropriate landfill(s). Project-related emissions occurring outside of the Bay Area could include emissions in air basins managed by other air districts, such as the San Joaquin Valley Unified Air Pollution Control District and Yolo-Solano Air Quality

Management District. These emissions would be nominal and not have the potential to exceed applicable criteria air pollutant threshold maintained by other air district(s).

- The construction activities shown in Table 3.3-2 have been modeled as occurring consecutively, because this is anticipated to be the most likely and conservative scenario under which the Proposed Project would be constructed. The actual undertaking of various Proposed Project elements would be subject to the availability of funding, which may cause certain elements to occur later than shown in Table 3.3-2.[3] Subsequent activities (e.g., CGCR activities at Berths 22 and 23, bollard and fender modernization, etc.), if delayed, would result in fewer emissions generated on an annual basis, reducing average daily emissions.[4]

As discussed above, the Proposed Project would not generate emissions during construction activities that would have the potential to exceed any applicable air district thresholds and, therefore, would not result in a cumulatively considerable net increase for any criteria pollutants. This impact would be less than significant.

c) During Proposed Project construction, heavy-duty, diesel-powered, offroad construction equipment, as well as diesel-powered vendor and haul tucks and marine vessels / equipment, would emit DPM as part of their exhaust emissions; however, these emissions would not result in pollutant concentrations that could generate substantial adverse health risks to adjacent sensitive receptors for several reasons.

First, the Proposed Project site is not located adjacent to any sensitive receptor locations. As described in the environmental setting, the nearest residential sensitive receptors are located more than 5,100 feet from where the majority of the Proposed Project's construction activities would take place. As described by the BAAD, "Concentrations of mobile-source diesel PM emissions are typically reduced by 70 percent at a distance of approximately 500 feet (ARB 2005)" (BAAD, 2017c). Thus, DPM emissions generated by construction activities that take place more than 4,000 feet away (approximately eight times distance cited by the BAAD) would have ample time and space to disperse before reaching sensitive residential receptor locations. Receptor exposure to lower pollutant concentrations, a function of dispersion, results in lower health risks.

Moreover, worker receptors at and in the immediate proximity of the Port would also be exposed to DPM emissions generated during construction activities. Although these receptors would be closer to Proposed Project emission sources, risks would not be significant at these locations, either. Worker receptors typically have a lower exposure duration compared to residential receptors, because workers are generally assumed to be exposed for 8 hours per day over a 25-year period. This is substantially shorter than the continuous 24-hour exposure typically assumed for residential locations. Further, worker receptors would all be of adult age. Although the Office of Environmental Health Hazard Assessment's (OEHHA) 2015 Risk Assessment Guidelines

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3 At this time, only Berths 24 through 26 have funding earmarked for the girder modernization and cable-powered trench system conversion, and the Port's 5-year Capital Improvement Plan does not currently identify any of these projects as occurring within that timeline (Port of Oakland, 2025b).

4 Emissions associated with the proposed activities are anticipated to decrease if they occur further out into the future, because the equipment used for construction activities would likely benefit from emission-control regulations enacted at the state and federal levels, which become more stringent over time.

provides additional protections for children (i.e., by increasing the weighting of potential health risks), additional health risk protection is not provided for adults, including worker receptors.

Also, the Proposed Project engineer anticipates that some heavy-duty land-based off-road equipment (e.g., cranes, forklifts, backhoes, etc.) would have engines that meet U.S. EPA Tier IV emission standards. Although there is some uncertainty regarding how many pieces would meet Tier IV emission standards, some (or all) pieces meeting this criterion would help reduce emissions beyond those shown in Table 3.3-3. The Tier IV emission standards, specifically, are designed to reduce PM emissions by approximately 90 percent, compared to baseline levels (i.e., older engine standards) (USEPA, 2004). Engines meeting Tier IV emission standards not only reduce PM (and DPM) but also NOx, as well.

For the reasons described above, the Proposed Project would not expose receptors to substantial pollutant concentrations during construction. This impact would be less than significant.

d) Diesel exhaust from on-site construction equipment would result in temporary and localized odors. Construction activities would be distributed over the entire Proposed Project site, localized only in the immediate vicinity of construction equipment, would disperse quickly over time and space and is not expected to carry over to any receptors beyond the Proposed Project site. The Project would not generate emissions, including those leading to odors, that would adversely affect a substantial number of people. This impact would be less than significant.

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3.4 Biological Resources

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

Environmental Setting

This section describes the existing terrestrial and aquatic biological resources within the vicinity of the Proposed Project site at the Port. The potential for the Proposed Project area to support special-status plant or wildlife species was assessed based on an Environmental Science Associates' (ESA) site visit on January 22, 2025, a desktop review of historic and current aerial imagery, biological resource databases such as the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (CDFW, 2025), California Native Plant Society (CNPS) Rare Plant Inventory (CNPS, 2025), and the U.S. Fish and Wildlife Service Information for Planning and Consultation (IPaC) (USFWS, 2025), as well as publicly available scientific literature. Habitat quality and species distribution were considered in evaluating the likelihood of special-status species occurrence in the Proposed Project area (see **Appendix C**).

Marine Habitats

Open Water (Pelagic) Habitat

Because of its proximity to the Pacific Ocean, the open water (pelagic zone) environment of the Port, and the larger Central Basin of San Francisco Bay, is similar to the open water coastal environment. Pelagic habitat is the predominant marine habitat in aquatic portions of the Proposed Project area and includes the area between the water surface and the Bay floor. The water column can be further subdivided into shallow-water/shoal and deepwater/channel areas (NOAA 2007). The pelagic water column habitat is predominantly inhabited by planktonic organisms that either float or swim in the water, fish, marine birds, and marine mammals.

The open water habitat within the Central Basin of San Francisco Bay is listed by the Regional Water Quality Control Board (RWQCB) as an impaired water body for chlordane, dichloro-diphenyl-trichloroethane (DDT), dieldrin, dioxin compounds, furan compounds, polychlorinated biphenyls (PCBs), mercury, selenium, and invasive species (State Water Resources Control Board 2024). Beneficial uses of the Central Basin include estuarine habitat, commercial and sport fishing, wildlife habitat, water contact recreation, water non-contact recreation, and navigation.

Intertidal Habitats

Intertidal habitats, or the regions of the Bay that lie between low and high tides, in the Proposed Project area include natural and artificial rock (concrete and quarried rip-rap), concrete bulkheads, and steel pier pilings. These intertidal habitats provide highly diverse and varied locations for marine flora and fauna. The Central Bay’s proximity to the Golden Gate and Pacific Ocean has resulted in an intertidal zone inhabited by many coastal as well as estuarine species.

The angular and piled rip-rap rocks that have been placed to protect numerous shoreline locations in the Central Bay, including the shoreline of the Proposed Project area, provide numerous havens in which assorted marine species are able to survive and flourish.

Subtidal Habitats

Central San Francisco Bay contains both soft sediment and hard substrate subtidal (below the low tide) habitat. Soft bottom substrate ranges between soft mud with high silt and clay content and areas of coarser sand. The latter tend to occur in locations subjected to high tidal or current flow. Soft mud locations are typically located in areas of reduced energy that enable deposition of sediments that have been suspended in the water column, such as in protected slips, under wharfs, and behind breakwaters and groins.

These hard substrate areas provide habitat for an assemblage of marine algae, invertebrates and fishes, similar to the hard substrate in the intertidal zone of the Central Bay. Submerged hard bottom substrate is typically covered with a mixture of turf organisms that are dominated by hydroids, bryozoans, tunicates, encrusting sponges, encrusting diatoms, and anemones. In the intertidal and near subtidal zones, barnacles (*Balanus glandula*, *Amphibalanus amphitrite* and *A. improvisus*) are commonly present along with the Bay mussel (*Mytilus trossulus/galloprovincialis*), the invasive Asian mussel (*Musculista senhousia*), and the native or Olympia oyster (*Ostrea lurida*). Barnacles can also be found subtidally on pier pilings, exposed rock outcroppings and debris (NOAA 2007).

In addition, three species of caprellids (i.e., detritivores, carnivores, and deposit feeders) are commonly observed only in the Central Bay (NOAA 2007). Pacific rock crab (*Cancer antennarius*) and the red rock crab (*C. productus*) inhabit rocky, intertidal and subtidal areas in the Pacific Ocean, and likely use San Francisco Bay as an extension of their coastal habitats (Hieb 1999). Adult (age 1-year +) Pacific rock crabs are most commonly found in Central Bay in both the fall and spring months. Juveniles are most common in Central Bay from January to May and in South Bay from July to December (Hieb 1999).

Pacific rock crabs move seasonally from channels (January to April) to shoals (June to December) (Hieb 1999). The Pacific and red rock crabs are frequent targets of sport anglers from piers and jetties.

The predominant Bay floor habitat along the Oakland waterfront, which includes the Proposed Project area, is unconsolidated soft sediment composed of combinations of mud/silt/clay (particles 0.001 to 0.062 mm in diameter), however, in lesser quantities, portions of the substrate also include sand (particles 0.062 to 2.0 mm in diameter), and pebble/cobble (particles 2 to 256 mm in diameter), with varying amounts of intermixed shell fragments. Exposure to wave and current action, temperature, salinity, and light penetration determines the composition and distribution of organisms within these soft sediments (NOAA 2007). Based on many geologic and marine biological studies conducted within the Bay-Delta, unconsolidated sediments are present throughout the Bay-Delta and are the predominant substrate type.

The muddy-sand benthic community of Central Bay consists of a diverse polychaete worm community represented by several subsurface deposit feeding capitellid species, a tube dwelling filter feeding species (*Euchone limnicola*), a carnivorous species (*Exogone lourei*), and the maldanid polychaete *Sabaco elongatus*. There are also several surface deposit-feeding *Ameana* spp. persisting throughout the year (NOAA 2007).

The harbor and main channel areas of Central Bay are characterized as a mix of the benthic communities from surrounding areas (deep and shallow-water and slough marine communities) and include the obligate amphipod filter-feeder *Ampelisca abdita* and the tube dwelling polychaete *Euchone limnicola*. As a result of increased water flow and sedimentation in the harbor areas of Central Bay, the majority of the species reported that inhabit seafloor sediments in this region of the Bay-Delta are deposit and filter feeders, including the amphipods *Grandidierella japonica*, *Monocorophium acherusicum*, and *Monocorophium alienense*, and the polychaetes *Streblospio benedicti* and *Pseudopolydora diopatra.* There is also a relatively high number of subsurface deposit feeding polychaetes and oligochaetes in these areas including *Tubificidae* spp., *Mediomastus* spp., *Heteromastus filiformis*, and *Sabaco elongatus*. There is also sufficient community complexity and abundance to support relatively high abundances of three carnivorous polychaete species: *Exogone lourei*, *Harmothoe imbricata*, and *Glycinde armigera*.

The most common large mobile benthic invertebrate organisms in the Central Bay include blackspotted shrimp (*Crangon nigromaculata*), the bay shrimp (*Crangon franciscorum*), Dungeness crab (*Metacarcinus magister*), and the slender rock crab (*Cancer gracilis*). Although other species of shrimp are present in the Central Bay, their numbers are substantially lower when compared to the number of bay and blackspotted shrimps present (NOAA 2007). All of these mobile invertebrates are present throughout the Central Bay and provide an important food source for carnivorous fishes, marine mammals, and birds in San Francisco Bay's food web. Dungeness crabs use most of the Bay as an area for juvenile growth and development prior to returning to the ocean as sexually mature adults (Tatso 1979). Because of the strong ocean influence in Central Bay, additional species of red and brown algae are found attached to submerged and intertidal hard substrates, including pier pilings. The dominant algal species that occur in the Proposed Project area are sea lettuce (*Ulva lactuca*), rockweed (*Fucus gardneri*), and Turkish towel (*Chondracanthus exaspertatus*). Other common species from the San Francisco waterfront include *Cladophora sericea, Codium fragile, Laminaria sinclairii, Egregia spp., Halymenia schizymenioides menziesii, Sargassum muticum, Polyneura latissima, Cryptopleura violacea, and Gelidium coulteri* (NOAA 2007). In addition, the species *Codium fragile* subspecies *tomentosoides, Bryopsis hypnoides*, *Ahnfeltiopsis leptophyllus* can be found inhabiting either hard or soft substrate (NOAA 2007). All submerged aquatic vegetation in the Central Bay is considered critical essential fish spawning habitat for Pacific herring.[1]

Terrestrial Habitats

The Proposed Project area is a completely developed site and does not provide suitable habitat for plants or terrestrial wildlife species. No vegetation is present. No riparian habitat or other sensitive community types occur within the Proposed Project area, as it does not support vegetation. Developed areas in urban environments, such as those found on the Proposed Project site and surrounding properties, can provide cover, foraging, and nesting habitat for a variety of common birds, especially those that are tolerant of disturbance and human presence. Developed areas are unlikely to provide habitat for federally and state-listed terrestrial species.

Avian species that are generally common to highly developed urban areas have potential to nest in ruderal shrubs or building roofs in the vicinity. Potentially present species include the nonnative house sparrow (*Passer domesticus*), rock pigeon (*Columba livia*), and European starling (*Sturnus vulgaris*), and native species such as house finch (*Haemorhous mexicanus*), Brewer's blackbird (*Euphagus cyanocephalus*), and mourning dove (*Zenaida macroura*).

Potentially Jurisdictional Waters and Wetlands

While no protocol aquatic resource delineation survey was conducted, no wetlands or other submerged aquatic vegetation were observed in or near the Proposed Project area. The shallow bay habitat (San Francisco Bay) within the Proposed Project area is considered Waters of the U.S. and Waters of the State.

Wildlife Movement Corridors

Wildlife movement corridors link together areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or by areas of human disturbance or urban development. Topography and other natural factors, in combination with urbanization, have fragmented or separated large open-space areas. The fragmentation of natural habitat creates isolated "islands" of vegetation that may not provide sufficient area to accommodate sustainable populations and can adversely affect genetic and species diversity. Movement corridors mitigate the effects of fragmentation by allowing animals to move between remaining habitats, which in turn allows depleted populations to be replenished and promotes genetic exchange between populations.

Central San Francisco Bay serves as a migration corridor for anadromous fish between the Pacific Ocean and spawning habitat, primarily within the Sacramento and San Joaquin River watersheds, but also in a handful of tributaries to San Francisco Bay. However, the location of the Proposed Project area along the Oakland waterfront is not within the migration routes normally taken by anadromous fish species.

[1] The Magnuson-Stevens Act defines "essential fish habitat" as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.

Special-Status Terrestrial Wildlife

The terrestrial portion of the Project site is entirely paved, and no vegetation is present. No special-status terrestrial wildlife species have a moderate or high potential to occur in or adjacent to the Proposed Project area.

Nesting Birds

No bird species listed by the Federal Endangered Species Act (FESA) or California Endangered Species Act (CESA) were deemed to have a moderate or high potential to occur in the study area (refer to Table BIO-1 in **Appendix C**). Non-FESA/CESA-listed breeding birds are protected under California Fish and Game Code Section 3503 and raptors are protected under Section 3503.5. In addition, Section 3513 of the Code and the Federal Migratory Bird Treaty Act (16 USC, Sec. 703 Supp. I, 1989) prohibits the killing, possession, or trading of migratory birds. Finally, Section 3800 of the Code prohibits the taking of non-game birds, defined as birds occurring naturally in California that are not game birds or fully protected species.

Bird species that have a moderate or high potential to nest in the Proposed Project area include house finch (*Haemorhous mexicanus*), Brewer's blackbird (*Euphagus cyanocephalus*), and mourning dove (*Zenaida macroura*).and many other common native birds. Because birds could nest in or on ruderal areas, barren ground, barges, cranes, electrical poles, and buildings, many parts of the Proposed Project area are considered potential nesting habitat.

Special-Status Plants

No habitat suitable for special-status plants is present in the Proposed Project area. The terrestrial portion of the Project site is entirely paved, and no vegetation is present.

Special-Status Fish

Chinook Salmon

The Chinook salmon (*Oncorhynchus tshawytscha*) that inhabit San Francisco Bay are comprised of three distinct races, or evolutionarily significant units (ESUs): winter-run, spring-run, and fall-/late fall-run. These races are distinguished by the seasonal differences in adult upstream migration, spawning, and juvenile downstream migration. Chinook salmon are anadromous fish, spending three to five years at sea before returning to fresh water to spawn. These fish pass through San Francisco Bay waters to reach their upstream spawning grounds. In addition, juvenile salmon migrate through the Bay en route to the Pacific Ocean. Therefore, Chinook salmon smolts may pass through and forage within the Proposed Project area during emigration to the Pacific Ocean and thus have a moderate potential to occur within the Proposed Project area and vicinity.

Sacramento River winter-run Chinook salmon, listed as endangered under the federal and state endangered species acts, migrate through San Francisco Bay from December through July with a peak in March (Moyle 2002). Spawning is confined to the mainstem Sacramento River and occurs from mid-April through August (Moyle 2002). Juveniles emerge between July and October and are resident in their natal stream for five to 10 months, followed by an indeterminate residency period in estuarine habitats (Moyle 2002). Designated critical habitat for winter-run Chinook salmon includes the Sacramento River downstream from Keswick Dam, the Sacramento-San Joaquin Delta, and all waters of Suisun, San Pablo, and San Francisco Bays west to the Golden Gate Bridge. Critical habitat does not extend south of the Bay Bridge and as such, the Proposed Project area is not within the designated critical habitat for this species. However, the Central Bay is used as a migration corridor for this ESU.

Central Valley spring-run Chinook, listed as threatened under the federal and state endangered species acts, migrate to the Sacramento River from March to September with a peak spawning period between late August and October (Moyle 2002). Juvenile salmon emerge between November and March and are resident in streams for a period of three to 15 months before migrating to downstream habitats (Moyle 2002). Designated critical habitat for Central Valley spring-run Chinook salmon does not include the waters of San Francisco Bay. As such, the Proposed Project area does not lie within designated critical habitat for this species. However, the Central Bay is used as a migration corridor for this ESU.

The Central Valley fall-/late fall-run Chinook salmon ESU is not listed as threatened or endangered under CESA or FESA; however, it is classified as a federal species of concern by the National Marine Fisheries Service (NMFS) and California species of special concern. This ESU includes all naturally spawned populations of Central Valley fall-/late fall-run Chinook salmon in the Sacramento and San Joaquin rivers and their tributaries east of Carquinez Strait. Central Valley fall-/late fall-run Chinook salmon enter San Francisco Bay between July and November and spawn in the Sacramento River basin between September and December. Juvenile emigration through the Sacramento-San Joaquin Delta and San Francisco Bay occurs between March and July.

While all three Chinook salmon ESUs are found in San Francisco Bay, the Central Valley fall-/late fall-run are the only race that historically spawned in San Francisco Bay tributary streams. Today, however, most stream habitat in San Francisco Bay lacks the necessary flow regime, habitat availability, and/or water quality to support spawning salmonids. Additionally, individuals are rarely documented within the Proposed Project area or the immediate vicinity; and any occurrence would only be temporary as the surrounding bay habitat is primarily utilized as a migration corridor between the Pacific Ocean and spawning habitat in the Central Valley (IEP 2014).

Steelhead

Similar to Chinook salmon, steelhead (*Oncorhynchus mykiss*) within California are subdivided into Distinct Population Segments (DPS) based on their life history. Within Central San Francisco Bay, both the federally threatened Central California Coast (CCC) and federally threatened California Central Valley (CCV) steelhead may utilize the channel habitat adjacent to the Proposed Project area as a migratory corridor from the Pacific Ocean to spawning habitat. Additionally, steelhead smolts may pass through and forage within the Proposed Project area during emigration to the Pacific Ocean and therefore have a moderate potential to occur within the Proposed Project area and vicinity.

Steelhead are anadromous (sea-run) forms of rainbow trout and are nearly indistinguishable from resident rainbow trout that also reside in the same streams in which they spawn, with the exception of being larger when hatched (Moyle 2002). Winter-run steelhead are at or near sexual maturity when they enter freshwater during late fall and winter, and spawn from late December through April, with the peak between January and March. Juvenile steelhead typically rear in freshwater for a longer time period than other salmonids, typically ranging from one to three years. The actual time, however, is highly variable with the individual. Throughout their range, steelhead typically remain at sea for one to four growing seasons before returning to freshwater to spawn (Burgner et al. 1992).

The Central Valley DPS includes all naturally spawned populations of steelhead in the Sacramento and San Joaquin rivers and their tributaries below natural and manmade impassable barriers (excluding steelhead from San Francisco and San Pablo Bays and their tributaries) as well as two artificial propagation programs: The Coleman National Fish Hatchery and the Feather River Hatchery steelhead hatchery programs. CCV steelhead adults migrate from the Pacific Ocean through San Francisco Bay through much of the year, with the peak migration period through San Francisco Bay occurring from September through December. Spawning occurs from November through April, and emergence of fry occurs between January and June. Juvenile steelhead spend one to three years in freshwater before emigrating as smolts. In general, juvenile emigration through the Sacramento-San Joaquin Delta and San Francisco Bay occurs from December through July.

Designated critical habitat for CCV steelhead includes all river reaches accessible to listed steelhead in the Sacramento and San Joaquin Rivers and their tributaries, all river reaches and riparian zones of the Sacramento-San Joaquin Delta, and all waters of Suisun, San Pablo, and San Francisco Bays west to the Golden Gate Bridge. Critical habitat does not extend south of the Bay Bridge and as such, the Proposed Project area is not within the designated critical habitat for this species. However, the Central Bay is used as a migration corridor for this DPS.

CCC steelhead includes all naturally spawned populations of steelhead from the Russian River to Aptos Creek and includes the populations spawning in streams and rivers tributary to San Francisco Bay (including San Pablo, and Suisun Bays) eastward to Chipps Island. In general, adult CCC steelhead spawning in streams tributary to San Francisco Bay migrate from the Pacific Ocean through San Francisco Bay from November through February. Spawning occurs from December through April, and fry emergence occurs from January through May. Juvenile CCC steelhead rear in freshwater for 1 to 3 years (usually 2 years) before emigrating as smolts through San Francisco Bay to the Pacific Ocean, generally from January through June.

Designated critical habitat for CCC steelhead includes all river and stream reaches accessible to listed steelhead tributary to the Pacific Ocean from the Russian River to Aptos Creek, and all river and stream reaches accessible to listed steelhead tributary to Suisun, San Pablo, and San Francisco Bays, and all waters of Suisun, San Pablo, and San Francisco Bays west to the Golden Gate Bridge. As such, the Proposed Project area is within the designated critical habitat mapped for this species. Although CCC steelhead smolt and adults may pass through and possibly forage within the Proposed Project area during emigration to the Pacific Ocean, the Proposed Project area lacks the primary constituents of estuarine habitat such as side channels, large woody debris, natural cover, and other features that would make it productive rearing habitat for steelhead. Therefore, the site does not support any of the primary constituent elements to be considered critical habitat.

Green Sturgeon

The federally threatened southern DPS of North American green sturgeon (*Acipenser medirostris*) are the most widely distributed member of the sturgeon family and the most marine-oriented of the sturgeon species, entering rivers only to spawn. Juveniles rear in fresh water for as long as two years before migrating to the sea. Green sturgeon are thought to spawn every three to five years in deep pools with turbulent water velocities and prefer cobble substrates but can use substrates ranging from clean sand to bedrock. Females produce 60,000 to 140,000 eggs that are broadcast to settle into the spaces between cobbles. Adult green sturgeon migrate into freshwater beginning in late February with spawning occurring in the Sacramento River in late spring and early summer (March through July), with peak activity in April and June. After spawning, juveniles remain in fresh and estuarine waters for one to four years and then begin to migrate out to the sea (Moyle et al. 1995). The upper Sacramento River has been identified as the only known spawning habitat for green sturgeon in the southern distinct population segment (Moyle 2002). According to recent studies, green sturgeon adults begin moving upstream through the Bay during the winter (Kelly et al. 2007). Adults in the San Joaquin Delta are reported to feed on benthic invertebrates including shrimp, amphipods, and occasionally small fish, while juveniles have been reported to feed on opossum shrimp and amphipods (Moyle et al. 1995).

Designated critical habitat for the green sturgeon within California includes the Sacramento River downstream from Keswick Dam, the Sacramento-San Joaquin Delta, Suisun, San Pablo, and San Francisco Bays, and all waters of Suisun, San Pablo, and San Francisco Bays west to the Golden Gate Bridge. As such, the Proposed Project area is within the designated critical habitat for this species.

Within bays and estuaries, sufficient water flow is required to allow adults to successfully orient to the incoming flow and migrate upstream to spawning grounds. Subadult and adult green sturgeon occupy a diversity of depths within bays and estuaries for feeding and migration. Green sturgeon may spend considerable time foraging within San Francisco Bay during immigration and emigration to the Pacific Ocean. Tagged adults and subadults within the San Francisco Bay-Delta have been observed occupying waters over shallow depths of less than 33 feet, either swimming near the surface or foraging along the bottom. Suitable foraging habitat exists within the Proposed Project area (e.g., soft bottom substrates with benthic fish and invertebrate species). Therefore, green sturgeon has a moderate potential to occur within the Proposed Project area and vicinity at any time of year.

White Sturgeon

As with green sturgeon, white sturgeon is found from Ensenada, Mexico to Southeast Alaska. The San Francisco Bay population of white sturgeon – the only reproducing population of white sturgeon in California – was previously classified as a Species of Special Concern by CDFW. On July 12, 2024, CDFW approved white sturgeon as a candidate species for listing as threatened under CESA. Candidate species for listing under CESA are granted full protection during the review process. Presently, there is no federal listing for white sturgeon and therefore, no critical habitat has been designated.

White sturgeon primarily inhabit estuaries of large river systems, migrating to fresh water to spawn. Spawning success has been hindered by the construction of dams, such as Shasta Dam on the Sacramento River and Oroville Dam on the Feather River. Spawning in the California Central Valley is now limited to the Sacramento River between Knights Landing and Colusa with observations of periodic spawning occurring in the Feather and San Joaquin rivers (Moyle 20002; Moyle et al 1995; Bemesderfer et al. 2004; Jackson et al 2015). Prior to spawning, white sturgeon move into the lower reaches of rivers during the winter and migrate upstream to spawning areas between December and early June (Moyle et al 2015). Like green sturgeon, white sturgeon broadcast their eggs in deep, fast water over large cobble substrate, where the eggs settle into the interstitial spaces (Moyle 2002). Larvae hatch from eggs between four to 12 days after spawning if temperature conditions are optimal (Wang 1986). Larvae and young-of-the-year (YOY) use riverine areas to forage and rear until they gain the ability to tolerate higher salinity concentrations (McCabe and Tracy 1994). Recruitment success of juvenile white sturgeon is correlated with high spring flows and Delta outflow. High spring flows during juvenile rearing (i.e., between April and July) assist in moving larval sturgeon downstream into suitable rearing habitat quicker than years with low spring flows (Stevens and Miller 1970).

White sturgeon typically inhabit deep water over soft bottom substrates, feeding on or near the bottom (Moyle 2002). White sturgeon remain in the San Francisco Estuary throughout most of their life, but more evidence is showing that white sturgeon may move into marine environments as well (Klimley et al 2015; Sellheim et al. 2022). Adult and juvenile white sturgeon primarily occur in the San Francisco Estuary and can be present in the Proposed Project area year round.

Longfin Smelt

The longfin smelt San Francisco Bay-Delta DPS (*Spirinchus thaleichthys*) is a small, slender-bodied pelagic fish listed as threatened under CESA and endangered under FESA. They typically measure approximately three inches in length as adults and generally live for two years, although some three-year smelt have been observed.

Pre-spawning longfin smelt migrate upstream into the lower reaches of rivers during the late fall and winter. Smelt have adhesive eggs which are deposited on sand, gravel, rocks, submerged aquatic vegetation, and other hard substrates during spawning. Spawning typically occurs during the late winter and early spring (mid- to late February) but varies among years in response to factors such as seasonal water temperatures. During spawning, each female produces approximately 5,000 to 24,000 eggs. It is estimated that total reproduction within a year is in the hundreds of millions of eggs or more (Moyle 2002). As with most fish, mortality rates for eggs and larvae in longfin smelt are high. Those that survive to the planktonic larval stage are transported into the western Delta and Suisun Bay during the late winter and spring where juveniles rear.

Longfin smelt have a two-year lifecycle and reside as juveniles and pre-spawning adults in the more saline habitats within San Pablo Bay and Central Bay during a majority of their life (Moyle 2002). Movement patterns based on catches in CDFW fishery sampling suggest that longfin smelt actively avoid water temperatures greater than 22° C (72° F) (Baxter et al. 1999). These conditions occur within the Delta during the summer and early fall, when longfin smelt inhabit more marine waters further downstream in the bays and are not present within the Delta.

Longfin smelt are most likely to occur within Central San Francisco Bay during the late summer months before migrating upstream in fall and winter. During winter months, when fish are moving upstream to spawn, high outflows may push many back into San Francisco Bay (Moyle 2002). Critical habitat has not been designated for this DPS.

Pacific Herring

Pacific herring (*Clupea pallasii*) are a CDFW-managed species and are protected within San Francisco Bay under the Marine Life Management Act (MLMA) which provides guidance, in the form of Fisheries Management Plans (FMP), for the sustainable management of California’s historic fisheries.

The Pacific herring is a small schooling marine fish that enters estuaries and bays to spawn. This species is known to spawn along the Oakland and San Francisco waterfronts and attach its egg masses to eelgrass, seaweed, and hard substrates such as pilings, breakwater rubble, and other “hard surfaces”. An individual can spawn only once during the season, and the spent female returns to the ocean immediately after spawning. Spawning usually takes place between October and March with a peak between December and February. After hatching, juvenile herring typically congregate in San Francisco Bay during the summer and move into deeper waters in the fall. CDFW reported herring spawning approximately four miles south of the Proposed Project area, at the Alameda Rock Wall/Ballena Bay, during the 2016-2017, 2017-2018, and 2018-2019 spawning seasons (CDFW 2017, 2018, 2019). Pilings and other hard surfaces along the Proposed Project work area may provide suitable spawning habitat for Pacific herring.

Marine Mammals

Few species of marine mammals are found within San Francisco Bay; only Pacific harbor seals (*Phoca vitulina richardsi*), California sea lions (*Zalophus californianus*), and harbor porpoises (*Phocoena phocoena*) are sighted year-round. Other marine mammal species that have occasionally been seen in San Francisco Bay include the gray whale (*Eschrichtius robustu*s), individual humpback whales (*Megaptera novaeangliae*), bottlenose dolphin (*Tursiops truncates*), and northern elephant seal (*Mirounga angustirostris*); and less frequently the Guadalupe fur seal (*Arctocephalus townsendi*) and northern fur seal (*Callorhinus ursinus*) (Caltrans 2015). Most cetacean sightings tend to occur in the Central Bay. The most common marine mammals sighted year-round in San Francisco Bay are Pacific harbor seals and California sea lions, which are the species most likely to occur in the Proposed Project area. Harbor porpoises are also occasionally sighted and have the potential to be in proximity to the Proposed Project site.

California Sea Lion

The California sea lion is protected under the Marine Mammal Protection Act (MMPA). California sea lions breed in Southern California and along the Channel Islands. After the breeding season, males migrate up the Pacific Coast and enter San Francisco Bay. In San Francisco Bay, sea lions are known to haul out at Pier 39 in the Fisherman’s Wharf area of the San Francisco Marina. No other repeatedly used haul-out site for California sea lions, other than Pier 39, has been observed in San Francisco Bay. California sea lions forage on a wide range of fish species; particularly schooling species such as Pacific herring and northern anchovy.

Pacific Harbor Seal

The harbor seal is protected by the MMPA. Harbor seals are non-migratory and can be found along shorelines and in estuaries throughout North America. Pacific harbor seals use San Francisco Bay year-round where they engage in limited seasonal movements associated with foraging and breeding activities. Harbor seals haul out in groups ranging in size from a few individuals to several hundred seals. Habitats used as haul-out sites include tidal rocks, bay flats, sandbars, and sandy beaches. Haul-out sites are relatively consistent from year to year and are important habitats for harbor seals in San Francisco Bay; pupping occurs from March to May and molting in June and July. These activities correspond to the greatest number of harbor seals counted at major haul-out sites in San Francisco Bay. Haul-out sites that support some of the largest concentrations of seals include Corte Madera Marsh and Castro Rocks in the Central Bay, Mowry Slough south of Dumbarton Bridge, and Yerba Buena Island.

Sensitive Natural Communities

Eelgrass

Eelgrass (*Zostera marina*) is a native marine vascular plant indigenous to the soft-bottom shallow bays and estuaries of the Northern Hemisphere. The species' range extends from Baja California to northern Alaska along the West Coast of North America, as well as from North Carolina to Newfoundland on the East Coast, and along the coasts of Europe and East Asia. In San Francisco Bay, eelgrass beds occur on soft bottom substrate in shallow areas (typically less than 1.5-meter depth at mean low tide level). Eelgrass beds are extremely dynamic, expanding and contracting seasonally and annually depending on the quality of the site. Consequently, they serve as an indicator community for the overall health of an estuary. Eelgrass plays many roles within the estuary system. It clarifies water through sediment trapping and habitat stabilization. It also provides benefits of nutrient transformation and water oxygenation. Eelgrass serves as a primary producer in a detrital based food-web and is further directly grazed upon by invertebrates, fish, and birds. It supports epiphytic plants and animals that, in turn, are grazed upon by other invertebrates, larval and juvenile fish, and birds. Eelgrass is a nursery area for many commercially and recreationally important finfish and shellfish species including those that are resident within bays and estuaries, nearly all of the anadromous fish species found along the Pacific coast, and oceanic species, which enter the estuaries to breed or spawn. Besides providing important habitat for fish, eelgrass habitat also is considered to be an important resource supporting migratory birds during critical life stages, including migratory periods.

Vegetated shallows that support eelgrass are considered "special aquatic sites" under the 404(b)(1) guidelines of the Clean Water Act (40 C.F.R. Section 230.43). Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (MSA), eelgrass is designated as Essential Fish Habitat (EFH) for various federally managed fish species within the Pacific Coast Groundfish and Pacific Coast Salmon Fisheries Management Plans (FMP) (PFMC 2008). Eelgrass is also designated as a Habitat Area of Particular Concern (HAPC) by NMFS. However, no eelgrass occurs in the Proposed Project area.

Estuaries

The entirety of the San Francisco Bay-Delta is designated as a HAPC by NMFS. The inland extent of the estuary HAPC is the high-water tidal level along the shoreline or upriver extent of saltwater intrusion, defined as upstream and landward to where ocean-derived salts measure less than 0.5 parts per thousand (ppt) during the period of average annual flow. The seaward extent is an imaginary line closing the mouth of a bay.

Regulatory Setting

Alameda County does not have a Habitat Conservation Plan or a Natural Community Conservation Plan for the Port Area.

Federal

Endangered Species Act (16 United States Code [USC] 1531 et seq.), as amended

The federal ESA protects threatened and endangered species and their designated critical habitat from unauthorized take. Section 9 of the ESA defines take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Take incidental to otherwise lawful activities can be authorized under Section 7 of the ESA when there is federal involvement, and under Section 10 when there is no federal involvement. USFWS and NMFS share responsibilities for administering the ESA.

In accordance with Section 7 of the ESA, federal agencies and their designees are required to consult with the USFWS and/or NMFS to ensure that any action authorized, funded, or carried out by them is not likely to jeopardize threatened or endangered species, or result in the destruction or adverse modification of designated critical habitat.

Fish and Wildlife Coordination Act (16 USC 661666[c])

Under the Fish and Wildlife Coordination Act, any federal agency that proposes to control or modify any body of water must first consult with the USFWS or the NMFS, as appropriate, and with the head of the appropriate state agency exercising administration over wildlife resources of the affected state.

Magnuson-Stevens Fishery Conservation and Management Act (16 USC Section 1801 et seq.; Pub. L. 104297; Pub. L. 109479)

The primary law governing marine fisheries management in federal waters of the United States is the Magnuson – Stevens Fishery Conservation and Management Act (MSA). Under the MSA, eight regional fishery management councils were created to manage fisheries and promote conservation, particularly focusing on management programs to rebuild overfished fisheries, managing commercial fisheries at sustainable levels, and protecting EFH. EFH is regulated and defined under the MSA as those waters (i.e., aquatic areas and associated physical, chemical, and biological properties) and substrate (i.e., sediment, hardbottom, structures underlying the waters, and associated biological communities) necessary to fish for spawning, feeding, or growth to maturity.

In accordance with the MSA, federal agencies and their designees are required to consult with NMFS on proposed actions authorized, funded, or undertaken by the agency that may adversely affect EFH for fish species covered under a fisheries management plan. NMFS is required to comment and provide conservation recommendations for any activity (sponsored by either federal or state agencies) that could impact EFH.

Marine Mammal Protection Act (16 USC 1361 et seq.)

Under the Marine Mammal Protection Act (MMPA), all species of marine mammals are protected. The MMPA prohibits, with certain exceptions, the "take" of marine mammals. Under the MMPA, take is defined as the means "to hunt, harass, capture, or kill, or attempt to hunt, harass, capture, or kill." Under Section 101(a)(5)(D), an incidental harassment permit may be issued for activities other than commercial fishing that may impact small numbers of marine mammals. Amendments to this act in 1994 statutorily defined two levels of harassment. Level A harassment is defined as any act of pursuit, torment, or annoyance that has the potential to injure a marine mammal in the wild. Level B harassment is defined as harassment having potential to disturb marine mammals by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.

Migratory Bird Treaty Act (16 USC 703712)

The Migratory Bird Treaty Act established special protection for migratory birds by regulating hunting or trade in migratory birds. Furthermore, this act prohibits anyone to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 Code of Federal Regulations (CFR) Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR Part 21). Definition of "take" includes any disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young).

Clean Water Act (33 USC 1257 et seq.)

The Clean Water Act (CWA) established the federal structure for regulating surface water quality standards and discharges of pollutants into waters of the United States. The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Section 404 of the CWA regulates the discharge of dredged or fill material (e.g., fill, pier supports, and piles) into waters and wetlands of the United States, which includes San Francisco Bay and the Oakland-Alameda estuary. Any discharge under Section 404 must also obtain a Section 401 Water Quality Certification. In California, the authority to grant water quality certification is delegated to the State Water Resources Control Board; and in the San Francisco Bay area, applications for certification under CWA Section 401 are processed by San Francisco Bay Regional Water Quality Control Board (RWQCB).

Executive Order 13112: Invasive Species

The purpose of this order is to prevent the introduction of invasive species, and to provide control for the spread of invasive species that have already been introduced. This order states that the federal government "…shall, to the extent practicable and permitted by law, not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions."

State

California Endangered Species Act of 1974, as amended

CESA operates in a similar fashion to the federal ESA but is administered by CDFW. Certain species that are federally listed may not be listed on the CESA—or vice-versa—or may have a different listing status. Similar to the federal ESA, CESA and the Native Plant Protection Act authorize CDFW to designate, protect, and regulate the taking of protected species in the State of California. Section 2080 of the California Fish and Game Code prohibits the taking of state-listed plants and animals. Take in the context of this regulation means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill a listed species (Fish and Game Code Section 86). The take prohibitions also apply to candidates for listing under CESA. However, CESA Section 2081 allows CDFW to issue permits for the minor and incidental take of species by an individual or permitted activity listed under the act.

California Fish and Game Code

There are several elements of the California Fish and Game Code (FGC) that relate to prohibitions on take of certain wildlife:

- Fully Protected Species – California FGC explicitly prohibits all take of individuals of fully protected species except for take permitted for scientific research. Fully protected amphibians and reptiles, fish, birds, and mammals are listed in FGC Sections 5050, 5515, 3511, and 4700, respectively.

- Birds of Prey – FGC Section 3503.5 prohibits take, possession, or destruction of any birds in the orders Falconiformes (hawks) or Strigiformes (owls), or of their nests and eggs.
- Other Migratory Birds – Migratory nongame birds are protected under FGC Section 3800. FGC Section 3513 adopts the federal definition of migratory bird take, which is defined by the Secretary of the Department of the Interior under provisions of the Migratory Bird Treaty Act. FGC Section 3513 does not prohibit the incidental take of birds if the underlying purpose of the activity is not to take birds.

Marine Life Protection Act

This Act was passed in 1999 and is incorporated into the California FGC. The Marine Life Protection Act requires California to reevaluate all existing marine protected areas (MPAs) and potentially design new MPAs that together function as a statewide network. To achieve this, MPAs are developed on a regional basis with specific goals in mind and are evaluated over time to assess their effectiveness. The main goals of the Marine Life Protection Act are to maintain the diversity of marine ecosystems, conserve its populations, better educate people on human-marine life interactions, protect habitats, and effectively enforce MPAs. Although several MPAs exist in San Francisco Bay, none of them are in proximity to the Seaport. In the context of the greater San Francisco Bay, CDFW has developed a fisheries management plan for Pacific herring that is consistent with the requirements of the Marine Life Protection Act and the Commission's forage species policy.

California Native Plant Protection Act

The California Native Plant Protection Act (NPPA) (Fish and Game Code, Section 1900 et seq.) was enacted in 1977 and allows CDFW to designate plants as rare or endangered. There are 64 species, subspecies, and varieties of plants that are protected as rare under NPPA. NPPA prohibits take of endangered or rare native plants but includes some exceptions for agricultural and nursery operations; emergencies; and after properly notifying CDFW for vegetation removal from canals, roads, and other sites, changes in land use, and in certain other situations.

State Regulation of Wetlands and Other Waters

California's authority in regulating activities in wetlands and waters in the Proposed Project area resides primarily with the State Water Resources Control Board (SWRCB). The SWRCB, acting through the San Francisco Bay RWQCB, must certify that a proposed U.S. Army Corps of Engineers (USACE) permit action meets state water quality objectives (Clean Water Act Section 401). Any condition of water quality certification is then incorporated into the USACE Section 404 permit authorized for the project.

The SWRCB and RWQCB also have jurisdiction over waters of the State under the Porter-Cologne Water Quality Control Act. The SWRCB and RWQCB evaluate proposed actions for consistency with the RWRCB's Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) and authorize impacts on waters of the State by issuing Waste Discharge Requirements; or in some cases, a waiver of Waste Discharge Requirements.

The San Francisco Bay Conservation and Development Commission (BCDC) has jurisdiction over coastal activities occurring in and around the San Francisco Bay and Suisun Marsh. BCDC was created by the McAteer-Petris Act (California Government Code sections 66600‒66682). BCDC regulates fill, extraction of materials, and substantial change in use of land, water, and structures in the San Francisco Bay, and development within 100 feet of the mean high water mark. BCDC has jurisdiction over all areas of the San Francisco Bay that are subject to tidal action, including subtidal areas, intertidal areas, and tidal marsh areas that are between mean high tide and 5 feet above mean sea level.

Local

City of Oakland General Plan

The Open Space, Conservation, and Recreation Element of the Oakland General Plan (City of Oakland, 1996) describes the following policies adopted for the purpose of protecting biological resources that are relevant to the Proposed Project:

> ***Policy CO6.5:*** Protect surface waters of the San Francisco Bay Estuary system, including San Francisco Bay, San Leandro Bay, and the Oakland Estuary. Discourage shoreline activities which negatively impact marine life in the water and marshland areas.
>
> ***Policy CO6.6:*** Prohibit bay fill unless there is compelling evidence that its benefits will outweigh the environmental and other costs. In such instances, support compliance with the mitigation requirements of the Bay Conservation and Development Commission and other regulatory agencies.
>
> ***Policy CO9.1*****:** Protect rare, endangered, and threatened species by conserving and enhancing their habitat and requiring mitigation of potential adverse impacts when development occurs within habitat areas.
>
> ***Policy CO11.2*****:** Protect and enhance migratory corridors for wildlife. Where such corridors are privately owned, require new development to retain native habitat or take other measures which help sustain local wildlife population and migratory patterns.

Discussion

a) **Special-Status Fish and Marine Mammals**

In-water construction activities are those that occur in water and can impact aquatic species and habitat. Above water construction activities are those that occur outside of or over water such as work on docks, piers, and gangways. Above water construction activities are not expected to affect aquatic species and habitats and therefore, may occur year-round.

