310-330 Esplanade Avenue Infrastructure Preservation Project

Draft Environmental Impact Report

SCH# 2022100372

Lead Agency:

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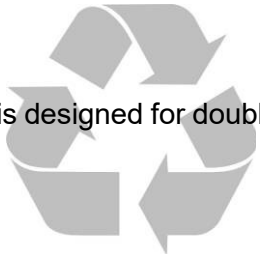
September 2023



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ACRONYMS, ABBREVIATIONS, AND SYMBOLS

Acronym/Symbol	Full Phrase or Description
AB	Assembly Bill
ABAG	Association of Bay Area Governments
ACHP	Advisory Council on Historic Preservation
ATCM	Airborne Toxic Control Measures
BAAQMD	Bay Area Air Quality Management District
BAU	Business as usual
BMPs	Best Management Practices
CAA	Federal Clean Water Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
CalOSHA	California Occupational Safety and Health Administration
CalTrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Codes
CCC	Central California Coast
CDFW	California Department of Fish and Wildlife
CDC	California Department of Conservation
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CESA	California Endangered Species Act
CFP	California Fully Protected
CFR	Code of Federal Regulations
CGP	Construction General Permit
CH_4	methane
City	City of Pacifica

CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plan Society
CO	carbon monoxide
CO_2	carbon dioxide
CHRIS	California Historical Resources Information System
CRHR	California Register of Historic Resources
CWA	Clean Water Act
DEIR/EIR	Draft Environmental Impact Report/Environmental Impact Report
DNL	Day/Night Noise Level
DOT	Department of Transportation
DPM	diesel particulate matter
DPS	Distinct Population Segment
DTSC	Department of Toxic Substance Control
EFH	Essential Fish Habitat
EPA	Environmental Protection Agency
ESHA	Environmentally Sensitive Habitat Area
FESA	Federal Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GBRA	General Biological Resource Assessment
GWh	gigawatt hours
GWP	Global Warming Potential
HAP	Hazardous Air Pollutants
HAPC	Habitat areas of particular concern
HAT	Highest Astronomical Tide
HCP	Habitat Conservation Plan
HMTUSA	Hazardous Materials Transportation Uniform Safety Act
HP	Horsepower
HRA	Health Risk Assessment

HTL	High tide line
H_2S	Hydrogen Sulfide
H_2O	Water
Hz	Hertz
LCP	Local Coastal Program
LCLUP	Local Coastal Land Use Plan
LCFS	Low Carbon Fuel Standard Regulation
L_{eq}	Equivalent Noise Level
LHMP	Local Hazard Mitigation Plan
LID	Low Impact Development
Lmax	Maximum Noise Level
LQG	Large Quantity Generations
LT	Long-Term
MBTA	Migratory Bird Treaty Act
MEIR	Maximum Exposed Individual Receptor
MHW	Mean High Water
MMRP	Mitigation Monitoring and Reporting Program
MND	Mitigated Negative Declaration
MTCO2e	million metric tons of carbon dioxide equivalents
MRP	Municipal Regional Stormwater NPDES Permit
MRZ	Mineral Resource Zone
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NAGPRA	Native American Graves Protection and Repatriation Act
NAVD88	North American Vertical Datum of 1988
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NIOSH	National Institute of Occupational Safety and Health
NOAA	National Oceanic and Atmospheric Administration
NOD	Notice of Determination
NOI	Notice of Intent

NOP	Notice of Preparation
NO	Nitric Oxide
NO_2	nitrogen dioxide
NOx	NO and NO_2 combined.
N_2O	Nitrous Oxide
NPDES	National Pollutant Discharge System
NPPA	Native Plant Protection Act
NRHP	National Register of Historic Places
NWIC	Northwest Information Center
O_3	Ozone
OEHHA	Office of Environmental Health Hazard Assessment
OSHA	U.S. Occupational Safety and Health Administration (OSHA)
PM	Particulate Matter
PMI	point of maximum impact
$PM_{2.5}$	Fine Particulate Matter
PM_{10}	inhalable coarse, respirable, or suspended particulate matter
PPV	Peak particle velocity
PRC	Public Resources Code
RCNM	Roadway Construction Noise Model
RCRA	Resources Conservation and Recovery Act
ROG	Reactive Organic Gases
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCH	State Clearing House
SF6	Sulfur hexafluoride
SFBAAB	San Francisco Bay Area Air Basin
SHPO	State Historic Preservation Officer
SLF	Sacred Lands File
SO_2	sulfur dioxide
SOX	sulfates
SLF	Sacred Lands File