In-water construction work may result in temporary and permanent impacts to aquatic species habitat. Temporary impacts from in-water work fall within two main categories: (1) elevated underwater noise or vibration levels during pile installation, and (2) water quality impairment during in-water construction activities. Permanent impacts to habitat include fill placement (i.e., piles) into the Bay.

Hydroacoustic Impacts

The installation of piles into, as well as immediately adjacent to, water has the potential to generate underwater noise. Pile installation may utilize both vibratory and impact driving methods.

Piles of any type that are driven within the water column can produce high-intensity noise resulting in damage to soft tissues, such as gas bladders or eyes (barotraumas) and/or result in harassment of fish and marine mammals such that they alter swimming, sleeping, or foraging behavior or temporarily abandon forage habitat. The interagency Fisheries Hydroacoustic Working Group has established interim criteria for noise impacts from pile driving on fishes; although these criteria are not formal regulatory standards, they are generally accepted as viable criteria for underwater noise effects on fish. **Table 3.4-1** summarizes known acute and sub-lethal effects of noise on fish. Noise levels that result in startle responses in steelhead and salmon have been documented to occur at sound levels as low as 150 dB RMS pressure (Halvorsen et al. 2012). Any disturbance to listed fish species that results in altered swimming, foraging, movement along a migration corridor, or other altered normal behavior is considered harassment.[2]

TABLE 3.4-1
POTENTIAL EFFECTS ON FISH AT VARYING NOISE LEVELS

Taxa	Sound Level (dB)	Effect	Reference
Fish			
All fish > 2 grams in size	187 (SEL)	Acute Barotraumas	Fisheries Hydroacoustic Working Group, 2008
All fish < 2 grams	183 (SEL)	Acute Barotraumas	Fisheries Hydroacoustic Working Group, 2008
All fish	206 (peak)	Acute Barotraumas	Fisheries Hydroacoustic Working Group, 2008
Salmon, Steelhead	150 (RMS)	Avoidance behavior	Halvorsen et al. 2012

NOTES: dB = decibels; RMS = root mean square; SEL = sound exposure level

SOURCES:

California Department of Transportation, *Technical Guidance for the Assessment of Hydroacoustic Effects of Pile Driving on Fish*. Final Report. Prepared by ICF Jones & Stokes and Illingworth & Rodkin, Inc., https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/hydroacoustic-manual-a11y.pdf, October 2020.

Fisheries Hydroacoustic Working Group, *Agreement in Principle for Interim Criteria for Injury to Fish from Pile Driving Activities*, June 12, 2008.

Halvorsen, M. B., B. M. Casper, C. M. Woodley, T. J. Carlson, and A. N. Popper, “Threshold for Onset of Injury in Chinook Salmon from Exposure to Impulsive Pile Driving Sounds.” *PLOS ONE* 7(6): e38968, 2012, doi: 10.1371/journal.pone.0038968

During pile-driving activities, fish are not expected to be present near the construction activity, because the movement of the pile through the shallow water and initial contact with the bay floor would cause fish to quickly leave the immediate area. Additionally, since salmonids and green sturgeon spawn in fresh water, young of listed species that weigh less than two grams are not expected in the Proposed Project area. Furthermore, overall sound levels are expected to be similar to baseline conditions, given the occurrence in the area of heavy ship traffic associated with maritime activities. Nonetheless, when vibratory or impact hammers are used to install piles, implementation of **Mitigation Measures BIO-1 through BIO-3** would ensure potential hydroacoustic impacts on fish and marine mammals occur at less-than-significant levels.

Impacts to Water Quality

Activities that may temporarily degrade water quality within the Proposed Project area would be limited to in-water construction activities (i.e., pile installation). Activities that cause contact with the sea floor, including pile installation, may generate temporary increases in turbidity. Increased

2 The acoustic thresholds shown in Table 3.4-1 regard sound levels generated for impact pile driving; no criteria for vibratory pile driving exist at this time.

turbidity levels associated with in-water construction would be minor, relatively short-lived, and generally localized to the immediate area of construction. Following construction work, sediments would disperse, and background levels would be restored within hours of disturbance. In addition, normal circulation and strong currents along the Port waterfront would rapidly circulate and disperse water temporarily affected by in-water construction activities.

Installation of piles may cause temporary resuspension of sediments. Increased suspended solids can also impact aquatic organisms by reducing dissolved oxygen levels and light transmission when sediment resettles, which could have the potential to smother aquatic habitats and organisms. Changes in light transmission have the potential to limit photosynthesis and reduce foraging abilities for organisms that rely on visual signals for feeding (e.g., salmonids and several species of birds) (Ancho Environmental 2003). Substantially depressed oxygen levels (i.e., below 5.0 mg/l) may cause respiratory stress to aquatic life, and levels below 3.0 mg/l may cause mortality. However, due to the Proposed Project area's proximity to the deep waters of central San Francisco Bay, currents are expected to be strong and function to dissipate turbidity plumes within hours, if not faster. Similarly, oxygen level depression resulting from construction activities are not expected to persist due to rapid tidal flushing and the short duration of releases of anoxic (oxygen-poor) sediment.

Multiple BMPs built into the Proposed Project are proposed for implementation during construction to confine water quality impacts to less-than-significant levels. In addition to implementing Mitigation Measure BIO-1, construction-related BMPs for debris management, hazardous material disposal, containment, and turbidity, as described under Section 2.5.6.1 in Chapter 2 of this IS/MND, will also be implemented. Additionally, a hazardous materials management plan (HMMP) would be developed and implemented, consistent with the measures described under Section 2.5.6.1. Lastly, in accordance with Mitigation Measure BIO-2, all in-water construction would occur during the designated in-water work window for special-status salmonids, from June 15 to November 30, to minimize the potential for impacts on special-status fish species. Furthermore, the designated work window is also protective of the Pacific herring spawning and hatching season (December 1 – March 15); hence, no additional avoidance and minimization measures are required for this species. Elevated levels of turbidity fed by sediment resuspension would be short-term and localized. Through implementation of the above-referenced construction BMPs and mitigation measures and a construction schedule that minimizes the potential for impacts on special-status fish species, significant impacts related to special-status aquatic species within the Proposed Project area would be avoided or mitigated to a less-than-significant level.

Permanent Impacts from Fill Placement

Implementation of the Proposed Project would result in the permanent loss of intertidal and subtidal open water habitat from the placement of fill (i.e., piles). Impacts on intertidal and open water habitat would occur along and immediately adjacent to the shoreline; these areas may provide foraging and rearing habitat for salmonids and green sturgeon. These areas are also designated as critical habitat for both steelhead and green sturgeon, however, no spawning habitat for either species is present within the Proposed Project area. There would be a net loss in these protected habitats under the Proposed Project. The permanent loss of intertidal and open water habitat may also affect the foraging success of both species by removing habitat for their prey base.

However, this loss in habitat would occur near a heavily modified shoreline and within habitat that does not support rearing or serve as a key migration route for either species. Additionally, at present, the shoreline adjacent to the Port berths provides limited foraging value to both species given its heavily modified condition. Furthermore, in the context of the greater San Francisco Bay, the amount of permanent fill that would affect open bay-subtidal habitat would be negligible relative to the total amount available in the bay. After completion of the Proposed Project, the shoreline would serve an ecological function similar to the existing condition. Thus, the Proposed Project would not appreciably diminish the ability of the existing shoreline to provide foraging habitat or a prey base for listed fish in the Proposed Project area.

Impacts from Increased Overwater Shading

The installation of a new mooring structure or floating dock at Berth 34 is expected to result in an increase in over-water structures. The floating dock would include four 20-foot by 130-foot steel floats, would be approximately 520 feet long and 20 feet wide, resulting in approximately 10,400 square feet (0.24 acre) of over-water cover. Construction of over-water structures that increase shading has the potential to affect fish behavior and habitat quality within the footprint of the structures. The shading of the water column and benthic habitat that would result from over-water structure installation has the potential to reduce the quality of fish habitat. Over-water shading has been demonstrated to reduce the growth rates and potential establishment of aquatic vegetation, decrease primary productivity, alter predator-prey dynamics, change the composition of invertebrate assemblages, and reduce the overall density of benthic invertebrates (Helfman 1981; Glasby 1999; Struck et al 2004; Stutes et al. 2006).

Within the Proposed Project area, the severity of the impacts listed above may be lessened as a result of a lack of biologically-rich benthic habitat. No eelgrass beds exist within the Proposed Project area, so the impact on aquatic vegetation, and the fish that reside within such habitat, from increased overwater shading will be negligible. However, as it relates to the quality of fish foraging habitat, there is likely to be an impact to the benthic community as rates of primary production and overall invertebrate richness will likely decline. While this does represent a negative impact, the relatively small size of the proposed overwater structures, coupled with the already reduced quality of benthic habitat within the Proposed Project area after years of industrial activity, should result in negligible effects on listed fish.

Implementation of **Mitigation Measure BIO-4**, as well as compensatory mitigation in the form of in-kind removal, would minimize and compensate the effects of over-water shading on listed fish and habitat quality to a less-than-significant level.

> **Mitigation Measure BIO-1: Worker Environmental Awareness Training.** A worker environmental awareness training program shall be implemented for special-status fish, nesting birds, and marine mammals that could be adversely impacted by construction activities. The program shall include a presentation to all workers on biology, general behavior, distribution, habitat needs, sensitivity to human activities, legal protection status, and project-specific protective measures for each species. Workers shall also be provided with written materials containing this information. Written material shall be provided in different languages as needed.

Mitigation Measure BIO-2: Seasonal Avoidance of Sensitive Species. In-water work will be conducted during the seasonal work window of June 15 through November 30 to reduce potential impacts on special-status species (USACE 2024).

Mitigation Measure BIO-3: Pile Driving. During pile installation activities, the following protection criteria will be implemented:

- A NMFS-approved sound monitoring plan shall be developed prior to the start of pile driving. This plan shall provide details on the methods used to monitor and verify sound levels during pile driving activities. The sound monitoring results shall be made available to NMFS.
- Vibratory pile driving shall be conducted following the USACE "Proposed Procedures for Permitting Projects that will Not Adversely Affect Selected Listed Species in California" (USACE 2024). USFWS and NMFS completed Section 7 consultation on this document which establishes general procedures for minimizing impacts to natural resources associated with projects in or adjacent to jurisdictional waters.
- Vibratory pile driving will be used to the greatest extent feasible. In the event that an impact hammer would be required, a "soft start" technique to impact hammer pile driving shall be implemented, at the start of each work day or after a break in impact hammer driving of 30 minutes or more, to give fish and marine mammals an opportunity to vacate the area.
- During the use of an impact hammer, a bubble curtain, 12" thick wooden cushion block, or other sound attenuation method may be utilized to reduce sound levels. If NMFS sound level criteria are still exceeded with the use of attenuation methods, the contractor shall revise sound attenuation methods as per the approved sound monitoring plan. A NMFS-approved biological monitor shall be available to conduct surveys before and during impact pile driving as specified by NMFS. The monitor shall inspect the established work zone and adjacent Bay waters and document the following during impact pile-driving:
  - Maintain the safety zones established in the sound monitoring plan around sound source, for the protection of marine mammals in association with sound monitoring station distances.
  - Halt work activities when a marine mammal enters the Level A[3] safety zone and resume only after the animal has been gone from the area for a minimum of 15 minutes.
  - Maintain sound levels below 90 dBA in air when pinnipeds (seals and sea lions) are present (USACE 2018).

Mitigation Measure BIO-4: Minimization of Shading from Over-Water Features. Effects on fish from increased shading from installation of the floating dock at Berth 34 will be minimized through the following measure: The floating dock will be designed to provide 40 percent light transmittance (e.g., deck grating, board spacing).

[3] Defined as any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal or marine mammal stock in the wild.

Effects on Protected Bird Nests

Bird nests protected by the federal MBTA, and/or the California Fish and Game Code, could be directly affected during construction. Specifically, ground disturbance by heavy equipment or vegetation removal, as well as high noise levels, could result in impacts on active nests (including destruction of eggs or occupied nests), direct mortality of young, and the abandonment of nests with young birds before fledging.

Indirect construction effects may also occur through the loss or degradation of nests (i.e., reduced fitness) from Proposed Project–related noise and vibration; the loss or degradation of future nesting habitat, Project-related trash that could attract and increase predator populations around the Proposed Project site.

A significant impact would occur if construction would result in a substantial adverse effect on nests protected by the MBTA and the California Fish and Game Code. Implementation of Mitigation Measure BIO-1 and **Mitigation Measure BIO-5** would reduce the impact to less than significant.

> **Mitigation Measure BIO-5: Nesting Bird Protection Measures**. Before any work conducted between February 1 and August 15, a qualified biologist with expertise in birds shall conduct a preconstruction survey to determine whether any birds are nesting in the work area plus an appropriate buffer area determined by a qualified biologist to verify the presence or absence of nesting raptors or other birds. If active nests are found during the survey, the biologist shall determine an appropriately sized buffer around the nest in which no work would be allowed until the young have successfully fledged. The survey shall include baseline monitoring of the nest to characterize normal bird behavior and determine a buffer distance which allows the birds to exhibit normal behavior. The size of the nest buffer shall be determined by the qualified biologist, and would be based on the nesting species, its sensitivity to disturbance, and the expected types of disturbance. The qualified biologist shall monitor the nesting birds daily during construction activities and increase the buffer if the birds show signs of unusual or distressed behavior (e.g., defensive flights and vocalizations, standing up from a brooding position, and/or flying away from the nest). If buffer establishment is not possible, the qualified biologist shall have the authority to cease all construction work in the area until the young have fledged, and the nest is no longer active.

b) This section addresses impacts on riparian habitat and sensitive natural communities, including EFH and designated critical habitat. The Proposed Project area does not include riparian habitat or special-status terrestrial natural communities. Additionally, no USFWS-designated critical habitat for terrestrial species existing within the Proposed Project area. The subsequent discussion pertains only to aquatic species and habitat.

Critical Habitat

The aquatic portions of the Proposed Project area are designated as critical habitat for the Central California Coast steelhead and green sturgeon. Temporary and permanent impacts to critical habitat are expected to occur in the form of impairments to water quality, elevated levels of underwater noise during pile driving, and permanent loss of open bay-subtidal habitat. These impacts are described above and may result in the exclusion of these species from designated critical habitat during and after construction activities. However, implementation of Mitigation Measure BIO-2 and the best management practices described in Section 2.5.6.1 would avoid significant impacts and reduce the level of impact on critical habitat to less-than-significant levels. Furthermore, after completion of the Proposed Project, the shoreline would serve an ecological function similar to the existing condition and thus not appreciably diminishing the quality of the critical habitat.

Essential Fish Habitat

The Proposed Project area falls within EFH, as defined in the MSA, for multiple species of commercially important fish and sharks managed under three federal fisheries management plans (FMPs):

- **Pacific Groundfish FMP:** The Pacific Groundfish FMP is designed to protect habitat for more than 90 species of fish, including rockfish, flatfish, groundfish, some sharks and skates, and other species that associate with the underwater substrate. Species common in Central San Francisco Bay waters and include English sole, Pacific sanddab, starry flounder, lingcod, brown rockfish, kelp greenling, leopard shark, and big skate (IEP 2015).
- **Coastal Pelagic FMP:** The Coastal Pelagic FMP is designed to protect habitat for a variety of fish species that are associated with open coastal waters. Fish managed under this plan include planktivores and their predators. Those common in Central San Francisco Bay include Pacific herring and jacksmelt (IEP 2015).
- **Pacific Salmon FMP:** The Pacific Salmon FMP is designed to protect habitat for commercially-important salmonid species. Sacramento Chinook salmon is the only one of these species that may be seasonally present in the Action Area, although historically Coho salmon were common in San Francisco Bay (IEP 2015).

Impacts to EFH would be similar to those described above under *Critical Habitat*. These impacts include the temporary impairment of water quality and increases in underwater noise during vibratory pile installation. As with effects to critical habitat, with the implementation of the BMPs and mitigation measures described above, overall effects of Project implementation on EFH are expected to be less than significant.

c) The portion of San Francisco Bay within the Proposed Project site falls under the regulatory jurisdiction of the USACE, Regional Water Quality Control Board, and BCDC. As discussed above, activities that may temporarily degrade water quality within the Proposed Project area would be limited to in-water construction activities (i.e., pile installation). Activities that cause contact with the sea floor, including pile installation, may generate temporary increases in turbidity. Increased turbidity levels associated with in-water construction would be minor, relatively short-lived, and generally localized to the immediate area of construction. Following construction work, sediments would disperse, and background levels would be restored within hours of disturbance. In addition, normal circulation and strong currents along the Port waterfront would rapidly circulate and disperse water temporarily affected by in-water construction activities.

Installation of piles may cause temporary resuspension of sediments. Increased suspended solids can also impact aquatic organisms by reducing dissolved oxygen levels and light transmission when sediment resettles, which could have the potential to smother aquatic habitats and organisms. However, due to the Proposed Project area's proximity to the deep waters of central San Francisco Bay, currents are expected to be strong and function to dissipate turbidity plumes within hours, if not faster. Similarly, oxygen level depression resulting from construction activities are not expected to persist due to rapid tidal flushing and the short duration of releases of anoxic (oxygen-poor) sediment.

Since the limits of portions of the San Francisco Bay within the Proposed Project area have not been delineated, the exact acreage number of jurisdictional resources that could be potentially affected is unknown. Because installation of the piles would potentially impact a portion of the onsite shallow bay habitat and because these areas are federally protected as defined by Section 404 of the Clean Water Act, this loss would be considered a significant impact. As required by **Mitigation Measure BIO-6** below, the Port would be required to apply for permitting as required by USACE pursuant to Section 404 of the Clean Water Act for any potential fill of aquatic resources under USACE jurisdiction. As part of the permitting process, measures would be developed and implemented. These measures would likely include replacement of affected jurisdictional areas through enhancement of similar habitat elements offsite. As a result, any impact to the shallow bay habitat within Proposed Project site would be reduced to a less-than-significant level.

Mitigation Measure BIO-6: Regulatory Permits and Authorizations: Prior to construction in or near the water, the project proponent shall obtain and comply with all necessary regulatory permit approvals, conditions, certifications, and authorizations, including without limitation, the following:

- USACE: Section 404. Permit approval from the USACE shall be obtained for the placement of dredge or fill material in Waters of the U.S., if any, within the interior of the project site, pursuant to Section 404 of the federal Clean Water Act (CWA).
- RWQCB: Section 401 Water Quality Certification. Certification that the project will not violate state water quality standards is required before the USACE can issue a 404 permit, above. Also approvals under the RWQCB pursuant to the National Pollution Discharge Elimination System (NPDES) and Geneal Permit and Storm Water Pollution Prevention Plan (SWPPP).
- USFWS and NOAA: Section 7 Consultation/Biological Opinion for project impacts to federally-listed special status species or their habitat (for federal review by the U.S. Maritime Administration, if applicable).
- Department of Toxic Substances Control (DTSC) review and oversight over remediation of contaminated soils or groundwater impacting the Project site, if needed, including approvals related to Remedial Action Plans, Remedial Action Completion Certifications, and No Further Action Letters.
- CDFW oversight of specific sensitive species aspects of the project if potential effects are found.
- BCDC approvals required for Bay fill and shoreline development within 100 feet of the mean high tide line.

d) **Special-Status Terrestrial Wildlife**

No impact is expected for special-status terrestrial wildlife or plant species as there is no suitable habitat available on the terrestrial portion of the Proposed Project site.

Special-Status Fish Species

Anadromous fish species have the potential to migrate through the nearshore waters of the Proposed Project area, particularly salmonid smolts and juvenile green sturgeon emigrating from their natal waters through the Sacramento-San Joaquin Delta to the Pacific Ocean. However, there are no streams supporting anadromous fish within the Proposed Project area or immediate vicinity. Thus, presence of special-status fish species within the Proposed Project area is likely to be temporary and transient in nature.

Mitigation Measure BIO-2 dictates that in-water work would only occur from June 15 through November 30 to minimize the potential for impacts on special-status fish species. Scheduling in-water work for this period would limit the potential for the occurrence of migratory fish species by confining construction activities to periods outside of peak migration events.

Additionally, several BMPs, designed to protect aquatic species and habitat from the impacts of ongoing maintenance activities would be in effect during all in-water work. These are described and referenced in Section 2.5.6.1 in Chapter 2 of this IS/MND and are applicable here to ensure the protection of migration routes. Implementation of BMPs described in Section 2.5.6.2 to protect water quality and to avoid direct impacts of ongoing maintenance activities and the accidental spill of hazardous materials would avoid significant impacts, and the impact would be less than significant.

e) The Proposed Project does not require removal or limbing of trees; therefore, implementation of the Proposed Project would not conflict with the City of Oakland Tree Ordinance. There would be no impact.

f) The Proposed Project is not located within the permit area of an approved local, regional, or state habitat conservation plan; therefore, there would be no impact.

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3.5 Cultural Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
V. CULTURAL RESOURCES — Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☐	☒	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐

Environmental Setting

Natural Setting and Geoarchaeological Review

The Project site is in the San Francisco Bay Area-Delta region, which hosts a diverse variety of natural communities ranging from open waters of San Francisco Bay; salt and brackish marshes; and chaparral and oak woodlands. The climate is Mediterranean in nature, with relatively mild, wet winters and warm, dry summers. The abundant natural resources of the area would have been utilized by the indigenous and early historic-era populations. Deer, elk, and waterfowl were plentiful, as were marine and bay resources such as seals, otters, abalone, mussels, oysters, clams, and numerous fish species. Franciscan chert was an easily obtainable local raw material for stone tools and obsidian could be acquired from the Anadel and Napa Glass Mountain quarries north of the Bay Area (Moratto, 1984).

The surficial geology of the Proposed Project site is artificial fill, underlain by Young Bay Mud deposits and the San Antonio Formation (Merritt Sand). The artificial fill material, which is approximately 13.5-inches thick, is composed of a mixture of sand, gravel, and clayey materials, much of which was dredged from the San Francisco Bay and placed on pre-existing marshland. Beneath the artificial fill is a layer of Young Bay Mud. Deposited during sea level rise occurring between 11,000 and 8,000 years ago, Young Bay Mud is a series of unconsolidated muds deposited in the quiet, slowly rising water that was inundating glacial valleys and low-lying areas. The Young Bay Mud varies in thickness between 8 to 14 feet below ground surface, and has been removed from the existing channel as a result of previous dredging.

Late Pleistocene-age Merritt Sand underlies the Young Bay Mud. Merritt Sand is a beach or near-shore deposit of fine-grained clean to slightly clayey or silty sand that is the upper unit of the late Pleistocene-age glacial San Antonio Formation. Merritt Sand deposits have been documented in the Proposed Project vicinity between 30 to 55 feet thick (U.S. Army Corps of Engineers, 2023). The San Antonio Formation was deposited prior to human occupation of the San Francisco Bay Area; the surface of this formation would have been accessible for use by early indigenous peoples and represents the earliest formation in the area to have archaeological sensitivity. This former land surface, however, would have only been available during the very early Holocene-era when early indigenous populations would have been relatively mobile and their potential footprint on the landscape minimal. Only four well-documented Early Holocene-age sites have been identified in the greater Bay Area; none within the City of Oakland or Alameda County (Milliken et al., 2007). Therefore, it is considered unlikely that deeply-buried indigenous archaeological resources would be identified in relation to the upper stratum of the San Antonio Formation.

A records search was completed at the Northwest Information Center (NWIC) of the California Historical Resources Information System at Sonoma State University was completed (File No. 23-1162). The Northwest Information Center records search results indicate that no archaeological resources are previously documented in the Proposed Project site or within the 0.25-mile records search radius. The nearest indigenous archaeological resources to the Proposed Project site are over three miles to the east near Lake Merritt or several miles to the north near Emeryville and Berkeley.

Pre-Contact Setting

Categorizing the pre-contact period into cultural stages allows researchers to describe a range of archaeological resources with similar cultural patterns and components during a given time frame, creating a regional chronology. Milliken et al. provide a framework for the interpretation of the San Francisco Bay Area and have divided human history in California into three major periods: the *Early Period* (10000–6000 B.C.), the *Middle Period* (6000–1750 B.C.), and the *Late Period* (1750 B.C.–A.D. 1776). In many parts of California four periods are defined; the fourth being the *Paleoindian Period* (11500–8000 B.C.), characterized by big-game hunters occupying broad geographic areas. Evidence of human habitation during the Paleoindian Period has not yet been discovered in the San Francisco Bay Area. Economic patterns, stylistic aspects, and regional phases further subdivide cultural periods into shorter phases. Such periods and phases are differentiated by technological types, socio-politics, trade networks, population density, and variations of artifact types.

Prior to Euroamerican contact, the area of present-day Oakland and Alameda County was occupied by the Ohlone. During the Mission Period (1770-1835), native populations, especially along the California coast, were brought—usually by force—to the missions by the Spanish missionaries to provide labor. The missionization caused the Ohlone people to experience cataclysmic changes in almost all areas of their life, particularly a massive decline in population caused by introduced diseases and declining birth rate. Following the secularization of the missions by the Mexican government in the 1830s, most Native Americans gradually left the missions and established Rancherias in the surrounding areas (Levy, 1984) Today, the Ohlone still have a strong presence in the San Francisco Bay Area and are highly interested in the environmental process and protecting cultural sites. There are six culturally-affiliated tribes listed with the Native American Heritage Commission who are associated with the Alameda County area.

Historical Setting

The Port was established on February 27, 1927, with the passing of the Port charter amendment. At that time, shipping industries along the Oakland waterfront began transforming from operator-owned, privately held enterprises to a comprehensively managed set of facilities operated by a “self-supporting, autonomous branch” of the City of Oakland (Minor, 2000). In 1929, the U.S. Treasury Department designated Oakland as a full port of entry with customs service. By the mid-1930s, Oakland was a regular port of call for nearly 30 steamship lines. Between 1928 and 1937, despite the worldwide depression, tonnage handled by Port more than tripled, from 316,377 tons in 1928 to 1,166,664 tons in 1937.

In the boom years following World War II, changes in shipping technology necessitated changes in ports around the globe. Technological advances in ship building and goods transportation developed for wartime usage were quickly modified and expanded for use in the private sector. Ships increased in size and speed. Ports also had to grow to accommodate the new ships, incorporating deeper channels, more warehouses, and more manpower to load and unload the expanding tonnage of cargo.

At this time, Oakland was a typical break-bulk cargo port. All goods came in on ships and were unloaded and stored in warehouses until they could be loaded onto trucks or trains. Goods that arrived in crates were opened and distributed to warehouses, then reloaded for delivery to their final destinations. The work was labor- and time-intensive. With increasing numbers of ships and amounts of goods being shipped around the globe, the port moved to the more efficient system of containerized shipping.

Containerized shipping was pioneered by the New Jersey-based Sea-Land Company in 1956. In this method of shipping, goods were placed in large, sealed containers that were carried unopened from ship to rail to truck. Only upon arrival at their final destination would they be opened up for distribution. As a result, shippers needed to move containers only, rather than individual goods. The containers were heavy and necessitated the development of a new type of dockside crane to enable easy transport onto and off from the ships. The first such container crane in the world was developed by the Pacific Coast Engineering Company (PACECO) and first used at the Encinal Terminal in nearby Alameda in 1959.

With the advent of containerized shipping, Oakland grew to a world-class shipping center through innovative business relationships, strategic growth and adaptation of new technologies. This came about through a combination of landside development including large-scale reclamation efforts, water-side improvements (dredging), and installation of shore-side cranes to quickly handle the large, standardized shipping containers. The work began in earnest in 1962 with the opening of the Sealand Terminal on the Outer Harbor and accelerated in 1966 with the installation of the Port's first landside container shipping cranes: two PACECO A-frame cranes. This area was eventually expanded to 59-acres, three berths, and four cranes (Minor, 2000).

The success of the Sealand Terminal was followed by the simultaneous development of the Seventh Street Terminal and the American President Lines Terminals. Between 1965 and 1974, the completion of these terminals added 221 acres, at least seven berths, and at least seven more container cranes. It was during the expansion of the Seventh Street Terminal out into San Francisco Bay that the Port was required to utilize low-profile cranes to limit interference with air traffic at Naval Air Station (NAS) Alameda.

The final transformation of the Outer Harbor area from break bulk to containerized shipping occurred with completion of the TransBay and Maersk Terminals in 1977. This expansion replaced the Seventh Street Unit, the Oil Pier, and the Fourteenth Street Unit with the two-berth, two-crane, 29-acre Outer Harbor Container Terminal (renamed the TransBay Container Terminal in 1986) and the one-berth, three-crane, 36-acre Maersk Terminal. Both began operation in 1977.

With the full advent of containerization in the 1970s, expansion at the Port focused on increasing capacity for storage as well as continual improvements to adjust to the expanding size of container ships. The 40-acre Yusun Terminal (formerly the Outer Harbor Marine Container Terminal) was developed in 1981. It was quickly followed by development of Howard Terminal near Jack London Square in 1982. The construction of Howard Terminal required extensive dredging, filling, and demolition as it remade the Grove Street Pier, one of the last vestiges from the ear of break bulk processing and internal storage. In 1994, the TracPac Terminal was constructed on the 21-acre, former site of the Albers Milling Company plant in the Seventh Street Terminal Area. This was the first area to be served by Post-Panamax cranes.

Today the Port operates six terminals across over 1200 acres with a total of 33 Panamax, Post-Panamax, and Super Post-Panamax cranes. It is currently one of the four largest ports for container cargo on the west coast. Together with the Port of Long Beach and the Port of Los Angeles, the Port handles nearly 50% of the United States' total container cargo volume.[1]

To determine to potential for the in-water portions of the Proposed Project site to contain any historic structures or objects, the database of shipwrecks maintained by the California State Lands Commission was reviewed. No known or suspected shipwrecks occur in the Proposed Project area; the Project site has been subject to previous dredging and the likelihood for encountering submerged historic-age structures or objects is considered low.

Regulatory Setting

Federal

Historic resources are protected through the National Historic Preservation Act (NHPA) of 1966, as amended (16 USC 470f), and its implementing regulations. Under the NHPA, a property is considered significant if it meets the criteria for listing in the National Register at 36 CFR 60.4, as stated below:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and that:
>
> A. Are associated with events that have made a significant contribution to the broad patterns of our history, or
>
> B. Are associated with the lives of persons significant in our past, or
>
> C. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction, or
>
> D. Have yielded, or may be likely to yield, information important in prehistory or history.

If a federal action is required for implementation of a project, Section 106 of the NHPA requires federal agencies to consider the effects of the undertaking on historic properties (i.e., properties listed in or eligible for listing in the National Register) and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing in the National Register. The Section 106 review normally involves a four-step procedure, which is described in detail in the implementing regulations (36 CFR Part 800) and includes identifying historic properties in consultation with the State Historic Preservation Office (SHPO) and interested parties, assessing effects, consulting with SHPO and others to develop and execute an agreement regarding the treatment of historic properties, and proceeding with the project according to the agreement.

State

The State of California implements the NHPA through its statewide comprehensive cultural resource surveys and preservation programs. The California Office of Historic Preservation (OHP), as an office of the California Department of Parks and Recreation, implements the policies of the NHPA on a statewide level. The OHP also maintains the California Historical Resources Inventory. The State Historic

[1] Port of Oakland, "Facts & Figures," accessed January 29, 2025. www.oaklandseaport.com/business/facts-figures/.

Preservation Officer is an appointed official who implements historic preservation programs within the state's jurisdictions.

CEQA, as codified at California Public Resources Code Sections 21000 et seq., is the principal statute governing the environmental review of projects in the state. CEQA requires lead agencies to determine if a proposed project would have a significant impact on historical resources and unique archaeological resources. The CEQA Guidelines (Section 15064.5(a)) define a historical resource as: (1) a resource listed in, or determined to be eligible by the State Historic Resources Commission, for listing in the California Register of Historical Resources, (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); or (3) any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be historically significant, provided the lead agency's determination is supported by substantial evidence in light of the whole record. In addition, Section 15064.5 (a)(4) states that "the fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to PRC Section 5020.1(k)), or identified in an historical resources survey (meeting the criteria in PRC Section 5024.1(g)) does not preclude a lead agency from determining that the resource may be an historical resource as defined in PRC Sections 5020.1(j) or 5024.1."

PRC Section 5097.98 (and reiterated in CEQA Guidelines Section 15064.5 [e]) identifies steps to follow in the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery. Section 7050.5 of the California Health and Safety Code protects human remains by prohibiting the disinterring, disturbing, or removing of human remains from any location other than a dedicated cemetery.

Local

City of Oakland – Local Plans, Policies and Regulations

Under Section 17.158.090 of the City of Oakland Planning Code (2005), for purposes of evaluating environmental impacts CEQA, a historical resource that meets any of the following criteria:

1. A resource listed in, or determined to be eligible for listing in, the California Register.
2. A resource included in Oakland's Local Register of historical resources (defined in General Plan Historic Preservation Element Policy 3.8 below), unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
3. A resource identified as significant (e.g., rated 1–5) in a historical resource survey recorded on Department of Parks and Recreation Form (DPR) 523, unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
4. Any object, building, structure, site, area, place, record, or manuscript which the Oakland City Council determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the determination is supported by substantial evidence in light of the whole

record. Generally, a resource is considered “historically significant” if it meets the criteria for listing on the California Register CEQA Guidelines Section 15064.5.

5. A resource that is determined by the City Council to be historically or culturally significant even though it does not meet the other four criteria listed here.

General Plan Historic Preservation Element

In March 1994, the Oakland City Council adopted the Historic Preservation Element of the Oakland General Plan (amended July 21, 1998). The Historic Preservation Element sets out a graduated system of ratings and designations resulting from the Oakland Cultural Heritage Survey (OCHS) and Oakland Zoning Regulations. The following goal and policies address historical resources under CEQA:

- **Goal 2:** To preserve, protect, enhance, perpetuate, use, and prevent the unnecessary destruction or impairment of properties or physical features of special character or special historic, cultural, educational, architectural or aesthetic interest or value.

  Such properties or physical features include buildings, building components, structures, objects, districts, sites, natural features related to human presence, and activities taking place on or within such properties or physical features.

  ***Policy 3.1: Avoid or minimize adverse historic preservation impacts related to discretionary city actions*.** The City will make all reasonable efforts to avoid or minimize adverse effects on the Character-Defining Elements of existing or Potential Designated Historic Properties which could result from private or public projects requiring discretionary City actions.

  ***Policy 3.5: Historic preservation and discretionary permit approvals*.** For additions or alteration to Heritage Properties[2] or Potential Designated Historic Properties requiring discretionary City permits, the City will make a finding that: (1) the design matches or is compatible with, but not necessarily identical to, the property’s existing or historical design; or (2) the proposed design comprehensively modifies and is at least equal in quality to the existing design and is compatible with the character of the neighborhood; or (3) the existing design is undistinguished and does not warrant retention and the proposed design is compatible with the character of the neighborhood.

  For any project involving complete demolition of Heritage Properties or Potential Designated Historic Properties requiring discretionary City permits, the City will make a finding that: (1) the design quality of the proposed project is at least equal to that of the original structure and is compatible with the character of the neighborhood; or (2) the public benefits of the proposed project outweigh the benefit of retaining the original structure; or (3) the existing design is undistinguished and does not warrant retention and the proposed design is compatible with the character of the neighborhood.

  ***Policy 3.7: Property relocation rather than demolition as part of discretionary projects*.** As a condition of approval for all discretionary projects involving demolition of existing or Potential Designated Historic Properties, the City will normally require that reasonable efforts be made to relocate the properties to an acceptable site.

[2] Heritage Properties are defined in Appendix A of the City of Oakland Historic Preservation Element as “properties which under Policy 2.5 appear potentially eligible for Landmark or Preservation District designation because they either (1) have received an existing or contingency rating of ‘A’ (Highest Importance), ‘B’ (Major Importance), or ‘C’ (Secondary Importance) from the Intensive Survey; (2) have received an existing or contingency rating of ‘A’ or ‘B’ from the Reconnaissance Survey; or (3) contribute or potentially contribute to any area potentially eligible for Preservation District Designation”

Policy 3.8: Definition of "Local Register of Historical Resources" and historic preservation "Significant Effects" for environmental review purposes. For purposes of environmental review under the California Environmental Quality Act, the following properties will constitute the City of Oakland's Local Register of Historic Resources:

1. All Designated Historic Properties [Landmarks, Heritage Properties, Study List Properties, Preservation Districts, and S-7 and S-20 Preservation Combining Zone Properties]; and
2. Those Potential Designated Historic Properties that have an existing rating of "A" or "B" or are located within an Area of Primary Importance (API).

Until complete implementation of Action 2.1.2 (Redesignation), the Local Register of Historical Resources will also include the following designated properties: Oakland Landmarks, S-7 Preservation Combining Zone properties, and Preservation Study List properties.

Complete demolition of a Historical Resource will normally be considered a significant effect that cannot be mitigated to a level less than significant and will, in most cases, require preparation of an Environmental Impact Report.

A proposed addition or alteration to a Historical Resource that has the potential to disqualify a property from Landmark or Preservation District eligibility or may have substantial adverse effects on the property's Character-Defining Elements will normally, unless adequately mitigated, be considered to have a significant effect. Possible mitigation measures are suggested in Action 3.8.1.

Policy 3.13: Security of vacant properties. Vacant or abandoned existing or Potential Designated Historic Properties shall be adequately secured in order to prevent unauthorized entry, theft, or property damage.

Policy 4.1: Archaeological resources. To protect significant archaeological resources, the City will take special measures for discretionary projects involving ground disturbances located in archaeologically sensitive areas.

Conformity of the Proposed Project with General Plan goal and policies most relevant to historic resources is discussed throughout the discussion of potential impacts presented later in this section.

The Oakland Cultural Heritage Survey (OCHS) is an ongoing survey process conducted by the City of Oakland. It began in 1979 and uses a five-tier rating system for individual properties, ranging from "A" (highest importance) and "B" (major importance) to "E" (of no particular interest). This letter rating is termed the "Individual Property Rating" of a building and is based on the following criteria:

1. **Visual Quality/Design**: Evaluation of exterior design, interior design, materials and construction, style or type, supporting elements, feelings of association, and importance of designer.
2. **History/Association**: Association of person or organization, the importance of any event, association with patterns of history, and the age of the building.
3. **Context**: Continuity and familiarity of the building within the city, neighborhood, or district.
4. **Integrity and Reversibility**: Evaluation of the building's condition, its exterior and interior alterations, and any structural removals.

Discussion

a) CEQA Guidelines Section 15064.5 requires the lead agency to consider the effects of a project on historical resources. A historical resource is defined as any building, structure, site, or object listed in or determined to be eligible for listing in the California Register, or determined by a lead agency to be significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, or cultural annals of California. The following discussion focuses on architectural and structural resources. Archaeological resources, including archaeological resources that are potentially historical resources according to CEQA Guidelines Section 15064.5, are addressed under impact b, below.

The Proposed Project is located from Berth 22-38. These wharfs were developed in phases between 1975 and 1994. All cranes and associated crane-related infrastructure were installed after 1999, when the first Panamax cranes were brought to the Port. The Proposed Project includes improving fenders and bollards; girders and rails; modernizing the curved rail; electrical upgrades at select berths; installing a floating dock at Berth 34; and general repair throughout all locations of work. These Proposed Project elements are unrelated to any historical development at the Port. They would not alter the form, function, or structure of the terminals, nor would they remove or demolish built features that are either of historic age (constructed on or before 1980) or that are directly associated with the historical development of the Port. Therefore, the Proposed Project would not impact historical resources.

b) This section discusses archaeological resources, both as historical resources according to CEQA Guidelines Section 15064.5, as well as unique archaeological resources as defined in Public Resources Code (PRC) Section 21083.2(g). A significant impact would occur if the Proposed Project were to cause a substantial adverse change to an archaeological resource through physical demolition, destruction, relocation, or alteration of the resource.

Based on a review of resource distribution and the environmental context, there are no previously recorded archaeological resources in the Proposed Project site and the site has a low potential to uncover previously undiscovered archaeological resources. Background research indicates that no previously recorded archaeological resources are within the Proposed Project site and that the nearest archaeological resources to the site are over three miles to the east or several miles to the north. In addition, a review of the SLC shipwrecks database as well as previous dredging in the Project site indicates the potential for encountering submerged structures or objects is considered low.

In the unlikely event that archaeological resources are uncovered during Project ground disturbance, the Proposed Project would follow the requirements of the Port's best management practices (BMPs), as detailed in the Port's Emergency Plan of Action for Discoveries of Unknown Historic or Archaeological Resources (see Section 2.5.6.1 in Chapter 2 and Appendix A to this document). With implementation of these requirements, impacts to archaeological resources would be considered less than significant.

c) Based on a review of resource distribution and the environmental context, there are no previously recorded human remains in the Proposed Project site and the site has a low potential to uncover previously undiscovered human remains.

In the unlikely event that human remains are uncovered during ground disturbance, the Proposed Project would follow the requirements of the Port's BMPs, as detailed in the Port's Emergency Plan of Action for Discoveries of Unknown Historic or Archaeological Resources (see Section 2.5.6.1 in Chapter 2 and Appendix A to this document). With implementation of these requirements, impacts to human remains would be considered less than significant.

References

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Minor, Woodruff. 2000. Pacific Gateway: An Illustrated History of the Port of Oakland.

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3.6 Energy

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

Environmental Setting

Construction and operation of the Proposed Project would require the use of electricity, and the use of fuel for vehicles and equipment, primarily in the form of gasoline and diesel. The following analysis focuses on construction impacts associated with the Proposed Project. Potential operational impacts are unlikely to substantially differ from what is occurring currently or from activities that have previously been evaluated in other Port CEQA documents.

Regulatory Setting

Federal

The Energy Policy and Conservation Act of 1975 established nationwide fuel economy standards to conserve oil. Under this Act, the National Highway Traffic and Safety Administration is responsible for revising existing fuel economy standards and establishing new vehicle economy standards. The Corporate Average Fuel Economy (CAFE) program was established to determine vehicle manufacturer compliance with the government’s fuel economy standards. Three Energy Policy Acts have been passed, in 1992, 2005, and 2007, to reduce dependence on foreign petroleum, provide tax incentives for alternative fuels, and support energy conservation.

The Energy Policy Act of 1992 was passed to reduce the country’s dependence on foreign petroleum and improve air quality. The Act includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. The Act requires certain federal, state, and local government and private fleets to purchase a percentage of light-duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are also included in Act. Federal tax deductions are allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by the act to consider a variety of incentive programs to help promote AFVs. The Energy Policy Act of 2005 provided renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy.

State

The State of California has adopted standards to increase the percentage of electricity that retail sellers, including investor-owned utilities and community choice aggregators, must provide from renewable resources. The standards are referred to as the Renewables Portfolio Standard (RPS). The reduced use of non-renewable energy sources also reduces GHG emissions and other negative impacts that are associated with use of non-renewable, finite energy sources. The legislation requires utilities to increase the percentage of electricity obtained from renewable sources to 33 percent by 2020 and 50 percent by 2030.

On September 10, 2018, Governor Brown signed SB 100, which further increased the California RPS and requires retail sellers and local publicly owned electric utilities to procure eligible renewable electricity for 44 percent of retail sales by December 31, 2024; 52 percent by December 31, 2027; and 60 percent by December 31, 2030. SB 100 also specifies that the California Air Resources Board (CARB) should plan for 100 percent eligible renewable energy resources and zero-carbon resources by December 31, 2045.

Low-Carbon Fuel Standard

The Low-Carbon Fuel Standard (LCFS), established in 2007 through Executive Order S-1-07 and administered by CARB, requires producers of petroleum-based fuels to reduce the carbon intensity of their products that started with a 0.25 percent reduction in 2011, and culminated in a 10 percent total reduction in 2020. In September 2018, CARB extended the LCFS program to 2030, making significant changes to the design and implementation of the program, including a doubling of the carbon intensity reduction to 20 percent by 2030.

Petroleum importers, refiners, and wholesalers can either develop their own low-carbon fuel products or buy LCFS credits from other companies that develop and sell low-carbon alternative fuels, such as biofuels, electricity, natural gas, and hydrogen. The Port started participating in the LCFS program in January 2019 as an opt-in entity, generating credits by providing electricity to vessels through shore power, as well as providing charging infrastructure for battery-electric Class 8 on-road trucks, battery-electric cargo-handling equipment, and battery-electric light-duty vehicles.