SMARA	Surface Mining
SNPL	Snowy plover
SQG	Small Quantity Generators
SS	Stationary Sources
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
SR	State Route
ST	Short-term
TAC	Toxic Air Contaminants
TCR	Tribal Cultural Resources
TR	Transportation
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOCs	volatile organic compounds
VMT	vehicle miles traveled

1 INTRODUCTION

1.1 PURPOSE AND SCOPE OF THE EIR

This report has been prepared in accordance with the California Environmental Quality Act (CEQA), the CEQA Guidelines and with the City of Pacifica's local rules and procedures for implementing CEQA. It was prepared by professional planning consultants under contract to the City. The City is the Lead Agency for the preparation of this Environmental Impact Report (EIR), as defined by CEQA (Public Resources Code, Section 21067, as amended), because it has primary discretionary authority with respect to adoption, amendment, and implementation of the proposed Esplanade Avenue Infrastructure Preservation Project (Project).

The City of Pacifica proposes to implement the Project to protect and maintain existing infrastructure along Esplanade Avenue, including the public street and underground utilities, which are currently threatened by coastal bluff retreat. The proposed Project design includes several structural elements to fortify the bluff including a buried sheet pile wall at the toe of the bluff, a cap beam on top of the sheet pile wall, and a shotcrete (sprayed concrete) wall secured to the bluff face with tieback rods/tendons drilled into the bluff face. As designed, the shotcrete wall is estimated to be approximately 650 feet long and extends to an elevation of 40 feet above sea level, which is approximately a height of 26 feet above the toe of the bluff (the actual height of the top of the wall above sea level will vary as the level of the sand changes). The work would also include removing loose debris against the bluff and existing riprap on the beach.

The City condemned the residential structures previously located at 310, 320, and 330 Esplanade Avenue and physically removed the structures at 310 and 320 Esplanade Avenue during 2016-2017. The structure at 330 Esplanade Avenue was removed by the property owner. If the base of the bluff is adequately protected from wave erosion with a seawall, the unsupported portion of the bluff above the seawall will continue to experience raveling and erosion/bluff retreat until ultimately reaching equilibrium at a static inclination of approximately 40 to 50 degrees (CSA 2019). The currently proposed design for the seawall provides protection and allows for some retreat of the upper portion of the bluff. A trail, fencing, signage, and native plant landscaping is proposed on the blufftop where structures once stood. Once the bluff top improvements are completed, the blufftop area would be open for public access. The purpose of the Project is to protect the City's infrastructure for the design life of the seawall which is expected to be 30 years. Grant funding through the State Coastal Conservancy would require the City to maintain any grant funded improvements for a minimum of 20 years following the completion of work.

1.1.1 Organization of the Draft EIR

This Draft EIR (DEIR) analyzes the Project's potential environmental impacts in the following six chapters described below:

Chapter 1 Introduction.

Chapter 2 Executive Summary: A brief discussion of the Project and summary of Project impacts, mitigation measures and alternatives.

Chapter 3 Project Description: Provides detailed description of the proposed Project and the Environmental Setting/Existing Conditions and Project objectives.

Chapter 4 Environmental Impact Analysis: Evaluates Project impacts and identifies mitigation measures designed to reduce significant impacts, where applicable. This Chapter includes 10 sections, each addressing different topical areas (Aesthetics, Air Quality, Biological Resources, Cultural Resources and Tribal Cultural Resources, Geology and Soils, Hazards/Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Noise, and Public Services and Recreation).

Chapter 5 Alternatives: Provides an analysis of the different alternatives to the proposed Project.

Chapter 6 CEQA Conclusions: Provides an analysis of growth-inducing impacts, significant unavoidable environmental impacts, and irreversible environmental change. In addition, this chapter demonstrates that the Project would have no impact or less than significant impacts on agricultural and forestry resources, energy, greenhouse gases, mineral resources, population and housing, utilities and services, transportation, and wildfire.