Zero-Emission Vehicles

In March 2012, then-Governor Brown issued Executive Order B-16-12, establishing a goal of 1.5 million ZEVs on California roads by 2025. In addition to the ZEV goal, Executive Order B-16-12 stipulated that by 2015, all major cities in California must have adequate infrastructure and be “ zero-emission vehicle ready;” by 2020, the state establish adequate infrastructure to support 1 million ZEVs; and by 2050, virtually all personal transportation in the state will be based on ZEVs; and GHG emissions from the transportation sector will be reduced by 80 percent below 1990 levels in 2050.

On January 26, 2018, then-Governor Brown issued Executive Order B-48-18, establishing a goal of 5 million ZEVs on California roads by 2030, and spurred the installation and construction of 250,000 plug-in electric vehicle chargers, including 10,000 direct-current fast chargers, and 200 hydrogen refueling stations by 2025.

In September 2020, Governor Newsom signed Executive Order N-79-20, which sets a new state goal that 100 percent of in-state sales of new passenger cars and trucks will be zero-emission by 2035; that 100 percent of medium- and heavy-duty vehicles in the state be zero-emission by 2045 for all operations where feasible, and by 2035 for drayage trucks; and that 100 percent of off-road vehicles and equipment will be zero emission by 2035 where feasible. This order calls on state agencies, including CARB, the CEC, the CPUC, the Department of Finance, and others to develop and propose regulations and strategies to achieve these goals.

State Alternative Fuels Plan (AB 1007)

Assembly Bill 1007 (Pavley, Chapter 371, Statutes of 2005) required the CEC to prepare a state plan to increase the use of alternative fuels in California (State Alternative Fuels Plan). The CEC prepared the State Alternative Fuels Plan in partnership with CARB, and in consultation with other state, federal, and local agencies. The final State Alternative Fuels Plan, published in December 2007, attempts to achieve an 80 percent reduction in GHG emissions associated with personal modes of transportation, even as California's population increases.

Discussion

a) Construction of the Proposed Project would involve both direct and indirect temporary use of energy, primarily in the form of fossil fuels (diesel and gasoline) and electricity.

Diesel fuel would be used for on-land construction equipment and heavy-duty trucks used to transport materials and equipment, as well as for in-water equipment such as tow boats, barges, and impact hammers. Gasoline would primarily be used in vehicles of construction workers to travel to and from the construction site. The use of electricity in construction equipment, if any, would be very minimal in comparison to the quantities of diesel and gasoline used.

The volume of diesel and gasoline fuels that would be consumed during construction were calculated based on the estimated carbon dioxide (CO_2) emissions for the Proposed Project's construction and the gasoline and diesel CO_2 emission factors from The Climate Registry (TCR, 2023). Project construction is estimated to consume a total of approximately 30,743 gallons of gasoline and 300,264 gallons of diesel fuel over the construction period. Fuel use during construction would represent approximately .007 percent of gasoline and approximately 0.51 percent of diesel sold in Alameda County in 2023 (CEC, 2023). Overall, the fuel use during construction would be minimal in comparison to the overall fuel use within Alameda County. Construction fuel consumption by year is presented in **Table 3.6-1** below.

TABLE 3.6-1
ANNUAL CONSTRUCTION-RELATED FUEL USAGE (GALLONS)

Year	Diesel (gal)	Gasoline (gal)
2026	4,230	618
2027	72,224	6,943
2028	35,979	3,028
2029	40,990	4,359
2030	58,232	5,863
2031	39,827	4,275
2032	39,899	4,226
2033	8,881	1,430
Project Total	300,264	30,743

NOTES: Totals may not add up due to rounding.
SOURCE: ESA 2025, Appendix B

Construction activities of the Proposed Project would comply with state and local regulations, such as 13 CCR Sections 2485 and 2449 that require equipment and commercial vehicle operators to limit idling to no more than five minutes; this would ensure that fuel energy consumed in the construction phase would not be wasted through unnecessary idling. In addition, all vehicles used during construction and operation would be required to comply with federal (CAFE) standards.

Therefore, energy use would not be wasteful, inefficient, or unnecessary during construction of the Project and the impact would be less than significant.

b) As discussed above, the Proposed Project's construction would require the use of off-road construction equipment and on-road trucks. Construction activities would comply with state and local requirements designed to minimize idling and associated emissions, which would also minimize the use of fuel. Specifically, pursuant to 13 CCR Sections 2485 and 2449, idling of commercial vehicles over 10,000 pounds and off-road equipment over 25 horsepower would be limited to a maximum of five minutes. All equipment used for Proposed Project construction would follow state regulations for equipment fleets and harbor craft, which require the use of newer engines on a fleetwide basis. Fuel use for Proposed Project construction would be consistent with typical construction and manufacturing practices, and energy standards such as the Energy Policy Acts of 1975 and 2005, which promote strategic planning and building standards that reduce consumption of fossil fuels, increase use of renewable resources, and enhance energy efficiency.

There are no aspects of the Proposed Project that would conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and the impact would be less than significant.

References

California Energy Commission (CEC). 2023. *AR-15 Results and Analysis*. Available at: https://www.energy.ca.gov/media/3874. Accessed February 2025.

The Climate Registry (TCR). 2024. Available at: https://theclimateregistry.org/wp-content/uploads/2024/03/2024-Emission-Factor-Document_FINAL.pdf. Accessed February 2025.

3.7 Geology and Soils

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

Environmental Setting

The Proposed Project site lies within the Coast Ranges geomorphic region. The Coast Ranges region lies between the Pacific Ocean and the Great Valley (Sacramento and San Joaquin Valleys) geomorphic region and stretches from the Oregon border to the Santa Ynez Mountains near Santa Barbara (City of Oakland 2021). Much of the Coast Ranges are composed of marine sedimentary deposits and volcanic rocks that form northwest-trending mountain ridges and valleys, running subparallel to the San Andreas Fault Zone. In the San Francisco Bay area, movement along this plate boundary is distributed across a complex system of strike-slip, right-lateral, parallel, and subparallel faults. These faults include the San Andreas, Hayward, Rodgers Creek-Healdsburg, Concord-Green Valley, Greenville-Marsh Creek, Calaveras, and West Napa faults (City of Oakland, 2021). The Coast Ranges can be further divided into the northern and southern ranges, which are separated by the San Francisco Bay. The San Francisco Bay lies within a broad depression created from an east-west expansion between the San Andreas and the Hayward fault systems. The San Francisco and San Pablo Bays, including shoreline areas, are generally comprised of soft compressible sediments known as Bay Mud, which can be very thick in areas (Port of Oakland, 2024).

[1] The California Building Code (CBC) no longer includes a Table 18-1-B. Instead, Section 1803.5.3 of the CBC describes the criteria for analyzing expansive soils.

The Proposed Project site is located within a seismically active region; it is located less than 12 miles from the San Andreas Fault and approximately five miles from the Hayward Fault. It is not within an Alquist-Priolo earthquake fault zone. While the Proposed Project site will likely be subject to future strong ground shaking because of its proximity to the Hayward and San Andreas faults, the likelihood of a fault rupture is very low (Port of Oakland, 2024). The Proposed Project site consists of asphaltic concrete (AC), as well as its existing aggregate base material. The AC is approximately five inches thick throughout the Proposed Project site, underlain by an approximately 13.5-inch-thick layer of artificial fill consisting primarily of sand, gravel, or asphalt. The fill typically is generally underlain by dark gray clay and water-bearing silts and fine- to medium-grained sand to depths of eight to 10 feet below ground surface (bgs), which may be Young Bay Mud (YBM) or similar dredged material from the bay. These units reportedly are underlain by YBM (clay and silty clay rich in organic material) to a depth of 10 to 14 feet bgs. The YBM is underlain by the Merritt Sand, which can generally reach a maximum thickness of 65 feet. The City of Oakland's zoning map indicates that the Proposed Project site is within a very high Liquefaction Hazard Zone but is not within a Flood Zone (City of Oakland, 2025). The site and surrounding areas are flat and do not present landslide risk.

Paleontological resources are the fossilized remains or impressions of plants and animals, including vertebrates (animals with backbones; mammals, birds, fish, etc.), invertebrates (animals without backbones; starfish, clams, coral, etc.), and microscopic plants and animals (microfossils). The artificial fill would not contain paleontological resources. The Young Bay Mud is too young (less than 5,000 years) to contain significant paleontological resources (Society for Vertebrate Paleontology (SVP), 2010). The deeper and older geologic units beneath the artificial fill and Young Bay Mud (i.e., Merritt Sand and San Antonio Formation) on the Project site have the potential for containing paleontological resources.

Regulatory Setting

State and local goals, policies, and regulations applicable to this resource are described in this section.

The most recent version of the California Building Code (CBC) was published by the California Building Standards Commission on July 1, 2022. The CBC requires that all structures and permanently attached nonstructural components be designed and built to resist the effects of earthquakes. The CBC is included in Title 24 of the CCR and sets minimum requirements for building design and construction. Relevant provisions of the CBC require the preparation of foundation and soils reports and other geotechnical reports that address site-specific conditions, potential hazards, and required methods and design parameters for remediating and protecting against potential seismic hazards.

The California Construction Storm Water Permit (Construction General Permit),[2] adopted by the State Water Resources Control Board, regulates construction activities involving clearing, grading, and excavation resulting in soil disturbance of more than one acre of total land area. The Construction General Permit requires the development and implementation of a SWPPP that includes specific BMPs designed to prevent sediment and pollutants from contacting stormwater from moving off site into receiving waters.

2 *General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (General Permit), Order 2022-0057-DWQ, NPDES No. CAS000002.*

In the Oakland Municipal Code, Title 15 is known as the Oakland Amendments of the 2019 Editions of The California Building Standards Code, or the 2019 Oakland Building Construction Code. This chapter of the Municipal Code adopts the standards and requirements of the CBC and requires that they be applied to any new developments within the city.

The Safety Element of the City of Oakland General Plan policies (City of Oakland 2023) include the following:

> ***Policy SAF-1.1 Seismic Hazards:*** Develop and continue to enforce and carry out regulations and programs to reduce seismic hazards and hazards from seismically triggered phenomena. Prioritize programs in areas of highest seismic risk and seismic vulnerability.
>
> ***Policy SAF-1.2 Structural Hazards:*** Continue, enhance, or develop regulations and programs designed to minimize seismically related structural hazards from new and existing buildings.
>
> ***Policy SAF-1.3 Limit Development in Hazardous Areas and Minimize Erosion:*** Minimize threat to structures and humans by limiting development in areas subject to landslides or other geologic threat and undertake efforts to limit erosion from new development.
>
> ***Policy SAF-1.4 Seismic Hazard Coordination:*** Work with other public agencies to reduce potential damage from earthquakes to "lifeline" utility, economic, and transportation systems, including Caltrans; BART; Pacific Gas and Electric Company, East Bay Municipal Utility District, and other utilities providers; the Port; and others.

The SVP has established standard guidelines (SVP, 2010) that outline professional protocols and practices for conducting paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, and specimen preparation, identification, analysis, and curation. Most practicing professional vertebrate paleontologists adhere closely to the SVP's assessment, mitigation, and monitoring requirements as specifically provided in its standard guidelines.

While the artificial fill directly beneath the Proposed Project site has no potential for recovery of paleontological resources and the Holocene-age Young Bay Mud has a low potential, the geologic units below the fill and Bay Mud (i.e., Merritt Sand and San Antonio Formation) would be considered to have a high sensitivity for paleontological resources.

Discussion

a.i) The Proposed Project site does not lie within or near an Alquist-Priolo earthquake fault zone and would have a very low potential for fault rupture to occur. No impacts would occur.

a.ii) The Proposed Project site is in an area that has the potential to be subject to strong ground shaking from an earthquake along any of the active faults located in the region including the Hayward Fault, which is the closest fault to the Project site. Foundations for Proposed Project elements would require building permits from the City of Oakland and would be designed and constructed in compliance with the CBC, as required by the City of Oakland. Impacts from fault rupture, seismic ground shaking, and seismic-related ground failure would be less than significant.

a.iii) Loose-to-medium soils susceptible to liquefaction may exist in the subsurface at the Proposed Project site. During a liquefaction event, lateral spreading and seismically induced settlement could take place at the Project site. Structures, utilities, and other key Proposed Project elements would meet CBC seismic zone design standards or better to withstand expected earthquake ground shaking, liquefaction, or other ground failures. Appropriate construction practices would be implemented during construction to ensure safety of workers and equipment during strong seismic shaking. Impacts would be less than significant.

a.iv) The Proposed Project site is a paved maritime industrial area located in a flat developed area with the only slopes in the vicinity of the Proposed Project being the edge of the wharf along the Outer Harbor, and no changes to the shoreline or channel are proposed. No impacts would occur.

b) The Proposed Project site is level and paved. As part of construction, paving would be removed from portions of the Project site and excavations would be conducted. All excavation and soil management activities would be conducted in accordance with applicable permits, including stormwater management permits, and the requirement to cover contaminated soil stockpiles. A SWPPP would be developed and implemented during construction in compliance with the Construction General Permit. The SWPPP would include erosion and sedimentation controls such as silt fences, fiber rolls, wind erosion controls, and stabilized construction entrances/exits. Construction of the Proposed Project would not result in substantial soil erosion with implementation of proper erosion control measures. Further, because the soils underlying the site consist of artificial fill, the Proposed Project would not impact topsoil and there would be no erosion or loss of topsoil as a result of construction. No changes to the shoreline are proposed. Following construction, the site would be paved and no erosion would occur. Impacts would be less than significant.

c) The City of Oakland's zoning map indicates that the Proposed Project site is within a Liquefaction Hazard Zone. During a liquefaction event, lateral spreading and seismically induced settlement could take place at the Project site. As discussed above, buildings, utilities, and other key Project elements would meet CBC seismic zone design standards or better, and appropriate construction practices would be implemented during construction. No significant changes in soil moisture would occur during operations because the Proposed Project site is paved. Impacts would be less than significant.

d) Expansive soils are soils that expand when water is added and shrink when they dry out. This continuous change in soil volume can cause structures built on this type of soil to move unevenly and crack when the moisture content in the soil changes. Bay Muds, which are typical of the fill and soil underlaying the Project site, may be considered expansive soils. No significant changes in soil moisture would occur during operations because the Proposed Project site is paved. During construction, soil moisture in soils used to backfill trenches and other excavation would be controlled and the soil appropriately compacted to avoid future settlement. Impacts would be less than significant.

e) The Proposed Project would not include septic systems or sewers. A minor amount of wastewater would be generated during construction from the use of portable toilets that would be transported to the East Bay Municipal Utility District wastewater treatment plant for treatment and disposal. No wastewater would be generated during operations and therefore would not require a septic system or sewers. No impacts would occur.

f) The Project site is underlain by fill and Young Bay Mud. Fill would not contain any paleontological resources. Bay Mud is geologic material of recent origin (less than 5,000 years old) and the Project site has been heavily disturbed by prior construction and industrial activities. As discussed in Chapter 2, *Project Description*, piles would be installed using auger cast or precast concrete piles methods. Pile installation could involve drilling up to approximately 100 feet deep. However, these installation methods would not return paleontological resources to the surface. Although it is not expected to occur, if a unique paleontological resource or site were encountered, the Port of Oakland Emergency Plan of Action for Discoveries of Unknown Historic or Archaeological Resources (Port of Oakland, n.d.) for such cases would be implemented. Work would be stopped within 50 yards of the find, and work would not resume until the finds were properly assessed and the Port gave permission to resume work. No impact to paleontological resources would occur.

References

City of Oakland. 2021. 2021-2026 Hazard Mitigation Plan. July

City of Oakland, 2023. Oakland 2045, Oakland Safety Element. Adopted September 26.

City of Oakland, 2025. Planning and Zoning Map, Liquefaction.

Port of Oakland, 2024. Outer Harbor Terminal Redevelopment Project Building Resiliency Now and For the Future Draft Initial Study and Proposed Negative Declaration. August.

Society or Vertebrate Paleontologists (SVP), 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources.

Port of Oakland. n.d. Emergency Plan of Action for Discoveries of Unknown Historic or Archaeological Resources.

3.8 Greenhouse Gas Emissions

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
VIII. GREENHOUSE GAS EMISSIONS — Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Environmental Setting

Greenhouse gases (GHGs) trap heat in the atmosphere by preventing some of the solar radiation that hits the Earth from being reflected back into space. Some GHGs occur naturally and are needed to keep the earth's surface habitable. However, over the past 100 years, human activities have substantially increased the concentration of GHGs in our atmosphere. This has intensified the natural greenhouse effect, increasing average global temperatures.

Carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), perfluorocarbons (PFCs), and hydrofluorocarbons (HFCs) are the principal GHGs. When concentrations of these gases exceed historical concentrations in the atmosphere, the greenhouse effect is intensified. CO_2, CH_4, and N_2O occur naturally and are also generated through human activity. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing, natural gas leaks from pipelines and industrial processes, and incomplete combustion associated with agricultural practices, landfills, energy providers, and other industrial facilities. N_2O emissions are also largely attributable to agricultural practices and soil management. Other human-generated GHGs include fluorinated gases such as HFCs, PFCs, and SF_6, which have much higher heat-absorption potential than CO_2 and are byproducts of certain industrial processes.

CO_2 is the reference gas for climate change, as it is the GHG emitted in the highest volume. The effect that each of the GHGs have on global warming is the product of the mass of their emissions and their global warming potential (GWP). GWP indicates how much a gas is predicted to contribute to global warming relative to how much warming would be predicted to be caused by the same mass of CO_2. CO_2, as the reference gas, has a GWP of 1. In contrast, CH_4 and N_2O are substantially more potent GHGs than CO_2 and have GWPs of 25 and 298, respectively (CARB, 2025).

In emissions inventories, GHG emissions are typically reported as metric tons of CO_2 equivalent ($MTCO_2e$). CO_2e is calculated as the product of the mass emitted of a given GHG and its specific GWP. While CH_4 and N_2O have much higher GWPs than CO_2, CO_2 is emitted in higher quantities and it accounts for the majority of GHG emissions in CO_2e, both from commercial developments and human activity in general.

Regulatory Setting

State

A variety of statewide rules and regulations mandate the quantification and, if emissions exceed established thresholds, the reduction of GHGs. The California Environmental Quality Act (CEQA) requires lead agencies to evaluate project-related GHG emissions and the potential for projects to contribute to climate change and to provide appropriate mitigation in cases where the lead agency determines that a project would result in a significant addition of GHGs to the atmosphere. Below is a discussion of other state programs, regulations, plans, and goals designed to reduce GHG emissions.

Executive Order S-3-05

In June 2006, Governor Arnold Schwarzenegger signed Executive Order S-3-05, which established the following statewide emission-reduction targets through the year 2050:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

Executive Order B-55-18

In September 2018, Governor Brown signed Executive Order B-55-18, committing California to total, economy-wide carbon neutrality[1] by 2045. Executive Order B-55-18 directs CARB to work with relevant state agencies to develop a framework to implement accounting to track progress toward this goal. The goal will be incorporated into future Scoping Plans, as policies and actions which affect major sectors of California's economy, including transportation, agriculture, development, industry, and others. This executive order does not contain any requirements that would need to be implemented at the project level. The carbon neutrality requirements would be implemented on a regional and local level through regional electricity providers and vehicle and equipment standards.

Climate Change Scoping Plan (AB 32 Scoping Plan)

In December 2008, CARB approved the AB 32 Scoping Plan, outlining the State of California's strategy to achieve the 2020 GHG emissions limit. The Scoping Plan estimates a reduction of 174 million $MTCO_2e$ (about 191 million tons) from the transportation, energy, agriculture, forestry, and high-climate-change-potential sectors, and proposes a comprehensive set of actions designed to reduce overall GHG emissions in California, improve the environment, reduce dependence on oil, diversify California's energy sources, save energy, create new jobs, and enhance public health. The Scoping Plan must be updated every 5 years to evaluate the mix of AB 32 policies to ensure that California is on track to achieve the 2020 GHG reduction goal. Appendices C and E of the adopted 2008 AB 32 Scoping Plan include a list of 39 recommended action measures to reduce GHG emissions (CARB, 2008). CARB released its first Scoping Plan Update in May 2014 (CARB, 2014) and subsequent updates in 2017 and 2022, as described below.

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1 Having a net zero carbon footprint, refers to achieving net zero carbon dioxide emissions by balancing carbon emissions with carbon removal (often through carbon offsetting) or simply eliminating carbon emissions altogether (the transition to the "post-carbon economy").

Executive Order B-30-15 and SB 32

In April 2015, Governor Brown issued an Executive Order B-30-15 to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. Reaching this emission reduction target will facilitate California in reaching its ultimate goal of reducing emissions 80 percent under 1990 levels by 2050, as identified in Executive Order S-3-05.

Subsequently, Senate Bill (SB 32), which codifies the Executive Order's 2030 emissions reduction target, was approved by the Governor on September 8, 2016. SB 32 requires CARB to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions to ensure that statewide GHG emissions are reduced to at least 40 percent below the 1990 statewide GHG emissions limit no later than December 31, 2030.

Assembly Bill 1279 (California Climate Crisis Act)

Signed into law in September of 2022, AB 1279 requires the State to achieve two things by 2045 or sooner: 1) net zero GHG emissions; and 2) a reduction in statewide anthropogenic GHG emissions of 85 percent below 1990 levels. AB 1279 requires CARB to ensure that the 2022 Scoping Plan, described further below, identifies and recommends measures to achieve carbon neutrality, and to identify and implement policies and strategies for CO_2 removal and carbon capture, utilization, and storage technologies.

2022 Scoping Plan for Achieving Carbon Neutrality

The 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan), adopted by CARB in December 2022, expands on prior Scoping Plans and responds to AB 1279 by outlining a technologically feasible, cost-effective, and equity-focused path to achieve the State's climate target of reducing anthropogenic emissions to 85 percent below 1990 levels and achieving carbon neutrality by 2045 or earlier (CARB, 2022). The actions and outcomes in the plan will achieve significant reductions in fossil fuel combustion by deploying clean technologies and fuels, further reductions in short-lived climate pollutants, support for sustainable development, increased action on natural and working lands to reduce emissions and sequester carbon, and the capture and storage of carbon.

The 2022 Scoping Plan also discusses the role of local governments in meeting the State's GHG emissions reduction goals because local governments have jurisdiction and land use authority related to community-scale planning and permitting processes, local codes and actions, outreach and education programs, and municipal operations. The efforts of local governments to reduce GHG emissions within their jurisdictions are critical to achieving the State's long-term climate goals. Furthermore, local governments make critical decisions on how and when to deploy transportation infrastructure and can choose to support transit, walking, bicycling, and neighborhoods that allow people to transition away from cars; they can adopt building ordinances that exceed statewide building code requirements; and they play a critical role in facilitating the rollout of zero emission vehicle infrastructure (CARB, 2022).

The 2022 Scoping Plan identifies a construction equipment sector action for the Scoping Plan Scenario that commits to 25 percent of energy demand to be electrified by 2030 and 75 percent electrified by 2045 (CARB, 2022).

Regional

BAAD CEQA Air Quality Guidelines

The Bay Area Air District's (BAAD) CEQA Air Quality Guidelines were prepared to assist in the evaluation of air quality impacts of projects and plans proposed in the Bay Area. The guidelines also include recommended assessment methods for air toxics, odors, and GHG emissions. In April 2022, in response to SB 32 and 2017 Scoping Plan Update targets for 2030 and EO B-15 target for carbon neutrality no later than 2045, the BAAD adopted updated CEQA significance thresholds for GHGs and included them in the 2023 update to the BAAD CEQA Guidelines (BAAD, 2022; 2023). The BAAD has not adopted quantitative GHG thresholds for construction, citing, "Because construction emissions are temporary and variable, the Air District has not developed a quantitative threshold of significance for construction-related GHG emissions. However, the Lead Agency should quantify and disclose GHG emissions that would occur during construction" (BAAD 2023).

Discussion

The following analysis focuses on construction impacts associated with the Proposed Project. Potential operational impacts are unlikely to substantially differ from what is occurring currently or from activities that have previously been evaluated in other Port CEQA documents.

a) The Proposed Project would generate GHG emissions from short-term construction activities that would require the use of on- and off-road vehicles and equipment, including marine vessels. As described in Section 3.3, *Air Quality*, the Project's construction-related GHG emissions were estimated based on information provided by the Port and the Project Engineer, Liftech, CalEEMod, CARB-developed emissions inventory databases, the Port's 2020 Seaport Air Emissions Inventory, and data contained in the Oakland Harbor Turning Basins Widening Draft EIR (Liftech 2025a and 2025b, and Port of Oakland 2023a, 2023b, 2025a and 2025b). For a full list of phasing and equipment operating assumptions, see **Appendix B-1**. **Table 3.8-1** summarizes the Project's estimated construction-related GHG emissions.

As shown in Table 3.8-1, Proposed Project construction would generate a total of approximately 3,172 MTCO2e over the duration of the Proposed Project. When amortized over the life of the Proposed Project (estimated to be a minimum of 30 years for analytical purposes), annualized emissions would decrease to approximately 105.7 $MTCO_2e$.

As described previously, the BAAD has neither adopted nor recommended GHG thresholds for construction emissions. Instead, it recommends that a determination of the significance of a project's construction emission impacts be made in relation to meeting the State's GHG reduction goals. As described in the Oakland Harbor Turning Basins Widening Draft EIR (Port of Oakland. 2023a), these improvements, which would support the activities proposed by the Oakland Harbor Turning Basins Widening Project, would result in a long-term net reduction in operational emissions at the Port. Therefore, the Proposed Project would not conflict with the State goal of reducing GHG emissions. This impact would be less than significant.

TABLE 3.8-1
GHG EMISSIONS FROM PROJECT CONSTRUCTION

Year	Annual GHG Emissions ($MTCO_2e$ per year)
2026	49.2
2027	674.0
2028	395.7
2029	459.5
2030	625.7
2031	446.2
2032	446.5
2033	74.5
Total	3,171.5
Amortized (30 Years)	105.7

SOURCE: ESA, 2024.

b) As described in response a), the Proposed Project consists of construction activities that would support the activities that were proposed as part of the Oakland Harbor Turning Basins Widening Draft EIR. Although the Proposed Project would result in short-term construction emissions, it would support changes to the vessel mix, which would result in a net decrease in GHG emissions over the long term (Port of Oakland, 2023a). Transportation sector regulations and future measures designed to achieve the emission reductions assumed as part of the Scoping Plan are applicable to the Proposed Project's operations, including truck efficiency, low-carbon fuel standard, at-berth regulation, commercial harbor craft regulations, transition to zero emission vehicles and vessels, transitioning and enhancing electrical and alternative fuel infrastructure, and decarbonization of the electricity supply (Port of Oakland, 2023a). Because the Proposed Project would not increase long-term emissions the Project would not conflict with or obstruct the implementation of the State's long-term GHG reduction goals or CARB's Scoping Plan.

The Project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. This impact would be less than significant.

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3.9 Hazards and Hazardous Materials

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

Environmental Setting

The Proposed Project site contains subsurface contaminants as a result of historical use of the site. This section summarizes the history of known contamination.

Berths 20 to 26 Lease Area

The Proposed Project area was included within the subject area of a Phase I Environmental Site Assessment Report (Phase I) conducted in 2008 for the Berths 20 to 26 lease area (Baseline, 2008). The Proposed Project area was originally open water and marshlands that were filled with Bay Mud and undocumented fill including municipal garbage beginning in 1911 and ending around the early 1930s. The Phase I assessment identified various Recognized Environmental Conditions (RECs) including municipal garbage fill areas; possible fuel releases from several historic and regulated underground storage tanks and aboveground storage tanks, historic pipelines, vehicle maintenance activities from various freight companies, and gas stations; possible fuel, sulfur, asbestos, and solvent releases from the former Western Sulphur Company, Western Vegetable Oil Company, and Asbestos Paneling Manufacturer facilities; and releases of petroleum based solvents to soil and groundwater at the former McGuire leasehold. Selected RECs are shown on **Figure 3.9-1**, *Recognized Environmental Conditions*, that overlay certain project components, as discussed below.

SOURCE: The Port of Oakland, 2025

Outer Harbor Wharf Modernization Project

Figure 3.9-1
Recognized Environmental Conditions

ESA

Former Mobil and Ashland Bulk Fuel Terminals

The area of Berth 24 area is located close to the former Mobil and Ashland Bulk Fuels Terminal sites and some of the former pipeline alignments may intersect Proposed Project components (Baseline, 2008; Port of Oakland, 2024). General Petroleum Corporation operated a bulk terminal for petroleum product storage and distribution onsite starting in 1928 until acquired by Mobil, who ended operations in approximately 1979. Southern Pacific Pipelines, Inc. supplied the refined petroleum to the site via aboveground and underground pipes. Refined petroleum was mixed and stored onsite in aboveground storage tanks and underground storage tanks. Petroleum products that were stored onsite included leaded and unleaded gasoline, gasoline additives, diesel fuel, heating oil, and various heavy oil products.

Environmental investigations and remediation were conducted at the Former Mobil site from 1979 to 2020 to address the presence of constituents of potential concern in soil vapor, soil, and groundwater. Remedial investigations concluded that primary pollutants found in the subsurface are total petroleum hydrocarbons as gasoline (TPH-g) and their related constituents, as well as methane (CH_4) in soil vapor. Total petroleum as diesel (TPH-d) was also discovered onsite but in smaller quantities. Both Mobil and the Port were ordered, pursuant to the San Francisco Bay Regional Water Quality Control Board Order Number 99-063 (RWQCB, 1999) to investigate and clean up the pollutants found from the remedial investigations. The dischargers were ordered to submit a Workplan for Remedial Investigation, complete the Remedial Investigation and Risk Assessment, and to submit the Remediate/Risk Management Plan (RMP). As a result of investigation and cleanup activities conducted between 1979 and 2020, the RWQCB proposed to close the case for this site as a criteria for low-threat closure site that poses a low threat to human health and the environment (RWQCB, 2024). This means that the RWQCB has concluded that the concentrations of residual contamination are below concentrations that would pose a risk to people and the environment. This also means that residual levels of contaminants remain in fill and/or soil in the Proposed Project area. In addition, it is possible that sections of the former pipelines may have been abandoned in place.

Any owner, lessee or their designee authorized to undertake construction or trench work that involves disturbing soil or contact with soil vapor or groundwater within the Former Mobil and Ashland Bulk Fuels Terminal Revised RMP area will be required to comply with the measures identified in the RMP. Risk management measures in the RMP include the following: Stormwater Runoff Control, Access Control, Soil Management, Dust Control and Monitoring, Methane and Petroleum Hydrocarbon Vapor Monitoring and Mitigation, Procedures for Unforeseen Subsurface Conditions, Dewatering Control Measure Planning, Contingency Procedures for NAPL, and Worker Safety Management (Stantec 2023). As shown on Figure 3.9-1, ground disturbing activities in the Berth 24 area may encounter residual contamination in fill.

Former McGuire Chemical Company, Berths 25 and 26, Land Use Restrictions

The former McGuire Leasehold located at Berths 25 and 26, as shown on Figure 3.9-1, has two areas with Land Use Covenants (LUCs) or land use restrictions (Department of Toxic Substance Control [DTSC] 2011; Ninyo & Moore 2022). The berths are situated within an active marine terminal operated by TraPac LLC and are covered with a cap of asphaltic or concrete pavement. The Former McGuire Tank Farm A was located within the Former McGuire Leasehold and is restricted for residential and sensitive land uses. An additional restricted area footprint includes commercial/ industrial structural engineering controls for full time commercial worker occupancy, corresponding with a previous building location that was demolished in November 2017. Relative to the Proposed Project, the LUC states:

> "No excavation or activities which disturb the soil below a specific depth (see Covenant for depth) without Agency review and approval of a soil management plan."

As shown on Figure 3.9-1, some of the Proposed Project components overlie the LUC areas and will require DTSC approval prior to ground disturbing activities.

Regulatory Setting

Statutes and regulations pertaining to this issue area and relevant to the Proposed Project are as follows.

Federal

- Clean Water Act (33 U.S.C. 1251 et seq.), a comprehensive piece of legislation to protect the nation's water from pollution by setting water quality standards for surface water by limiting the discharge of effluents into waters of the United States.
- Oil Pollution Act (33 U.S.C. 2712) requires owners and operators of facilities that could cause substantial harm to the environment to prepare and submit plans for responding to worst-case discharges of oil and hazardous substances.
- California Toxics Rule (Code of Federal Regulations [CFR] Title 40, Part 131), established by EPA, promulgated numeric water quality criteria for priority toxic pollutants and other water quality standards provisions to be applied to waters in the State of California.
- Hazardous Materials Transportation Act (49 U.S.C. 5901) delegates authority to the U.S. Department of Transportation to develop and implement regulations pertaining to the transport of hazardous materials.
- National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR 300) outlines the requirements for responding to both oil spills and releases of hazardous substances.
- Resource Conservation and Recovery Act (42 U.S.C. 6901 et seq.) authorizes EPA to control hazardous waste from "cradle to grave," which encompasses its generation, transportation, treatment, storage, and disposal.

State

- Lempert-Keene-Seastrand Oil Spill Prevention and Response Act (California Government Code Section 8750 et seq.) seeks to protect state waters from oil pollution and to plan for the effective and immediate response, removal, abatement, and cleanup in the event of an oil spill.

Local

Local goals, policies, or regulations applicable to this issue area include the following goals and policies in the Safety Element of the City of Oakland's General Plan (City of Oakland 2023):

> ***Goal SAF-5:*** Minimize the potential risks to human and environmental health and safety associated with the past and present use, handling, storage, and disposal of hazardous materials.
>
> > ***Policy SAF-5.2 Hazardous Materials:*** Through partnerships, programs, and regulations, minimize the potential risks to human and environmental health and safety associated with the past and present use, handling, storage and disposal of hazardous materials. Toxic materials

removed as part of cleanup efforts should be disposed of in the least harmful manner so that the impact is not shifted from one vulnerable community to another.

Policy SAF-5.3 Site Contamination: Through enforcement of standard conditions of approval, ensure buildings and sites are or have been investigated for the presence of hazardous materials and/or waste contamination prior to development or if there is reason to believe an existing building or site may contain hazardous materials that pose a threat to possible users. Continue to require remediation and construction techniques for adequate protection of construction workers, future occupants, adjacent residents, and the environment are adequately protected from hazards associated with contamination.

Policy SAF-5.4 Hazardous Materials Accidents: Seek to prevent industrial and transportation accidents involving hazardous materials and enhance the city's capacity to respond to such incidents.

Discussion

a) The Proposed Project includes the demolition and replacement of existing components described in Chapter 2, *Project Description,* of this IS/MND. During the Proposed Project construction phase, construction equipment and materials would include fuels, oils and lubricants, solvents and cleaners, cements and adhesives, paints and thinners, degreasers, cement and concrete, and asphalt mixtures, which are all commonly used in construction. The routine use of hazardous materials could result in inadvertent releases, which could adversely affect construction workers, the public, and the environment.

Construction activities would be required to comply with numerous hazardous materials regulations, which are summarized above in the Regulatory Setting and designed to ensure that hazardous materials would be transported, used, stored, and disposed of in a safe manner to protect worker safety, and to reduce the potential for a release of construction-related fuels or other hazardous materials into the environment, including stormwater and downstream receiving water bodies. Contractors would be required to prepare and implement Hazardous Materials Business Plans (HMBPs) that would require that hazardous materials used for construction would be used properly and stored in appropriate containers with secondary containment to contain a potential release. The California Fire Code would also require measures for the safe storage and handling of hazardous materials.

Construction contractors would be required to prepare a SWPPP in compliance with the state Construction General Permit for construction activities that would list the hazardous materials proposed for use during construction; describe spill prevention measures, equipment inspections, equipment and fuel storage; protocols for responding immediately to spills; and describe BMPs for controlling site runoff.

In addition, the transportation of hazardous materials would be regulated by the U.S, Department of Transportation (USDOT), Caltrans, and the California Highway Patrol (CHP). Together, federal and State agencies determine driver-training requirements, load labeling procedures, and container specifications designed to minimize the risk of accidental release.

As summarized above in the Environmental Setting, residual contamination may be present due to previous site uses. Work conducted within the LUC area would require notification to and approval from the DTSC prior to commencing work. If encountered, contaminated soil and groundwater would be managed in accordance with the Revised RMP for the former Mobil and Ashland Bulk Fuel Terminal (Stantec 2023), LUCs for the Berth 25 and 26 areas and electrical infrastructure upgrades, Port-Wide Soil Management Protocol (Port of Oakland 2010), and the Port's Hazardous Materials Management Guide (Port of Oakland 2019). Impacts would be less than significant.

Operations of the Proposed Project would include routine use of maintenance chemicals such as lubricating oils, diesel fuel, and other potentially hazardous materials. These types of materials are routinely used in the transportation and maritime industry and are similar to what are currently used during Port and Port industry partner activities on and adjacent to the site. These materials would be transported, stored, used, and disposed of in accordance with all applicable laws and regulations. Stormwater treatment may generate small quantities of waste oil or oily water; this material would be transported under manifest to a licensed recycling or disposal facility. This is a routine waste and, along with other routine wastes, would be stored, transported, and recycled or disposed of in accordance with all applicable laws and regulations. Because of the nature of the historic subsurface conditions on the site, continued control measures will be incorporated into the Proposed Project operations because of compliance with the existing Revised RMP for the Former Mobil and Ashland Bulk Fuel Terminal. Impacts would be less than significant.

b) As discussed previously, the Proposed Project would generate potentially contaminated soil and groundwater during construction and may require the use and transport of hazardous materials during operations, similar to current conditions. Although use or transport of these materials could result in a spill, all hazardous materials would be transported by a licensed transporter, and onsite use and management of these materials would be in conformance with all applicable laws and regulations as well as existing Port requirements and the Revised RMP for the former Mobil and Ashland Bulk Fuel Terminal (Stantec, 2023). The Port also retains an on-call Emergency Response contractor to minimize the impact of any potential spills should they occur. This impact would be less than significant

c) There are no existing or proposed schools within one-quarter mile of the Proposed Project site. The Oakland Unified School District's Prescott Elementary school is located approximately one mile east of the Proposed Project site. 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) The Proposed Project site is located within the area subject to the requirements of the Former Mobil and Ashland Bulk Fuel Terminal Revised RMP. Subsurface activities within the RMP area are required to comply with risk management measures described in the RMP. These are Stormwater Runoff Control, Access Control, Soil Management, Dust Control and Monitoring, Methane and Petroleum Hydrocarbon Vapor Monitoring and Mitigation, Procedures for Unforeseen Subsurface Conditions, Dewatering Control Measure Planning, Contingency Procedures for NAPL, and Worker Safety Management (Stantec, 2023).

Excavated soils would be stockpiled in accordance with the Port-Wide Soil Management Protocol, in consultation with the Port and other applicable requirements, and tested. To minimize the amount of soil excavated, trenches would be shored with trench boxes or plates, and hydraulic pistons or other supports, to allow for vertical sides. Because of the scope of work including soil excavation and trenching as part of the key elements, soil sampling and proper contaminated soil stockpile and offsite hauling will be incorporated as part of the Proposed Project. The impact is less than significant.

e, f, g) There are no public airports within two miles of the Proposed Project. The nearest, Oakland Airport, is approximately 5.5 miles southeast of the Proposed Project site, and the Proposed Project site is not within the airport's land use plan (Alameda County, 2010). The Proposed Project would not physically interfere with an emergency response plan or affect the implementation of an emergency response plan because it would not affect existing roadways that may be used in an emergency evacuation. The Proposed Project is an urban area that is not located within or adjacent to wildlands and does not pose a risk associated with wildland fire (City of Oakland, 2023); therefore, no impact would occur.

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3.10 Hydrology and Water Quality

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
X. HYDROLOGY AND WATER QUALITY — Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or 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?	☐	☐	☒	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

Environmental Setting

The areas of the Port that would be modernized and that make up the Proposed Project are shown on Figure 2-3 in Chapter 2, *Project Description*, in this IS/MND. The area of the Port proposed for upgrading under the Proposed Project is limited to those berths fronting the Oakland Outer Harbor Channel; namely, Berths 22 through 38. The Proposed Project site is entirely covered with asphaltic concrete graded to drain to the storm drains.

The San Francisco Bay region contains the largest estuary on the west coast of the United States, where fresh waters from California’s Central Valley mix with the saline waters of the Pacific Ocean. The Bay system supports a diverse and productive ecosystem. Salinity levels range from hypersaline to freshwater, and water temperature varies throughout the Bay system. The San Francisco Bay Regional Water Quality Control Board Basin Plan (RWQCB, 2017) has qualitative and quantitative water quality objectives for the region’s surface water for the following parameters: bacteria, bioaccumulation, biostimulatory substances, color, dissolved oxygen, floating material, oil and grease, population and community ecology, pH, radioactivity, salinity, sediment, settleable material, suspended material, sulfide, tastes and odors, temperature, toxicity, turbidity, and un-ionized ammonia. However, there are no rivers, streams, channels, ponds, or natural wetlands on the Proposed Project site. Groundwater is not used on the Proposed Project site.

The Proposed Project site's receiving waterbody (i.e., the waterbody to which stormwater drains) includes Oakland Outer Harbor and San Francisco Bay, which is listed in the Basin Plan as having beneficial uses. Flows in the region are seasonal with more than 90 percent of the annual runoff occurring during the annual rainy season between October and April.

The Proposed Project site is located within an Area of Minimal Flood Hazard (Zone X) and is located adjacent to San Francisco Bay, which is designated Zone VE (Open Water) Special Flood Hazard Area (FEMA, 2025). The Proposed Project site is located within a tsunami hazard area according to the California Geological Survey (CGS, 2025). Seiches are usually caused by unusual tides, winds or currents but could also be triggered by earthquake-induced ground shaking. The occurrence of devastating seiches in Oakland is highly unlikely (City of Oakland, 2023a).

Regulatory Setting

Federal and State

Federal and State laws and regulations pertaining to hydrology and water quality that are relevant to the Proposed Project are as follows:

- The Clean Water Act (33 U.S.C. 1251 et seq.); a comprehensive piece of legislation to protect the nation's water from pollution by setting water quality standards for surface water by limiting the discharge of effluents into waters of the United States. Section 404 or National Pollutant Discharge Elimination System (NPDES) permits are not needed for the Proposed Project.
- State Water Resources Control Board (SWRCB) regulates stormwater discharges from municipal separate storm sewer systems (MS4s) through the Municipal Storm Water Program. The Small MS4 permit (MS4 NPDES Permit No. CAS000004 and Order No. 2013-0001-DWQ) issued by the SWRCB designates the Port as a Non-Traditional Small MS4. The SWRCB and the Bay Area Regional Water Quality Control Board implement and enforce the Municipal Storm Water Program in the Bay Area.
- SWRCB General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit [CGP], Order No. 2022-0057-DWQ). The California CGP regulates construction activity resulting in soil disturbance of 1 acre or more of total land area. The CGP authorizes the discharge of stormwater to surface waters from permitted construction activities.
- SWRCB Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities (Industrial General Permit NPDES No. CAS000001, Order No. 2014-0057-DWQ, as amended by Order No. WQ 2015-0122-DWQ and Order WQ 2018-0028-DWQ). The Industrial General permit regulates industrial stormwater discharges and authorized non-stormwater discharges from industrial facilities. The Industrial General permit requires dischargers to eliminate unauthorized non-stormwater discharges, develop and implement a site-specific SWPPP, conduct visual inspections, and perform the appropriate stormwater sampling as needed.
- The Oil Pollution Act (33 U.S.C. 2712) requires owners and operators of facilities that could cause substantial harm to the environment to prepare and submit plans for responding to worst-case discharges of oil and hazardous substances.
- The Porter-Cologne Water Quality Control Act (California Water Code Section 13000 et seq) is the principal law governing water quality in California.

- The San Francisco Bay Plan outlines the responsibilities of San Francisco BCDC and administration of the federal Coastal Zone Management Act within the Bay segment.

Local

The following local goals, policies, and regulations are applicable to hydrology and water quality:

- The Port's Post-Construction Design Manual requires all new developments and redevelopments meeting the impervious threshold (that is, greater than or equal to 5,000 square feet) to comply with the State's Low Impact Development design standards (Port of Oakland, 2015c). The purpose of these standards is to reduce offsite stormwater runoff.
- The Port's Stormwater Ordinance No. 4311 provides authority to control discharges to the storm drain system in the Port Area (Port of Oakland, 2015a). The purpose of the ordinance is to protect and enhance the water quality of water bodies by reducing pollutants in stormwater discharges to the maximum extent practicable and eliminating unauthorized non-stormwater discharges to the Port storm drains. The Port has developed Storm Water Enforcement Guidelines Pursuant to Port of Oakland Storm Water Ordinance (Port of Oakland, 2015b)
- The City of Oakland's General Plan Safety Element contains policies related to flooding, tsunami and seiche (City of Oakland, 2023a), including the following:

    Policy FL-SAF-3.1: Continue or strengthen city programs that seek to minimize the storm-induced flooding hazard.

    Policy SAF-3.2: Enforce and update local ordinances and comply with regional orders that would reduce the risk of storm-induced flooding.

    Policy SAF-3.4: Seek the cooperation and assistance of other government agencies in managing the risk of storm-induced flooding.

- The City of Oakland's Open Space, Conservation, and Recreation Element of the Oakland General Plan (City of Oakland, 1996) includes the following policies adopted for the purpose of protecting water resources.

    Policy CO 5.1: Encourage groundwater recharge by protecting large open space areas, maintaining setbacks along creeks and other recharge features, limiting impervious surfaces where appropriate, and retaining natural drainage patterns within newly developing areas.

    Policy CO 5.3: Employ a broad range of strategies, compatible with Alameda Countywide Clean Water Program, to: (a) reduce water pollution associated with stormwater runoff; (b) reduce water pollution associated with hazardous spills, runoff from hazardous material areas, improper disposal of household hazardous wastes, illicit dumping, and marina "live-aboards"; and (c) improve water quality in Lake Merritt to enhance the lake's aesthetic, recreational, and ecological functions.

    Policy CO 6.5: Protect the surface waters of the San Francisco Estuary system, including San Francisco Bay, San Leandro Bay, and the Oakland Estuary. Discourage shoreline activities which negatively impact marine life in the water and marshland areas.

Discussion

a) The Proposed Project would not modify the existing stormwater system. There would be no significant increase in stormwater runoff volume or rate as the Proposed Project would not increase the area of what is currently impervious surface area, and no changes in the constituents contained in the stormwater runoff are anticipated as uses of the Proposed Project site would be similar to current uses.

The Proposed Project would be required, both during construction and operation, to meet the requirements set forth in the Former Mobil and Ashland Bulk Fuel Terminals RMP (Stantec, 2023) and the land use restrictions for the Berth 25 and 26 area, as well as to comply with the MS4 permit requirements. For more information on these restrictions, see Section 3.9, *Hazards and Hazardous Materials*.

Potential short-term impacts on water quality as a result of construction could occur because of non-stormwater discharges from construction activities, such as increases in sediments, trash, oil, or grease from construction equipment and sanitary waste. However, as the area of disturbance of the Proposed Project would be greater than one acre, the Proposed Project would be required to prepare and implement a SWPPP in compliance with the Construction General Permit during construction. The SWPPP identifies specific BMPs that would be implemented during construction.

Therefore, construction and operation of the Proposed Project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality, and impacts would be less than significant.

b) Water required during construction, such as for concrete and dust control, would be provided from municipal water supplies, including the potential use of recycled water. The Proposed Project operations would not require water other than for emergency use, consistent with current site use, and therefore the Proposed Project would not substantially decrease groundwater supplies. The Proposed Project site is currently covered with impervious surfaces and the Proposed Project would not increase impervious surfaces such that groundwater recharge would be decreased. Therefore, the Proposed Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge. There would be no impact.

c.i, ii, iii, and iv) The Proposed Project site currently is entirely covered with impermeable surfaces and would not change the amount of impervious area. The existing drainage pattern of the Proposed Project site, which is generally flat, would not change. Therefore, the Proposed Project would not substantially increase the rate or amount of surface runoff from the site in a manner which would result in flooding onsite or offsite and would not result in increased stormwater runoff from the site. During construction, activities involving soil disturbance such as trenching and stockpiling of soil could temporarily result in increased erosion and siltation. BMPs required by the project SWPPP would be implemented during these activities to reduce the potential for erosion and siltation. Therefore, the Proposed Project would not result in substantial erosion or siltation onsite or offsite and would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems. The Proposed Project would not place new structures in floodplains and is not anticipated to impede or redirect flood flows. The Proposed Project's impacts would be less than significant.

d) Tsunamis are caused by underwater earthquakes, landslides, or volcanic eruptions (National Oceanic and Atmospheric Administration [NOAA] 2023). San Francisco Bay is an enclosed body of water and severe impacts to Oakland are unlikely. The narrow opening of the Golden Gate attenuates tsunamis that may reach the San Francisco Bay area from sources outside of the Bay. These waves would be substantially muted as they near the Outer Harbor at the Port.

Seiches are waves in enclosed bodies of water including harbors. Because of the large size of the San Francisco Bay, the hazard from seiche waves is low. Although the Proposed Project site is located within a tsunami hazard area (CGS, 2025), the frequency and risk of tsunamis during the construction stage is relatively small. According to the City of Oakland Tsunami Hazard Specific Index, the Tsunami Threat Analysis has categorized the Frequency as Low (less than every 25 years) with only 80 tsunamis being recorded or observed in the 12-County Bay Area region since 1850 (City of Oakland, 2023b). There are measures in place such as tsunami early warning systems that would limit the potential for impacts. The NOAA operates the National Tsunami Warning Center and the Pacific Tsunami Warning Center, which alert local authorities ahead of tsunamis.

Proposed Project activities would use small quantities of materials that are routinely used for Port operations such as lubricating oils and welding gases, similar to what are currently used on and adjacent to the site. In the unlikely event of inundation as a result of flood, tsunami, or seiche, the Proposed Project would not substantially change the risk from release of pollutants from current conditions.

Based upon the above considerations, the Proposed Project's impacts would be less than significant.

e) The Proposed Project would not use groundwater. The Proposed Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan; therefore, no impact would occur

References

California Geological Survey (CGS), 2025. *County of Alameda. Tsunami Hazard Area Map*. March 23.

City of Oakland, 1996. *City of Oakland General Plan. Open Space, Conservation, and Recreation Element*. June.

City of Oakland, 2023a. *City of Oakland General Plan. Safety Element*. September 26.

City of Oakland, 2023b. *Hazard Specific Annex: Tsunami. Annex to the Emergency Operations Plan*. April.

Federal Emergency Management Agency (FEMA), 2025. *National Flood Hazard Layer FIRMette*. January 31.

NOAA, 2023. *Tsunamis, Introduction to Tsunamis*. August 15.

Port of Oakland, 2015a. Port Ordinance No. 4311. *Ordinance Approving and Adopting Rules and Regulations to Meet the Requirements of the General Permit for Waste Discharge Requirements ("WDRs") for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems*. Adopted January 15, 2015.

Port of Oakland, 2015b. Port Ordinance No. 4311. *Storm Water Enforcement Guidelines Pursuant to Port of Oakland Storm Water Ordinance (Ordinance No. 4311: Adopted January 15, 2015; Effective April 1, 2015)*.

Port of Oakland, 2015c. *2015 Post-Construction Stormwater Design Manual*. August.

Regional Water Quality Control Board (RWQCB), 2017. *California Regional Water Quality Control Board San Francisco Bay Region. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)*.

State Water Resources Control Board (SWRCB), 2013. *National Pollutant Discharge Elimination System (NPDES) General Permit for Waste Discharge Requirements (WDRs) for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4s), Order No. 2013-0001-DWQ, NPDES No. CAS000004*.

State Water Resources Control Board (SWRCB), 2018. *Industrial General Permit Order 2014-0057-DWQ as amended in 2015 and 2018*. Effective July 1, 2020.

State Water Resources Control Board (SWRCB), 2022. *National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (General Permit) Order WQ 2022-0057-DWQ, NPDES No. CAS000002*. Effective September 1, 2023.

Stantec, 2023. *Revised Risk Management Plan, Former Mobil and Ashland Bulk Fuel Terminals, Port of Oakland, Berths 23 and 24, Oakland, California*. March 14

3.11 Land Use and Planning

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

Environmental Setting

The Proposed Project site and surrounding uses within the Port consist of maritime terminals, ancillary trucking services, container storage and processing, and warehousing. The Proposed Project site is fully developed as a marine terminal, as are adjoining areas. Nearby land uses include public parks (Middle Harbor Shoreline Park and Port View Park) on the western edge of the Port adjacent to San Francisco Bay, approximately one-quarter mile from the Proposed Project site. I-80 is located to the north of the Proposed Project site. Residential areas lie east of I-880 from the Port, with the nearest residences approximately one mile from the Proposed Project site.

The Proposed Project site is located within the City of Oakland General Plan land use designation *General Industry and Transportation*. This designation is intended to create, preserve, and enhance areas of the City that are appropriate for a wide variety of businesses and related commercial and industrial establishments that may have the potential to generate offsite impacts such as noise, light/glare, odor, and traffic. This land use designation allows heavy industrial and manufacturing uses, transportation facilities, warehousing and distribution, and similar and related supporting uses. (City of Oakland, 2021).

Regulatory Setting

There are no federal or state laws or regulations pertaining to land use.

Local

The land within the Port's jurisdiction is subject, like the rest of the City, to the Oakland General Plan and is included within the City's General Plan Area. The General Plan's Land Use and Transportation Element (City of Oakland, 2023) has land use policies relevant to this area, including the following.

> ***Policy I/C4.1: Protecting Existing Activities.*** Existing industrial, residential, and commercial activities and areas that are consistent with long-term land use plans for the city, should be protected from the intrusion of potentially incompatible land uses.
>
> ***Policy I/C4.2: Minimizing Nuisances.*** The potential for new or existing industrial or commercial uses, including seaport and airport activities, to create nuisance impacts on surrounding residential land uses should be minimized through appropriate siting and efficient implementation and enforcement of environmental and development controls.

> ***Policy T1.5: Locating Truck Services.*** Truck services should be concentrated in areas adjacent to freeways and near the seaport and airport, ensuring the attractiveness of the environment for visitors, local business, and nearby neighborhoods.
>
> ***Policy W1.3: Reducing Land Use Conflicts.*** Land uses and impacts generated from Port or neighborhood activities should be buffered, protecting adjacent residential areas from the impacts of seaport, airport, or other industrial uses. Appropriate siting of industrial activities, buffering (such as landscaping, fencing, transitional uses), truck traffic management efforts, and other mitigation efforts should be used to minimize the impact of incompatible uses.
>
> ***Policy W2.2: Buffering of Heavy Industrial Uses.*** Appropriate buffering measures for heavy industrial uses and transportation uses on adjacent residential neighborhoods should be developed and implemented.
>
> ***Policy W3.1: Requiring Consistency with Conservation Objectives and Policies.*** Waterfront objectives, policies, and actions regarding geology, land stability, erosion, soils, water quality, flood hazards, wetland plant and animal habitats, and air quality and pollutants, will be consistent and in compliance with the 1996 Open Space, Conservation, and Recreation Element of the City's General Plan.
>
> ***Policy W6.1: Maintaining a Competitive Edge.*** To maintain international stature and competitiveness, the Port should continue to develop, expand, or otherwise modernize facilities or support infrastructure to enhance its overall efficiency and capabilities to handle increasing amounts of cargo and passengers.

Development permits approved by the Port must comply with the City of Oakland General Plan. Any development or construction in the Port Area must be approved by the Port before start of work and before submittal for a City of Oakland building permit.

San Francisco Bay Conservation and Development Commission (BCDC) oversees areas that lie within a 100-foot "Shoreline Band" surrounding the San Francisco Bay, ensuring development within this area is consistent with the San Francisco Bay Plan and the San Francisco Bay Area Seaport Plan. BCDC is responsible for granting or denying permits for any proposed project scope that involves fill; extraction of materials; or substantial changes in use of any water, land, or structure within the Commission's jurisdiction (California Government Code Section 66632). Additionally, Section 66602 of the McAteer-Petris Act states, "that maximum feasible public access, consistent with a proposed project, should be provided." BCDC approved the *2023 San Francisco Bay Area Seaport Plan* in November 2023 (BCDC, 2023). The 2023 Seaport Plan includes five goals related to management of port facilities in the San Francisco Bay:

1. Designate and reserve shoreline areas along San Francisco Bay for existing and future growth in maritime cargo, thereby reducing the need for new Bay fill for port development.
2. Minimize pressure for Bay fill by ensuring that marine terminal development is consistent with the McAteer-Petris Act and San Francisco Bay Plan.
3. Minimize any adverse economic, environmental, and social impacts caused by port development, particularly in disadvantaged and vulnerable communities, within the scope of the Commission's authority.

4. Coordinate the planning and development of Bay port terminals with regional transportation and freight mobility plans.

5. Ensure the continuation of the San Francisco Bay port system as a major world port and contributor to the economic vitality of the San Francisco Bay region in light of climate change and rising sea level.

Discussion

a, b) The Proposed Project is located in an industrial area bordered by other industrial facilities and is consistent with the City of Oakland's General Plan and General Industry and Transportation land use designation. The Proposed Project is consistent with and supports the 2023 Seaport Plan. The Proposed Project is consistent with surrounding land uses and would not divide an established community or otherwise interfere with land uses in the area. No impact would occur.

References

City of Oakland. 2023. City of Oakland General Plan Land Use and Transportation Element. March. Policies updated September 2023. Available: https://www.oaklandca.gov/resources/land-use-and-transportation-element. Accessed February 3, 2025.

City of Oakland. 2021. Oakland General Plan – Land Use Designations Map. Updated January 20, 2021. Available: https://cao-94612.s3.us-west-2.amazonaws.com/documents/Oakland-General-Plan-11x17-Map-Series-20241217.pdf. Accessed February 3, 2025.

San Francisco Bay Conservation and Development Commission (BCDC). 2023. San Francisco Bay Area Seaport Plan. Available: https://bcdc.ca.gov/wp-content/uploads/sites/354/2024/03/seaport-plan.pdf. Accessed February 3, 2025.

3.12 Mineral Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XII. MINERAL RESOURCES — Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Environmental Setting

The Proposed Project site's immediate vicinity is characterized by maritime industrial uses associated with the Port. The Proposed Project site consists of flat expansive asphalt-paved areas with stacked and wheeled shipping containers, facilities associated with Port maritime activities, trucks, and nearby railroad tracks. There are no known mineral resources that occur on or in the immediate vicinity of the Proposed Project site, and the site is not delineated as a mineral resource recovery site.

Regulatory

There are no federal or State laws or regulations pertaining to mineral resources that would apply to the Proposed Project. The OSCAR Element contains the following applicable policy related to mineral resources at the Proposed Project site:

> **Objective CO-3: Mineral Resources.** To conserve mineral resources and minimize environmental impacts from extraction (City of Oakland 1996).

Discussion

a, b) The Proposed Project site does not contain known mineral resources, is developed for industry and transportation use, and is not available for mineral resource extraction. These conditions would not change with development of the Proposed Project. The Proposed Project would not result in the loss of availability of known mineral resources and 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. No impact would occur.

References

California Department of Conservation (DOC), Division of Mines and Geology. 1987. *Special Report 146, Part II, Mineral Land Classification: Aggregate Materials in the San Francisco-Monterey Bay Area*. https://ia902602.us.archive.org/35/items/minerallandclass00stin/minerallandclass00stin.pdf.

3.13 Noise and Vibration

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

Environmental Setting

Noise Terminology

Noise is generally defined as unwanted sound. Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level), which is measured in decibels (dB), with 0 dB corresponding roughly to the threshold of human hearing and 120 dB to 140 dB corresponding to the threshold of pain.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to low and extremely high frequencies instead of the frequency mid-range. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). Frequency A-weighting follows an international standard methodology of frequency de-emphasis and is typically applied to community noise measurements.

When a new noise is introduced to an environment, the human reaction can be predicted by comparing the new noise to the ambient noise level, which is the existing noise level comprised of noise from all sources in a given location. In general, the more a new noise exceeds the ambient noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur (Caltrans, 2013).

- Except in carefully controlled laboratory experiments, a change of 1-dB cannot be perceived.
- Outside of the laboratory, a 3-dB change is considered a just-perceivable difference.

- A change in level of at least 5-dB is required before any noticeable change in human response would be expected.
- A 10-dB change is subjectively heard as approximately a doubling in loudness, and can cause an adverse response.

The perceived increases in noise levels described above are applicable to both mobile and stationary noise sources. These relationships occur in part because of the logarithmic nature of sound and the decibel system. The human ear perceives sound in a non-linear fashion; hence, the decibel scale was developed. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

Noise exposure is a measure of noise over a period of time. Noise level is a measure of noise at a given instant in time. Community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic and atmospheric conditions. What makes community noise constantly variable throughout a day, besides the slowly changing background noise, is the addition of short duration single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual receptor. These successive additions of sound to the community noise environment vary the community noise level from instant to instant, requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts.

This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

L_{dn}: A 24-hour day and night A-weighted noise exposure level, which accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night (“penalizing” nighttime noises). Noise between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dB to take into account the greater annoyance of nighttime noises.

CNEL: The Community Noise Equivalent Level (CNEL); similar to L_{dn}, the CNEL adds a 5-dB “penalty” for the evening hours between 7:00 p.m. and 10:00 p.m. in addition to a 10-dB penalty between the hours of 10:00 p.m. and 7:00 a.m.

L_{eq}: The energy-equivalent sound level is used to describe noise over a specified period of time, typically one hour, in terms of a single numerical value. The L_{eq} is the constant sound level, which would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).

L_{max}: The instantaneous maximum noise level for a specified period of time.

Vibration Terminology

As described in the Federal Transit Administration’s (FTA) Transit Noise and Vibration Impact Manual, ground-borne vibration can be a serious concern for nearby neighbors, causing buildings to shake and rumbling sounds to be heard (FTA, 2018). In contrast to airborne noise, ground-borne vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of ground-borne vibration are trains; buses and heavy trucks on rough roads; and construction activities such as blasting, sheet pile-driving, and operating heavy earth-moving equipment.

Several different methods are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal, which is measured in inches per second. The PPV is most frequently used to describe vibration impacts on buildings. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to express RMS. The decibel notation acts to compress the range of numbers required to describe vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors for vibration assessment include structures (especially older masonry structures), people who spend a lot of time indoors (especially residents, students, the elderly and sick), and vibration-sensitive equipment such as hospital analytical equipment and equipment used in computer chip manufacturing.

The effects of ground-borne vibration include the movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and pile-driving during construction, which would not occur under the Proposed Project. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by only a small margin.

Existing Conditions

Sensitive Receptors

Human response to noise varies considerably from one individual to another. Effects of noise at various levels can include interference with sleep, concentration, and communication, and can cause physiological and psychological stress and hearing loss. Given these effects, some land uses are considered more sensitive to ambient noise levels than others. In general, residences, schools, hospitals, and nursing homes are considered to be the most sensitive to noise. Places such as churches, libraries, and cemeteries (where people tend to pray, study, and/or contemplate) are also sensitive to noise. Commercial and industrial uses are considered the least noise sensitive.

The Proposed Project is located within the City of Oakland, with existing residences on the east side of I-880 more than 0.9 mile (5,100 feet) from the Project site.

Existing Noise Setting

Environmental Science Associates (ESA) collected noise data in the surrounding area in 2019 and 2021 for the Oakland Harbor Turning Basins Widening project (POAK, 2023). Long-term (48 hours or more) and short-term (20-minute) noise monitoring was conducted. The short-term noise measurement was conducted with a Larson Davis Model 831 Type 1 noise meter and the long-term noise measurement was conducted with a LxT2 noise meter, both noise meters were calibrated prior to use.

The noise environment surrounding the Proposed Project site is influenced by Port activity and associated marine, freight truck, and rail operations. Additionally, there is distant vehicular traffic along I-80 and I-880. The resulting data are presented in **Table 3.13-1**, *Monitored Noise Environment within the Project Area*.

TABLE 3.13-1
MONITORED NOISE ENVIRONMENTS WITHIN THE PROJECT AREA

Short-Term Noise Monitoring Location	Maximum 1 Minute Average Noise Level L_{eq} with Vessel in Turning Basin	1 Minute Average Noise Level L_{eq} with no Vessel in Turning Basin
ST 1 Middle Harbor Shoreline Park, OHTB Area	NA	58
ST 2 Northern End of TraPac Terminal Wharf During Vessel Turn in OHTB	70 (vessel at 200 meters)[1]	65

NOTES:
1 Monitored noise levels are influenced substantially by ground-based trucks and service equipment on the TraPac Terminal and do not represent the sole contribution of the turning vessel.
SOURCE: POAK, 2023 (Appendix F).

Regulatory Setting

Federal, State, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies. Local regulation of noise involves implementation of general plan policies and noise ordinance standards. Local general plans tend to identify general principles intended to guide and influence development plans; local ordinances establish standards and procedures for addressing specific noise sources and activities.

Federal

Truck Operations

Federal regulations establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 Code of Federal Regulations, Part 205, Subpart B. The federal truck pass-by noise standard is 80 dBA at 15 meters (approximately 50 feet) from the vehicle pathway centerline. These regulatory controls are implemented on truck manufacturers.

Vibration

The FTA has adopted vibration standards that are used to evaluate potential building damage impacts related to construction activities. The vibration damage criteria adopted by the FTA are shown in **Table 3.13-2**.

TABLE 3.13-2
CONSTRUCTION VIBRATION DAMAGE 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. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

SOURCE: FTA, 2018

State

Vehicle Operations

The State of California establishes noise limits for vehicles licensed to operate on public roads. The pass-by standard for heavy trucks is consistent with the federal limit of 80 dBA. The pass-by standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle rating) is also 80 dBA at 15 meters from the centerline. These standards are implemented through controls on vehicle manufacturers and by legal sanctions on vehicle operators by State and local law enforcement officials.

Vibration

The California Department of Transportation (Caltrans) has developed guidance on addressing vibration issues associated with construction, operation, and maintenance of transportation projects (Caltrans, 2013). **Table 3.13-3** shows the Caltrans criteria for human response to transient vibration.

TABLE 3.13-3
HUMAN RESPONSE TO TRANSIENT VIBRATION

Human Response	PPV (inches/second)
Severe	2.0
Strongly Perceptible	0.9
Distinctly Perceptible	0.24
Barely Perceptible	0.035

SOURCE: Caltrans, 2013.

Local

City of Oakland General Plan

The *City of Oakland General Plan Noise Element* contains the following policies and actions related to noise:

> ***Policy 1*: **Ensure the compatibility of existing and, especially, of proposed development projects not only with neighboring land uses but also with their surrounding noise environment.
>
> > *Action 1.1*: Use the noise-land use compatibility matrix in conjunction with the noise contour maps (especially for roadway traffic) to evaluate the acceptability of residential and other proposed land uses and also the need for any mitigation or abatement measures to achieve the desired degree of acceptability.
> >
> > *Action 1*.2: Continue using the City's zoning regulations and permit processes to limit the hours of operation of noise-producing activities which create conflicts with residential uses and to attach noise-abatement requirements to such activities.

City of Oakland Municipal Code

The City of Oakland regulates short-term noise through city ordinances, which include a general provision against nuisance noise sources (Planning Code, Section 17.120). The factors that are considered when determining whether the ordinance is violated include a) the level, intensity, character, and duration of the noise; b) the level, intensity, and character of the background noise; and c) the time when, and the place and zoning district where, the noise occurred. **Table 3.13-4** presents the maximum allowable receiving noise standards for land uses in Oakland from stationary noise sources (not transportation noise). **Table 3.13-5** presents noise level standards from the noise ordinance that apply to temporary exposure to short- and long-term construction noise

TABLE 3.13-4
MAXIMUM ALLOWABLE RECEIVING NOISE STANDARDS FOR SPECIFIED LAND USES, DBA[a]
(FROM STATIONARY SOURCES)

Receiving Land Use	Cumulative Number of Minutes in 1-Hour Time Period[b]	Maximum Allowable Noise Level Standards (dBA): Daytime 7:00 AM to 10:00 PM	Nighttime 10:00 PM to 7:00 AM
Residential, School, Childcare, Health Care, or Nursing Home, and Public Open Space	20 (L_{33}) 10 ($L_{16.7}$) 5 ($L_{8.3}$) 1 ($L_{1.7}$) 0 (L_{max})	60 65 70 75 80	45 50 55 60 65
		Anytime	
Commercial	20 (L_{33}) 10 ($L_{16.7}$) 5 ($L_{8.3}$) 1 ($L_{1.7}$) 0 (L_{max})	65 70 75 80 85	
		Anytime	
Manufacturing, Mining, and Quarrying	20 (L_{33}) 10 ($L_{16.7}$) 5 ($L_{8.3}$) 1 ($L_{1.7}$) 0 (L_{max})	70 75 80 85 90	

NOTES:
a. These standards are to be further reduced by 5-dBA for simple tone noise, noise consisting primarily of speech or music, or recurring impact noise. If the ambient noise level exceeds these standards, the standard shall be adjusted to equal the ambient noise level.
b. L_x represents the noise level that is exceeded X percent of a given period. L_{max} is the maximum instantaneous noise level.

SOURCE: Oakland Noise Ordinance No. 11895, 1996

TABLE 3.13-5
MAXIMUM ALLOWABLE RECEIVING NOISE STANDARDS FOR TEMPORARY CONSTRUCTION OR DEMOLITION ACTIVITIES, DBA

Operation/Receiving Land Use	Daily (Weekday) 7:00 AM to 7:00 PM	Weekends 9:00 AM to 8:00 PM
Short-Term Operation (less than 10-days)		
Residential	80	65
Commercial, Industrial	85	70
Long-Term Operation (more than 10-days)		
Residential	65	55
Commercial, Industrial	70	60

NOTES:
During the hours of 7:00 PM to 7:00 AM on weekdays and 8:00 PM to 9:00 AM on weekends and federal holidays, noise levels received by any land use from construction or demolition shall not exceed the applicable nighttime operational noise level standard (see Table 4.11-5). If the ambient noise level exceeds these standards, the standard shall be adjusted to equal the ambient noise level. Maximum allowable receiving standards are applied in this analysis as the maximum L_{eq}.

SOURCE: Oakland Noise Ordinance No. 13357, § 3(Exh. A), 2-16-2016; Ord. No. 13302, § 5(Exh. C), 4-21-2015; Ord. No. 13251, § 5(Exh. A), 7-29-2014; Ord. No. 13172, § 3(Exh. A), 7-2-2013; Ord. No. 13168, § 5(Exh. A-2), 6-18-2013; Ord. 12875 § 2(part), 2008; Ord. 12872 § 4 (part), 2008

Impact Discussion

a) Construction of the Proposed Project would occur over a period of approximately 48 months starting in 2026. Project construction would result in temporary increases in ambient noise levels. Onsite construction activities would require the use of heavy construction equipment (e.g., pile driver, loader, crane) that would generate varying noise levels. Offsite construction noise sources would consist of passing trucks and other construction-related vehicles. **Table 3.13-6**, Typical Maximum Noise Levels from Construction Equipment, shows typical noise levels produced by various types of construction equipment that would operate during the construction of the Proposed Project.

TABLE 3.13-6
TYPICAL MAXIMUM NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Construction Equipment	Noise Level (dBA, L_{max} at 50 feet)
Backhoe	78
Auger Drill Rig	84
Slurry Trenching Machine	80
Forklift (gradall)	83
Front-End Loader	79
Concrete Mixer Truck	79
Dump Truck	77
Pickup Truck	75
Pile Driver	101

NOTES:
dBA = A-weighted decibels; L_{max} = maximum, instantaneous noise level experienced during a given period of time
These are maximum field measured values at 50 feet as reported from multiple samples.
SOURCE: Federal Highway Administration, *Roadway Construction Noise Model User Guide*, 2006.

The closest sensitive receptor are residences located approximately 4,340 feet east of the Project site on Frontage Road on the east side of I-880. Consistent with the general assessment methodology of the FTA, the two noisiest pieces of construction equipment (pile driver and forklift) listed in Table 3.13-6 were assumed to operate simultaneously. Using the Roadway Construction Noise Model of the Federal Highway Administration, the resultant noise level at the nearest receptor would be 56 dBA (see Appendix E) at the nearest residential receptor. As a result, construction noise levels at these sensitive receptors would be well below the City standard of 65 dBA for residential uses found in Table 3.13-5 and would result in a less-than-significant impact. Additionally, Middle Harbor Shoreline Park is approximately 1.280 feet south of the Project site. Although noise levels would be up to 66 dBA at this location during pile driving, there is no City construction noise standard for recreational uses. Therefore, the construction noise impact on sensitive receptors associated with the Proposed Project would be less-than-significant. Refer to Section 3.4, *Biological Resources* for a discussion of construction noise impacts on wildlife.

Construction crew commutes and the transport of construction equipment and materials to the Project site would incrementally increase noise levels on access roads leading to the Project site. Although there would be a relatively high single-event noise-exposure potential causing intermittent noise nuisance (passing trucks at 50 feet would generate up to a maximum of 87 dBA Lmax over a few seconds), the effect on longer-term (hourly or daily) ambient noise levels would be small when averaged over a long period of time (an hour, 8 hours, or 24 hours) with much lower ambient noise levels. Construction haul trucks traveling to and from Project site and staging areas at regional transportation facilities at the nearby I-880 ramps, and consequently, would not increase noise levels along local roadways near noise-sensitive receptors. Therefore, short-term construction-related impacts associated with worker commute and equipment transport to the Project site would be less than significant.

The Proposed Project is not expected to cause a substantial permanent noise level increase. The Project's operations and maintenance activities would generally be similar to existing operations and maintenance activities. Additionally, because of the substantial distance (5,100 feet) separating the nearest sensitive receptor from the Project site, operational noise generated at the Project would attenuate to levels below the ambient noise level at this receptor, resulting in a less-than-significant operational noise impact.

b) Operation of the Proposed Project would not include any activities that would generate significant levels of vibration. Therefore, it is not anticipated that Proposed Project operation would expose the nearest sensitive receptors or structures to vibration levels that would result in annoyance. For this reason, the following analysis of the Project's vibration impacts evaluates only the effects of on-site construction activities.

For adverse human reaction, the analysis applies the "strongly perceptible" threshold of 0.9 in/sec PPV for transient sources. For risk of architectural damage to historic buildings and structures, the analysis applies a threshold of 0.12 in/sec PPV (Caltrans, 2013). The FTA threshold of 0.5 in/sec PPV is used to assess damage risk for all other buildings. There are no historic structures in the vicinity of the Project site that could be adversely affected by vibration related to Project construction.

Construction of the Proposed Project would involve the use of a pile driver, haul trucks, cranes, etc. The use of pile drivers would be expected to generate the highest vibration levels during construction. Vibration levels of pile drivers are typically 0.65 in/sec PPV at 25 feet. No residences are within 25 feet of the Project site and the nearest residences along Frontage Road east of I-880 are approximately 5,100 feet away. In addition, under typical propagation conditions, vibration levels at 100 feet for pile drivers would be approximately 0.08 in/sec PPV, which would not exceed the FTA threshold of 0.5 in/sec PPV. Therefore, this impact would be less than significant.

c) The closest airport is the Oakland Airport, approximately 5.5 miles southeast of the Proposed Project site. The Proposed Project site is well outside of the 60 CNEL noise contours for the airport (Alameda County, 2010). Therefore, Project occupants would not be exposed to excessive noise levels generated by aircraft, and there would be no impact with respect to this criterion.

References

Alameda County, 2010. *Oakland International Airport - Airport Land Use Compatibility Plan*, December 2010.

California Department of Transportation (Caltrans). 2013. *Technical Noise Supplement (TeNS)*. September 2013.

Federal Highway Administration (FHWA). 2006. Roadway Construction Noise Model User Guide. January 2006.

Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual. September 2018. Available online: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf. Accessed January 24, 2025.

Port of Oakland, Oakland Harbor Turning Basins Widening Draft Environmental Impact Report, October, 2023.

3.14 Population and Housing

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XIV. POPULATION AND HOUSING — Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Environmental Setting

The Proposed Project is located on Port property in the Oakland Outer Harbor. The existing conditions of the Proposed Project site and adjoining areas consist of cargo handling. The closest residential properties are located approximately one mile east of the Proposed Project site.

Regulatory Setting

No federal or State laws relevant to population and housing are applicable to the Proposed Project.

Local

The City of Oakland's General Plan Land Use and Transportation Element (City of Oakland, 2023) contains the following policy applicable to population and housing at the Proposed Project site:

> ***Policy 1/C4.*1:** Existing industrial, residential, and commercial activities and areas which are consistent with long-term land use plans for the city should be protected from the intrusion of potentially incompatible land uses.

Discussion

a, b) During peak construction periods, the Proposed Project would require approximately 10 workers per day, which would likely be filled by workers already living in the Bay area. Operation of the Proposed Project would generate a few new jobs. The Proposed Project is located in a metropolitan area where regional labor is sufficient to support construction and operation of the Proposed Project. The Proposed Project would not induce substantial unplanned population growth either directly or indirectly, because it would not increase population or housing (or the demand for new housing or public services). The Proposed Project site does not contain any housing, and therefore it would not displace existing people or housing, nor necessitate the construction of replacement housing elsewhere. No impact would occur.

References

City of Oakland. 2023. City of Oakland General Plan Land Use and Transportation Element. March. Policies updated September 2023. Available: https://www.oaklandca.gov/resources/land-use-and-transportation-element. Accessed February 3, 2025.

3.15 Public Services and Recreation

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XV. PUBLIC SERVICES —				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:				
i) Fire protection?	☐	☐	☒	☐
ii) Police protection?	☐	☐	☒	☐
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

Environmental Setting

The Proposed Project is located on Port property associated with cargo handling at the Outer Harbor Terminal. The existing conditions of the Proposed Project site consist of wharf and cargo handling uses to support Port maritime activities. Areas adjoining the Proposed Project site are used for similar purposes.

Fire Protection Facilities

The nearest City of Oakland fire station is Fire Station No. 3, located at 1445 14th Street in Oakland. The Oakland Fire Department responds to fire and emergency response calls at the Port area.

Police Protection Facilities

Police protection services are provided by the City of Oakland Police Department, which is responsible for the enhancement and maintenance of public safety. Additional services are provided by the U.S. Department of Homeland Security (U.S. Customs Service and U.S. Coast Guard).

Schools

The Proposed Project is within the Oakland Unified School District. There are no schools within one mile of the Proposed Project site.

Park and Recreation Facilities

The City of Oakland has over 2,500 acres of open space, including 100 parks. There are no recreational facilities on the Proposed Project Site, and the closest parks are Middle Harbor Shoreline Park (approximately 0.25 mile to the south), Port View Park (approximately 0.25 mile to the south), and Sunset View Park (approximately 0.75 mile to the south). All other parks in the vicinity of the Proposed Project are located either north or east of I-80 and I-880 or south of the Oakland Inner Harbor (on Alameda Island).

There are no other public facilities in the vicinity of or that provide services to the Proposed Project site.

Regulatory

There are no federal or State laws or regulations applicable to the Proposed Project.

Local

The City of Oakland General Plan Open Space, Conservation and Recreation Element (City of Oakland, 1996) and the General Plan's Safety Element (City of Oakland, 2023) contains the following goals relevant to public services and recreation:

> ***Policy SAF-8.1-1:*** Maintain and enhance the city's capacity for emergency response, fire prevention, and firefighting.
>
> ***Goal REC-1:*** A parks system which meets a diverse range of recreational needs without compromising the value of parks as open space.
>
> ***Goal REC-2:*** Safe, clean, accessible, efficiently run parks that complement the quality of life in Oakland.
>
> ***Goal REC-3:*** Recreational facilities which fully utilize human resources and promote personal growth, celebrate Oakland's cultural diversity, and serve all community equitably.

Discussion

a.i) As is the case currently, the Proposed Project site would be equipped with modern fire suppression technology, and the construction and operation of the Proposed Project would not be expected to increase the need for fire protection services. Therefore, there would be no need for changes to existing fire protection facilities or development of new facilities. The impact would be less than significant.

a.ii) The Proposed Project site is in a controlled access area of the Port and would not be expected to increase the need for police protection beyond the current level. Therefore, there would be no need for changes to existing police protection facilities or development of new facilities. The impact would be less than significant.

a.iii) Personnel required for construction of the Proposed Project would be expected to be provided by the local labor pool and operation of the Proposed Project would require minimal additional staffing. Therefore, the Proposed Project would not increase the local population, and as a result, there would not be a need for additional schools. No impact would occur.

a.iv) The Proposed Project would not include recreational facilities and would not modify any existing parks or recreation facilities. Construction workers are expected to come from the existing labor force in the area and would not increase demand for parks or recreational facilities. Similarly, operation of the Proposed Project is not expected to require new employees from outside the area that would result in increased use of neighborhood and regional parks or other recreational facilities. Therefore, the Proposed Project would not increase use of existing parks or recreational facilities, would not accelerate deterioration of existing parks and recreation facilities, and would not require the construction or expansion of recreational facilities. No impact would occur.

a.v) There are no other public facilities in the vicinity of the Proposed Project site or that provide services to the Proposed Project site. No impact would occur.

References

City of Oakland. 1996. City of Oakland General Plan Open Space, Conservation, and Recreation Element. Available: https://cao-94612.s3.us-west-2.amazonaws.com/documents/oak035254.pdf. Accessed February 3, 2025.

City of Oakland. 2023. City of Oakland Safety Element. Available: https://cao-94612.s3.us-west-2.amazonaws.com/documents/Safety-Element_Adopted-9.26.23_89907-C.M.S-1.pdf. Accessed February 3, 2025.

3.16 Transportation

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

Environmental Setting

The Proposed Project site would be located within the Outer Harbor portion of the Port, within an area that is currently comprised of wharf facilities for loading and unloading of containers from vessels moored alongside the wharves and for movement of trucks carrying those containers to other areas of the Port for storage or processing. The wharf features that make up the Proposed Project site have been in place for several decades and have been used for that purpose during that time. The Proposed Project site is served regionally by I-880, I-80/I-580, and I-980/State Route 24, and is served locally by Maritime Street and 7th Street. The direct local roadway access for the Proposed Project site is from Maritime Street or 7th Street via controlled-access roadways leading the terminals located along Berths 22 through 38. See Figure 2-3, in Chapter 2, *Project Description,* for an overview of the local roadway network in relation to the Proposed Project elements.

Local bus service in the City of Oakland and Alameda County is provided by the Alameda-Contra Costa Transit District. No existing transit services are in the Proposed Project site's immediate vicinity. Alameda County Transit provides bus service in Oakland. The nearest bus stop to the Proposed Project site is at 7th Street and Campbell Street on the 800 Line, approximately 1.2 miles to the east. BART provides high-frequency local and regional service; the West Oakland station is the closest to the Proposed Project site approximately 1.5 miles to the east. The Amtrak Capitol Corridor and San Joaquin routes serve the West Oakland area; the Jack London Square Station is the closest to the Proposed Project site, approximately three miles to the east.

There are multiple existing and proposed bikeway facilities within the Proposed Project site's vicinity, including an existing multi-use paths on the east side of Maritime Street and along 7th Street that are part of the San Francisco Bay Trail. The nearest bike-share station is at the West Oakland BART station. Because of the Proposed Project site's heavy industrial nature, pedestrian activity in the vicinity is low.

The existing roadway network provides emergency access in the Port. There are no emergency service facilities within 0.5 mile of the Proposed Project site. The nearest emergency services are described in Section 3.15, *Public Services and Recreation*.

Regulatory Setting

Federal

The Ports and Waterways Safety Act provides authority for the U.S. Coast Guard's program to increase vessel safety and protect the marine environment in ports, harbors, waterfront areas, and navigable waters. This includes authorizing the Vessel Traffic Service, controlling vessel movement, and establishing requirements for vessel operation.

The Code of Federal Regulations (CFR) includes the following regulations pertaining to transportation:

- Title 49 CFR 171–177 governs the transportation of hazardous materials, the types of materials defined as hazardous, and the marking of the transportation vehicles.
- Title 49 CFR 350-399 and Appendices A-G, Federal Motor Carrier Safety Regulations, address safety considerations for the transport of goods, materials, and substances over public highways.
- Title 49 CFR 397.9, the Hazardous Materials Transportation Act, directs the U.S. Department of Transportation to establish criteria and regulations for the safe transportation of hazardous materials.

State

In 2013, SB 743 was signed into law in California. SB 743 required the Governor's Office of Planning and Research (OPR) to identify new metrics for identifying and mitigating transportation impacts within CEQA. SB 743 effectively replaced level of service as a performance metric, moving the state to using a vehicle miles traveled (VMT) approach. The intent of SB 743 was to better align transportation impact analyses and mitigation outcomes with the state's goals to reduce GHG emissions, encourage infill development, and improve public health through the development of multimodal transportation networks. OPR produced the Technical Advisory on Evaluating Transportation Impacts in CEQA in December 2018 to provide guidance for assessing VMT, thresholds of significance, and mitigation measures (OPR 2018). According to the technical advisory, the VMT thresholds apply to residential, office, and retail projects; no thresholds were identified for industrial projects.

The California Department of Transportation has developed guidelines for VMT analysis. These documents include the Vehicle Miles Traveled–Focused Transportation Impact Study Guide (Caltrans, 2020a), Transportation Analysis Under CEQA (Caltrans, 2020b), and Transportation Analysis Framework Under CEQA (Caltrans, 2020c). Specifically, Section 5.3.3 of the Transportation Analysis Under CEQA states, "Generally, a qualitative analysis of VMT impacts associated from the construction of the proposed project would be appropriate… Vehicle trips used for construction purposes would be temporary, and any generated VMT would generally be minor and limited to construction equipment and personnel and would not result in long-term trip generation."

Regional

The Metropolitan Transportation Commission (MTC) and the Alameda County Transportation Commission (ACTC) jointly developed the San Francisco Bay Area Goods Movement Plan (MTC, 2016) and the Alameda Countywide Goods Movement Plan (ACTC, 2016), published in February 2016. The goals of the Goods Movements Plan include the following:

- Reduce and mitigate impacts from goods movement operations to create a healthy and clean environment, and support improved quality of life for people most impacted by goods movement.
- Provide safe, reliable, efficient, resilient, and well-maintained goods movement facilities and corridors.
- Promote innovative technology and policy strategies to improve the efficiency of the goods movement system.
- Preserve and strengthen an integrated and connected, multimodal goods movement system that supports freight mobility and access, and is coordinated with passenger transportation systems and local land use decisions.
- Increase jobs and economic opportunities that support residents and businesses.

In July 2017, MTC adopted Plan Bay Area 2040, Regional Transportation Plan and Sustainable Communities Strategy for the Bay Area, 2017-2040 (Plan Bay Area 2040) (MTC 2017). This plan provides a long-range regional transportation plan and Sustainable Communities Strategy for the nine-county Bay Area with an updated integrated transportation and land use plan. Plan Bay Area 2040 builds on earlier work to develop an efficient transportation network, provide more housing choices, and grow in a financially and environmentally responsible way.

In November 2020, ACTC adopted the 2020 Alameda Countywide Transportation Plan (CTP) (ACTC 2020). The 2020 CTP is a long-range policy document that establishes the vision for Alameda County's transportation system over a 30-year planning horizon. The 2020 CTP includes a New Mobility Roadmap which provides a foundation for agency policy, advocacy, and funding decisions to advance new mobility technologies and services for the ACTC and partner agencies, as well as the private sector.

Local

The City of Oakland and the Port adopted the West Oakland Truck Management Plan (TMP) (Port of Oakland and City of Oakland, 2019), an action-based plan designed to reduce the effects of haul trucks on local streets in West Oakland. Implementation of the TMP is underway to refine designated truck routes and update the City of Oakland's municipal code. In 2022, the City of Oakland approved an update to the City of Oakland's municipal code regarding truck parking restrictions in the West Oakland community (City of Oakland, 2022).