Chapter 7 List of Preparers: provides a list of individuals and sources consulted for the preparation of the EIR.

The appendices include:

- Appendix A: Notice of Preparation (NOP), including comment letters received
- Appendix B: Geotechnical Investigation
- Appendix C: Air Quality and GHG Emissions Estimates and Health Risk Analysis
- Appendix D: General Biological Resources Report

- Appendix E: Cultural Resource Evaluation [Confidential; Held on File at the City]
- Appendix F: Ambient Noise Monitoring Data, Construction Vibration Estimate

In compliance with Public Resources Code Section 21081.6(a)(1), a mitigation monitoring reporting program (MMRP) will be prepared as a separate document that will be considered for

adoption together with other CEQA findings at the time the Project is considered for approval. The MMRP, responses to public comments on the DEIR, and any revisions to the DEIR will be included in the Final EIR.

1.1.2 Approach to EIR Analysis

The City of Pacifica Public Works and Planning Departments directed and supervised the preparation of this EIR. The proposed Project has the potential to result in one or more significant direct, indirect, and/or cumulative environmental impacts in the environmental issue areas listed below. Therefore, each of these ten (10) environmental issues areas have been analyzed in depth in this DEIR.

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources and Tribal Cultural Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Public Services and Recreation

Each environmental issue is analyzed in a similar manner, starting with a discussion of the existing environmental setting, including physical conditions and pertinent planning and regulatory framework. Thresholds of significance are then defined and are used to measure the proposed Project's potential impact on the environment. Thresholds of significance are based on a broad list of questions and impact topics set forth in Appendix G of the State CEQA Guidelines.

The impact analyses provided for each of the ten topical areas examines the environmental effects resulting from implementation of the proposed infrastructure preservation Project. The assessment of impacts focuses on how the impact in question could occur and whether laws, regulations, goals, policies, or some other aspect of the proposed Project would reduce or ameliorate such impacts. The presence of sensitive environmental resources, hazards in specific areas, and the broad

implications of the infrastructure preservation Project throughout the Project area are considered in the determination of impact significance. If the analysis indicates that a significant impact could occur, even with the benefits of any existing goals or policies, mitigation measures are specified.

Analyses contained in Chapter 6 demonstrate that the Project would have no impact or less than significant impacts on agricultural and forestry resources, energy, greenhouse gases, mineral resources, population and housing, utilities and services, transportation, and wildfire. Therefore, these topic areas are not covered in detail in this DEIR.

1.2 SCOPING AND PUBLIC REVIEW

Public outreach for the EIR included public noticing, issuance of a Notice of Preparation (NOP) for an Environmental Impact Report, and conducting a public scoping meeting for the EIR, as summarized below. Comments received during the public scoping meeting were taken into consideration during the preparation of this DEIR.

1.2.1 Notice of Preparation of an EIR

The NOP was prepared and circulated to local, state, and federal agencies and made available to the public on October 19, 2022 (SCH# 2022100372). The NOP contained a summary of the Project and resource areas that would be covered in the EIR (because the Project would have no or a less than significant impact in those areas), and instructions on how to submit comments. Circulation of the NOP consisted of its filing with the San Mateo County Clerk's Office and submittal to the Governor's Office of Planning and Research State Clearinghouse for distribution to various State Agencies for review.

Copies of the NOP were also made available at the City's Planning Department and electronically via a web link on the City's website. A notice of the NOP's availability was also posted in the Pacifica Tribune. The City provided for a 30-day public review period on the NOP that ended on November 18, 2022. Written comments in response to the NOP were received from four agencies/organizations and seven interested individuals. The NOP and the written comments received on the NOP are included in Appendix A of this document.

1.2.2 Public Scoping Meeting

The City held a virtual (online) public scoping meeting on November 3, 2022. The meeting included introductions to the City and consultant team staff, presentation of the proposed Project and purpose of the meeting and question and comment segments. Oral comments heard at this

scoping meeting generally consisted of concerns over access to the beach from Esplanade Avenue, that the Project should address impacts that extend all the way down to Manor Drive including the 400 block of Esplanade Avenue and the beach access ramp, potential coastal trail damage, erosion, disruption to the residents on Esplanade Avenue from Project construction, the basis for selecting the proposed Project design and the construction timeline.