The City of Oakland General Plan contains policies relevant to transportation resources in the Land Use and Transportation Element (City of Oakland, 1998). The city's Bicycle Master Plan and Pedestrian Master Plan are also incorporated into the General Plan. The following policies pertain to truck routes:

> ***Policy T1.6: Designating Truck Routes.*** An adequate system of roads connecting port terminals, warehouses, freeways and regional arterials, and other important truck destinations should be designated. This system should rely on arterial streets away from residential neighborhoods.
>
> ***Policy T1.8: Re-Routing and Enforcing Truck Routes.*** The city should make efforts to re-route truck traffic away from neighborhoods, wherever possible, and enforce truck route controls.

Discussion

a) Construction of the Proposed Project would take place within the Outer Harbor area of the Port within controlled-access areas of the Port that are not publicly accessible and would not affect public right-of-way, including transit, roadway, bicycle, or pedestrian facilities. No long-term closures of travel lanes or roadway segments, permanent alteration of public access roadways, or creation of new public roadways would occur. Temporary construction staging areas to be used for construction worker parking, construction trailers, and staging and storing construction materials and equipment would be located within the Proposed Project site. Construction equipment and worker vehicles entering the Proposed Project site would not need to cross the existing multi-use path on the east side of Maritime Street.

The primary construction entrance to the Proposed Project site would be via controlled-access roadways leading from Maritime Street and 7th Street. from 14th Street. Traffic volumes on this segment of Maritime Street average 4,600 vehicles per day, compared to a daily capacity of 36,000 vehicles (Port of Oakland, 2023b). Both roadways are designed to provide ingress/egress into adjacent terminal areas by trucks hauling containers. Up to 21 daily construction worker trips, 20 daily vendor trips, and 7 daily haul trips are expected during peak periods of construction, with less than that during other periods. The number of construction vehicle trips would be small, compared to the existing traffic volumes and available capacity. The construction equipment would be similar to the heavy-duty trucks currently operating in the Port. Effects of construction traffic on the existing circulation system would be minimal.

Operation of the Proposed Project would not differ substantially from that which is currently occurring. That is, trucks carrying containers to and from the terminals would utilize Port roadways. Traffic volumes would be similar to the type and quantity of vehicle trips currently occurring at the Project site and in the Port generally.

Based on this assessment, construction activities and operations and maintenance effects of the Proposed Project on transportation would not cause substantive conflicts with programs, plans, ordinances, and policies regarding the circulation system, public transit, bicycle, or pedestrian facilities in the Port area. Therefore, any impact would be less than significant.

b) CEQA Guidelines Section 15064.3(b) provides guidance on determining the significance of transportation impacts based on VMT, pursuant to SB 743 as discussed in the regulatory setting discussion above. VMT analysis focuses on automobile and light-duty truck trips and excludes heavy truck trips.

Although quantification of VMT is not required by CEQA because of the nature of the Proposed Project, a qualitative discussion of VMT impacts is provided. Construction of the Proposed Project would result in a temporary increase in VMT during the multi-year construction period, with existing Port conditions, which include current Port operations-related vehicle trips on existing roadways. This temporary increase in VMT during construction would be a result of trips made by construction workers and transportation of construction material and equipment. Up to 21 daily construction worker trips, 20 daily vendor trips, and 7 daily haul trips are expected during peak periods of construction, with less than that during other periods. This increase in VMT would be temporary in nature and would be localized.

Once the Proposed Project is constructed and in operation, the temporary construction-related increase in VMT would no longer occur. Operation of the Proposed Project is not anticipated to result in long-term, permanent changes to the surrounding vehicle transportation system. As noted previously, the VMT thresholds do not apply to industrial projects. Therefore, construction and operation of the Proposed Project would not conflict or be inconsistent with Section 15064.3(b) of the CEQA Guidelines and would result in less than significant impacts related to VMT.

c) The Proposed Project would not include changes to existing roadways during construction, operations, or maintenance. Construction of the Proposed Project would take place within an area currently used for crane operations and truck transport to/from the wharf area. The Proposed Project would not temporarily or permanently alter any roadways that would result in a design feature that could substantially increase hazards. The Proposed Project site would not change Port roadways, compared to current operations. Therefore, any impacts of the Proposed Project related to increased hazards as a result of design features or incompatible uses would be minimal, and less than significant.

d) The Proposed Project would not temporarily or permanently alter any roadways or create any traffic conditions that would permanently impede emergency access. No closures of roadways or lanes would be required during construction or operation. The existing roadway network would continue to provide emergency access in the Port. As discussed above, construction would add a temporary and negligible amount of vehicle traffic to existing roadways. Therefore, the Proposed Project would result in less than significant impacts related to emergency access.

References

Alameda County Transportation Commission (ACTC). 2016. Alameda County Goods Movement Plan. Available online at: www.alamedactc.org/wp-content/uploads/2018/11/AlamedaCTC_GoodsMovementPlan_FINAL.pdf. Accessed February 6, 2025.

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3.17 Tribal Cultural Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XVIII. TRIBAL CULTURAL RESOURCES —				
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources. Code Section 5020.1(k), or	☐	☐	☒	☐
ii) 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.	☐	☐	☒	☐

Environmental Setting

ESA contacted the California State Native American Heritage Commission (NAHC) on January 15, 2025, to request a search of the NAHC’s Sacred Lands File and a list of Native American representatives who may have knowledge of tribal cultural resources in the Proposed Project site. The NAHC replied to ESA by email on January 22, 2025, with the statement that the Sacred Lands File has a record of sacred sites within the Project site and to contract the Amah Mutsun Tribal Band of Mission San Juan Bautista and the Northern Valley Yokut/Ohlone Tribe. The NAHC response also included a list of 21 Native American representatives from nine tribal groups who may have knowledge of tribal cultural resources in the Proposed Project site.

On January 16, 2025, the Port sent letters via certified mail to the tribal representatives on the NAHC list . The letters included a description of the Proposed Project, a figure showing the Project location, and a request to consult on the Project. Two NAHC-listed tribes have requested consultation: Confederated Villages of Lisjan and Costanoan Rumsen Carmel Tribe. Consultation is ongoing. See Appendix D, which includes correspondence with NAHC and tribal consultation letters.

See Section 3.5, *Cultural Resources* for a summary of the NWIC records search and archaeological resources sensitivity assessment.

Regulatory Setting

Federal

There are no federal regulations related specifically to tribal cultural resources. For a discussion of applicable federal regulations related to archaeological resources, see Section 3.5, *Cultural Resources*.

State

In 2014, the California Legislature enacted Assembly Bill (AB) 52, which added provisions to the Public Resources Code regarding the evaluation of impacts on tribal cultural resources under CEQA, and requirements to consult with California Native American tribes. In particular, AB 52 requires lead agencies to analyze project impacts on tribal cultural resources separately from archaeological resources (PRC Sections 21074 and 21083.09). AB 52 defines "tribal cultural resources" in PRC Section 21074 and requires lead agencies to engage in additional consultation procedures with respect to California Native American tribes (PRC Sections 21080.3.1, 21080.3.2, and 21082.3).

A *tribal cultural resource* is defined in PRC Section 21074 as either a site, feature, place, or 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:

1. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k); or
2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in PRC Section 5024.1(c). In applying the criteria set forth in PRC Section 5024.1(c), the lead agency shall consider the significance of the resource to a California Native American tribe.

Local

There are no local regulations related specifically to tribal cultural resources. For a discussion of applicable General Plan Policies related to archaeological resources, see Section 3.5, *Cultural Resources*.

Discussion

a.i/ii) CEQA requires the lead agency to consider the effects of a project on tribal cultural resources. As defined in PRC Section 21074, tribal cultural resources are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are listed, or determined to be eligible for listing, on the national, state, or local register of historical resources.

Based on the NWIC records search, there are no known archaeological resources that could also be considered tribal cultural resources listed or determined eligible for listing in the California Register of Historical Resources, or included in a local register of historical resources as defined in PRC Section 5020.1(k), pursuant to PRC Section 21074(a)(1), that would be impacted by the Project. To date, no tribal cultural resources have been identified by Native American representatives. In addition, the Port did not determine any resource that could potentially be affected by the Project to be a significant tribal cultural resource pursuant to criteria set forth in PRC Section 5024.1(c).

In the unlikely event that archaeological resources that are also considered tribal cultural resources are uncovered during Project ground disturbance, the Proposed Project would follow the requirements detailed in the Port's Emergency Plan of Action for Discoveries of Unknown Historic or Archaeological Resources (see Section 2.5.6.1 in Chapter 2). With implementation of these requirements, impacts to tribal cultural resources would be considered less than significant.

References

Native American Heritage Commission, Sacred Lands File search. January 2025.

3.18 Utilities and Service Systems

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

Environmental Setting

Utilities and service systems supporting the Project site include the following:

- Electricity is supplied by the Port's municipal utility.
- Potable water is supplied by the East Bay Municipal Utility District through Port-provided water infrastructure.
- Sewage (wastewater) is collected in Port sewer infrastructure and is treated by the East Bay Municipal Utility District.
- The Port and its industry partners, where applicable, are responsible for the operation and maintenance of the local stormwater drainage system.
- Municipal solid waste in the City of Oakland is collected by Waste Management of Alameda County, typically transported to the Waste Management Davis Street Transfer Station in the City of San Leandro, and then disposed in the Altamont Landfill and Resource Facility near the City of Livermore or Keller Canyon Landfill in Contra Costa County.

Existing utility infrastructure on the Proposed Project site includes lighting, fire hydrants, and the existing SS-C-48 substation. Underground electrical, fire water pipelines, and storm drain lines are present at the Proposed Project site.

Regulatory Setting

No federal or State laws or regulations pertaining to this issue area were identified.

Local

The City of Oakland General Plan Open Space, Conservation, and Recreation Element (City of Oakland 1996) contains the following goals relevant to utilities and services systems:

> ***Policy CO-4.1:*** Emphasize water conservation and recycling strategies in efforts to meet future demand.
>
> ***Policy CO-4.3:*** Promote the use of reclaimed wastewater for irrigating landscape medians, cemeteries, parks, golf courses, and other areas requiring large volumes of non-potable water.
>
> ***Policy CO-13.3:*** Encourage the use of energy-efficient construction and building materials. Encourage site plans for new development which maximize energy efficiency.

The City of Oakland Zero Waste Strategic Plan, developed in 2006 to reduce waste disposal, includes mandatory recycling of construction and demolition debris. On January 15, 2015, the Port adopted a stormwater ordinance and associated guidelines to comply with the provisions of the State Water Control Board's Phase II Permit. The purpose of the Ordinance is to protect and enhance the water quality of San Francisco Bay and its tributaries by reducing pollutants in stormwater discharge to the maximum extent practicable and eliminating unauthorized non-stormwater discharges to the Port's storm drains (Port of Oakland, 2015).

Discussion

a) The Proposed Project would include construction to upgrade electric power facilities to support Proposed Project operations. These facilities are incorporated into the project description for the Proposed Project and impacts of the construction and operation of these upgrades are included in this IS/MND. As discussed throughout the IS/MND, no significant impacts would occur as a result of the Proposed Project. The impact would be less than significant.

b, c) The Proposed Project would not require water to serve the Proposed Project site other than for emergency use, consistent with current site use. Water usage for the Proposed Project is not expected to increase over current usage, and the Proposed Project would not require new or expanded entitlements to the water supply. No additional demands on fire suppression water are anticipated. Minimal amounts of wastewater generated during construction from use of portable toilets would be transported to the East Bay Municipal Utility District wastewater treatment plant for treatment and disposal. During operations, the Proposed Project would not generate wastewater and would not affect the capacity of the existing wastewater treatment system. No impact would occur.

d, e) Solid waste generated from construction would consist of a small amount of construction debris and recyclable material. The majority of the construction debris would be taken to an offsite recycler or a Port-approved landfill. All removed aggregate base material is anticipated to be stockpiled and reused onsite. Excavated soil from trenching for utilities would be reused to fill the trenches. During operations, solid waste generation would be limited to small quantities of debris and wastes generated by onsite operations and maintenance activities. Landfills that would provide non-hazardous disposal have sufficient capacity; for example, Keller Canyon Landfill has remaining disposal capacity of approximately 60,000,000 cubic yards, sufficient for the small amount of waste expected to be generated by the Proposed Project. The impact would be less than significant.

References

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3.19 Wildfire

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

Environmental Setting

The Proposed Project is located in a developed industrial area. CALFIRE identifies fire hazards based on factors such as fuels, terrain, and weather. The Proposed Project site is not located within a designated State Responsibility Area or an area designated as a fire hazard severity zone (CALFIRE, 2023). The Proposed Project site is located within a Local Responsibility Area Non-Very High Fire Hazard Severity Zone (CALFIRE 2008). No vegetation or wildfire fuels are present on or around the Proposed Project site.

Regulatory Setting

There are no federal laws or regulations pertaining to this issue area that are relevant to the Proposed Project. The following State laws, local goals, policies, and regulations are applicable to this issue area

State

California Code of Regulations (CCR) Title 24 (“California Building Standards Code”) sets forth the fire, life-safety, and other building-related regulations applicable to any structure fit for occupancy statewide for which a building permit is sought. The 2022 triennial edition of Title 24 contains 11 parts, including the following (with brief descriptions):

- Part 2, CBC: general standards for the design and construction of buildings, including provisions related to fire, life safety, and structural safety.
- Part 3, California Electrical Code: electrical building standards.
- Part 9, California Fire Code (CFC): building standards related to fire safety that are referenced in other parts of Title 24. Topics addressed in the code include automatic sprinkler systems, fire alarm systems, access by firefighting equipment, fire hydrants, explosion-hazards safety, hazardous-materials storage and use, protection for first responders, industrial processes, and many other general

and specialized fire-safety requirements for new and existing buildings and premises. The CFC is based on the Uniform Fire Code (UFC), a “model” code adopted through national-level consensus, and which does not carry the weight of law (unlike the CFC). The CFC incorporates by reference the text of the latest published UFC, and reflects additions and deletions made to the UFC by the state.

Local

The City of Oakland General Plan Safety Element includes the following policies relevant to wildfire risk in the City (City of Oakland 2023):

> ***Policy SAF-2.1:*** Continue, enhance, or implement programs that seek to reduce the risk of structural fires. Prioritize programs in areas with greatest risk and greatest social vulnerability.
>
> ***Policy SAF-2.2:*** Manage vegetation and the urban forest to reduce combustible load, erosion, and other risks exacerbated by climate change.
>
> ***Policy SAF-2.3:*** Prioritize development in areas with existing adequate road networks, evacuation routes, and water infrastructure. Require any new development in the Very High Fire Hazard Severity Zone to prepare a Fire Protection Plan that minimizes risks.

Discussion

a) The Proposed Project site, as well as areas adjacent to the Proposed Project site, is located within a Local Responsibility Area Non-Very High Fire Hazard Severity Zone. The Proposed Project would not substantially impair an adopted emergency response plan or emergency evacuation plan. Emergency response times are not anticipated to change during construction. In addition, the Proposed Project would not conflict with any other emergency response or evacuation plan. Therefore, no impact would occur.

b) The Proposed Project site is located in a developed industrial area that is not subject to high wildfire risk. No vegetation or wildfire fuels are present on or around the Proposed Project site. Therefore, the Proposed Project would not exacerbate wildfire risks that could expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire. No impact would occur.

c) The Proposed Project site is not located in area of high wildland fire risk. No vegetation or wildfire fuels are present on or around the Proposed Project site. As such, no roads, fuel breaks, or other infrastructure related to wildfire containment would be required. Accordingly, there would be no impact from the installation of such features.

d) The Proposed Project site is located in a developed industrial area that is not subject to high wildfire risk. Following construction, the Proposed Project site would not exacerbate wildfire risks or expose people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes. The Proposed Project does not involve the occupation of habitable structures. No impact would occur.

References

CALFIRE. 2023. State Responsibility Area Fire Hazard Severity Zones, Alameda County. Available: https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones/fire-hazard-severity-zones-maps-2022. Accessed February 3, 2025.

City of Oakland. 2023. Oakland 2045 General Plan Safety Element. Available: https://cao-94612.s3.us-west-2.amazonaws.com/documents/Safety-Element_Adopted-9.26.23_89907-C.M.S-1.pdf. Accessed February 3, 2025.

3.20 Mandatory Findings of Significance

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

Discussion

a) The Proposed Project site is located in an industrialized setting within the Outer Harbor portion of the Port and within areas that are actively used as marine terminals. The Proposed Project site is currently used for crane operations and the movement and storage of containers. As described in Section 3.4, *Biological Resources,* and Section 3.5, *Cultural Resources,* of this document, construction and operation of the Proposed Project would not result in significant impacts to biological or cultural resources.

Construction of the Proposed Project would replace existing infrastructure with modernized infrastructure in a manner that would not differ substantially from what is currently present. Operation and maintenance of the Proposed Project would entail activities similar to existing Port operations, including movement of containers by cranes and trucks and other cargo-handling equipment. Therefore, the Proposed Project would not change the use of the area in a way that could substantially degrade the quality of the environment from existing conditions. Construction of specific elements of the Proposed Project would occur in aquatic habitats for special-status marine organisms, but the impacts derived during temporary construction activities would be effectively mitigated by implementation of BMPs, minimization and avoidance measures, permit requirements, and mitigation measures addressing impacts on aquatic resources (Mitigation Measures BIO-1 through BIO-6). There are also no known cultural resources present, and mitigations and BMPs would avoid impacts to any unknown resources in the unlikely event that they are discovered during construction. Therefore, the Proposed Project would not 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 a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. the Project's impact would be less than significant.

b) As discussed in Sections 3.1 through 3.19 of this document, most impacts from the Proposed Project would occur primarily during construction. These impacts would be temporary, short-term, and less than significant (some with the implementation of mitigation measures). Cumulative impacts could result if the incremental environmental effects of past, present, and/or approved reasonably foreseeable projects combine to form a new combined cumulative impact. There are several projects in the Port Area or nearby that could potentially combine effects with the Proposed Project because of relative location and planned operations and/or construction schedules. The following are notable because they are located closest to or overlap the Proposed Project:

- *Oakland Harbor Turning Basins Widening Project*, which proposes to widen the Outer Harbor Turning Basin near Berths 26 through 30 (adjacent to part of the Proposed Project area), and to widen the Inner Harbor Turning Basin in the Inner Channel, near the Howard Terminal property (approximately one-half mile from the Proposed Project area.) The Port has published a 2023 Draft EIR.
- *Port Infrastructure Development Program (PIDP FY22) Berth 24 Backlands Development*, which proposes 25 acres of repaving, installation of at least 192 plugs for refrigerated containers, upgrading existing power lines from the Port's main substation to the existing substation in the Berth 24 backlands, and adding a battery energy storage system and electric vehicle chargers**,** located adjacent to the Proposed Project area. The Port approved the project in February 2025.
- *Leveling Project at Berth 34 Area*, which proposes to make level and re-pave two adjacent areas in the Ben E. Nutter yard which are currently non-contiguous due to an abrupt 4-foot grade change and remove a dirt mound (total area approximately 15 acres)**,** located adjacent to the Proposed Project site.
- *Eagle Rock Aggregates at Outer Harbor Berths 20 and 21 Project*, which proposed to construct and operate a marine terminal for bulk construction aggregates located on approximately 18 acres at the northern end of the Proposed Project site. Status: *2023 EIR is certified and the project is approved and in pre-construction.*

All projects in the Port would be consistent with and in support of the Port's maritime operations and would be required to implement the same or similar BMPs as described in Chapter 2, *Project Description,* of this document. Although not an exhaustive list, BMPs include preparation of specific control and management plans relevant to construction (and post-construction) activities, such as a SWPPP, a Dust Control Plan, or a Spill Prevention Plan, for example. Additional BMPs described in Chapter 2 apply to construction-related effects affecting specific resource areas, including but not limited to aesthetics, air quality, cultural resources, GHG emissions, hazards/hazardous materials, hydrology/water quality, in-water and over-water work, and pile driving (addressing noise, vibration, biological resources). Beyond the BMPs and other regulatory requirements that apply to all Port projects, environmental analyses conducted for other Port projects may have identified mitigation measures required to reduce potentially significant or significant project-level and/or cumulative impacts. to less-than-significant levels.

The analysis for the Proposed Project in this document identifies mitigation measures (BIO-1 through BIO-4, and BIO-6 and BIO-7) to reduce potentially significant impacts to aquatic resources in particular to less than significant. Considering the effectiveness of those mitigation measures, combined with the long-established regulatory requirements and BMPs that pertain to activities in and around/over the water (and to which all Port projects will adhere, as applicable), the incremental effect of the Proposed Project regarding aquatic resource would not be cumulatively considerable.

No other potentially significant construction-related impacts are identified for the Proposed Project in this document. Considering its less-than-significant impacts combined with other Port projects' impacts to resource topics pertinent to overall construction activities, the Proposed Project would not combine with other Port projects for significant cumulative effects. Specifically, the geographic distance between other Port projects and the Proposed Project site would limit combined effects of construction-period lighting, discovery of unknown cultural resources, noise, and addressing hazardous site conditions. Potential effects to air quality, water, and aquatic resources related to construction could potentially combine for cumulative impacts, however the established regulations and BMPs described above for these resources effectively reduce individual and combined effects. It is reasonable to determine that the Proposed Project's less-than-significant incremental effects on these resources also would not be cumulatively considerable.

Overall, the Proposed Project would not have impacts that are individually limited but cumulatively considerable.

c) As indicated throughout Sections 3.1 through 3.19 of this document, the Proposed Project would not result in substantial environmental impacts during construction and operations. After incorporation of mitigation measures and BMPs, impacts would be less than significant. The Proposed Project would not result in environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly.

References

None.

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CHAPTER 4
List of Preparers

The Port's Environmental Programs and Planning staff, with the assistance of Environmental Science Associates (ESA), prepared this Draft IS/MND. The analysis in this Draft IS/MND is based on information identified, acquired, reviewed, and synthesized based on the Port's guidance and recommendations. The primary people responsible for contributing to, preparing, and reviewing this report are listed below.

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Appendix A
Port of Oakland Emergency Plan of Action

PORT OF OAKLAND

Emergency Plan of Action

For Discoveries of Unknown Historic or Archaeological Resources

The construction crew plays a vital role in the cultural resources monitoring process and should always be alert for these resources. More often than not, heavy equipment operators make the first discoveries of cultural finds, so it is extremely important that those involved in such activities be aware of the proper procedures to follow in the event of discovery.

When operating in the field, crewmembers should always keep an eye open for historic and archaeological resources. It is also important to remember that cultural resources of importance might be present in imported fill and dump deposits. Therefore, vigilance should occur during all operations, in both fill and undisturbed deposits.

During all excavations, crews should be especially alert for cultural resources anytime they observe the following conditions:

1. Soil and deposit changes, such as color or type. A soil color change can indicate the presence of an historic trash dump, remnants of submerged or buried wooden structures, remnants of a shipwreck, cargo lost off the loading docks, or debris thrown overboard from a moored ship. Although it is unlikely, soil color changes might also indicate Native American remains such as living surfaces or hearths.
2. Presence of charcoal particles in soil. Charcoal, as larger chucks, small flecks, or in thick, black horizontal deposits, might indicate the presence of burned ships, burned cargo, or even dock fires. Remnants from these activities might relate to local events important to Bay Area history.
3. Any buried objects or structures.

Given the geological history of the area, many of the above indicators will more than likely be associated with natural phenomena such as siltation, marsh and mud deposits, and various other typical coastal marine/submarine features. Merritt Sands overlain by Young Bay Muds, both of which are undisturbed, dominate the stratigraphy. In many excavation and dredging areas, these naturally occurring layers have been capped by artificial fill, consisting of hydraulically placed marine materials, and terrestrial materials (sand, gravel). The point is simply to be aware of the potential if the above conditions are noted. More often that not, a brief but thorough 30 second visual inspection will clarify whether cultural resources are present in any given excavated deposit.

Which Cultural Resources are Important?
The significance of unknown archaeological and historical finds cannot usually be determined until the materials have actually been uncovered. Generally, all cultural materials must be considered significant until assessed otherwise. However, the crew can follow some basic guidelines to establish the level of attention and response required for detected cultural materials.

1. A cluster, cache, or deposit (i.e., lens) of materials should be considered historically or archaeologically important by the crew until it has been assessed otherwise. During dredging and excavation operations, these might appear as large concentrations of bottles, tools, plates, or a mixture of these and various unidentifiable finds. Likewise, any submerged or buried structure, or part of a structure, should be considered important until assessed otherwise. These might include vessels, parts of vessels, pier or piling structural fragments, or various other features. All artifacts will be considered property of the Port of Oakland, unless determined or agreed otherwise, and must always be handed over to Port authorities.
2. Normally, both Federal and State evaluation criteria do not consider isolate finds significant. However, isolates can contribute to the overall understanding and appreciation of history and prehistory. Their location should be noted and isolates should be put aside until the appropriate specialist can properly examine them. Isolates can be recognized either as lone finds, or between one (1) and three (3) finds, that have been detected at least 50 meters from any other archaeological or historical finds. All isolates will be considered property of the Port of Oakland, unless determined or agreed otherwise, and must always be handed over to Port authorities.

If cultural resources are discovered, a crewmember or contractor supervisor should note the find spot. This will be vital if a position needs to be relocated for general documentation or, later, the crew needs to be made aware of cultural resource sensitivities in a specific project area.

General Emergency Reporting Procedures
In the event that the contractor's operations expose or detect any of the structural remnants or artifacts noted above, the contractor shall recover and secure, as best as possible, the materials. The contractor shall report the finds immediately to the Project Construction Manager and the Port. The Port will determine the disposition in accordance with prescribed regulations. All cultural remains discovered shall remain the property of the Port, and will not become the property of the person(s) making or reporting the discovery.

When significant archaeological materials, such as those previously noted, are encountered during the operations, the contractor shall immediately suspend all construction activities with 50 yards of that location and notify the Port. Work shall not resume in that location until an approval by appropriate authorities has been given to continue. Construction activities may be moved to another location to avoid loss of work time. If the Port believes that such resources require scientific investigation, the contractor shall allow five (5) calendar days for completion of the archaeological investigation. The scientific excavation, analysis and reporting of the results shall be conducted after the archaeological investigation, but not more than 180 days from the date of discovery.

Emergency Procedures for the Work Crew

In the event that cultural resources are uncovered during dredging and excavation, crew and equipment operators must adhere to the procedures outlined below. The following measures apply when non-isolate finds are detected:

1. Dredging and excavation work, or any other activities at the locations and within 50 yards of the finds must halt.
2. The crew member(s) should immediately notify the Project Construction Manager and the Port Project Environmental Coordinator.
3. In the event that the Project Construction Manager is not available, the Port Project Environmental Coordinator and/or the Port Cultural Resources Specialist should be contacted directly.
4. Work can be shifted to other project areas to avoid loss of work time. However, work should only resume in the suspected area once the situation has been properly examined and assessed, and the Port has given notification that work may resume.

If there is ever any doubt or confusion upon discovery of cultural materials, or in the event that no Port representatives can be located, the contractor supervisor and crew should temporarily halt work until the proper personnel can be notified and the situation clarified.

Emergency Plan of Action Scenarios

The table below presents two Plan of Action scenarios for the crew once cultural resources have been discovered. This provides quick Plan of Action reference, although the crew should be aware that unexpected scenarios might arise. If there us uncertainty about a discovery, consult with the proper project personnel before continuing work in the area.

FINDS	IMMEDIATE ACTION	REQUIRED ACTION
Isolates (a bottle or two, a tool, fragments of a plate, etc.)	Set find(s) safely aside Continue working	Notify Port Project Inspector at the most convenient time (e.g., coffee break, lunch break) and turn over the find for examination.
Cache of bottles, plates, metal work, structural remains, shipwreck, etc. Human remains	STOP ALL WORK WITHIN 50 YARDS	Follow the outlined procedures. Do not resume work until the finds have been properly assessed, and Port has given go-ahead to resume.

Human Remains

Human remains discovered on non-Federal lands, even if the project is under Federal (lead agency) jurisdiction, must apply with the State procedures outlined below. If the human remains are on Federal lands, then the NAGPRA protocols must be followed. Although discovery of human remains is not considered a likely possibility, there are a few points to bear in mind if they are detected:

1. The contractor shall immediately notify the Port upon the initial discovery of human remains. At this point, the County Coroner will be contacted for an escorted site visit.
2. Human skeletal remains must never be handled or removed from their initial discovery location until an archaeologist is present to direct the treatment of such remains.
3. If human remains are only noticed once a dredge, or similar operation, has re-deposited the materials, then the materials should be left alone, along with the entire associated deposit, until the County Coroner arrives for assessment of the remains.
4. Human remains should never be "temporarily" moved by the contractor to another location, including assumed "safe storage" locations, until the appropriate authoritative person(s) have examined the remains and approved these activities.
5. During any recovery and treatment, human remains shall be handled by the archaeologist with due care and respect, and protected from inadvertent damage.
6. The Port, after consultation with the appropriate officials, shall ensure the ultimate disposition of any human remains.

When directed by the Port, the contractor shall cooperate in salvage activities to the fullest extent possible through the use of available personnel and/or equipment for limited removal of overburden, physical removal of large objects, transportation of Port staff and equipment, and protection of the discovered items. Should the discovery site require archaeological or related studies resulting in delays and/or additional work, the Port will coordinate with the contractor as appropriate.

Appendix B

Air Quality, GHG, and Energy Support Files

B-1 Emissions Summary, Energy Calculations, and Marine / Diesel Impact Hammer Calculations

Port of Oakland

Terminal Modernization Segment 1 IS/MND
Air Quality, GHG, and Energy Calculations

Prepared by: **Environmental Science Associates**
February 2025

Sheet 1	Emissions Summary
Sheet 2	Construction Petroleum Fuel Calculations
Sheet 3	CalEEMod Conversions
Sheet 4	Detailed Emission Calculation Details for Marine Equipment and Diesel Impact Hammer
Sheet 5	Marine Vessel Emission Factors & Equipment Detail
Sheet 6	Diesel Impact Hammer Emission Factors & Equipment Detail
Sheet 7	CARB OFFROAD2021 Raw Output

Table 1. Total Mass Emissions By Estimation Source

Emission Est Source	Year	ROG	NOx	CO	PM10	PM2.5	CO2	CH4	N2O	Fuel Consumption (gal)
		Pounds of Pollutants (Mass Emissions)								
CalEEMod (B24-26; CGCR +PANZ + EUI)	2026	49.0	427.2	608.6	12.1	11.0	107,194.0	4.4	3.8	N/A
CalEEMod (B24-26; CGCR +PANZ + EUI)	2027	460.0	3,790.8	4,926.0	137.8	126.7	1,182,973.3	45.9	21.4	N/A
CalEEMod (B24-26; CGCR +PANZ + EUI)	2028	210.8	1,728.2	2,240.6	60.2	55.4	538,017.4	21.1	7.7	N/A
Marine + DIH (B24-26; CGCR +PANZ + EUI)	2027	88.6	1,318.0	1,161.8	192.8	185.8	293,157.2	7.5	6.9	13,160.5
CalEEMod (B22+23; CGCR + PANZ + EUI)	2028	64.9	557.3	811.1	18.0	16.5	187,753.5	7.4	6.5	N/A
CalEEMod (B22+23; CGCR + PANZ + EUI)	2029	376.0	3,043.8	4,286.8	99.9	91.6	1,007,023.4	39.2	17.0	N/A
Marine + DIH (B22+23; CGCR + PANZ + EUI)	2028	39.4	696.3	492.2	115.4	111.5	140,436.6	3.1	3.9	6,339.7
CalEEMod (B24+30; Curved CGCR)	2030	130.0	1,103.9	1,728.3	29.2	26.8	343,022.2	13.3	3.7	N/A
Marine + DIH (B24+30; Curved CGCR)	2030	12.0	277.9	135.9	53.1	51.4	48,713.5	0.8	1.7	2,221.7
CalEEMod (B&F + PINS + STOPS)	2030	349.7	2,757.2	3,762.8	99.1	91.2	981,220.5	38.3	12.2	N/A
CalEEMod (B&F + PINS + STOPS)	2031	341.2	2,630.9	3,726.6	94.5	87.0	979,222.5	37.9	12.1	N/A
CalEEMod (B&F + PINS + STOPS)	2032	331.3	2,511.8	3,684.9	85.7	78.9	979,899.7	38.0	12.0	N/A
CalEEMod (B34; Floating Dock)	2033	46.1	352.1	555.8	4.8	4.4	100,572.3	3.5	2.2	N/A
Marine + DIH (B34; Floating Dock)	2033	14.1	428.4	79.8	91.7	89.0	62,134.2	0.2	3.0	2,821.7
Year 2026 Total		***49.0***	***427.2***	***608.6***	***12.1***	***11.0***	***107,194.0***	***4.4***	***3.8***	***0.0***
Year 2027 Total		***548.6***	***5,108.8***	***6,087.8***	***330.6***	***312.5***	***1,476,130.5***	***53.4***	***28.3***	***13,160.5***
Year 2028 Total		***315.0***	***2,981.9***	***3,543.9***	***193.6***	***183.4***	***866,207.5***	***31.5***	***18.2***	***6,339.7***
Year 2029 Total		***376.0***	***3,043.8***	***4,286.8***	***99.9***	***91.6***	***1,007,023.4***	***39.2***	***17.0***	***0.0***
Year 2030 Total		***491.7***	***4,139.0***	***5,626.9***	***181.4***	***169.4***	***1,372,956.2***	***52.4***	***17.6***	***2,221.7***
Year 2031 Total		***341.2***	***2,630.9***	***3,726.6***	***94.5***	***87.0***	***979,222.5***	***37.9***	***12.1***	***0.0***
Year 2032 Total		***331.3***	***2,511.8***	***3,684.9***	***85.7***	***78.9***	***979,899.7***	***38.0***	***12.0***	***0.0***
Year 2033 Total		***60.2***	***780.5***	***635.6***	***96.5***	***93.4***	***162,706.5***	***3.7***	***5.2***	***2,821.7***

Note: Fuel consumption from CalEEMod estimated seperately; see Sheet 2.

Table 2. Days of Construction per Calendar Year

Year	Number of Days
2026	91
2027 - 2032	365
2023	274

Table 3. Construction Criteria Air Pollutants - Average Daily Emissions

Year	Average Daily Emissions (lbs / day)				
	ROG	NOx	CO	PM10	PM2.5
2026	0.5	4.7	6.7	0.1	0.1
2027	1.5	14.0	16.7	0.9	0.9
2028	0.9	8.2	9.7	0.5	0.5
2029	1.0	8.3	11.7	0.3	0.3
2030	1.3	11.3	15.4	0.5	0.5
2031	0.9	7.2	10.2	0.3	0.2
2032	0.9	6.9	10.1	0.2	0.2
2033	0.2	2.9	2.3	0.4	0.3
Threshold of Significance	***54***	***54***	***N/A***	***82***	***54***
Threshold Exceeded?	***No***	***No***	***No***	***No***	***No***

Table 4. Construction GHG Emissions - Annual Emissions

Year	Metric Tons / YR			
	CO2	CH4	N2O	CO2e
2026	48.6	0.0	0.0	49.2
2027	669.6	0.0	0.0	674.0
2028	392.9	0.0	0.0	395.7
2029	456.8	0.0	0.0	459.5
2030	622.8	0.0	0.0	625.7
2031	444.2	0.0	0.0	446.2
2032	444.5	0.0	0.0	446.5
2033	73.8	0.0	0.0	74.5
Total	3153.1	0.1	0.1	3171.5
Amortized	105.1	0.0	0.0	105.7

Table 1. Energy Calcualtions - Construction

Source	MTCO2									
	P1. B24-26 (CGRC+PANZ+EUI)			P2. B22-23 (CGRC+PANZ+ EUI)		P3a. (B&F + PINS + STOPS)			P3b. B26+30 (CGRC Rail)	P4- B34 (floating dock)
	2026	2027	2028	2028	2029	2030	2031	2032	2030	2033
Total GHG from Diesel Use	43.2	468.7	226.2	76.4	418.5	407.0	406.6	407.4	142.2	33.1
Total GHG from Gasoline Use	5.4	61.0	17.9	8.7	38.3	38.1	37.5	37.1	13.4	12.6
Onsite GHG from Diesel Use	*35.4*	*452.9*	*219.6*	*62.7*	*400.4*	*394.0*	*394.1*	*395.1*	*139.2*	*28.8*
Onroad GHG from Diesel Use	*7.8*	*15.8*	*6.6*	*13.7*	*18.1*	*13.0*	*12.6*	*12.2*	*3.0*	*4.2*

Table 2. Conversion Rates

Metric for Calculation	Value		Rate
CO2 from diesel fuel combustion*	10.21		kg of CO2/gallon of diesel
CO2 from gasoline fuel combustion*	8.78		kg of CO2/gallon of gasoline
General Conversion	1000		kg per MT

*Emissions factors per The Climate Registry 2024 Default Emission Factors (Table 2.1 - US Default Factors for Calculating CO2 Emissions from Combustion of Transport Fuels)

Table 3. Fuel Consumption by Phase

Fuel / Location	Fuel Use (gal)									
	P1- B24-26 (CGRC+EUI)			P2- B22-23 (CGRC+EUI)		P3a. (B&F + PINS + STOPS)			P3b. B26+30 (CGRC Rail)	P4- B34 (floating dock)
	2026		2027	2028	2029	2030	2031	2032	2030	2033
Onsite Diesel	3,471	44,358	21,508	6,143	39,212	38,594	38,595	38,700	13,635	2,822
Offsite Diesel	760	1,546	645	1,344	1,777	1,270	1,232	1,199	289	416
Marine Diesel		13,160		6,340					2,222	2,822
Total Diesel	**4,230**	**59,064**	**22,153**	**13,826**	**40,990**	**39,864**	**39,827**	**39,899**	**16,146**	**6,060**
Total Gasoline	**618**	**6,943**	**2,034**	**994**	**4,359**	**4,335**	**4,275**	**4,226**	**1,529**	**1,430**

Table 1. CalEEMod Emissions (Short Tons)

Emission Estimation Source	Year	Short Tons of Pollutants (Mass Emissions)								
		ROG	NOx	CO	PM10	PM2.5	CO2	CH4	N2O	MTCO2e
CalEEMod (B24-26; CGCR +PANZ + EUI)	2026	0.02451	0.2136	0.3043	0.00605	0.00552	48.6225	0.00197	0.00173	49.20434
CalEEMod (B24-26; CGCR +PANZ + EUI)	2027	0.22999	1.89541	2.46302	0.06889	0.06336	536.588	0.0208	0.00973	540.126
CalEEMod (B24-26; CGCR +PANZ + EUI)	2028	0.1054	0.86412	1.12032	0.0301	0.0277	244.041	0.00955	0.00351	245.3593
CalEEMod (B22+23; CGCR + PANZ + EUI)	2028	0.03244	0.27864	0.40555	0.009	0.00825	85.1637	0.00334	0.00297	86.15778
CalEEMod (B22+23; CGCR + PANZ + EUI)	2029	0.188	1.52188	2.14341	0.04993	0.04581	456.779	0.01776	0.00771	459.5853
CalEEMod (B24+30; Curved CGCR)	2030	0.06499	0.55197	0.86413	0.01459	0.01342	155.592	0.00605	0.0017	156.2683
CalEEMod (B&F + PINS + STOPS)	2030	0.17487	1.37862	1.88139	0.04956	0.0456	445.075	0.01736	0.00554	447.2153
CalEEMod (B&F + PINS + STOPS)	2031	0.17061	1.31544	1.86328	0.04726	0.0435	444.168	0.0172	0.00549	446.283
CalEEMod (B&F + PINS + STOPS)	2032	0.16566	1.25588	1.84245	0.04287	0.03946	444.476	0.01723	0.00546	446.5759
CalEEMod (B34; Floating Dock)	2033	0.02306	0.17603	0.27789	0.0024	0.00221	45.6189	0.00157	0.00098	45.9625

Note: Criteria air pollutant emissions in short-tons, GHG emissions in Metric Tons.

Table 2. CalEEMod Emissions (Pounds)

Emission Estimation Source	Year	Pounds of Pollutants (Mass Emissions)								
		ROG	NOx	CO	PM10	PM2.5	CO2	CH4	N2O	MTCO2e
CalEEMod (B24-26; CGCR +PANZ + EUI)	2026	49.0171	427.208	608.602	12.0962	11.0452	107194	4.35378	3.8181	108476.9
CalEEMod (B24-26; CGCR +PANZ + EUI)	2027	459.983	3790.82	4926.05	137.787	126.711	1182973	45.8665	21.4472	1190772
CalEEMod (B24-26; CGCR +PANZ + EUI)	2028	210.798	1728.25	2240.64	60.2053	55.3919	538017	21.0565	7.7492	540923.9
CalEEMod (B22+23; CGCR + PANZ + EUI)	2028	64.8809	557.28	811.1	17.9904	16.491	187753	7.36839	6.54985	189945.2
CalEEMod (B22+23; CGCR + PANZ + EUI)	2029	376.007	3043.75	4286.83	99.8525	91.6251	1007023	39.16	16.9885	1013211
CalEEMod (B24+30; Curved CGCR)	2030	129.971	1103.93	1728.25	29.178	26.8491	343022	13.342	3.74604	344512.2
CalEEMod (B&F + PINS + STOPS)	2030	349.733	2757.23	3762.78	99.1113	91.2086	981221	38.2748	12.2179	985939.8
CalEEMod (B&F + PINS + STOPS)	2031	341.214	2630.89	3726.57	94.5273	86.9912	979222	37.9097	12.1028	983884.3
CalEEMod (B&F + PINS + STOPS)	2032	331.316	2511.75	3684.91	85.7439	78.9106	979900	37.9961	12.0333	984530.2
CalEEMod (B34; Floating Dock)	2033	46.1286	352.064	555.779	4.8014	4.42454	100572	3.46119	2.15327	101329.9

Table 1. Marine + Diesel Impact Hammer (DIH) Emissions Estimates for B24-26 (CGCR)

Sub-Activity	Sub-Phase	Year	Equipment	Quantity	Workdays	Hours / Day	Pounds								Fuel Consumption
							ROG	NOx	CO	PM10	PM2.5	CO2	CH4	N2O	(gal)
CGCR	Pile Driving	2027	Towboat/Pushboat- Main (PSTK)	1	4	24	4.2	179.5	30.6	42.9	41.6	23735.3	0.1	1.2	1105.6
CGCR	Pile Driving	2027	Towboat/Pushboat- Auxiliary (PSTK)	1	4	24	1.0	34.9	7.1	5.8	5.7	5726.5	0.0	0.3	266.9
CGCR	Pile Driving	2027	Towboat/Pushboat- Auxiliary (PSTK)	1	4	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CGCR	Pile Driving	2027	Towboat/Pushboat- Main	1	25	1	1.1	46.7	8.0	11.2	10.8	6181.1	0.0	0.3	287.9
CGCR	Pile Driving	2027	Towboat/Pushboat- Auxiliary	1	25	1	0.3	9.1	1.8	1.5	1.5	1491.3	0.0	0.1	69.5
CGCR	Pile Driving	2027	Towboat/Pushboat- Auxiliary	1	25	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CGCR	Pile Driving	2027	Barge	1	25	2.7	1.0	35.4	7.1	6.9	6.7	5511.6	0.0	0.3	242.3
CGCR	Pile Driving	2027	DIH	2	25	5	8.0	62.4	118.7	2.8	2.6	21009.6	0.8	0.2	935.2
CGCR	Pile Driving	2027	Towboat/Pushboat- Main	1	189	0.5	4.1	176.7	30.1	42.2	40.9	23364.4	0.1	1.1	1088.3
CGCR	Pile Driving	2027	Towboat/Pushboat- Auxiliary	1	189	0.5	0.9	34.4	7.0	5.7	5.6	5637.0	0.0	0.3	262.7
CGCR	Pile Driving	2027	Towboat/Pushboat- Auxiliary	1	189	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CGCR	Pile Driving	2027	Barge	1	189	2.7	7.3	267.6	53.8	52.3	50.8	41667.6	0.1	2.0	1831.8
CGCR	Pile Driving	2027	DIH	2	189	5	60.8	471.4	897.5	21.4	19.7	158832.7	6.3	1.2	7070.3
						Total for 2027	88.6	1318.0	1161.8	192.8	185.8	293157.2	7.5	6.9	13160.5

Table 2. Marine + Diesel Impact Hammer (DIH) Emissions Estimates for B22+23 (CGCR)

Sub-Activity	Sub-Phase	Year	Equipment	Quantity	Workdays	Hours / Day	Pounds								Fuel Consumption
							ROG	NOx	CO	PM10	PM2.5	CO2	CH4	N2O	(gal)
CGCR	Pile Driving	2028	Towboat/Pushboat- Main (PSTK)	1	3	24	3.1	134.6	23.0	32.2	31.2	17801.5	0.1	0.9	829.2
CGCR	Pile Driving	2028	Towboat/Pushboat- Auxiliary (PSTK)	1	3	24	0.7	26.2	5.3	4.4	4.2	4294.9	0.0	0.2	200.1
CGCR	Pile Driving	2028	Towboat/Pushboat- Auxiliary (PSTK)	1	3	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CGCR	Pile Driving	2028	Towboat/Pushboat- Main	1	85	1	3.7	158.9	27.1	38.0	36.8	21015.6	0.1	1.0	978.9
CGCR	Pile Driving	2028	Towboat/Pushboat- Auxiliary	1	85	1	0.9	30.9	6.3	5.2	5.0	5070.4	0.0	0.2	236.3
CGCR	Pile Driving	2028	Towboat/Pushboat- Auxiliary	1	85	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CGCR	Pile Driving	2028	Barge	1	85	3	3.7	133.7	26.9	26.2	25.4	20821.6	0.1	1.0	915.3
CGCR	Pile Driving	2028	DIH	2	85	5	27.3	212.0	403.6	9.6	8.8	71432.7	2.8	0.5	3179.8
						Total for 2028	39.4	696.3	492.2	115.4	111.5	140436.6	3.1	3.9	6339.7

Table 3. Marine + Diesel Impact Hammer (DIH) Emissions Estimates for B24+30 (Curved CGCR)

Sub-Activity	Sub-Phase	Year	Equipment	Quantity	Workdays	Hours / Day	Pounds								Fuel Consumption
							ROG	NOx	CO	PM10	PM2.5	CO2	CH4	N2O	(gal)
CGCR	Pile Driving	2030	Towboat/Pushboat- Main (PSTK)	1	2	24	2.1	89.7	15.3	21.4	20.8	11867.6	0.0	0.6	552.8
CGCR	Pile Driving	2030	Towboat/Pushboat- Auxiliary (PSTK)	1	2	24	0.5	17.5	3.5	2.9	2.8	2863.3	0.0	0.1	133.4
CGCR	Pile Driving	2030	Towboat/Pushboat- Auxiliary (PSTK)	1	2	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CGCR	Pile Driving	2030	Towboat/Pushboat- Main	1	20	2	1.7	74.8	12.8	17.9	17.3	9889.7	0.0	0.5	460.7
CGCR	Pile Driving	2030	Towboat/Pushboat- Auxiliary	1	20	2	0.4	14.5	3.0	2.4	2.4	2386.1	0.0	0.1	111.2
CGCR	Pile Driving	2030	Towboat/Pushboat- Auxiliary	1	20	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CGCR	Pile Driving	2030	Barge	1	20	3	0.9	31.5	6.3	6.2	6.0	4899.2	0.0	0.2	215.4
CGCR	Pile Driving	2030	DIH	2	20	5	6.4	49.9	95.0	2.3	2.1	16807.7	0.7	0.1	748.2
						Total for 2030	12.0	277.9	135.9	53.1	51.4	48713.5	0.8	1.7	2221.7

Table 4. Marine + Diesel Impact Hammer (DIH) Emissions Estimates for B34 (Floating Dock)

Sub-Activity	Sub-Phase	Year	Equipment	Quantity	Workdays	Hours / Day	Pounds								Fuel Consumption (gal)
							ROG	NOx	CO	PM10	PM2.5	CO2	CH4	N2O	
Floating Dock	Mobilization	2033	Towboat/Pushboat- Main (Gulf)	1	2	24	2.1	89.7	15.3	21.4	20.8	11867.6	0.0	0.6	552.8
Floating Dock	Mobilization	2033	Towboat/Pushboat- Auxiliary (Gulf)	1	2	24	0.5	17.5	3.5	2.9	2.8	2863.3	0.0	0.1	133.4
Floating Dock	Mobilization	2033	Towboat/Pushboat- Auxiliary (Gulf)	1	2	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Floating Dock	Mobilization	2033	Towboat/Pushboat- Main (MI)	1	1	24	1.0	44.9	7.7	10.7	10.4	5933.8	0.0	0.3	276.4
Floating Dock	Mobilization	2033	Towboat/Pushboat- Auxiliary (MI)	1	1	24	0.2	8.7	1.8	1.5	1.4	1431.6	0.0	0.1	66.7
Floating Dock	Mobilization	2033	Towboat/Pushboat- Auxiliary (MI)	1	1	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Floating Dock	Pile Driving	2033	Towboat/Pushboat- Main	1	10	1	0.4	18.7	3.2	4.5	4.3	2472.4	0.0	0.1	115.2
Floating Dock	Pile Driving	2033	Towboat/Pushboat- Auxiliary	1	10	1	0.1	3.6	0.7	0.6	0.6	596.5	0.0	0.0	27.8
Floating Dock	Pile Driving	2033	Towboat/Pushboat- Auxiliary	1	10	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Floating Dock	Pile Driving	2033	Barge	1	10	10	1.4	52.4	10.5	10.3	10.0	8165.3	0.0	0.4	359.0
Floating Dock	Pile Driving	2033	DIH	1	10	10	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Floating Dock	Floating Dock Install	2033	Towboat/Pushboat- Main	1	60	0.5	1.3	56.1	9.6	13.4	13.0	7417.3	0.0	0.4	345.5
Floating Dock	Floating Dock Install	2033	Towboat/Pushboat- Auxiliary	1	60	0.5	0.3	10.9	2.2	1.8	1.8	1789.5	0.0	0.1	83.4
Floating Dock	Floating Dock Install	2033	Towboat/Pushboat- Auxiliary	1	60	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Floating Dock	Floating Dock Install	2033	Barge	1	60	4	3.4	125.8	25.3	24.6	23.9	19596.8	0.1	1.0	861.5
						Total for 2033	14.1	428.4	79.8	91.7	89.0	62134.2	0.2	3.0	2821.7

Table 1: Emission Factors (EFs) & Equipment Info for Marine Vessels (g / hp-hr)

Equipment	Horsepower (hp)	Load Factor (LF)	EF (g / hp-hr)								gal/hp-hr
			ROG	NOx	CO	PM10	PM2.5	CO2	CH4	N2O	
Towboat/Pushboat- Main	640	0.33	0.0931	4.015	0.6851	0.9593	0.9305	531	0.0018	0.0259	0.05453
Towboat/Pushboat- Auxiliary	132	0.37	0.0931	3.3775	0.6851	0.565	0.5481	554	0.0018	0.027	0.05691
Towboat/Pushboat- Auxiliary	0	0.37	0.0931	4.3575	0.6851	0.5188	0.5032	628	0.0018	0.0306	--
Barge	225	0.31	0.0931	3.41	0.6851	0.6671	0.6471	531	0.0018	0.0259	0.05146

Source: Port of Oakland 2023a (Oakland Harbor Turning Basins Widening EIR)

Table 2: Emission Factors (EFs) & Equipment Info for Marine Vessels (lbs / hp-hr)

Equipment	Horsepower (hp)	Load Factor (LF)	EF (lbs / hp-hr)								gal/hp-hr
			ROG	NOx	CO	PM10	PM2.5	CO2	CH4	N2O	
Towboat/Pushboat- Main	640	0.33	0.00021	0.00885	0.00151	0.00211	0.00205	1.17066	4E-06	5.7E-05	0.05453
Towboat/Pushboat- Auxiliary	132	0.37	0.00021	0.00745	0.00151	0.00125	0.00121	1.22136	4E-06	6E-05	0.05691
Towboat/Pushboat- Auxiliary	0	0.37	0.00021	0.00961	0.00151	0.00114	0.00111	1.3845	4E-06	6.7E-05	--
Barge	225	0.31	0.00021	0.00752	0.00151	0.00147	0.00143	1.17066	4E-06	5.7E-05	0.05146

Table 1: Emission Factor Conversions for Diesel Impact Hammer

Conversions	HC	ROG	TOG	CO	NOx	CO2	PM10	PM2.5	SOx	NH3
TPD	0.001185479	0.0014344	0.001707	0.021181	0.011126	3.748404	0.000504	0.000464	3.55E-05	0
TPY Conv	0.43269997	0.523567	0.623088	7.731187	4.060921	1368.167	0.184041	0.169317	0.01296	0
lbs / yr Conv	865.3999399	1047.1339	1246.176	15462.37	8121.842	2736335	368.0811	338.6346	25.92077	0
lbs / hp-hr	0.000367915	0.0004452	0.00053	0.006574	0.003453	1.163323	0.000156	0.000144	1.1E-05	0
g / hp-hr	0.166883496	0.201929	0.240312	2.98176	1.566214	527.6741	0.070981	0.065302	0.004999	0

Table 2: Emission Factors (EFs) & Equipment Info for Diesel Impact Hammer (lbs / hp-hr)

Equipment	Horsepower (hp)	Load Factor	Operation Rate (lbs/hp-hr)								gal/hp-hr
			ROG	NOx	CO	PM10	PM2.5	CO2	CH4	N2O	
DIH	172	0.42	0.000445	0.003453	0.006574	0.000156	0.000144	1.163323	4.63E-05	8.82E-06	0.05

Note: CH4 and N2O EFs derived based on g/bp-hr for those pollutants in the Turning Basins EIR.

Model Output: OFFROAD2021 (v1.0.9) Emissions Inventory

Region Type: Air District

Region: Bay Area AQMD

Calendar Year: 2026

Scenario: All Adopted Rules - Exhaust

Vehicle Classification: OFFROAD2021 Equipment Types

Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd	NH3_tpd	Fuel Consumption	Total_Activity_hpy	Total_Population	Horsepower_Hours_hhpy
Bay Area /	2026	Constru	Aggrega	175	Diesel	0.0012	0.0014	0.0017	0.0212	0.0111	3.7484	0.0005	0.0005	4E-05	0	121805	42713	95.809	2352170.82

B-2 CalEEMod Output Files

POAK SWIS1: B24-26 (CGCR + PANZ + EUI) Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	POAK SWIS1: B24-26 (CGCR + PANZ + EUI)
Construction Start Date	10/1/2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.90
Precipitation (days)	17.0
Location	37.81414811607944, -122.31688344884226
County	Alameda
City	Oakland
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1513
EDFZ	1
Electric Utility	Port of Oakland
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.29

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
Other Asphalt Surfaces	13.1	1000sqft	0.30	0.00	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.63	2.21	18.0	23.5	0.05	0.65	0.76	1.41	0.60	0.18	0.78	—	5,636	5,636	0.21	0.10	2.89	5,674
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.35	2.81	23.6	29.2	0.06	0.84	0.76	1.49	0.77	0.18	0.93	—	6,910	6,910	0.27	0.11	0.08	6,948
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.50	1.26	10.4	13.5	0.03	0.38	0.45	0.83	0.35	0.10	0.45	—	3,241	3,241	0.13	0.06	0.72	3,262
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.27	0.23	1.90	2.46	< 0.005	0.07	0.08	0.15	0.06	0.02	0.08	—	537	537	0.02	0.01	0.12	540

2.2. Construction Emissions by Year, Unmitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	2.63	2.21	18.0	23.5	0.05	0.65	0.76	1.41	0.60	0.18	0.78	—	5,636	5,636	0.21	0.10	2.89	5,674

2028	1.35	1.13	9.30	11.8	0.03	0.33	0.22	0.55	0.30	0.05	0.35	—	2,934	2,934	0.11	0.03	0.79	2,948
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.34	0.28	2.85	5.37	0.01	0.09	0.27	0.28	0.08	0.07	0.11	—	961	961	0.04	0.05	0.03	970
2027	3.35	2.81	23.6	29.2	0.06	0.84	0.76	1.49	0.77	0.18	0.93	—	6,910	6,910	0.27	0.11	0.08	6,948
2028	3.21	2.69	22.1	29.0	0.06	0.75	0.65	1.40	0.69	0.15	0.85	—	6,898	6,898	0.27	0.10	0.06	6,936
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.02	0.02	0.11	0.23	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	91.6	91.6	< 0.005	0.01	0.10	94.4
2027	1.50	1.26	10.4	13.5	0.03	0.38	0.45	0.83	0.35	0.10	0.45	—	3,241	3,241	0.13	0.06	0.72	3,262
2028	0.69	0.58	4.73	6.14	0.01	0.16	0.13	0.29	0.15	0.03	0.18	—	1,474	1,474	0.06	0.02	0.19	1,482
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	< 0.005	< 0.005	0.02	0.04	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	15.2	15.2	< 0.005	< 0.005	0.02	15.6
2027	0.27	0.23	1.90	2.46	< 0.005	0.07	0.08	0.15	0.06	0.02	0.08	—	537	537	0.02	0.01	0.12	540
2028	0.13	0.11	0.86	1.12	< 0.005	0.03	0.02	0.05	0.03	0.01	0.03	—	244	244	0.01	< 0.005	0.03	245

3. Construction Emissions Details

3.1. CGCR: Demo (2026) - Unmitigated

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

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

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	0.76	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	189	189	< 0.005	0.01	0.02	192
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	0.02	0.01	0.35	0.13	< 0.005	0.01	0.07	0.08	< 0.005	0.02	0.02	—	275	275	0.01	0.04	0.02	289
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	31.3	31.3	< 0.005	< 0.005	0.05	31.8
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	0.06	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	45.3	45.3	< 0.005	0.01	0.04	47.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.18	5.18	< 0.005	< 0.005	0.01	5.26
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	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.49	7.49	< 0.005	< 0.005	0.01	7.86

3.3. CGCR: Site Prep (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.25	2.69	4.94	0.01	0.09	—	0.09	0.08	—	0.08	—	764	764	0.03	0.01	—	767
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	0.04	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.0	12.0	< 0.005	< 0.005	—	12.0
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.98	1.98	< 0.005	< 0.005	—	1.99
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.38	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	94.6	94.6	< 0.005	< 0.005	0.01	95.9
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	0.12	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	102	102	0.01	0.02	0.01	107
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.49	1.49	< 0.005	< 0.005	< 0.005	1.51
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.60	1.60	< 0.005	< 0.005	< 0.005	1.68
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.25	0.25	< 0.005	< 0.005	< 0.005	0.25
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.27	0.27	< 0.005	< 0.005	< 0.005	0.28

3.5. CGCR: Site Prep (2027) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.24	2.59	4.95	0.01	0.08	—	0.08	0.07	—	0.07	—	764	764	0.03	0.01	—	767
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.19	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	29.9	29.9	< 0.005	< 0.005	—	30.0
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.95	4.95	< 0.005	< 0.005	—	4.97
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.36	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	92.8	92.8	< 0.005	< 0.005	0.01	94.1
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	0.01	< 0.005	0.12	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	100	100	0.01	0.02	0.01	105
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.66	3.66	< 0.005	< 0.005	0.01	3.71
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.92	3.92	< 0.005	< 0.005	< 0.005	4.12
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.61	0.61	< 0.005	< 0.005	< 0.005	0.61
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.65	0.65	< 0.005	< 0.005	< 0.005	0.68

3.7. EUI: Site Prep (2027) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.60	3.04	< 0.005	0.05	—	0.05	0.04	—	0.04	—	474	474	0.02	< 0.005	—	476
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.17	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	26.0	26.0	< 0.005	< 0.005	—	26.1
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.30	4.30	< 0.005	< 0.005	—	4.31
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.01	0.27	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	66.7	66.7	< 0.005	< 0.005	0.23	67.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	67.3	67.3	< 0.005	0.01	0.14	70.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.41	3.41	< 0.005	< 0.005	0.01	3.46
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.69	3.69	< 0.005	< 0.005	< 0.005	3.88
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.57	0.57	< 0.005	< 0.005	< 0.005	0.57
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.61	0.61	< 0.005	< 0.005	< 0.005	0.64

3.9. PANZ: Panzerbelt Install (2027) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.44	3.95	4.63	0.01	0.14	—	0.14	0.13	—	0.13	—	1,077	1,077	0.04	0.01	—	1,081
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.44	3.95	4.63	0.01	0.14	—	0.14	0.13	—	0.13	—	1,077	1,077	0.04	0.01	—	1,081
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	2.45	2.87	0.01	0.09	—	0.09	0.08	—	0.08	—	668	668	0.03	0.01	—	670
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.45	0.52	< 0.005	0.02	—	0.02	0.02	—	0.02	—	111	111	< 0.005	< 0.005	—	111
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.68	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	167	167	< 0.005	0.01	0.57	169
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.7	25.7	< 0.005	< 0.005	0.06	26.9
Hauling	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	67.3	67.3	< 0.005	0.01	0.14	70.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.60	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	0.01	0.01	157
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.7	25.7	< 0.005	< 0.005	< 0.005	26.9
Hauling	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	67.4	67.4	< 0.005	0.01	< 0.005	70.7
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.36	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	96.6	96.6	< 0.005	< 0.005	0.15	98.0
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	15.9	15.9	< 0.005	< 0.005	0.02	16.7
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	41.8	41.8	< 0.005	0.01	0.04	43.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.0	16.0	< 0.005	< 0.005	0.03	16.2

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.64	2.64	< 0.005	< 0.005	< 0.005	2.76
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.92	6.92	< 0.005	< 0.005	0.01	7.26

3.11. PANZ: Panzerbelt Install (2028) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50	0.42	3.69	4.62	0.01	0.13	—	0.13	0.12	—	0.12	—	1,077	1,077	0.04	0.01	—	1,081
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.35	0.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	101	101	< 0.005	< 0.005	—	102
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	16.8	16.8	< 0.005	< 0.005	—	16.8
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.56	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	0.01	0.01	154
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.1	25.1	< 0.005	< 0.005	< 0.005	26.2
Hauling	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	65.7	65.7	< 0.005	0.01	< 0.005	68.9
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.05	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	14.4	14.4	< 0.005	< 0.005	0.02	14.6
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.35	2.35	< 0.005	< 0.005	< 0.005	2.46
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.17	6.17	< 0.005	< 0.005	0.01	6.47
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.38	2.38	< 0.005	< 0.005	< 0.005	2.41
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.39	0.39	< 0.005	< 0.005	< 0.005	0.41
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.02	1.02	< 0.005	< 0.005	< 0.005	1.07

3.13. CGCR: Grading (2027) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	0.49	4.18	6.99	0.01	0.19	—	0.19	0.17	—	0.17	—	1,077	1,077	0.04	0.01	—	1,080
Dust From Material Movement	—	—	—	—	—	—	0.53	0.53	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.23	0.38	< 0.005	0.01	—	0.01	0.01	—	0.01	—	59.0	59.0	< 0.005	< 0.005	—	59.2
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	< 0.005	0.04	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.77	9.77	< 0.005	< 0.005	—	9.80

Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.36	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	92.8	92.8	< 0.005	< 0.005	0.01	94.1
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.12	5.12	< 0.005	< 0.005	0.01	5.20
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.85	0.85	< 0.005	< 0.005	< 0.005	0.86
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.15. EUI: Grading (2027) - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.87	1.67	< 0.005	0.03	—	0.03	0.02	—	0.02	—	254	254	0.01	< 0.005	—	255
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	< 0.005	0.05	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.9	13.9	< 0.005	< 0.005	—	14.0
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.30	2.30	< 0.005	< 0.005	—	2.31
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	33.4	33.4	< 0.005	< 0.005	0.11	33.9
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.71	1.71	< 0.005	< 0.005	< 0.005	1.73
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.28	0.28	< 0.005	< 0.005	< 0.005	0.29
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.17. CGCR: Pile Driving (2027) - Unmitigated

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

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

Off-Road Equipment	0.55	0.46	4.21	4.60	0.01	0.17	—	0.17	0.16	—	0.16	—	1,219	1,219	0.05	0.01	—	1,223
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	0.46	4.21	4.60	0.01	0.17	—	0.17	0.16	—	0.16	—	1,219	1,219	0.05	0.01	—	1,223
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.24	2.18	2.38	0.01	0.09	—	0.09	0.08	—	0.08	—	631	631	0.03	0.01	—	633
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	0.05	0.04	0.40	0.44	< 0.005	0.02	—	0.02	0.02	—	0.02	—	104	104	< 0.005	< 0.005	—	105
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	0.11	0.10	0.07	1.22	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	300	300	< 0.005	0.01	1.02	305
Vendor	0.01	< 0.005	0.12	0.05	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	103	103	< 0.005	0.02	0.26	108

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.09	1.08	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	279	279	0.01	0.01	0.03	282
Vendor	0.01	< 0.005	0.13	0.05	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	103	103	< 0.005	0.02	0.01	107
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.54	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	145	145	< 0.005	0.01	0.23	147
Vendor	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	53.2	53.2	< 0.005	0.01	0.06	55.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.0	24.0	< 0.005	< 0.005	0.04	24.4
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.80	8.80	< 0.005	< 0.005	0.01	9.22
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.19. CGCR: Rail Install (2027) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.32	1.11	9.83	11.0	0.03	0.36	—	0.36	0.33	—	0.33	—	2,662	2,662	0.11	0.02	—	2,671

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	1.00	1.12	< 0.005	0.04	—	0.04	0.03	—	0.03	—	271	271	0.01	< 0.005	—	272
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	0.18	0.20	< 0.005	0.01	—	0.01	0.01	—	0.01	—	44.8	44.8	< 0.005	< 0.005	—	45.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.72	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	186	186	< 0.005	0.01	0.02	188
Vendor	0.01	< 0.005	0.10	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	77.1	77.1	< 0.005	0.01	< 0.005	80.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	19.0	19.0	< 0.005	< 0.005	0.03	19.3
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.84	7.84	< 0.005	< 0.005	0.01	8.21
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	—	3.15	3.15	< 0.005	< 0.005	< 0.005	3.20

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.30	1.30	< 0.005	< 0.005	< 0.005	1.36
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.21. CGCR: Rail Install (2028) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.27	1.06	9.16	11.0	0.03	0.33	—	0.33	0.30	—	0.30	—	2,663	2,663	0.11	0.02	—	2,672
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.27	1.06	9.16	11.0	0.03	0.33	—	0.33	0.30	—	0.30	—	2,663	2,663	0.11	0.02	—	2,672
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	0.38	3.26	3.92	0.01	0.12	—	0.12	0.11	—	0.11	—	948	948	0.04	0.01	—	952
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.08	0.07	0.60	0.72	< 0.005	0.02	—	0.02	0.02	—	0.02	—	157	157	0.01	< 0.005	—	158
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.04	0.76	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	197	197	< 0.005	< 0.005	0.61	198
Vendor	0.01	< 0.005	0.09	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	75.2	75.2	< 0.005	0.01	0.18	78.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	0.67	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	182	182	< 0.005	0.01	0.02	185
Vendor	0.01	< 0.005	0.09	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	75.2	75.2	< 0.005	0.01	< 0.005	78.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.23	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	65.4	65.4	< 0.005	< 0.005	0.09	66.3
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.8	26.8	< 0.005	< 0.005	0.03	28.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.8	10.8	< 0.005	< 0.005	0.02	11.0
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.43	4.43	< 0.005	< 0.005	< 0.005	4.64
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.23. EUI: Construction (2027) - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.27	1.06	9.38	11.3	0.02	0.33	—	0.33	0.30	—	0.30	—	2,419	2,419	0.10	0.02	—	2,427
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.27	1.06	9.38	11.3	0.02	0.33	—	0.33	0.30	—	0.30	—	2,419	2,419	0.10	0.02	—	2,427
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	0.46	4.02	4.84	0.01	0.14	—	0.14	0.13	—	0.13	—	1,037	1,037	0.04	0.01	—	1,040
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	0.08	0.73	0.88	< 0.005	0.03	—	0.03	0.02	—	0.02	—	172	172	0.01	< 0.005	—	172
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	0.09	0.08	0.05	0.95	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	233	233	< 0.005	0.01	0.79	237
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.7	25.7	< 0.005	< 0.005	0.06	26.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.07	0.84	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	217	217	0.01	0.01	0.02	220
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.7	25.7	< 0.005	< 0.005	< 0.005	26.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.35	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	93.5	93.5	< 0.005	< 0.005	0.15	94.8
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.0	11.0	< 0.005	< 0.005	0.01	11.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	15.5	15.5	< 0.005	< 0.005	0.02	15.7
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.82	1.82	< 0.005	< 0.005	< 0.005	1.91
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.25. EUI: Construction (2028) - Unmitigated

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

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

Off-Road Equipm	1.21	1.02	8.81	11.3	0.02	0.29	—	0.29	0.27	—	0.27	—	2,420	2,420	0.10	0.02	—	2,428
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.84	1.08	< 0.005	0.03	—	0.03	0.03	—	0.03	—	232	232	0.01	< 0.005	—	233
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	0.15	0.20	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	38.4	38.4	< 0.005	< 0.005	—	38.5
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.06	0.79	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	213	213	< 0.005	0.01	0.02	216
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.1	25.1	< 0.005	< 0.005	< 0.005	26.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	20.5	20.5	< 0.005	< 0.005	0.03	20.8
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.40	2.40	< 0.005	< 0.005	< 0.005	2.51
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	—	3.40	3.40	< 0.005	< 0.005	< 0.005	3.45
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.40	0.40	< 0.005	< 0.005	< 0.005	0.42
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

3.27. EUI: Paving (2028) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	2.45	3.62	0.01	0.10	—	0.10	0.09	—	0.09	—	545	545	0.02	< 0.005	—	547
Paving	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.20	0.30	< 0.005	0.01	—	0.01	0.01	—	0.01	—	44.8	44.8	< 0.005	< 0.005	—	45.0
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	< 0.005	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.42	7.42	< 0.005	< 0.005	—	7.44
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.34	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	91.2	91.2	< 0.005	< 0.005	0.01	92.5
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.1	25.1	< 0.005	< 0.005	< 0.005	26.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.55	7.55	< 0.005	< 0.005	0.01	7.66
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.06	2.06	< 0.005	< 0.005	< 0.005	2.15
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.25	1.25	< 0.005	< 0.005	< 0.005	1.27
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.34	0.34	< 0.005	< 0.005	< 0.005	0.36
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)

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

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

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

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

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

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

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
CGCR: Demo	Demolition	10/1/2026	12/23/2026	5.00	60.0	—
CGCR: Site Prep	Site Preparation	12/24/2026	1/20/2027	5.00	20.0	—
EUI: Site Prep	Site Preparation	4/1/2027	4/28/2027	5.00	20.0	—
PANZ: Panzerbelt Install	Site Preparation	2/18/2027	2/17/2028	5.00	261	—
CGCR: Grading	Grading	1/21/2027	2/17/2027	5.00	20.0	—
EUI: Grading	Grading	4/29/2027	5/26/2027	5.00	20.0	—
CGCR: Pile Driving	Building Construction	2/18/2027	11/9/2027	5.00	189	—
CGCR: Rail Install	Building Construction	11/10/2027	6/30/2028	5.00	168	—
EUI: Construction	Building Construction	5/27/2027	2/18/2028	5.00	192	—
EUI: Paving	Paving	2/19/2028	3/31/2028	5.00	30.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
CGCR: Demo	Concrete/Industrial Saws	Diesel	Average	3.00	8.00	33.0	0.73
CGCR: Demo	Forklifts	Diesel	Average	2.00	8.00	82.0	0.20
CGCR: Demo	Bore/Drill Rigs	Diesel	Average	1.00	4.00	83.0	0.50
CGCR: Site Prep	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37

CGCR: Site Prep	Skid Steer Loaders	Diesel	Average	1.00	6.00	71.0	0.37
EUI: Site Prep	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
EUI: Site Prep	Skid Steer Loaders	Diesel	Average	1.00	6.00	71.0	0.37
PANZ: Panzerbelt Install	Concrete/Industrial Saws	Diesel	Average	1.00	2.00	33.0	0.73
PANZ: Panzerbelt Install	Cranes	Diesel	Average	1.00	6.00	367	0.29
PANZ: Panzerbelt Install	Forklifts	Diesel	Average	1.00	4.00	82.0	0.20
PANZ: Panzerbelt Install	Welders	Diesel	Average	1.00	2.00	46.0	0.45
PANZ: Panzerbelt Install	Tractors/Loaders/Backhoes	Diesel	Average	1.00	4.00	84.0	0.37
CGCR: Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	7.00	84.0	0.37
CGCR: Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
EUI: Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
CGCR: Pile Driving	Cranes	Diesel	Average	1.00	8.00	367	0.29
CGCR: Pile Driving	Forklifts	Diesel	Average	2.00	6.00	82.0	0.20
CGCR: Rail Install	Cranes	Diesel	Average	2.00	8.00	367	0.29
CGCR: Rail Install	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
CGCR: Rail Install	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
CGCR: Rail Install	Welders	Diesel	Average	2.00	6.00	46.0	0.45
EUI: Construction	Cranes	Diesel	Average	2.00	6.00	367	0.29
EUI: Construction	Forklifts	Diesel	Average	2.00	6.00	82.0	0.20
EUI: Construction	Welders	Diesel	Average	2.00	8.00	46.0	0.45
EUI: Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

EUI: Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	4.00	84.0	0.37
EUI: Paving	Pavers	Diesel	Average	1.00	7.00	81.0	0.42
EUI: Paving	Rollers	Diesel	Average	1.00	7.00	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
CGCR: Site Prep	—	—	—	—
CGCR: Site Prep	Worker	12.0	11.7	LDA,LDT1,LDT2
CGCR: Site Prep	Vendor	0.00	8.40	HHDT,MHDT
CGCR: Site Prep	Hauling	1.00	30.0	HHDT
CGCR: Site Prep	Onsite truck	—	—	HHDT
EUI: Site Prep	—	—	—	—
EUI: Site Prep	Worker	8.00	11.7	LDA,LDT1,LDT2
EUI: Site Prep	Vendor	—	8.40	HHDT,MHDT
EUI: Site Prep	Hauling	1.00	20.0	HHDT
EUI: Site Prep	Onsite truck	—	—	HHDT
CGCR: Grading	—	—	—	—
CGCR: Grading	Worker	12.0	11.7	LDA,LDT1,LDT2
CGCR: Grading	Vendor	—	8.40	HHDT,MHDT
CGCR: Grading	Hauling	0.00	30.0	HHDT
CGCR: Grading	Onsite truck	—	—	HHDT
EUI: Grading	—	—	—	—
EUI: Grading	Worker	4.00	11.7	LDA,LDT1,LDT2
EUI: Grading	Vendor	—	8.40	HHDT,MHDT
EUI: Grading	Hauling	0.00	30.0	HHDT
EUI: Grading	Onsite truck	—	—	HHDT

CGCR: Pile Driving	—	—	—	—
CGCR: Pile Driving	Worker	36.0	11.7	LDA,LDT1,LDT2
CGCR: Pile Driving	Vendor	4.00	8.40	HHDT,MHDT
CGCR: Pile Driving	Hauling	0.00	20.0	HHDT
CGCR: Pile Driving	Onsite truck	—	—	HHDT
CGCR: Rail Install	—	—	—	—
CGCR: Rail Install	Worker	24.0	11.7	LDA,LDT1,LDT2
CGCR: Rail Install	Vendor	3.00	8.40	HHDT,MHDT
CGCR: Rail Install	Hauling	0.00	20.0	HHDT
CGCR: Rail Install	Onsite truck	—	—	HHDT
EUI: Construction	—	—	—	—
EUI: Construction	Worker	28.0	11.7	LDA,LDT1,LDT2
EUI: Construction	Vendor	1.00	8.40	HHDT,MHDT
EUI: Construction	Hauling	0.00	20.0	HHDT
EUI: Construction	Onsite truck	—	—	HHDT
EUI: Paving	—	—	—	—
EUI: Paving	Worker	12.0	11.7	LDA,LDT1,LDT2
EUI: Paving	Vendor	1.00	8.40	HHDT,MHDT
EUI: Paving	Hauling	0.00	20.0	HHDT
EUI: Paving	Onsite truck	—	—	HHDT
CGCR: Demo	—	—	—	—
CGCR: Demo	Worker	24.0	11.7	LDA,LDT1,LDT2
CGCR: Demo	Vendor	—	8.40	HHDT,MHDT
CGCR: Demo	Hauling	4.00	20.0	HHDT
CGCR: Demo	Onsite truck	—	—	HHDT
PANZ: Panzerbelt Install	—	—	—	—
PANZ: Panzerbelt Install	Worker	20.0	11.7	LDA,LDT1,LDT2
PANZ: Panzerbelt Install	Vendor	1.00	8.40	HHDT,MHDT

PANZ: Panzerbelt Install	Hauling	1.00	20.0	HHDT
PANZ: Panzerbelt Install	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 (Ton of Debris)	Acres Paved (acres)
CGCR: Demo	—	1,428	0.00	—	—
CGCR: Site Prep	—	25.0	0.00	0.00	—
EUI: Site Prep	—	10.0	0.00	0.00	—
PANZ: Panzerbelt Install	—	11.0	0.00	0.00	—
CGCR: Grading	—	0.00	10.0	0.00	—
EUI: Grading	—	0.00	0.00	0.00	—
EUI: Paving	0.00	0.00	0.00	0.00	0.30

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

Other Asphalt Surfaces	0.30	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	453	0.03	< 0.005
2027	0.00	453	0.03	< 0.005
2028	0.00	453	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. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

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	5.51	annual days of extreme heat
Extreme Precipitation	6.10	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	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

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

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

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

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	3.12
AQ-PM	46.2

AQ-DPM	98.0
Drinking Water	4.21
Lead Risk Housing	56.1
Pesticides	0.00
Toxic Releases	52.6
Traffic	90.3
Effect Indicators	—
CleanUp Sites	100
Groundwater	99.9
Haz Waste Facilities/Generators	94.4
Impaired Water Bodies	83.0
Solid Waste	89.1
Sensitive Population	—
Asthma	97.2
Cardio-vascular	41.2
Low Birth Weights	83.3
Socioeconomic Factor Indicators	—
Education	26.9
Housing	70.5
Linguistic	26.4
Poverty	30.0
Unemployment	45.8

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	43.39792121

Employed	80.73912486
Median HI	63.85217503
Education	—
Bachelor's or higher	75.77312973
High school enrollment	100
Preschool enrollment	37.95714102
Transportation	—
Auto Access	21.6091364
Active commuting	94.30257924
Social	—
2-parent households	13.34530989
Voting	52.23918902
Neighborhood	—
Alcohol availability	18.88874631
Park access	60.29770307
Retail density	49.21083023
Supermarket access	42.17887848
Tree canopy	17.36173489
Housing	—
Homeownership	30.71987681
Housing habitability	20.10778904
Low-inc homeowner severe housing cost burden	11.53599384
Low-inc renter severe housing cost burden	18.22148082
Uncrowded housing	37.66200436
Health Outcomes	—
Insured adults	47.91479533
Arthritis	79.8
Asthma ER Admissions	1.0

High Blood Pressure	76.3
Cancer (excluding skin)	85.3
Asthma	18.0
Coronary Heart Disease	87.2
Chronic Obstructive Pulmonary Disease	59.8
Diagnosed Diabetes	65.9
Life Expectancy at Birth	19.2
Cognitively Disabled	44.8
Physically Disabled	73.0
Heart Attack ER Admissions	64.3
Mental Health Not Good	34.8
Chronic Kidney Disease	73.0
Obesity	31.6
Pedestrian Injuries	77.0
Physical Health Not Good	49.1
Stroke	58.2
Health Risk Behaviors	—
Binge Drinking	36.9
Current Smoker	29.7
No Leisure Time for Physical Activity	53.7
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	13.3
Children	14.8
Elderly	94.7
English Speaking	53.9
Foreign-born	50.4
Outdoor Workers	58.6

Climate Change Adaptive Capacity	—
Impervious Surface Cover	6.2
Traffic Density	91.8
Traffic Access	72.7
Other Indices	—
Hardship	40.1
Other Decision Support	—
2016 Voting	38.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	80.0
Healthy Places Index Score for Project Location (b)	60.0
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)	West Oakland

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

Characteristics: Utility Information	Project is a Port of Oakland (POAK) Project.
Construction: Construction Phases	Project schedule updated to reflect a 21 month timeline for this project element.
Construction: Off-Road Equipment	Equipment list updated to reflect the land-based off-road equipment used for this project element.
Construction: Trips and VMT	Trips updated to reflect removal of existing rail system, updated (longer) trip distances for haul truck trips, updated vendor trips based on information provided by Liftech.
Construction: Dust From Material Movement	Added CGCR: Demo to account for 1,428 CY of concrete off-haul.

POAK SWIS1: B22-23 (CGCR + PANZ + EUI) Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	POAK SWIS1: B22-23 (CGCR + PANZ + EUI)
Construction Start Date	7/1/2028
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.90
Precipitation (days)	17.0
Location	37.81414811607944, -122.31688344884226
County	Alameda
City	Oakland
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1513
EDFZ	1
Electric Utility	Port of Oakland
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.29

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
Other Asphalt Surfaces	6.00	1000sqft	0.14	0.00	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.93	2.46	19.8	27.9	0.06	0.64	0.63	1.27	0.59	0.15	0.74	—	6,521	6,521	0.25	0.09	2.04	6,556
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.03	1.71	13.8	19.1	0.04	0.46	0.48	0.89	0.42	0.11	0.52	—	4,539	4,539	0.18	0.08	0.04	4,563
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.22	1.03	8.34	11.7	0.02	0.27	0.28	0.56	0.25	0.07	0.32	—	2,759	2,759	0.11	0.05	0.40	2,776
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.22	0.19	1.52	2.14	< 0.005	0.05	0.05	0.10	0.05	0.01	0.06	—	457	457	0.02	0.01	0.07	460

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.89	0.72	6.61	9.69	0.02	0.17	0.56	0.73	0.16	0.08	0.22	—	1,885	1,885	0.08	0.08	1.49	1,913

2029	2.93	2.46	19.8	27.9	0.06	0.64	0.63	1.27	0.59	0.15	0.74	—	6,521	6,521	0.25	0.09	2.04	6,556
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.57	0.47	3.84	5.01	0.01	0.15	0.26	0.41	0.13	0.06	0.20	—	1,504	1,504	0.06	0.05	0.03	1,520
2029	2.03	1.71	13.8	19.1	0.04	0.46	0.48	0.89	0.42	0.11	0.52	—	4,539	4,539	0.18	0.08	0.04	4,563
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.21	0.18	1.53	2.22	< 0.005	0.05	0.11	0.16	0.05	0.02	0.07	—	514	514	0.02	0.02	0.15	520
2029	1.22	1.03	8.34	11.7	0.02	0.27	0.28	0.56	0.25	0.07	0.32	—	2,759	2,759	0.11	0.05	0.40	2,776
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.04	0.03	0.28	0.41	< 0.005	0.01	0.02	0.03	0.01	< 0.005	0.01	—	85.2	85.2	< 0.005	< 0.005	0.03	86.2
2029	0.22	0.19	1.52	2.14	< 0.005	0.05	0.05	0.10	0.05	0.01	0.06	—	457	457	0.02	0.01	0.07	460

3. Construction Emissions Details

3.1. CGCR: Demo (2028) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.78	0.65	6.02	8.71	0.01	0.13	—	0.13	0.12	—	0.12	—	1,229	1,229	0.05	0.01	—	1,233
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.49	0.72	< 0.005	0.01	—	0.01	0.01	—	0.01	—	101	101	< 0.005	< 0.005	—	101
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.13	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	16.7	16.7	< 0.005	< 0.005	—	16.8
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.04	0.76	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	197	197	< 0.005	< 0.005	0.61	198
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	0.03	0.01	0.54	0.22	< 0.005	0.01	0.13	0.14	0.01	0.04	0.04	—	460	460	0.02	0.07	0.88	483
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.05	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	15.1	15.1	< 0.005	< 0.005	0.02	15.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	37.8	37.8	< 0.005	0.01	0.03	39.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.50	2.50	< 0.005	< 0.005	< 0.005	2.53
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	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.26	6.26	< 0.005	< 0.005	0.01	6.56

3.3. CGCR: Site Prep (2028) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.55	3.04	< 0.005	0.04	—	0.04	0.04	—	0.04	—	474	474	0.02	< 0.005	—	476

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.13	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.5	19.5	< 0.005	< 0.005	—	19.5
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.22	3.22	< 0.005	< 0.005	—	3.24
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.25	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	65.5	65.5	< 0.005	< 0.005	0.20	65.9

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	0.11	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	97.7	97.7	< 0.005	0.02	0.19	103
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.52	2.52	< 0.005	< 0.005	< 0.005	2.55
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.02	4.02	< 0.005	< 0.005	< 0.005	4.21
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.42	0.42	< 0.005	< 0.005	< 0.005	0.42
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.66	0.66	< 0.005	< 0.005	< 0.005	0.70

3.5. EUI: Site Prep (2029) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.52	3.05	< 0.005	0.04	—	0.04	0.04	—	0.04	—	474	474	0.02	< 0.005	—	476
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.17	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	26.0	26.0	< 0.005	< 0.005	—	26.1
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.30	4.30	< 0.005	< 0.005	—	4.31
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.21	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	59.8	59.8	< 0.005	< 0.005	< 0.005	60.6
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	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	64.0	64.0	< 0.005	0.01	< 0.005	67.2

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.30	3.30	< 0.005	< 0.005	< 0.005	3.35
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.51	3.51	< 0.005	< 0.005	< 0.005	3.68
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.55
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.58	0.58	< 0.005	< 0.005	< 0.005	0.61

3.7. PANZ: Panzerbelt Install (2029) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.48	0.41	3.49	4.59	0.01	0.12	—	0.12	0.11	—	0.11	—	1,077	1,077	0.04	0.01	—	1,081
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.48	0.41	3.49	4.59	0.01	0.12	—	0.12	0.11	—	0.11	—	1,077	1,077	0.04	0.01	—	1,081

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	0.22	1.89	2.49	0.01	0.06	—	0.06	0.06	—	0.06	—	584	584	0.02	< 0.005	—	586
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.35	0.45	< 0.005	0.01	—	0.01	0.01	—	0.01	—	96.7	96.7	< 0.005	< 0.005	—	97.1
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.03	0.61	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	161	161	< 0.005	< 0.005	0.45	162
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.4	24.4	< 0.005	< 0.005	0.06	25.6
Hauling	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	64.0	64.0	< 0.005	0.01	0.12	67.3

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.53	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	149	149	< 0.005	0.01	0.01	151
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.4	24.4	< 0.005	< 0.005	< 0.005	25.5
Hauling	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	64.0	64.0	< 0.005	0.01	< 0.005	67.2
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.28	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	81.6	81.6	< 0.005	< 0.005	0.11	82.8
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.2	13.2	< 0.005	< 0.005	0.01	13.9
Hauling	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.7	34.7	< 0.005	0.01	0.03	36.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.05	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	13.5	13.5	< 0.005	< 0.005	0.02	13.7
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.19	2.19	< 0.005	< 0.005	< 0.005	2.29
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.75	5.75	< 0.005	< 0.005	< 0.005	6.04

3.9. CGCR: Grading (2028) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.47	3.91	7.01	0.01	0.17	—	0.17	0.16	—	0.16	—	1,077	1,077	0.04	0.01	—	1,080
Dust From Material Movement	—	—	—	—	—	—	0.53	0.53	—	0.06	0.06	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.21	0.38	< 0.005	0.01	—	0.01	0.01	—	0.01	—	59.0	59.0	< 0.005	< 0.005	—	59.2
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	< 0.005	0.04	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.77	9.77	< 0.005	< 0.005	—	9.80
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	32.8	32.8	< 0.005	< 0.005	0.10	33.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.68	1.68	< 0.005	< 0.005	< 0.005	1.70
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.28	0.28	< 0.005	< 0.005	< 0.005	0.28
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