1.3 AREAS OF KNOWN CONTROVERSY

Pursuant to Section 15123(b)(2) of the state CEQA Guidelines, an EIR shall identify areas of controversy known to the lead agency including potential issues raised by agencies and the public.

The areas of controversy identified during the EIR scoping process are the same as those brought up in the NOP scoping meeting and include potential construction impacts and impacts to public access to trails and beaches, impacts to sand supply, and erosion from hardening of bluff face.

1.4 DRAFT EIR PUBLIC REVIEW AND COMMENT PERIOD

Publication of this DEIR will mark the beginning of a 45-day public review and comment period. During this period, the DEIR will be made available to local, state, and federal agencies, and to interested organizations and individuals for review. Notice of the availability of this DEIR and the public review and comment period will be provided as required by law, including directly to every agency, person, and organization that commented on the NOP.

Written comments concerning the environmental review contained in this DEIR during the 45-day public review period should be sent to:

Stefanie Cervantes, Senior Planner
City of Pacifica
Planning Department
540 Crespi Drive
Pacifica, CA 94044
scervantes@pacifica.gov

1.5 AVAILABILITY OF EIR MATERIALS

All materials related to the preparation of this EIR, including information cited/referenced within and incorporated by reference into the DEIR, are available for public review. Both the Notice of Preparation and the DEIR are posted on the City's website:
https://www.cityofpacifica.org/departments/planning/environmental-documents.

To request an appointment to review these materials, please contact Stefanie Cervantes (see contact information above).

1.6 FINAL EIR/RESPONSES TO COMMENTS

Following the conclusion of the 45-day public review period, the City of Pacifica will prepare a Final EIR in conformance with CEQA Guidelines Section 15132. The Final EIR will consist of:

- Revisions to the DEIR text, as necessary resulting from comments received;
- List of individuals and agencies commenting on the DEIR;
- Responses to comments received on the DEIR, in accordance with CEQA Guidelines (Section 15088); and
- Copies of letters received on the DEIR.

Section 15091(a) of the CEQA Guidelines stipulates that no public agency shall approve or carry out a Project for which an EIR has been certified which identifies one or more significant environmental effects of the Project unless the public agency makes one or more written findings. If the lead agency approves a Project despite it resulting in significant adverse environmental impacts that cannot be mitigated to a less than significant level, the agency must state the reasons for its action in writing. This Statement of Overriding Considerations must be included in the record of Project approval.

1.7 NOTICE OF DETERMINATION

If the Project is approved, the City of Pacifica will file a Notice of Determination (NOD), which will be available for public inspection and posted within 24 hours of receipt at the County Clerk's Office for 30 days, as well as the State Clearinghouse. The filing and posting of the NOD starts a 30-day statute of limitations period on court challenges to the approval under CEQA.

2 EXECUTIVE SUMMARY

2.1 PROJECT BACKGROUND AND OVERVIEW

This DEIR evaluates the potential environmental effects of a project to construct a seawall and revegetate the blufftop along the existing coastal bluff between 310 and 330 Esplanade Avenue in the City of Pacifica. These proposed activities constitute a project under the California Environmental Quality Act (CEQA). The City of Pacifica (City) is the CEQA Lead Agency for the Project. The Coastal Commission, U.S. Army Corps of Engineers (USACE), and Regional Water Quality Control Board (RWQCB) are responsible agencies with permitting authority for the project**.**

The City is implementing a project (Project) to maintain infrastructure along Esplanade Avenue, including the street and some underground utilities, which are currently threatened by coastal bluff retreat. Historic aerial photographs show that the coastal bluff adjacent to 310 – 330 Esplanade Avenue retreated approximately 200 feet (average of 2.7 feet per year) between 1943 and 2017, with the bulk of the retreat (approximately 70 to 80 feet) occurring more recently between 2004 and 2017 (average of about 5.4 feet per year) (CSA 2019).