3.11. EUI: Grading (2029) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.82	1.68	< 0.005	0.02	—	0.02	0.02	—	0.02	—	254	254	0.01	< 0.005	—	255
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.10	0.08	0.82	1.68	< 0.005	0.02	—	0.02	0.02	—	0.02	—	254	254	0.01	< 0.005	—	255
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	< 0.005	0.04	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.9	13.9	< 0.005	< 0.005	—	14.0
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.30	2.30	< 0.005	< 0.005	—	2.31
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	20.1	20.1	< 0.005	< 0.005	0.06	20.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	18.7	18.7	< 0.005	< 0.005	< 0.005	18.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.05
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.17
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

3.13. CGCR: Pile Driving (2028) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.48	0.40	3.51	4.22	0.01	0.14	—	0.14	0.13	—	0.13	—	1,095	1,095	0.04	0.01	—	1,099
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.48	0.40	3.51	4.22	0.01	0.14	—	0.14	0.13	—	0.13	—	1,095	1,095	0.04	0.01	—	1,099
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.64	0.77	< 0.005	0.03	—	0.03	0.02	—	0.02	—	199	199	0.01	< 0.005	—	200
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.12	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	33.0	33.0	< 0.005	< 0.005	—	33.1
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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.04	0.76	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	197	197	< 0.005	< 0.005	0.61	198
Vendor	0.02	0.01	0.26	0.12	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	226	226	0.01	0.03	0.54	236
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	0.67	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	182	182	< 0.005	0.01	0.02	185

Vendor	0.02	0.01	0.28	0.12	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	226	226	0.01	0.03	0.01	236
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	33.4	33.4	< 0.005	< 0.005	0.05	33.9
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	41.1	41.1	< 0.005	0.01	0.04	42.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.53	5.53	< 0.005	< 0.005	0.01	5.61
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.80	6.80	< 0.005	< 0.005	0.01	7.11
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.15. CGCR: Pile Driving (2029) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.46	0.39	3.29	4.19	0.01	0.13	—	0.13	0.12	—	0.12	—	1,095	1,095	0.04	0.01	—	1,099
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.02	0.02	0.17	0.21	< 0.005	0.01	—	0.01	0.01	—	0.01	—	55.7	55.7	< 0.005	< 0.005	—	55.9
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	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.23	9.23	< 0.005	< 0.005	—	9.26
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.64	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	179	179	< 0.005	0.01	0.01	182
Vendor	0.02	0.01	0.26	0.12	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	220	220	0.01	0.03	0.01	230
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.18	9.18	< 0.005	< 0.005	0.01	9.32
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.2	11.2	< 0.005	< 0.005	0.01	11.7
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	—	1.52	1.52	< 0.005	< 0.005	< 0.005	1.54
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.85	1.85	< 0.005	< 0.005	< 0.005	1.94
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.17. CGCR: Rail Install (2029) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.68	5.87	7.90	0.02	0.18	—	0.18	0.17	—	0.17	—	1,672	1,672	0.07	0.01	—	1,677
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.68	5.87	7.90	0.02	0.18	—	0.18	0.17	—	0.17	—	1,672	1,672	0.07	0.01	—	1,677
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.69	2.27	< 0.005	0.05	—	0.05	0.05	—	0.05	—	481	481	0.02	< 0.005	—	483
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.31	0.41	< 0.005	0.01	—	0.01	0.01	—	0.01	—	79.6	79.6	< 0.005	< 0.005	—	79.9

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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.03	0.61	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	161	161	< 0.005	< 0.005	0.45	162
Vendor	0.01	< 0.005	0.14	0.06	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	122	122	< 0.005	0.02	0.28	128
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.53	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	149	149	< 0.005	0.01	0.01	151
Vendor	0.01	< 0.005	0.15	0.06	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	122	122	< 0.005	0.02	0.01	128
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.01	0.15	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	43.3	43.3	< 0.005	< 0.005	0.06	43.9
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	35.1	35.1	< 0.005	0.01	0.03	36.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.16	7.16	< 0.005	< 0.005	0.01	7.27
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.81	5.81	< 0.005	< 0.005	0.01	6.08
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.19. EUI: Construction (2029) - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.41	1.18	10.1	13.2	0.03	0.34	—	0.34	0.31	—	0.31	—	2,991	2,991	0.12	0.02	—	3,001
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.41	1.18	10.1	13.2	0.03	0.34	—	0.34	0.31	—	0.31	—	2,991	2,991	0.12	0.02	—	3,001
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.57	0.48	4.08	5.36	0.01	0.14	—	0.14	0.13	—	0.13	—	1,213	1,213	0.05	0.01	—	1,217
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	0.74	0.98	< 0.005	0.02	—	0.02	0.02	—	0.02	—	201	201	0.01	< 0.005	—	201
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.08	0.07	0.04	0.85	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	225	225	< 0.005	< 0.005	0.64	227
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.4	24.4	< 0.005	< 0.005	0.06	25.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.74	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	209	209	< 0.005	0.01	0.02	212
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.4	24.4	< 0.005	< 0.005	< 0.005	25.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.29	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	85.4	85.4	< 0.005	< 0.005	0.11	86.6
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.89	9.89	< 0.005	< 0.005	0.01	10.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.05	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	14.1	14.1	< 0.005	< 0.005	0.02	14.3
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.64	1.64	< 0.005	< 0.005	< 0.005	1.71
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.21. EUI: Paving (2029) - Unmitigated

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

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

Off-Road Equipm	0.31	0.26	2.38	3.63	0.01	0.09	—	0.09	0.08	—	0.08	—	545	545	0.02	< 0.005	—	547
Paving	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.20	0.30	< 0.005	0.01	—	0.01	0.01	—	0.01	—	44.8	44.8	< 0.005	< 0.005	—	45.0
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.42	7.42	< 0.005	< 0.005	—	7.44
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.32	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	89.6	89.6	< 0.005	< 0.005	0.01	90.9
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.4	24.4	< 0.005	< 0.005	< 0.005	25.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.42	7.42	< 0.005	< 0.005	0.01	7.53
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.00	2.00	< 0.005	< 0.005	< 0.005	2.10
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.23	1.23	< 0.005	< 0.005	< 0.005	1.25
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.33	0.33	< 0.005	< 0.005	< 0.005	0.35
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

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

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

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

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

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

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

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
CGCR: Demo	Demolition	7/1/2028	8/11/2028	5.00	30.0	—
CGCR: Site Prep	Site Preparation	8/12/2028	9/1/2028	5.00	15.0	—
EUI: Site Prep	Site Preparation	3/1/2029	3/28/2029	5.00	20.0	—
PANZ: Panzerbelt Install	Site Preparation	1/27/2029	10/31/2029	5.00	198	—
CGCR: Grading	Grading	9/2/2028	9/29/2028	5.00	20.0	—
EUI: Grading	Grading	3/29/2029	4/25/2029	5.00	20.0	—

CGCR: Pile Driving	Building Construction	9/30/2028	1/26/2029	5.00	85.0	—
CGCR: Rail Install	Building Construction	1/27/2029	6/22/2029	5.00	105	—
EUI: Construction	Building Construction	4/26/2029	11/19/2029	5.00	148	—
EUI: Paving	Paving	11/20/2029	12/31/2029	5.00	30.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
CGCR: Demo	Concrete/Industrial Saws	Diesel	Average	3.00	8.00	33.0	0.73
CGCR: Demo	Forklifts	Diesel	Average	2.00	8.00	82.0	0.20
CGCR: Demo	Bore/Drill Rigs	Diesel	Average	1.00	4.00	83.0	0.50
CGCR: Site Prep	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
CGCR: Site Prep	Skid Steer Loaders	Diesel	Average	1.00	6.00	71.0	0.37
EUI: Site Prep	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
EUI: Site Prep	Skid Steer Loaders	Diesel	Average	1.00	6.00	71.0	0.37
PANZ: Panzerbelt Install	Concrete/Industrial Saws	Diesel	Average	1.00	2.00	33.0	0.73
PANZ: Panzerbelt Install	Cranes	Diesel	Average	1.00	6.00	367	0.29
PANZ: Panzerbelt Install	Forklifts	Diesel	Average	1.00	4.00	82.0	0.20
PANZ: Panzerbelt Install	Welders	Diesel	Average	1.00	2.00	46.0	0.45
PANZ: Panzerbelt Install	Tractors/Loaders/Backhoes	Diesel	Average	1.00	4.00	84.0	0.37
CGCR: Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	7.00	84.0	0.37
CGCR: Grading	Graders	Diesel	Average	1.00	8.00	148	0.41

EUI: Grading	Tractors/Loaders/Back	Diesel	Average	1.00	7.00	84.0	0.37
CGCR: Pile Driving	Cranes	Diesel	Average	1.00	7.00	367	0.29
CGCR: Pile Driving	Forklifts	Diesel	Average	2.00	6.00	82.0	0.20
CGCR: Rail Install	Cranes	Diesel	Average	1.00	8.00	367	0.29
CGCR: Rail Install	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
CGCR: Rail Install	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
CGCR: Rail Install	Welders	Diesel	Average	2.00	6.00	46.0	0.45
EUI: Construction	Cranes	Diesel	Average	2.00	8.00	367	0.29
EUI: Construction	Forklifts	Diesel	Average	2.00	8.00	82.0	0.20
EUI: Construction	Welders	Diesel	Average	2.00	8.00	46.0	0.45
EUI: Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
EUI: Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	4.00	84.0	0.37
EUI: Paving	Pavers	Diesel	Average	1.00	7.00	81.0	0.42
EUI: Paving	Rollers	Diesel	Average	1.00	7.00	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
CGCR: Site Prep	—	—	—	—
CGCR: Site Prep	Worker	8.00	11.7	LDA,LDT1,LDT2
CGCR: Site Prep	Vendor	0.00	8.40	HHDT,MHDT
CGCR: Site Prep	Hauling	1.00	30.0	HHDT
CGCR: Site Prep	Onsite truck	—	—	HHDT
EUI: Site Prep	—	—	—	—
EUI: Site Prep	Worker	8.00	11.7	LDA,LDT1,LDT2

EUI: Site Prep	Vendor	—	8.40	HHDT,MHDT
EUI: Site Prep	Hauling	1.00	20.0	HHDT
EUI: Site Prep	Onsite truck	—	—	HHDT
CGCR: Grading	—	—	—	—
CGCR: Grading	Worker	4.00	11.7	LDA,LDT1,LDT2
CGCR: Grading	Vendor	—	8.40	HHDT,MHDT
CGCR: Grading	Hauling	0.00	30.0	HHDT
CGCR: Grading	Onsite truck	—	—	HHDT
EUI: Grading	—	—	—	—
EUI: Grading	Worker	2.50	11.7	LDA,LDT1,LDT2
EUI: Grading	Vendor	—	8.40	HHDT,MHDT
EUI: Grading	Hauling	0.00	30.0	HHDT
EUI: Grading	Onsite truck	—	—	HHDT
CGCR: Pile Driving	—	—	—	—
CGCR: Pile Driving	Worker	24.0	11.7	LDA,LDT1,LDT2
CGCR: Pile Driving	Vendor	9.00	8.40	HHDT,MHDT
CGCR: Pile Driving	Hauling	0.00	20.0	HHDT
CGCR: Pile Driving	Onsite truck	—	—	HHDT
CGCR: Rail Install	—	—	—	—
CGCR: Rail Install	Worker	20.0	11.7	LDA,LDT1,LDT2
CGCR: Rail Install	Vendor	5.00	8.40	HHDT,MHDT
CGCR: Rail Install	Hauling	0.00	20.0	HHDT
CGCR: Rail Install	Onsite truck	—	—	HHDT
EUI: Construction	—	—	—	—
EUI: Construction	Worker	28.0	11.7	LDA,LDT1,LDT2
EUI: Construction	Vendor	1.00	8.40	HHDT,MHDT
EUI: Construction	Hauling	0.00	20.0	HHDT
EUI: Construction	Onsite truck	—	—	HHDT

EUI: Paving	—	—	—	—
EUI: Paving	Worker	12.0	11.7	LDA,LDT1,LDT2
EUI: Paving	Vendor	1.00	8.40	HHDT,MHDT
EUI: Paving	Hauling	0.00	20.0	HHDT
EUI: Paving	Onsite truck	—	—	HHDT
CGCR: Demo	—	—	—	—
CGCR: Demo	Worker	24.0	11.7	LDA,LDT1,LDT2
CGCR: Demo	Vendor	—	8.40	HHDT,MHDT
CGCR: Demo	Hauling	7.00	20.0	HHDT
CGCR: Demo	Onsite truck	—	—	HHDT
PANZ: Panzerbelt Install	—	—	—	—
PANZ: Panzerbelt Install	Worker	20.0	11.7	LDA,LDT1,LDT2
PANZ: Panzerbelt Install	Vendor	1.00	8.40	HHDT,MHDT
PANZ: Panzerbelt Install	Hauling	1.00	20.0	HHDT
PANZ: Panzerbelt Install	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)
CGCR: Demo	—	1,428	0.00	—	—
CGCR: Site Prep	—	25.0	0.00	0.00	—
EUI: Site Prep	—	10.0	0.00	0.00	—
PANZ: Panzerbelt Install	—	11.0	0.00	0.00	—
CGCR: Grading	—	—	10.0	0.00	—
EUI: Grading	—	—	0.00	0.00	—
EUI: Paving	0.00	0.00	0.00	0.00	0.14

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
Other Asphalt Surfaces	0.14	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2028	0.00	453	0.03	< 0.005
2029	0.00	453	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. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

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	5.51	annual days of extreme heat
Extreme Precipitation	6.10	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	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

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

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

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	3.12
AQ-PM	46.2
AQ-DPM	98.0
Drinking Water	4.21
Lead Risk Housing	56.1
Pesticides	0.00
Toxic Releases	52.6
Traffic	90.3
Effect Indicators	—
CleanUp Sites	100
Groundwater	99.9
Haz Waste Facilities/Generators	94.4
Impaired Water Bodies	83.0
Solid Waste	89.1
Sensitive Population	—
Asthma	97.2
Cardio-vascular	41.2
Low Birth Weights	83.3

Socioeconomic Factor Indicators	—
Education	26.9
Housing	70.5
Linguistic	26.4
Poverty	30.0
Unemployment	45.8

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	43.39792121
Employed	80.73912486
Median HI	63.85217503
Education	—
Bachelor's or higher	75.77312973
High school enrollment	100
Preschool enrollment	37.95714102
Transportation	—
Auto Access	21.6091364
Active commuting	94.30257924
Social	—
2-parent households	13.34530989
Voting	52.23918902
Neighborhood	—
Alcohol availability	18.88874631
Park access	60.29770307
Retail density	49.21083023

Supermarket access	42.17887848
Tree canopy	17.36173489
Housing	—
Homeownership	30.71987681
Housing habitability	20.10778904
Low-inc homeowner severe housing cost burden	11.53599384
Low-inc renter severe housing cost burden	18.22148082
Uncrowded housing	37.66200436
Health Outcomes	—
Insured adults	47.91479533
Arthritis	79.8
Asthma ER Admissions	1.0
High Blood Pressure	76.3
Cancer (excluding skin)	85.3
Asthma	18.0
Coronary Heart Disease	87.2
Chronic Obstructive Pulmonary Disease	59.8
Diagnosed Diabetes	65.9
Life Expectancy at Birth	19.2
Cognitively Disabled	44.8
Physically Disabled	73.0
Heart Attack ER Admissions	64.3
Mental Health Not Good	34.8
Chronic Kidney Disease	73.0
Obesity	31.6
Pedestrian Injuries	77.0
Physical Health Not Good	49.1
Stroke	58.2

Health Risk Behaviors	—
Binge Drinking	36.9
Current Smoker	29.7
No Leisure Time for Physical Activity	53.7
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	13.3
Children	14.8
Elderly	94.7
English Speaking	53.9
Foreign-born	50.4
Outdoor Workers	58.6
Climate Change Adaptive Capacity	—
Impervious Surface Cover	6.2
Traffic Density	91.8
Traffic Access	72.7
Other Indices	—
Hardship	40.1
Other Decision Support	—
2016 Voting	38.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	80.0
Healthy Places Index Score for Project Location (b)	60.0
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)	West Oakland

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
Characteristics: Utility Information	Project is a Port of Oakland (POAK) Project.
Construction: Construction Phases	Project schedule updated to reflect a 18 month timeline for this project element.
Construction: Off-Road Equipment	Equipment list updated to reflect the land-based off-road equipment used for this project element.
Construction: Trips and VMT	Trips updated to reflect removal of existing rail system, updated (longer) trip distances for haul truck trips, updated vendor trips based on information provided by Liftech.
Construction: Dust From Material Movement	Added CGCR: Demo to account for concrete off haul.

POAK SWIS1: B22-24, B30-33, B35, and B37 (B&F + PINS + STOPS) Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	POAK SWIS1: B22-24, B30-33, B35, and B37 (B&F + PINS + STOPS)
Construction Start Date	1/1/2030
Lead Agency	—
Land Use Scale	—
Analysis Level for Defaults	County
Windspeed (m/s)	3.90
Precipitation (days)	17.0
Location	37.814351314578786, -122.31792267337764
County	Alameda
City	Oakland
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1513
EDFZ	1
Electric Utility	Port of Oakland
Gas Utility	—
App Version	2022.1.1.29

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
User Defined Industrial	1.00	User Defined Unit	0.00	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.59	1.35	10.6	14.6	0.03	0.38	0.39	0.77	0.35	0.09	0.44	—	3,786	3,786	0.14	0.05	1.08	3,805
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.59	1.34	10.6	14.5	0.03	0.38	0.39	0.77	0.35	0.09	0.44	—	3,761	3,761	0.15	0.06	0.03	3,782
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.13	0.96	7.55	10.3	0.02	0.27	0.28	0.55	0.25	0.07	0.32	—	2,688	2,688	0.10	0.03	0.33	2,701
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.21	0.17	1.38	1.88	< 0.005	0.05	0.05	0.10	0.05	0.01	0.06	—	445	445	0.02	0.01	0.06	447

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	1.59	1.35	10.6	14.6	0.03	0.38	0.39	0.77	0.35	0.09	0.44	—	3,786	3,786	0.14	0.05	1.08	3,805

2031	1.55	1.31	10.1	14.5	0.03	0.36	0.39	0.75	0.33	0.09	0.43	—	3,778	3,778	0.14	0.05	0.96	3,797
2032	1.50	1.27	9.59	14.3	0.03	0.33	0.39	0.72	0.30	0.09	0.40	—	3,770	3,770	0.14	0.05	0.84	3,788
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	1.59	1.34	10.6	14.5	0.03	0.38	0.39	0.77	0.35	0.09	0.44	—	3,761	3,761	0.15	0.06	0.03	3,782
2031	1.55	1.31	10.1	14.3	0.03	0.36	0.39	0.75	0.33	0.09	0.43	—	3,754	3,754	0.15	0.05	0.02	3,771
2032	1.50	1.27	9.61	14.1	0.03	0.33	0.39	0.72	0.30	0.09	0.40	—	3,746	3,746	0.15	0.05	0.02	3,764
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	1.13	0.96	7.55	10.3	0.02	0.27	0.28	0.55	0.25	0.07	0.32	—	2,688	2,688	0.10	0.03	0.33	2,701
2031	1.11	0.93	7.21	10.2	0.02	0.26	0.28	0.54	0.24	0.07	0.30	—	2,683	2,683	0.10	0.03	0.29	2,696
2032	1.07	0.91	6.88	10.1	0.02	0.23	0.28	0.51	0.22	0.07	0.28	—	2,685	2,685	0.10	0.03	0.26	2,697
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	0.21	0.17	1.38	1.88	< 0.005	0.05	0.05	0.10	0.05	0.01	0.06	—	445	445	0.02	0.01	0.06	447
2031	0.20	0.17	1.32	1.86	< 0.005	0.05	0.05	0.10	0.04	0.01	0.06	—	444	444	0.02	0.01	0.05	446
2032	0.20	0.17	1.26	1.84	< 0.005	0.04	0.05	0.09	0.04	0.01	0.05	—	444	444	0.02	0.01	0.04	447

3. Construction Emissions Details

3.1. B&F (2030) - 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	1.13	0.95	7.96	10.3	0.02	0.30	—	0.30	0.28	—	0.28	—	2,618	2,618	0.11	0.02	—	2,627

Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.13	0.95	7.96	10.3	0.02	0.30	—	0.30	0.28	—	0.28	—	2,618	2,618	0.11	0.02	—	2,627
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.81	0.68	5.69	7.35	0.02	0.21	—	0.21	0.20	—	0.20	—	1,870	1,870	0.08	0.02	—	1,877
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	1.04	1.34	< 0.005	0.04	—	0.04	0.04	—	0.04	—	310	310	0.01	< 0.005	—	311

Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.04	0.74	0.00	0.00	0.21	0.21	0.00	0.05	0.05	—	206	206	< 0.005	< 0.005	0.52	207
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	47.3	47.3	< 0.005	0.01	0.10	49.5
Hauling	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	62.2	62.2	< 0.005	0.01	0.10	65.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	0.65	0.00	0.00	0.21	0.21	0.00	0.05	0.05	—	191	191	< 0.005	0.01	0.01	194
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	47.4	47.4	< 0.005	0.01	< 0.005	49.5
Hauling	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	62.3	62.3	< 0.005	0.01	< 0.005	65.3
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.45	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	137	137	< 0.005	< 0.005	0.16	138
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	33.8	33.8	< 0.005	< 0.005	0.03	35.4
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	44.5	44.5	< 0.005	0.01	0.03	46.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	22.7	22.7	< 0.005	< 0.005	0.03	22.8
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.60	5.60	< 0.005	< 0.005	0.01	5.85
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.36	7.36	< 0.005	< 0.005	0.01	7.73

3.3. B&F (2031) - 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	1.10	0.93	7.59	10.2	0.02	0.29	—	0.29	0.26	—	0.26	—	2,618	2,618	0.11	0.02	—	2,627
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.10	0.93	7.59	10.2	0.02	0.29	—	0.29	0.26	—	0.26	—	2,618	2,618	0.11	0.02	—	2,627
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.79	0.66	5.42	7.30	0.02	0.20	—	0.20	0.19	—	0.19	—	1,870	1,870	0.08	0.02	—	1,877
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.12	0.99	1.33	< 0.005	0.04	—	0.04	0.03	—	0.03	—	310	310	0.01	< 0.005	—	311
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.71	0.00	0.00	0.21	0.21	0.00	0.05	0.05	—	203	203	< 0.005	< 0.005	0.46	204
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	45.8	45.8	< 0.005	0.01	0.09	48.0
Hauling	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	60.5	60.5	< 0.005	0.01	0.09	63.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.62	0.00	0.00	0.21	0.21	0.00	0.05	0.05	—	188	188	< 0.005	< 0.005	0.01	189
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	45.8	45.8	< 0.005	0.01	< 0.005	48.0
Hauling	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	60.5	60.5	< 0.005	0.01	< 0.005	63.4
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.43	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	136	136	< 0.005	< 0.005	0.14	136
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	32.7	32.7	< 0.005	< 0.005	0.03	34.3
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	43.2	43.2	< 0.005	0.01	0.03	45.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	22.4	22.4	< 0.005	< 0.005	0.02	22.5

Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.42	5.42	< 0.005	< 0.005	< 0.005	5.67
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.16	7.16	< 0.005	< 0.005	< 0.005	7.51

3.5. B&F (2032) - 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	1.07	0.89	7.20	10.1	0.02	0.26	—	0.26	0.24	—	0.24	—	2,618	2,618	0.11	0.02	—	2,627
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	0.89	7.20	10.1	0.02	0.26	—	0.26	0.24	—	0.24	—	2,618	2,618	0.11	0.02	—	2,627
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.76	0.64	5.16	7.23	0.02	0.18	—	0.18	0.17	—	0.17	—	1,875	1,875	0.08	0.02	—	1,882
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.12	0.94	1.32	< 0.005	0.03	—	0.03	0.03	—	0.03	—	310	310	0.01	< 0.005	—	312
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.03	0.68	0.00	0.00	0.21	0.21	0.00	0.05	0.05	—	200	200	< 0.005	< 0.005	0.40	201
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	44.3	44.3	< 0.005	0.01	0.08	46.4
Hauling	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	58.9	58.9	< 0.005	0.01	0.08	61.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.59	0.00	0.00	0.21	0.21	0.00	0.05	0.05	—	186	186	< 0.005	< 0.005	0.01	186
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	44.3	44.3	< 0.005	0.01	< 0.005	46.3
Hauling	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	58.9	58.9	< 0.005	0.01	< 0.005	61.8
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.41	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	134	134	< 0.005	< 0.005	0.12	135

Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	31.7	31.7	< 0.005	< 0.005	0.03	33.2
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	42.2	42.2	< 0.005	0.01	0.03	44.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	22.2	22.2	< 0.005	< 0.005	0.02	22.3
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.25	5.25	< 0.005	< 0.005	< 0.005	5.49
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.98	6.98	< 0.005	< 0.005	< 0.005	7.33

3.7. Stow Pins (2030) - 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	0.17	0.14	1.23	1.75	< 0.005	0.04	—	0.04	0.04	—	0.04	—	389	389	0.02	< 0.005	—	390
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.23	1.75	< 0.005	0.04	—	0.04	0.04	—	0.04	—	389	389	0.02	< 0.005	—	390

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.88	1.25	< 0.005	0.03	—	0.03	0.03	—	0.03	—	278	278	0.01	< 0.005	—	279
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.16	0.23	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	46.0	46.0	< 0.005	< 0.005	—	46.1
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.29	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	79.2	79.2	< 0.005	< 0.005	0.20	79.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.08

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.25	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	73.5	73.5	< 0.005	< 0.005	0.01	74.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.08
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.17	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	52.8	52.8	< 0.005	< 0.005	0.06	53.1
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	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.06	0.06	< 0.005	< 0.005	< 0.005	0.06
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.75	8.75	< 0.005	< 0.005	0.01	8.79
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01

3.9. Stow Pins (2031) - 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	0.17	0.14	1.19	1.74	< 0.005	0.04	—	0.04	0.03	—	0.03	—	389	389	0.02	< 0.005	—	390
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.19	1.74	< 0.005	0.04	—	0.04	0.03	—	0.03	—	389	389	0.02	< 0.005	—	390
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.85	1.24	< 0.005	0.03	—	0.03	0.02	—	0.02	—	278	278	0.01	< 0.005	—	279
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.15	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	46.0	46.0	< 0.005	< 0.005	—	46.1
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.27	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	78.1	78.1	< 0.005	< 0.005	0.18	78.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.08
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.24	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	72.5	72.5	< 0.005	< 0.005	< 0.005	72.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.08
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.17	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	52.1	52.1	< 0.005	< 0.005	0.05	52.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.06	0.06	< 0.005	< 0.005	< 0.005	0.06
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.63	8.63	< 0.005	< 0.005	0.01	8.67
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01

3.11. Stow Pins (2032) - 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	0.16	0.14	1.14	1.73	< 0.005	0.03	—	0.03	0.03	—	0.03	—	389	389	0.02	< 0.005	—	390
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.14	1.73	< 0.005	0.03	—	0.03	0.03	—	0.03	—	389	389	0.02	< 0.005	—	390
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.81	1.24	< 0.005	0.02	—	0.02	0.02	—	0.02	—	278	278	0.01	< 0.005	—	279
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.15	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	46.1	46.1	< 0.005	< 0.005	—	46.2

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.26	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	77.0	77.0	< 0.005	< 0.005	0.15	77.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.08
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.23	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	71.4	71.4	< 0.005	< 0.005	< 0.005	71.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.08
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.16	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	51.5	51.5	< 0.005	< 0.005	0.05	51.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.05	0.05	< 0.005	< 0.005	< 0.005	0.06
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.53	8.53	< 0.005	< 0.005	0.01	8.56
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01

3.13. Crane Stops (2030) - 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	0.17	0.14	1.16	1.28	< 0.005	0.04	—	0.04	0.04	—	0.04	—	325	325	0.01	< 0.005	—	327
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.16	1.28	< 0.005	0.04	—	0.04	0.04	—	0.04	—	325	325	0.01	< 0.005	—	327
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.83	0.92	< 0.005	0.03	—	0.03	0.03	—	0.03	—	232	232	0.01	< 0.005	—	233
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.15	0.17	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	38.5	38.5	< 0.005	< 0.005	—	38.6
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.21	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	59.4	59.4	< 0.005	< 0.005	0.15	59.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.19	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	55.1	55.1	< 0.005	< 0.005	< 0.005	55.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	39.6	39.6	< 0.005	< 0.005	0.05	39.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.56	6.56	< 0.005	< 0.005	0.01	6.59

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

3.15. Crane Stops (2031) - 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	0.17	0.14	1.12	1.27	< 0.005	0.04	—	0.04	0.04	—	0.04	—	325	325	0.01	< 0.005	—	327
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.12	1.27	< 0.005	0.04	—	0.04	0.04	—	0.04	—	325	325	0.01	< 0.005	—	327
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.12	0.10	0.80	0.91	< 0.005	0.03	—	0.03	0.03	—	0.03	—	232	232	0.01	< 0.005	—	233
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.15	0.17	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	38.5	38.5	< 0.005	< 0.005	—	38.6
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.21	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	58.6	58.6	< 0.005	< 0.005	0.13	58.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.18	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	54.4	54.4	< 0.005	< 0.005	< 0.005	54.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	39.1	39.1	< 0.005	< 0.005	0.04	39.3

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.47	6.47	< 0.005	< 0.005	0.01	6.50
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.17. Crane Stops (2032) - 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	0.16	0.13	1.08	1.26	< 0.005	0.04	—	0.04	0.03	—	0.03	—	325	325	0.01	< 0.005	—	327
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.13	1.08	1.26	< 0.005	0.04	—	0.04	0.03	—	0.03	—	325	325	0.01	< 0.005	—	327

Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.77	0.90	< 0.005	0.03	—	0.03	0.02	—	0.02	—	233	233	0.01	< 0.005	—	234
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.14	0.16	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	38.6	38.6	< 0.005	< 0.005	—	38.7
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.20	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	57.7	57.7	< 0.005	< 0.005	0.12	58.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.17	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	53.6	53.6	< 0.005	< 0.005	< 0.005	53.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	38.6	38.6	< 0.005	< 0.005	0.04	38.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.40	6.40	< 0.005	< 0.005	0.01	6.42
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

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

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

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

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

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

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

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

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
B&F	Site Preparation	1/1/2030	12/31/2032	5.00	784	—
Stow Pins	Site Preparation	1/1/2030	12/31/2032	5.00	784	—
Crane Stops	Site Preparation	1/1/2030	12/31/2032	5.00	784	—

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
B&F	Cranes	Diesel	Average	2.00	8.00	367	0.29
B&F	Forklifts	Diesel	Average	2.00	8.00	82.0	0.20
B&F	Air Compressors	Diesel	Average	1.00	4.00	37.0	0.48
B&F	Generator Sets	Diesel	Average	1.00	4.00	14.0	0.74
B&F	Bore/Drill Rigs	Diesel	Average	1.00	4.00	83.0	0.50
Stow Pins	Air Compressors	Diesel	Average	1.00	2.00	37.0	0.48
Stow Pins	Tractors/Loaders/Backhoes	Diesel	Average	1.00	2.00	84.0	0.37
Stow Pins	Cranes	Diesel	Average	1.00	2.00	367	0.29
Stow Pins	Bore/Drill Rigs	Diesel	Average	1.00	0.50	83.0	0.50
Crane Stops	Cranes	Diesel	Average	1.00	2.00	367	0.29
Crane Stops	Welders	Diesel	Average	1.00	2.00	46.0	0.45
Crane Stops	Generator Sets	Diesel	Average	1.00	2.00	14.0	0.74

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
B&F	—	—	—	—

B&F	Worker	26.0	11.7	LDA,LDT1,LDT2
B&F	Vendor	2.00	8.40	HHDT,MHDT
B&F	Hauling	1.00	20.0	HHDT
B&F	Onsite truck	—	—	HHDT
Stow Pins	—	—	—	—
Stow Pins	Worker	10.0	11.7	LDA,LDT1,LDT2
Stow Pins	Vendor	—	8.40	HHDT,MHDT
Stow Pins	Hauling	< 0.005	20.0	HHDT
Stow Pins	Onsite truck	—	—	HHDT
Crane Stops	—	—	—	—
Crane Stops	Worker	7.50	11.7	LDA,LDT1,LDT2
Crane Stops	Vendor	—	8.40	HHDT,MHDT
Crane Stops	Hauling	0.00	20.0	HHDT
Crane Stops	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

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

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
B&F	—	—	0.00	0.00	—

Stow Pins	—	1.00	0.00	0.00	—
Crane Stops	—	—	0.00	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
User Defined Industrial	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2030	0.00	453	0.03	< 0.005
2031	0.00	453	0.03	< 0.005
2032	0.00	453	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. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

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	5.51	annual days of extreme heat
Extreme Precipitation	6.10	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	N/A	N/A	N/A	N/A

Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

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

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	3.12
AQ-PM	46.2
AQ-DPM	98.0
Drinking Water	4.21
Lead Risk Housing	56.1
Pesticides	0.00
Toxic Releases	52.6
Traffic	90.3
Effect Indicators	—
CleanUp Sites	100
Groundwater	99.9
Haz Waste Facilities/Generators	94.4
Impaired Water Bodies	83.0
Solid Waste	89.1
Sensitive Population	—
Asthma	97.2
Cardio-vascular	41.2
Low Birth Weights	83.3
Socioeconomic Factor Indicators	—
Education	26.9
Housing	70.5
Linguistic	26.4
Poverty	30.0
Unemployment	45.8

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	43.39792121
Employed	80.73912486
Median HI	63.85217503
Education	—
Bachelor's or higher	75.77312973
High school enrollment	100
Preschool enrollment	37.95714102
Transportation	—
Auto Access	21.6091364
Active commuting	94.30257924
Social	—
2-parent households	13.34530989
Voting	52.23918902
Neighborhood	—
Alcohol availability	18.88874631
Park access	60.29770307
Retail density	49.21083023
Supermarket access	42.17887848
Tree canopy	17.36173489
Housing	—
Homeownership	30.71987681
Housing habitability	20.10778904
Low-inc homeowner severe housing cost burden	11.53599384
Low-inc renter severe housing cost burden	18.22148082

Uncrowded housing	37.66200436
Health Outcomes	—
Insured adults	47.91479533
Arthritis	79.8
Asthma ER Admissions	1.0
High Blood Pressure	76.3
Cancer (excluding skin)	85.3
Asthma	18.0
Coronary Heart Disease	87.2
Chronic Obstructive Pulmonary Disease	59.8
Diagnosed Diabetes	65.9
Life Expectancy at Birth	19.2
Cognitively Disabled	44.8
Physically Disabled	73.0
Heart Attack ER Admissions	64.3
Mental Health Not Good	34.8
Chronic Kidney Disease	73.0
Obesity	31.6
Pedestrian Injuries	77.0
Physical Health Not Good	49.1
Stroke	58.2
Health Risk Behaviors	—
Binge Drinking	36.9
Current Smoker	29.7
No Leisure Time for Physical Activity	53.7
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	13.3

Children	14.8
Elderly	94.7
English Speaking	53.9
Foreign-born	50.4
Outdoor Workers	58.6
Climate Change Adaptive Capacity	—
Impervious Surface Cover	6.2
Traffic Density	91.8
Traffic Access	72.7
Other Indices	—
Hardship	40.1
Other Decision Support	—
2016 Voting	38.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	80.0
Healthy Places Index Score for Project Location (b)	60.0
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
Characteristics: Utility Information	Project is in the Port of Oakland (POAK)
Construction: Construction Phases	B&F, Stow Pins, and Crane Stop work modeled as being completed in one, gross phase, with activities moving between berths as availability allows.
Construction: Off-Road Equipment	Updated to reflect equipment required for this project element.
Construction: Trips and VMT	Worker, vendor, and haul trips updated to reflect project-conditions.

POAK SWIS1: B26+30 (Curved CGCR) v2 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	POAK SWIS1: B26+30 (Curved CGCR) v2
Construction Start Date	7/1/2029
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.90
Precipitation (days)	17.0
Location	37.80954234752609, -122.32234256514427
County	Alameda
City	Oakland
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1513
EDFZ	1
Electric Utility	Port of Oakland
Gas Utility	—
App Version	2022.1.1.29

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
User Defined Industrial	1.00	User Defined Unit	0.00	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.03	0.87	7.24	11.2	0.02	0.20	0.21	0.41	0.18	0.05	0.23	—	2,276	2,276	0.09	0.02	0.53	2,286
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.55	0.46	4.29	7.05	0.01	0.07	0.15	0.20	0.06	0.03	0.10	—	1,082	1,082	0.04	0.03	0.01	1,087
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.42	0.36	3.02	4.74	0.01	0.08	0.09	0.17	0.07	0.02	0.10	—	940	940	0.04	0.01	0.11	944
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.08	0.06	0.55	0.86	< 0.005	0.01	0.02	0.03	0.01	< 0.005	0.02	—	156	156	0.01	< 0.005	0.02	156

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	1.03	0.87	7.24	11.2	0.02	0.20	0.21	0.41	0.18	0.05	0.23	—	2,276	2,276	0.09	0.02	0.53	2,286

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	0.55	0.46	4.29	7.05	0.01	0.07	0.15	0.20	0.06	0.03	0.10	—	1,082	1,082	0.04	0.03	0.01	1,087
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	0.42	0.36	3.02	4.74	0.01	0.08	0.09	0.17	0.07	0.02	0.10	—	940	940	0.04	0.01	0.11	944
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	0.08	0.06	0.55	0.86	< 0.005	0.01	0.02	0.03	0.01	< 0.005	0.02	—	156	156	0.01	< 0.005	0.02	156

3. Construction Emissions Details

3.1. Demo (2030) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.51	0.42	4.26	6.65	0.01	0.07	—	0.07	0.06	—	0.06	—	962	962	0.04	0.01	—	965
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.29	0.46	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	65.9	65.9	< 0.005	< 0.005	—	66.1
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.9	10.9	< 0.005	< 0.005	—	10.9
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.40	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	118	118	< 0.005	0.01	0.01	119
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.49	2.49	< 0.005	< 0.005	< 0.005	2.61
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.11	8.11	< 0.005	< 0.005	0.01	8.14
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.18
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.34	1.34	< 0.005	< 0.005	< 0.005	1.35
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03

3.3. Site Preparation (2030) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.16	1.61	3.36	< 0.005	0.04	—	0.04	0.04	—	0.04	—	508	508	0.02	< 0.005	—	509
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.01	0.01	0.09	0.18	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.8	27.8	< 0.005	< 0.005	—	27.9
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.61	4.61	< 0.005	< 0.005	—	4.62
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.20	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	58.8	58.8	< 0.005	< 0.005	< 0.005	59.6
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	0.15	0.06	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	125	125	0.01	0.02	0.01	131
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.24	3.24	< 0.005	< 0.005	< 0.005	3.26
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	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.82	6.82	< 0.005	< 0.005	< 0.005	7.16
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.54	0.54	< 0.005	< 0.005	< 0.005	0.54
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.13	1.13	< 0.005	< 0.005	< 0.005	1.19

3.5. Pile Driving (2030) - 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	0.10	0.09	0.83	1.55	< 0.005	0.03	—	0.03	0.03	—	0.03	—	229	229	0.01	< 0.005	—	229
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.83	1.55	< 0.005	0.03	—	0.03	0.03	—	0.03	—	229	229	0.01	< 0.005	—	229
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	< 0.005	0.05	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.5	12.5	< 0.005	< 0.005	—	12.6
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.07	2.07	< 0.005	< 0.005	—	2.08
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	0.04	0.04	0.02	0.46	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	127	127	< 0.005	< 0.005	0.32	127
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	47.3	47.3	< 0.005	0.01	0.10	49.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.40	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	118	118	< 0.005	0.01	0.01	119
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	47.4	47.4	< 0.005	0.01	< 0.005	49.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.49	6.49	< 0.005	< 0.005	0.01	6.51
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.59	2.59	< 0.005	< 0.005	< 0.005	2.71
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.07	1.07	< 0.005	< 0.005	< 0.005	1.08
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.43	0.43	< 0.005	< 0.005	< 0.005	0.45
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. Rail Install (2030) - 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	0.96	0.80	7.18	10.5	0.02	0.20	—	0.20	0.18	—	0.18	—	2,063	2,063	0.08	0.02	—	2,070
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	0.34	0.29	2.56	3.74	0.01	0.07	—	0.07	0.07	—	0.07	—	735	735	0.03	0.01	—	737
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	0.06	0.05	0.47	0.68	< 0.005	0.01	—	0.01	0.01	—	0.01	—	122	122	< 0.005	< 0.005	—	122
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	0.69	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	190	190	< 0.005	< 0.005	0.48	191
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.7	23.7	< 0.005	< 0.005	0.05	24.8

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	0.02	0.02	0.02	0.21	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	63.2	63.2	< 0.005	< 0.005	0.07	63.5
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.43	8.43	< 0.005	< 0.005	0.01	8.81
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.5	10.5	< 0.005	< 0.005	0.01	10.5
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.40	1.40	< 0.005	< 0.005	< 0.005	1.46
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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequest ered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequest ered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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
Demo	Demolition	1/1/2030	2/4/2030	5.00	25.0	—
Site Preparation	Site Preparation	2/5/2030	3/4/2030	5.00	20.0	—

Pile Driving	Building Construction	3/5/2030	4/1/2030	5.00	20.0	—
Rail Install	Building Construction	4/2/2030	9/30/2030	5.00	130	—

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
Demo	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Demo	Skid Steer Loaders	Diesel	Average	1.00	6.00	71.0	0.37
Demo	Concrete/Industrial Saws	Diesel	Average	2.00	8.00	33.0	0.73
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	2.00	7.00	84.0	0.37
Pile Driving	Forklifts	Diesel	Average	2.00	6.00	82.0	0.20
Rail Install	Cranes	Diesel	Average	1.00	8.00	367	0.29
Rail Install	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Rail Install	Bore/Drill Rigs	Diesel	Average	1.00	6.00	83.0	0.50
Rail Install	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
Rail Install	Welders	Diesel	Average	2.00	8.00	46.0	0.45

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	8.00	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.40	HHDT,MHDT
Site Preparation	Hauling	2.00	20.0	HHDT

Site Preparation	Onsite truck	—	—	HHDT
Pile Driving	—	—	—	—
Pile Driving	Worker	16.0	11.7	LDA,LDT1,LDT2
Pile Driving	Vendor	2.00	8.40	HHDT,MHDT
Pile Driving	Hauling	0.00	20.0	HHDT
Pile Driving	Onsite truck	—	—	HHDT
Rail Install	—	—	—	—
Rail Install	Worker	24.0	11.7	LDA,LDT1,LDT2
Rail Install	Vendor	1.00	8.40	HHDT,MHDT
Rail Install	Hauling	0.00	20.0	HHDT
Rail Install	Onsite truck	—	—	HHDT
Demo	—	—	—	—
Demo	Worker	16.0	11.7	LDA,LDT1,LDT2
Demo	Vendor	—	8.40	HHDT,MHDT
Demo	Hauling	0.04	20.0	HHDT
Demo	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

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

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Demo	—	8.00	0.00	—	—
Site Preparation	—	—	0.00	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
User Defined Industrial	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2030	0.00	453	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. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

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	5.49	annual days of extreme heat
Extreme Precipitation	5.80	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	N/A	N/A	N/A	N/A

Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

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

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	3.12
AQ-PM	46.2
AQ-DPM	98.0
Drinking Water	4.21
Lead Risk Housing	56.1
Pesticides	0.00
Toxic Releases	52.6
Traffic	90.3
Effect Indicators	—
CleanUp Sites	100
Groundwater	99.9
Haz Waste Facilities/Generators	94.4
Impaired Water Bodies	83.0
Solid Waste	89.1
Sensitive Population	—
Asthma	97.2
Cardio-vascular	41.2
Low Birth Weights	83.3
Socioeconomic Factor Indicators	—
Education	26.9
Housing	70.5
Linguistic	26.4
Poverty	30.0
Unemployment	45.8

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	43.39792121
Employed	80.73912486
Median HI	63.85217503
Education	—
Bachelor's or higher	75.77312973
High school enrollment	100
Preschool enrollment	37.95714102
Transportation	—
Auto Access	21.6091364
Active commuting	94.30257924
Social	—
2-parent households	13.34530989
Voting	52.23918902
Neighborhood	—
Alcohol availability	18.88874631
Park access	60.29770307
Retail density	49.21083023
Supermarket access	42.17887848
Tree canopy	17.36173489
Housing	—
Homeownership	30.71987681
Housing habitability	20.10778904
Low-inc homeowner severe housing cost burden	11.53599384
Low-inc renter severe housing cost burden	18.22148082

Uncrowded housing	37.66200436
Health Outcomes	—
Insured adults	47.91479533
Arthritis	79.8
Asthma ER Admissions	1.0
High Blood Pressure	76.3
Cancer (excluding skin)	85.3
Asthma	18.0
Coronary Heart Disease	87.2
Chronic Obstructive Pulmonary Disease	59.8
Diagnosed Diabetes	65.9
Life Expectancy at Birth	19.2
Cognitively Disabled	44.8
Physically Disabled	73.0
Heart Attack ER Admissions	64.3
Mental Health Not Good	34.8
Chronic Kidney Disease	73.0
Obesity	31.6
Pedestrian Injuries	77.0
Physical Health Not Good	49.1
Stroke	58.2
Health Risk Behaviors	—
Binge Drinking	36.9
Current Smoker	29.7
No Leisure Time for Physical Activity	53.7
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	13.3

Children	14.8
Elderly	94.7
English Speaking	53.9
Foreign-born	50.4
Outdoor Workers	58.6
Climate Change Adaptive Capacity	—
Impervious Surface Cover	6.2
Traffic Density	91.8
Traffic Access	72.7
Other Indices	—
Hardship	40.1
Other Decision Support	—
2016 Voting	38.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	80.0
Healthy Places Index Score for Project Location (b)	60.0
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)	West Oakland

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
Characteristics: Utility Information	Project is located in the Port of Oakland (POAK).
Construction: Construction Phases	Project timeline updated to meet 9 months of construction anticipated for this element.
Construction: Off-Road Equipment	Equipment list updated to reflect anticipated needs for this project element.
Construction: Trips and VMT	Worker, vendor, and hauling trips updated to reflect project conditions.
Construction: Dust From Material Movement	Added demo to account for off haul of concrete.

POAK SWIS1: B34 (Floating Dock) v2 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	POAK SWIS1: B34 (Floating Dock) v2
Construction Start Date	4/1/2030
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.90
Precipitation (days)	17.0
Location	37.81030086686751, -122.32960193694252
County	Alameda
City	Oakland
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1513
EDFZ	1
Electric Utility	Port of Oakland
Gas Utility	—
App Version	2022.1.1.29

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
User Defined Industrial	1.00	User Defined Unit	0.00	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.40	0.33	2.58	4.01	0.01	0.04	0.19	0.23	0.04	0.04	0.09	—	660	660	0.02	0.01	0.37	665
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.09	0.08	0.48	1.31	< 0.005	0.01	0.18	0.19	0.01	0.04	0.05	—	318	318	0.01	0.01	0.01	321
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.15	0.13	0.96	1.52	< 0.005	0.01	0.10	0.11	0.01	0.02	0.03	—	276	276	0.01	0.01	0.08	278
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.03	0.02	0.18	0.28	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	45.6	45.6	< 0.005	< 0.005	0.01	46.0

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2033	0.40	0.33	2.58	4.01	0.01	0.04	0.19	0.23	0.04	0.04	0.09	—	660	660	0.02	0.01	0.37	665

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2033	0.09	0.08	0.48	1.31	< 0.005	0.01	0.18	0.19	0.01	0.04	0.05	—	318	318	0.01	0.01	0.01	321
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2033	0.15	0.13	0.96	1.52	< 0.005	0.01	0.10	0.11	0.01	0.02	0.03	—	276	276	0.01	0.01	0.08	278
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2033	0.03	0.02	0.18	0.28	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	45.6	45.6	< 0.005	< 0.005	0.01	46.0

3. Construction Emissions Details

3.1. Mobilization (2033) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.40	0.86	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.01	0.01	0.07	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	22.0	22.0	< 0.005	< 0.005	—	22.1
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.64	3.64	< 0.005	< 0.005	—	3.66
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.43	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	141	141	< 0.005	< 0.005	0.01	141
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	42.9	42.9	< 0.005	0.01	< 0.005	44.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	23.3	23.3	< 0.005	< 0.005	0.02	23.4
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.04	7.04	< 0.005	< 0.005	0.01	7.36
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	—	3.86	3.86	< 0.005	< 0.005	< 0.005	3.88
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.17	1.17	< 0.005	< 0.005	< 0.005	1.22
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Pile Driving (2033) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.02	0.50	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.27	153
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.43	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	141	141	< 0.005	< 0.005	0.01	141
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.89	3.89	< 0.005	< 0.005	< 0.005	3.91
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.64	0.64	< 0.005	< 0.005	< 0.005	0.65
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

3.5. Floating Dock Install (2033) - 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	0.34	0.28	2.51	3.48	0.01	0.02	—	0.02	0.02	—	0.02	—	445	445	0.02	< 0.005	—	446
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	0.41	0.57	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	73.1	73.1	< 0.005	< 0.005	—	73.4
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	—	12.1	12.1	< 0.005	< 0.005	—	12.1
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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.02	0.50	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.27	153
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	42.8	42.8	< 0.005	0.01	0.07	44.8
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	0.01	0.01	0.01	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	23.3	23.3	< 0.005	< 0.005	0.02	23.4
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.04	7.04	< 0.005	< 0.005	0.01	7.36
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	—	3.86	3.86	< 0.005	< 0.005	< 0.005	3.88
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.17	1.17	< 0.005	< 0.005	< 0.005	1.22
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. Finishing Activities (2033) - 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	0.34	0.29	2.47	3.20	0.01	0.04	—	0.04	0.04	—	0.04	—	443	443	0.02	< 0.005	—	445
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.44	0.57	< 0.005	0.01	—	0.01	0.01	—	0.01	—	78.9	78.9	< 0.005	< 0.005	—	79.2
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.01	0.01	0.08	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.1	13.1	< 0.005	< 0.005	—	13.1
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.02	0.50	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.27	153
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	42.8	42.8	< 0.005	0.01	0.07	44.8
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.1	22.1	< 0.005	< 0.005	0.03	23.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.3	25.3	< 0.005	< 0.005	0.02	25.4
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.63	7.63	< 0.005	< 0.005	0.01	7.97
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.93	3.93	< 0.005	< 0.005	< 0.005	4.12
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.19	4.19	< 0.005	< 0.005	< 0.005	4.20
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.26	1.26	< 0.005	< 0.005	< 0.005	1.32
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.65	0.65	< 0.005	< 0.005	< 0.005	0.68

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

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

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

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

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

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

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

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Mobilization	Site Preparation	1/1/2033	3/25/2033	5.00	60.0	—
Pile Driving	Building Construction	3/26/2033	4/8/2033	5.00	10.0	—
Floating Dock Install	Building Construction	4/9/2033	7/1/2033	5.00	60.0	—
Finishing Activities	Building Construction	7/2/2033	9/30/2033	5.00	65.0	—

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
Mobilization	Bore/Drill Rigs	Diesel	Average	1.00	2.00	83.0	0.50
Mobilization	Forklifts	Diesel	Average	1.00	2.00	82.0	0.20
Floating Dock Install	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Floating Dock Install	Welders	Diesel	Average	2.00	6.00	46.0	0.45
Finishing Activities	Generator Sets	Diesel	Average	1.00	6.00	14.0	0.74
Finishing Activities	Welders	Diesel	Average	1.00	6.00	46.0	0.45
Finishing Activities	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

Finishing Activities	Forklifts	Diesel	Average	1.00	4.00	82.0	0.20

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Mobilization	—	—	—	—
Mobilization	Worker	20.0	11.7	LDA,LDT1,LDT2
Mobilization	Vendor	2.00	8.40	HHDT,MHDT
Mobilization	Hauling	0.00	20.0	HHDT
Mobilization	Onsite truck	—	—	HHDT
Pile Driving	—	—	—	—
Pile Driving	Worker	20.0	11.7	LDA,LDT1,LDT2
Pile Driving	Vendor	0.00	8.40	HHDT,MHDT
Pile Driving	Hauling	0.00	20.0	HHDT
Pile Driving	Onsite truck	—	—	HHDT
Floating Dock Install	—	—	—	—
Floating Dock Install	Worker	20.0	11.7	LDA,LDT1,LDT2
Floating Dock Install	Vendor	2.00	8.40	HHDT,MHDT
Floating Dock Install	Hauling	0.00	20.0	HHDT
Floating Dock Install	Onsite truck	—	—	HHDT
Finishing Activities	—	—	—	—
Finishing Activities	Worker	20.0	11.7	LDA,LDT1,LDT2
Finishing Activities	Vendor	2.00	8.40	HHDT,MHDT
Finishing Activities	Hauling	0.38	20.0	HHDT
Finishing Activities	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

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

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Mobilization	—	—	0.00	0.00	—
Finishing Activities	—	200	0.00	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
User Defined Industrial	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2033	0.00	453	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. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

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	5.49	annual days of extreme heat
Extreme Precipitation	5.80	annual days with precipitation above 20 mm
Sea Level Rise	13.4	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	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

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

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	3.12
AQ-PM	46.2
AQ-DPM	98.0
Drinking Water	4.21
Lead Risk Housing	56.1
Pesticides	0.00
Toxic Releases	52.6
Traffic	90.3
Effect Indicators	—
CleanUp Sites	100
Groundwater	99.9
Haz Waste Facilities/Generators	94.4
Impaired Water Bodies	83.0
Solid Waste	89.1

Sensitive Population	—
Asthma	97.2
Cardio-vascular	41.2
Low Birth Weights	83.3
Socioeconomic Factor Indicators	—
Education	26.9
Housing	70.5
Linguistic	26.4
Poverty	30.0
Unemployment	45.8

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	43.39792121
Employed	80.73912486
Median HI	63.85217503
Education	—
Bachelor's or higher	75.77312973
High school enrollment	100
Preschool enrollment	37.95714102
Transportation	—
Auto Access	21.6091364
Active commuting	94.30257924
Social	—
2-parent households	13.34530989
Voting	52.23918902

Neighborhood	—
Alcohol availability	18.88874631
Park access	60.29770307
Retail density	49.21083023
Supermarket access	42.17887848
Tree canopy	17.36173489
Housing	—
Homeownership	30.71987681
Housing habitability	20.10778904
Low-inc homeowner severe housing cost burden	11.53599384
Low-inc renter severe housing cost burden	18.22148082
Uncrowded housing	37.66200436
Health Outcomes	—
Insured adults	47.91479533
Arthritis	79.8
Asthma ER Admissions	1.0
High Blood Pressure	76.3
Cancer (excluding skin)	85.3
Asthma	18.0
Coronary Heart Disease	87.2
Chronic Obstructive Pulmonary Disease	59.8
Diagnosed Diabetes	65.9
Life Expectancy at Birth	19.2
Cognitively Disabled	44.8
Physically Disabled	73.0
Heart Attack ER Admissions	64.3
Mental Health Not Good	34.8
Chronic Kidney Disease	73.0

Obesity	31.6
Pedestrian Injuries	77.0
Physical Health Not Good	49.1
Stroke	58.2
Health Risk Behaviors	—
Binge Drinking	36.9
Current Smoker	29.7
No Leisure Time for Physical Activity	53.7
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	13.3
Children	14.8
Elderly	94.7
English Speaking	53.9
Foreign-born	50.4
Outdoor Workers	58.6
Climate Change Adaptive Capacity	—
Impervious Surface Cover	6.2
Traffic Density	91.8
Traffic Access	72.7
Other Indices	—
Hardship	40.1
Other Decision Support	—
2016 Voting	38.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	80.0

Healthy Places Index Score for Project Location (b)	60.0
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
Characteristics: Utility Information	Project is located at the Port of Oakland (POAK).
Construction: Construction Phases	Updated to reflect 9 month construction timeline anticipated by Project Engineer.
Construction: Off-Road Equipment	Equipment updated to reflect land-based off-road equipment anticipated for this project element.
Construction: Trips and VMT	Updated worker trips and vendor trips to reflect worker and material import to the site for floating dock installation.
Construction: Dust From Material Movement	During finishing activities, 200 CY of concrete would be hauled off site.

Appendix C
Biological Resources

TABLE B-1
SPECIAL-STATUS SPECIES CONSIDERED IN THE PROJECT AREA

Organism	Taxonomy	Common Name *Scientific Name*	Status Federal/ State/Other	Habitat	Potential to Occur
Plants	Dicots	bent-flowered fiddleneck *Amsinckia lunaris*	-/- /1B.2	Species is found in cismontane woodland, valley and foothill grassland, and coastal bluff scrub. 3-500 meters	**None.** No suitable habitats occur in the Project area. One historical CNDDB record (1883) occurs within a 3-mile radius of the Project area.
		blue coast gilia *Gilia capitata ssp. Chamissonis*	-/- /1B.1	Coastal dunes, coastal scrub. 3-200 meters	**None.** No suitable habitats occur in the Project area. One CNDDB record occurs within a 3-mile radius of the Project area.
		California seablite *Suaeda californica*	FE/- /1B.1	Marshes and swamps (coastal salt). 0 to 15 meters.	**None.** No suitable habitats occur in the Project area. One CNDDB record (transplanted) occurs within a 3-mile radius of the Project area.
		Kellogg's horkelia *Horkelia cuneata var. sericea*	-/SE/1B.1	Closed-cone coniferous forest, coastal scrub, coastal dunes, chaparral. Prefers openings with gravelly or sanding soils. 10 to 200 meters	**None.** No suitable habitats occur in the Project area. One CNDDB record (possibly extirpated) occurs within a 3-mile radius of the Project area.
		oval-leaved viburnum *Viburnum ellipticum*	-/- /2B.3	Chaparral, cismontane woodland, lower montane coniferous forest. 215 to 1400 meters	**None.** No suitable habitats occur in the Project area. One historical CNDDB record (1914) occurs within a 3-mile radius of the Project area.
		saline clover *Trifolium hydrophilum*	-/-/1B.2	Marshes and swamps, valley and foothill grassland (mesic and alkaline), vernal pools. 0 to 300 meters.	**None.** No suitable habitats occur in the Project area. One historical CNDDB record (1883) occurs within a 3-mile radius of the Project area.
		San Joaquin spearscale *Extriplex joaquinana*	-/-/1B.2	Chenopod scrub, alkali meadow, playas, valley and foothill grassland. Alkaline soils. 1 to 835 meters	**None.** No suitable habitats occur in the Project area. One CNDDB record (possibly extirpated) occurs within a 3-mile radius of the Project area.
		Santa Cruz tarplant *Holocarpha macradenia*	FT/SE/1B.1	Coastal prairie, coastal scrub, valley and foothill grassland. Often clay or sandy soils. 10 to 220 meters	**None.** No suitable habitats occur in the Project area. No CNDDB records occur within a 3-mile radius of the Project area.
Wildlife	Amphibians	California red-legged frog *Rana draytonii*	FT/-/SSC	Found mainly near ponds in humid forests, woodlands, grasslands, coastal scrub, and streamsides with plant cover. Most common in lowlands or foothills. Frequently found in woods adjacent to streams. Breeding habitat is in permanent or ephemeral water sources: lakes, ponds, reservoirs, slow streams, marshes, bogs, and swamps. Ephemeral wetland habitats require animal burrows or other moist refuges for estivation when the wetlands are dry.	**None.** No suitable habitats occur in the Project area. No CNDDB records occur within a 3-mile radius of the Project area.
	Birds	Alameda song sparrow *Melospiza melodia pusillula*	-/-/SSC	Resident of salt marshes bordering south arm of San Francisco Bay. -	**None.** No suitable habitats occur in the Project area. Two CNDDB records (one is historical [1990]) occur within a 3-mile radius of the Project area.

TABLE B-1
SPECIAL-STATUS SPECIES CONSIDERED IN THE PROJECT AREA

Organism	Taxonomy	Common Name *Scientific Name*	Status Federal/ State/Other	Habitat	Potential to Occur
		burrowing owl *Athene cunicularia*	-/SC/SSC	Open, dry, annual or perennial grasslands and scrublands characterized by low-growing vegetation. Subterranean nester dependent upon burrowing mammals, specifically California ground squirrel. May also be found around golf courses, and disturbed/ruderal habitat in urban areas. Forages in open plains, grasslands, and prairies.	**None.** No suitable habitats occur in the Project area. No CNDDB records occur within a 3-mile radius of the Project area. A single burrowing owl was opportunistically observed during Environmental Science Associates' site visit on January 22, 2025 while traveling to the project area. This location and individual is known to the Port, and located outside of the project area. No suitable burrowing owl wintering, breeding, or foraging habitat was observed during the visit in the project area.
		California black rail *Laterallus jamaicensis coturniculus*	-/ST/FP	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. -	**None.** No suitable habitats occur in the Project area. One CNDDB record occurs within a 3-mile radius of the Project area.
		California least tern *Sternula antillarum browni*	FE/SE /FP	Nests along the coast from San Francisco Bay south to northern Baja, California. Seacoasts, beaches, bays, estuaries, lagoons, lakes, and rivers. Nests, rests and loafs on sandy beaches, mudflats, and salt-pond dikes.	**Low.** No suitable nesting habitat in the Project area. One CNDDB record occurs within a 3-mile radius of the Project area. This is a known nesting colony present on the nearby Alameda Island, and adults could potentially forage in open water habitat adjacent to the project area.
		California Ridgway's rail *Rallus obsoletus obsoletus*	FE/SE/FP	Salt-water and brackish marshes traversed by tidal sloughs in the vicinity of the San Francisco Bay. Associated with abundant growths of pickleweed (Salicornia spp.) but feeds away from cover on invertebrates from mud bottomed sloughs.	**None.** No suitable habitat occurs in the Project area. One CNDDB record occurs within a 3-mile radius of the Project area.
		double-crested cormorant *Nannopterum auritum*	-/-/ WL	Colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state.	**Low.** No suitable nesting habitat occurs in the Project area. One CNDDB record occurs within a 3-mile radius of the Project area. Individuals could forage in open water adjacent to project area.
		saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	-/- /SSC	Resident of the San Francisco Bay region, in fresh and salt water marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	**None.** No suitable habitats occur in the Project area. One CNDDB record occurs within a 3-mile radius of the Project area.
		western snowy plover *Charadrius nivosus nivosus*	FT/-/SSC	Sandy coastal beaches, sand dunes, salt pans, coastal dredged spoils sites, dry salt ponds, salt pond levees and gravel bars, shores of large alkali lakes. Nests in the open spaces of the mainland coast, peninsulas, offshore islands, bays, estuaries, and rivers of the United States' Pacific Coast. Needs sandy, gravelly or friable soils for nesting	**Low.** No suitable nesting habitat in the Project area. No CNDDB records occur within a 3-mile radius of the Project area. Adults could potentially forage in open water habitat adjacent to the project area.

TABLE B-1
SPECIAL-STATUS SPECIES CONSIDERED IN THE PROJECT AREA

Organism	Taxonomy	Common Name *Scientific Name*	Status Federal/ State/Other	Habitat	Potential to Occur
	Fish	chinook salmon - Central Valley spring-run ESU *Oncorhynchus tshawytscha pop. 11*	FT/ST/-	Adult numbers depend on pool depth and volume, amount of cover, and proximity to gravel. Water temps >27 C are lethal to adults. -	**Moderate.** These fish pass through San Francisco Bay waters to reach their upstream spawning grounds. In addition, juvenile salmon migrate through the Bay en route to the Pacific Ocean. Therefore, Chinook salmon smolts may pass through and forage within the project area during emigration to the Pacific Ocean. No CNDDB records occur within a 3-mile radius of the Project area.
		chinook salmon – Central Valley fall / late fall-run ESU *Oncorhynchus tshawytscha pop. 13*	-/-/SSC	Sacramento River below Keswick Dam. Spawns in the Sacramento River, but not in tributary streams. -	**Moderate.** These fish pass through San Francisco Bay waters to reach their upstream spawning grounds. In addition, juvenile salmon migrate through the Bay en route to the Pacific Ocean. Therefore, Chinook salmon smolts may pass through and forage within the project area during emigration to the Pacific Ocean. No CNDDB records occur within a 3-mile radius of the Project area.
		chinook salmon - Sacramento River winter-run ESU *Oncorhynchus tshawytscha pop. 7*	FE/SE/-	Sacramento River below Keswick Dam. Spawns in the Sacramento River, but not in tributary streams. -	**Moderate.** These fish pass through San Francisco Bay waters to reach their upstream spawning grounds. In addition, juvenile salmon migrate through the Bay en route to the Pacific Ocean. Therefore, Chinook salmon smolts may pass through and forage within the project area during emigration to the Pacific Ocean. No CNDDB records occur within a 3-mile radius of the Project area.
		green sturgeon - southern DPS *Acipenser medirostris pop. 1*	FT/-/SSC	Requires both marine and estuarine environments to forage, and freshwater environments to spawn. Spawning habitat found in deep pools in large, turbulent, freshwater river mainstreams. Eggs commonly laid over large cobble substrates, and sometimes on clean sand or bedrock substrates.	**Moderate.** Subadult and adult green sturgeon occupy a diversity of depths within bays and estuaries for feeding and migration. Green sturgeon may spend considerable time foraging within San Francisco Bay during immigration and emigration to the Pacific Ocean. Tagged adults and subadults within the San Francisco Bay-Delta have been observed occupying waters over shallow depths of less than 33 feet, either swimming near the surface or foraging along the bottom. Suitable foraging habitat exists within the project area (e.g., soft bottom substrates with benthic fish and invertebrate species). Two CNDDB records occur within a 3-mile radius of the Project area. The polygons for these occurrences include the entire San Francisco Bay.
		longfin smelt – San Francisco Bay-Delta Distinct Population Segment *Spirinchus thaleichthys pop. 2*	FE/ST/-	Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Occurs in salinities ranging from pure freshwater to pure saltwater. Generally, water temperatures from 61-68F, with spawning occurring in water temperatures from 41-58F.	**Moderate.** Longfin smelt are most likely to occur within Central San Francisco Bay during the late summer months before migrating upstream in fall and winter. During winter months, when fish are moving upstream to spawn, high outflows may push many back into San Francisco Bay. One CNDDB record occurs within a 3-mile radius of the Project area. The polygon for this occurrence includes the entire San Francisco Bay.

TABLE B-1
SPECIAL-STATUS SPECIES CONSIDERED IN THE PROJECT AREA

Organism	Taxonomy	Common Name *Scientific Name*	Status Federal/ State/Other	Habitat	Potential to Occur
		steelhead - central California coast DPS *Oncorhynchus mykiss irideus pop. 8*	FT/-SSC	Cool, clear streams with abundant cover and well-vegetated banks, with relatively stable flows. Pool and riffle complexes and cold gravelly streambeds for spawning.	**Moderate.** Within Central San Francisco Bay, steelhead may utilize the channel habitat adjacent to the project area as a migratory corridor from the Pacific Ocean to spawning habitat. Additionally, steelhead smolts may pass through and forage within the project area during emigration to the Pacific Ocean. No CNDDB records occur within a 3-mile radius of the Project area.
		steelhead - Central Valley DPS *Oncorhynchus mykiss irideus pop. 11*	FT/-/SSC	Cool, clear streams with abundant cover and well-vegetated banks, with relatively stable flows. Pool and riffle complexes and cold gravelly streambeds for spawning.	**Moderate.** Within Central San Francisco Bay, steelhead may utilize the channel habitat adjacent to the project area as a migratory corridor from the Pacific Ocean to spawning habitat. Additionally, steelhead smolts may pass through and forage within the project area during emigration to the Pacific Ocean. No CNDDB records occur within a 3-mile radius of the Project area.
		tidewater goby *Eucyclogobius newberryi*	FE/-/SSC	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	**None.** This species is extirpated from the San Francisco Bay. No suitable habitats occur in the Project area. No CNDDB records occur within a 3-mile radius of the Project area.
		white sturgeon *Acipenser transmontanus*	-/SCT/SSC	Species live in estuaries of large rivers, moving into freshwater to spawn. Species is found most abundant in brackish portions of estuaries.	**Moderate.** White sturgeon typically inhabit deep water over soft bottom substrates, feeding on or near the bottom. White sturgeon remain in the San Francisco Estuary throughout most of their life, but more evidence is showing that white sturgeon may move into marine environments as well. Adult and juvenile white sturgeon primarily occur in the San Francisco Estuary and can be present in the project area year round. No CNDDB records occur within a 3-mile radius of the Project area.
	Insects	monarch - California overwintering population *Danaus plexippus plexippus pop. 1*	FPT/-/-	Occupies grasslands, mountains, coastal scrub, chaparral, and various wetlands. Adults need milkweed (*Asclepias* spp.) and flowering plants during breeding and migration; milkweed is the only known host plant. Overwintering Monarch butterfly microhabitat is needed for protection and to moderate temperatures to avoid freezing along the Pacific coast, where they roost in eucalyptus (*Eucalyptus* sp.), Monterey pine *(Pinus radiata*), and Monterey cypress (*Hesperocyparis macrocarpa*), western sycamore (*Platanus racemosa*), coast redwood (*Sequoia sempervirens*), coast live oak (*Quercus agrifolia*), and others.	**None.** No suitable overwintering or foraging habitats occur in the Project area. Two CNDDB records occur within a 3-mile radius of the Project area.

TABLE B-1
SPECIAL-STATUS SPECIES CONSIDERED IN THE PROJECT AREA

Organism	Taxonomy	Common Name *Scientific Name*	Status Federal/ State/Other	Habitat	Potential to Occur
	Mammals	salt-marsh harvest mouse *Reithrodontomys raviventris*	FE/SE/FP	Occurs only in saline emergent wetlands of the San Francisco Bay and its tributaries. Pickleweed is primary habitat but may occur in other marsh vegetation types and in adjacent upland areas. Does not burrow, builds loosely organized nests. Requires higher areas for flood escape.	**None.** No suitable habitats occur in the Project area. No CNDDB records occur within a 3-mile radius of the Project area.
	Reptiles	Alameda whipsnake *Masticophis lateralis euryxanthus*	FT/ST/-	Typically found in chaparral and scrub habitats but will also use adjacent grassland, oak savanna and woodland habitats.	**None.** No suitable habitats occur in the Project area. No CNDDB records occur within a 3-mile radius of the Project area.
		green turtle *Chelonia mydas*	FT/-/-	The main nesting sites for the east Pacific green turtle are located in the state of Michoacán, Mexico (Colola and Maruata beaches) and in the Galapagos Islands, Ecuador. Nesting occurs in Michoacán between August and January, with a peak in October-November. Completely herbivorous; needs adequate supply of seagrasses and algae.	**None.** No suitable habitats occur in the Project area. No CNDDB records occur within a 3-mile radius of the Project area.
		northwestern pond turtle *Actinemys marmorata*	FPT/-/SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 kilometer from water for egg-laying.	**None.** No suitable habitats occur in the Project area. No CNDDB records occur within a 3-mile radius of the Project area.

KEY TO STATUS CODES:

Federal

Candidate = FC
Delisted = FD
Endangered = FE
None = -
Proposed Endangered = FPE
Proposed Threatened = FPT
Threatened = FT

State

Candidate Endangered = SCE
Candidate Threatened = SCT
Delisted = SD
Endangered = SE
Fully Protected = FP
None = -
Species of Special Concern = SSC
Threatened = ST
Watch List = WL

Other

CNPS Rank Categories:
1A = Plants presumed extirpated in California and either rare or extinct elsewhere
1B = Plants Rare, Threatened, or Endangered in California and elsewhere
2A = Plants presumed extirpated in California, but more common elsewhere
2B = Plants Rare, Threatened, or Endangered in California, but more common elsewhere
3 = Plants about which more information is needed - A Review List
4 = Plants of limited distribution - A Watch List

CNPS Code Extensions:
.1 = Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)
.2 = Fairly endangered in California (20U+002d80% occurrences threatened)
.3 = Not very endangered in California (less than 20% of occurrences threatened or no current threats known)

SOURCES: CNPS 2025; USFWS 2025; CDFW 2025

Appendix D
Cultural Resources and Tribal Cultural Resources

Sacred Lands File & Native American Contacts List Request

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: Port of Oakland Terminal Modernization Segment 1

County: Alameda

USGS Quadrangle Name: Oakland West

Township: 1S **Range:** 4W **Section(s):** 29

Company/Firm/Agency: ESA

Street Address: 775 Baywood Drive Suite 100

City: Petaluma **Zip:** 94954

Phone: (415) 290-9566

Fax:

Email: hkoenig@esassoc.com

Project Description:

The Port of Oakland, acting as the Lead Agency under CEQA, is proposing a series of improvements to the berthing infrastructure at three of the Port's container terminals to provide accommodation of ultra large container vessels.

NATIVE AMERICAN HERITAGE COMMISSION

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

January 22, 2025

Heidi Koenig
ESA

Via Email to: hkoenig@esassoc.com

Re: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, Port of Oakland Terminal Modernization Segment 1 Project, Alameda County

To Whom It May Concern:

Pursuant to Public Resources Code section 21080.3.1 (c), attached is a consultation list of tribes that are traditionally and culturally affiliated with the geographic area of the above-listed project. Please note that the intent of the AB 52 amendments to CEQA is to avoid and/or mitigate impacts to tribal cultural resources, (Pub. Resources Code §21084.3 (a)) ("Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.")

Public Resources Code sections 21080.3.1 and 21084.3(c) require CEQA lead agencies to consult with California Native American tribes that have requested notice from such agencies of proposed projects in the geographic area that are traditionally and culturally affiliated with the tribes on projects for which a Notice of Preparation or Notice of Negative Declaration or Mitigated Negative Declaration has been filed on or after July 1, 2015. Specifically, Public Resources Code section 21080.3.1 (d) provides:

Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.

The AB 52 amendments to CEQA law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction prior to receiving requests for notification of projects in the tribe's areas of traditional and cultural affiliation. The Native American Heritage Commission (NAHC) recommends, but does not require, early consultation as a best practice to ensure that lead agencies receive sufficient information about cultural resources in a project area to avoid damaging effects to tribal cultural resources.

The NAHC also recommends, but does not require that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

- A listing of any and all known cultural resources that have already been recorded on or adjacent to the APE, such as known archaeological sites;
- Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
- Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the APE; and
- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

   - Any report that may contain site forms, site significance, and suggested mitigation measures.

     All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code section 6254.10.

3. The result of the Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was positive. Please contact the Amah Mutsun Tribal Band of Mission San Juan Bautista and the Northern Valley Yokut / Ohlone Tribe on the attached list for more information.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: Mathew.Lin@nahc.ca.gov

Sincerely,

Mathew Lin

Mathew
Cultural Resources Analyst

Attachment

PORT OF OAKLAND

January 17, 2025

Amah Mutsun Tribal Band of Mission San Juan Bautista
3030 Soda Bay Road
Lakeport, CA 95453
Attn: Irene Zwierlein, Chairperson

Dear Chairperson Zwierlein:

The Port of Oakland (the Port) proposes the Terminal Modernization Segment 1 Project (Proposed Project). The Proposed Project generally consists of upgrades to wharf bollards and fenders, structural improvements to crane girders and crane rails, and electrical infrastructure upgrades at select berths fronting the Outer Harbor Channel. The Project location is in Alameda County, Oakland, (see attached figure), and is situated on the Oakland West, United States Geological Survey 7.5-inch quadrangle, Township 1S, Range 4W, projected Section 34 (Rancho San Antonio). The Project location is entirely on historic fill, is urbanized, and contains existing industrial development.

The purpose of the Proposed Project is to modernize currently underutilized portions of the Port to enable berthing and servicing of ultra large container vessels in order to maintain the long-term efficiency and productivity of the Port's operations. The Proposed Project would also ensure the Port's commitment to reducing greenhouse gas and diesel particulate emissions.

The Project will include pile driving to support crane girders. The existing 468-foot landside girder at Berth 26 would be removed, and two additional piles would be installed every 18 feet, and a new and stronger girder would be constructed that would connect to the wharf deck and existing piles with a header beam. At Berths 23 to 25, 2,808 feet of existing waterside girder would be strengthened by installing additional piles and connection beams at locations where existing pile capacity is not adequate. This would occur at approximately 100 locations along Berths 23 to 25. Other Project components would not require ground disturbance in native soils, including upgrades to wharf bollards and fenders, and electrical infrastructure upgrades.

The Project must comply with Assembly Bill 52 (AB 52) under the California Environmental Quality Act (CEQA). The Port has discretionary authority over the Proposed Project and is the CEQA lead agency. In keeping with a government-to-government relationship and in compliance with AB 52, the Port, as the lead state agency for CEQA, invites you to participate in these processes as a consulting party. As part of the review process, we request information that identifies any resources that may hold traditional religious or cultural significance to your Tribe

that could be affected by the proposed work, and, if applicable, assist in developing alternatives that would avoid, minimize, or mitigate any adverse effects.

We value your assistance and look forward to consulting further if there are resources of religious and/or cultural significance to your Tribe that may be affected by the Proposed Project. To meet Project timeframes, if you would like to participate or provide information regarding this Project, we respectfully request that you notify us within 30 days.

If you or any of your tribal members have any questions or concerns regarding the Proposed Project, please contact me at (510) 627-1222 or enagle@portoakland.com.

Sincerely,

Elizabeth Nagle
Port Associate Environmental Planner/Scientist
530 Water Street
Oakland, CA 94501

PORT OF OAKLAND

January 17, 2025

Costanoan Rumsen Carmel Tribe
244 E. 1st Street
Pomona, CA 91766
Attn: Tony Cerda, Chairperson

Dear Chairperson Cerda:

The Port of Oakland (the Port) proposes the Terminal Modernization Segment 1 Project (Proposed Project). The Proposed Project generally consists of upgrades to wharf bollards and fenders, structural improvements to crane girders and crane rails, and electrical infrastructure upgrades at select berths fronting the Outer Harbor Channel. The Project location is in Alameda County, Oakland, (see attached figure), and is situated on the Oakland West, United States Geological Survey 7.5-inch quadrangle, Township 1S, Range 4W, projected Section 34 (Rancho San Antonio). The Project location is entirely on historic fill, is urbanized, and contains existing industrial development.

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The Project will include pile driving to support crane girders. The existing 468-foot landside girder at Berth 26 would be removed, and two additional piles would be installed every 18 feet, and a new and stronger girder would be constructed that would connect to the wharf deck and existing piles with a header beam. At Berths 23 to 25, 2,808 feet of existing waterside girder would be strengthened by installing additional piles and connection beams at locations where existing pile capacity is not adequate. This would occur at approximately 100 locations along Berths 23 to 25. Other Project components would not require ground disturbance in native soils, including upgrades to wharf bollards and fenders, and electrical infrastructure upgrades.

The Project must comply with Assembly Bill 52 (AB 52) under the California Environmental Quality Act (CEQA). The Port has discretionary authority over the Proposed Project and is the CEQA lead agency. In keeping with a government-to-government relationship and in compliance with AB 52, the Port, as the lead state agency for CEQA, invites you to participate in these processes as a consulting party. As part of the review process, we request information that identifies any resources that may hold traditional religious or cultural significance to your Tribe

530 Water Street • P.O. Box 2064 • Oakland, California 94604-2064

Telephone: (510) 627-1100 • Fax: (510) 627-1826 • Web Page: www.portofoakland.com

that could be affected by the proposed work, and, if applicable, assist in developing alternatives that would avoid, minimize, or mitigate any adverse effects.

We value your assistance and look forward to consulting further if there are resources of religious and/or cultural significance to your Tribe that may be affected by the Proposed Project. To meet Project timeframes, if you would like to participate or provide information regarding this Project, we respectfully request that you notify us within 30 days.

If you or any of your tribal members have any questions or concerns regarding the Proposed Project, please contact me at (510) 627-1222 or enagle@portoakland.com.

Sincerely,

Elizabeth Nagle
Port Associate Environmental Planner/Scientist
530 Water Street
Oakland, CA 94501

January 17, 2025

The Ohlone Tribe
P.O. Box 3388
Fremont, CA 94539
Attn: Andrew Galvan, Chairperson

Dear Chairperson Galvan:

The Port of Oakland (the Port) proposes the Terminal Modernization Segment 1 Project (Proposed Project). The Proposed Project generally consists of upgrades to wharf bollards and fenders, structural improvements to crane girders and crane rails, and electrical infrastructure upgrades at select berths fronting the Outer Harbor Channel. The Project location is in Alameda County, Oakland, (see attached figure), and is situated on the Oakland West, United States Geological Survey 7.5-inch quadrangle, Township 1S, Range 4W, projected Section 34 (Rancho San Antonio). The Project location is entirely on historic fill, is urbanized, and contains existing industrial development.

The purpose of the Proposed Project is to modernize currently underutilized portions of the Port to enable berthing and servicing of ultra large container vessels in order to maintain the long-term efficiency and productivity of the Port's operations. The Proposed Project would also ensure the Port's commitment to reducing greenhouse gas and diesel particulate emissions.

The Project will include pile driving to support crane girders. The existing 468-foot landside girder at Berth 26 would be removed, and two additional piles would be installed every 18 feet, and a new and stronger girder would be constructed that would connect to the wharf deck and existing piles with a header beam. At Berths 23 to 25, 2,808 feet of existing waterside girder would be strengthened by installing additional piles and connection beams at locations where existing pile capacity is not adequate. This would occur at approximately 100 locations along Berths 23 to 25. Other Project components would not require ground disturbance in native soils, including upgrades to wharf bollards and fenders, and electrical infrastructure upgrades.

The Project must comply with Assembly Bill 52 (AB 52) under the California Environmental Quality Act (CEQA). The Port has discretionary authority over the Proposed Project and is the CEQA lead agency. In keeping with a government-to-government relationship and in compliance with AB 52, the Port, as the lead state agency for CEQA, invites you to participate in these processes as a consulting party. As part of the review process, we request information that identifies any resources that may hold traditional religious or cultural significance to your Tribe

530 Water Street • P.O. Box 2064 • Oakland, California 94604-2064

Telephone: (510) 627-1100 • Fax: (510) 627-1826 • Web Page: www.portofoakland.com

that could be affected by the proposed work, and, if applicable, assist in developing alternatives that would avoid, minimize, or mitigate any adverse effects.

We value your assistance and look forward to consulting further if there are resources of religious and/or cultural significance to your Tribe that may be affected by the Proposed Project. To meet Project timeframes, if you would like to participate or provide information regarding this Project, we respectfully request that you notify us within 30 days.

If you or any of your tribal members have any questions or concerns regarding the Proposed Project, please contact me at (510) 627-1222 or enagle@portoakland.com.

Sincerely,

Elizabeth Nagle
Port Associate Environmental Planner/Scientist
530 Water Street
Oakland, CA 94501

PORT OF OAKLAND

January 17, 2025

The Confederated Villages of Lisjan
10926 Edes Avenue
Oakland, CA 94603
Attn: Corrina Gould, Chairperson

Dear Chairperson Gould:

The Port of Oakland (the Port) proposes the Terminal Modernization Segment 1 Project (Proposed Project). The Proposed Project generally consists of upgrades to wharf bollards and fenders, structural improvements to crane girders and crane rails, and electrical infrastructure upgrades at select berths fronting the Outer Harbor Channel. The Project location is in Alameda County, Oakland, (see attached figure), and is situated on the Oakland West, United States Geological Survey 7.5-inch quadrangle, Township 1S, Range 4W, projected Section 34 (Rancho San Antonio). The Project location is entirely on historic fill, is urbanized, and contains existing industrial development.

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Sincerely,

Elizabeth Nagle
Port Associate Environmental Planner/Scientist
530 Water Street
Oakland, CA 94501

PORT OF OAKLAND

January 17, 2025

Muwekma Ohlone Indian Tribe
1169 S. Main Street, Suite 336
Manteca, CA 95377
Attn: Charlene Nijmeh, Chairperson
CC: Richard Massiatt, Councilmember/MLD Tribal Representative

Dear Chairperson Nijmeh:

The Port of Oakland (the Port) proposes the Terminal Modernization Segment 1 Project (Proposed Project). The Proposed Project generally consists of upgrades to wharf bollards and fenders, structural improvements to crane girders and crane rails, and electrical infrastructure upgrades at select berths fronting the Outer Harbor Channel. The Project location is in Alameda County, Oakland, (see attached figure), and is situated on the Oakland West, United States Geological Survey 7.5-inch quadrangle, Township 1S, Range 4W, projected Section 34 (Rancho San Antonio). The Project location is entirely on historic fill, is urbanized, and contains existing industrial development.

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Sincerely,

Elizabeth Nagle
Port Associate Environmental Planner/Scientist
530 Water Street
Oakland, CA 94501

January 17, 2025

North Valley Yokuts Tribe
P.O. Box 717
Linden, CA 95236
Attn: Katherine Perez, Chairperson
CC: Timothy Perez

Dear Chairperson Perez:

The Port of Oakland (the Port) proposes the Terminal Modernization Segment 1 Project (Proposed Project). The Proposed Project generally consists of upgrades to wharf bollards and fenders, structural improvements to crane girders and crane rails, and electrical infrastructure upgrades at select berths fronting the Outer Harbor Channel. The Project location is in Alameda County, Oakland, (see attached figure), and is situated on the Oakland West, United States Geological Survey 7.5-inch quadrangle, Township 1S, Range 4W, projected Section 34 (Rancho San Antonio). The Project location is entirely on historic fill, is urbanized, and contains existing industrial development.

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If you or any of your tribal members have any questions or concerns regarding the Proposed Project, please contact me at (510) 627-1222 or enagle@portoakland.com.

Sincerely,

Elizabeth Nagle
Port Associate Environmental Planner/Scientist
530 Water Street
Oakland, CA 94501

PORT OF OAKLAND

January 17, 2025

Indian Canyon Mutsun Band of Costanoan
P.O. Box 28
Hollister, CA 95024
Attn: Ann Marie Sayers, Chairperson

Dear Chairperson Sayers:

The Port of Oakland (the Port) proposes the Terminal Modernization Segment 1 Project (Proposed Project). The Proposed Project generally consists of upgrades to wharf bollards and fenders, structural improvements to crane girders and crane rails, and electrical infrastructure upgrades at select berths fronting the Outer Harbor Channel. The Project location is in Alameda County, Oakland, (see attached figure), and is situated on the Oakland West, United States Geological Survey 7.5-inch quadrangle, Township 1S, Range 4W, projected Section 34 (Rancho San Antonio). The Project location is entirely on historic fill, is urbanized, and contains existing industrial development.

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Sincerely,

Elizabeth Nagle
Port Associate Environmental Planner/Scientist
530 Water Street
Oakland, CA 94501

PORT OF OAKLAND

January 17, 2025

Indian Canyon Mutsun Band of Costanoan
1615 Pearson Court
San Jose, CA 95122
Attn: Kanyon Sayers-Roods, MLD

Dear Ms. Sayers-Roods:

The Port of Oakland (the Port) proposes the Terminal Modernization Segment 1 Project (Proposed Project). The Proposed Project generally consists of upgrades to wharf bollards and fenders, structural improvements to crane girders and crane rails, and electrical infrastructure upgrades at select berths fronting the Outer Harbor Channel. The Project location is in Alameda County, Oakland, (see attached figure), and is situated on the Oakland West, United States Geological Survey 7.5-inch quadrangle, Township 1S, Range 4W, projected Section 34 (Rancho San Antonio). The Project location is entirely on historic fill, is urbanized, and contains existing industrial development.

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Elizabeth Nagle
Port Associate Environmental Planner/Scientist
530 Water Street
Oakland, CA 94501

Appendix E
Construction Noise Model Output

RCNM Outputs for Construction Noise

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/18/2025
Case Description:

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Frontage Road Residence	Residential	55.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Impact Pile Driver	Yes	20		101.3	4340.0	0.0
Gradall	No	40		83.4	4340.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Impact Pile Driver	62.5	55.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gradall	44.6	40.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	62.5	55.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Middle Harbor Park	Commercial	58.0	58.0	58.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Impact Pile Driver	Yes	20		101.3	1280.0	0.0
Gradall	No	40		83.4	1280.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Impact Pile Driver	73.1	66.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gradall	55.2	51.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	73.1	66.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A