The City condemned and removed the residential structures previously on the site in 2016-2017. If the base of the bluff is adequately protected with a seawall, the unsupported portion of the bluff above the seawall will continue to experience raveling and erosion/bluff retreat until ultimately reaching an equilibrium at a static inclination of approximately 40 to 50 degrees (See Appendix B Geotechnical Investigation). Therefore, the current design for the seawall includes both protection and retreat.

The proposed Project design includes several structural elements to fortify the bluff including a sheetpile wall at the toe of the bluff, a cap beam on top of the sheetpile wall, and a shotcrete (sprayed concrete) wall secured to the bluff face with tieback rods/tendons drilled into the bluff face. The wall is estimated to be 650 feet long and extend to elevation 40 feet, which is approximately 26 feet above the beach level. A trail, fencing, signage, and native plant landscaping is proposed on the blufftop where structures once stood. Once the bluff top improvements are completed, the blufftop area would be open for public access.

Access to the beach for construction vehicles and equipment will be from the existing ramp located at the southern end of the 300 block of Esplanade Avenue, opposite Manor Drive. This ramp had previously provided public access to the beach, but is currently closed to the public. It will be re-opened for public use following the completion of construction activities for the Project.

The purpose of the Project is to protect the City's infrastructure for the life of the seawall which is expected to be 30 years.

2.2 SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES

For each of the environmental topics analyzed in the DEIR, any *"significant"* project or cumulative impact and associated mitigation measure(s) identified in this DEIR are summarized in Table 2-1. The summary chart has been organized to correspond with the more detailed impact and mitigation discussions in chapters 4.1 through 4.10 of this DEIR. The chart is arranged in four columns: (1) identified impacts, (2) potential significance without mitigation, (3) mitigation measure(s), and (4) the level of impact significance after implementation of the mitigation measure(s). Because the table does not list impacts that are less than significant, and therefore do not require mitigation, the Impact/Mitigation Measure numbering may be out of sequence.

Table 2-1: Summary of Potentially Significant Impacts and Recommended Mitigation Measures

Impacts	*Significance Before Mitigation*	*Mitigation Measures*	*Significance After Mitigation*
Air Quality			
Impact AIR-3: The Project could expose sensitive receptors to substantial pollutant concentrations and associated adverse health risks. (Less than Significant with Mitigation Incorporated).	**Potentially Significant Impact**	**Mitigation Measure AIR-3:** To reduce potential, short-term adverse health risks associated with PM2.5 exhaust emissions, including emissions of DPM generated during Project construction activities, the City shall require its designated contractors, contractor's representatives, and/or other appropriate personnel to comply with the following construction equipment restrictions. All mobile construction equipment greater than 50 horsepower in size shall meet with U.S. EPA and CARB Tier IV interim exhaust emission standards. This may be achieved via the use of equipment with engines that have been certified to meet U.S. EPA and CARB Tier IV interim emissions standards, or through the use of equipment that has been retrofitted with a CARB-verified diesel emission control strategy (e.g., particulate filter) capable of reducing exhaust PM2.5 emissions to levels that meet U.S. EPA and CARB Tier IV interim emissions standards. As an alternative to having all mobile construction equipment greater than 50 horsepower meet with U.S. EPA and CARB Tier IV interim exhaust emission standards, the City may prepare a refined construction health risk assessment once additional Project-specific construction information is known (e.g., specific construction equipment type, quantity, engine tier, and runtime by phase). The refined health risk assessment shall demonstrate and identify any measures necessary such that the proposed Project's incremental carcinogenic health risk at nearby sensitive receptor locations is below the applicable BAAQMD threshold of 10 cancers in a million.	**Less than Significant Impact**
Biological Resources			
Impact BIO-1: The Project could have a significant adverse effect, either directly or through habitat modifications, on special-status fish (steelhead, Coho salmon, and green sturgeon), Essential Fish Habitat (EFH), and American peregrine falcon and other nesting birds.	**Potentially Significant Impact**	**Mitigation Measure BIO-1a: Best Management Practices (BMPs) to Protect Water Quality, Special-Status Fish, and EFH** The project shall minimize to the greatest extent feasible all construction in tidal / open water habitat areas. During all construction in and near tidal aquatic habitat, standard BMPs shall be used to minimize erosion and impacts to water quality as well as direct impacts to special-status fish and EFH. The following	**Less than Significant Impact**

Table 2-1: Summary of Potentially Significant Impacts and Recommended Mitigation Measures

Impacts	*Significance Before Mitigation*	*Mitigation Measures*	*Significance After Mitigation*
Implementation of Mitigation Measures BIO-1a, 1b and 1c would reduce potential impacts to a less than significant level. (Less than Significant with Mitigation Incorporated).		BMPs shall be included in the Project to minimize erosion, impacts to water quality, and impacts to special-status species (also see BMPs in Chapter 3.3.9, of the Project Description): • The contractor shall monitor the tides and coordinate work to avoid construction activities in open water habitat. The timing and elevation of tides can be monitored by checking the San Francisco NOAA tidal station (#9414290) found online at https://tidesandcurrents.noaa.gov/noaatidepredictions.html?id=9414290. Because the Project area is approximately 16 miles south of the tidal station, the actual timing and elevation of tides needs to be adjusted specifically for the Project area. • No vehicles or heavy equipment shall be operated in open water habitat. • Earthmoving and clearing activities shall be performed in dry weather only. • Spoils shall be removed promptly and stockpiling of fill materials shall be avoided when rain is forecast. Stockpiles shall only be placed in designated locations, including near the 500 Esplanade ramp and at the staging area at the 310-330 lots at least 20 feet from the bluff face. No stockpiles shall be located on the beach. Soil stockpiles and other materials shall be covered with a tarp or other waterproof material during rain events. • In the event of rain, all grading work is to cease immediately. • Implement an erosion control plan during the wet season (October 15 through April 15), including, at a minimum, the following:	

Table 2-1: Summary of Potentially Significant Impacts and Recommended Mitigation Measures

Impacts	*Significance Before Mitigation*	*Mitigation Measures*	*Significance After Mitigation*
		○ During the rainy season, all paved areas will be kept clear of earth material and debris. ○ Inlet protection will be installed at open inlets to prevent sediment from entering the storm drain system. ○ Straw rolls will be placed at the toe of slopes, and along the down slope perimeter of the Project area. • Equipment staging and parking of vehicles shall occur on defined staging areas only. • The integrity and effectiveness of erosion control measures shall be inspected on a daily basis or as required under the approved SWPPP. Corrective actions and repairs shall be carried out immediately for ineffective BMPs. • Fueling, washing, and maintenance of vehicles shall occur in the defined staging areas, away from open water habitat. Equipment shall be regularly maintained to avoid fluid leaks. Any leaks shall be captured in containers until equipment is moved to a repair location. Hazardous materials shall be stored only within the defined staging areas. Containment and cleanup plans shall be prepared and implemented for the immediate cleanup of fluid or hazardous materials spills. • Sediment-laden water shall not be allowed to enter the ocean. • All litter and construction debris shall be disposed of off-site in accordance with state and local regulations. All trash and debris within the work area shall be placed in containers with secure lids before the end of work each day to reduce the likelihood of predators being attracted to	

Table 2-1: Summary of Potentially Significant Impacts and Recommended Mitigation Measures

Impacts	*Significance Before Mitigation*	*Mitigation Measures*	*Significance After Mitigation*
		the site by discarded food wrappers and other rubbish. If containers meeting these criteria are not available, all rubbish shall be removed from the study area on a daily basis. • Discharge of all potential pollutants, including solid wastes, paints, concrete, petroleum products, chemicals, wash water or sediment and non-stormwater discharges to storm drains and water courses shall be controlled and prevented. • A hazardous spill plan shall be developed prior to construction. The plan shall describe what actions shall be taken in the event of a spill. The plan shall also incorporate preventative measures to be implemented, such as vehicle and equipment staging, cleaning, maintenance, and refueling; and contaminant (including fuel) management and storage. In the event of a contaminant spill, work at the site shall immediately cease until the contractor has contained and mitigated the spill. The contractor shall immediately prevent further contamination and notify appropriate authorities and mitigate damage as appropriate. Adequate spill containment materials, such as oil diapers and hydrocarbon cleanup kits, shall be available on site at all times. Containers for storage, transportation, and disposal of contaminated absorbent materials shall be provided in the study area. • Trash and construction related solid wastes shall be deposited into a covered receptacle to prevent contamination and dispersal by wind. Trash and solid waste shall not be stored on the beach. • Work areas that are temporarily impacted shall be restored with respect to pre-existing contours and conditions, to the extent feasible, upon completion of work. Restoration work including revegetation and soil stabilization will be evaluated upon completion of work and performed,	

Table 2-1: Summary of Potentially Significant Impacts and Recommended Mitigation Measures

Impacts	*Significance Before Mitigation*	*Mitigation Measures*	*Significance After Mitigation*
		as needed. Construction materials and wastes shall be stored, handled, and disposed of properly, so as to prevent their contact with stormwater. **Mitigation Measure BIO-1b: Pre-Construction/Pre-Disturbance Surveys for Nesting Birds** **Avoidance.** To the extent feasible, construction activities should be scheduled to avoid the nesting season. If construction activities are scheduled to take place outside the nesting season, all impacts to nesting birds protected under the MBTA and California Fish and Game Code would be avoided. The nesting season for most birds in San Mateo County extends from February 1 through September 15. **Pre-Construction Surveys.** If it is not possible to schedule construction activities between September 1 and January 31, then preconstruction surveys for nesting birds will be conducted by a qualified biologist to ensure that no nests would be disturbed during Project implementation. These surveys will be conducted no more than five days prior to the initiation of any site disturbance activities and equipment mobilization. If Project activities are delayed by more than five days, an additional nesting bird survey will be performed. During this survey, the biologist will inspect all potential nesting habitats (e.g., shrubs, ruderal areas, cliff terraces, etc.) in and immediately adjacent to the impact area and a 250-foot buffer around the area for nests. Active nesting is present if a bird is building a nest, sitting in a nest, a nest has eggs or chicks in it, or adults are observed carrying food to the nest. The results of the surveys will be documented. If an active nest is found in the impact area or the 250 foot buffer, the biologist will determine the extent of a construction-free buffer zone to be established around the nest (typically up to 1000 feet for raptors and up to 250 feet for other species though this may sometimes be reduced in urban areas at the discretion of the biologist), to ensure that no nests of species protected by the MBTA and California Fish and Game Code will be disturbed during project implementation. Within the buffer zone, no site disturbance and mobilization of	**Less Than Significant Impact**

Table 2-1: Summary of Potentially Significant Impacts and Recommended Mitigation Measures

Impacts	*Significance Before Mitigation*	*Mitigation Measures*	*Significance After Mitigation*
		heavy equipment, including but not limited to equipment staging, fence installation, clearing, grubbing, vegetation removal, demolition, and grading will be permitted until the chicks have fledged. Monitoring will be required to ensure compliance with MBTA and relevant California Fish and Game Code requirements. Monitoring dates and findings will be documented. **Mitigation Measure BIO-1c: Invasive Species Best Management Practices** The following measures will be implemented to limit the spread of invasive species into native habitats: • All ground disturbing equipment used adjacent to native habitats will be washed (including wheels, tracks, and undercarriages) at a legally operating equipment yard both before and after being used at the site. • All applicable construction materials used on site, such as straw wattles, mulch, and fill material, will be certified weed free. • The Project will follow a Stormwater Pollution Prevention Plan as per the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit; Water Board Order No. 2009-0009- DWQ) if applicable. • All disturbed soils will be stabilized and planted with a native seed mix from a local source following construction. • If excavating, soil and vegetation removed from weed-infested areas will not be used in general soil stockpiles and will not be redistributed as topsoil cover for the newly filled areas. All weed-infested soil will be disposed of off-site at a landfill or buried at least 2.5 feet below final grade.	**Less Than Significant Impact**

Table 2-1: Summary of Potentially Significant Impacts and Recommended Mitigation Measures

Impacts	*Significance Before Mitigation*	*Mitigation Measures*	*Significance After Mitigation*
Cultural Resources			
Impact CUL-1: The Project could inadvertently encounter cultural resources.	**Potentially Significant Impact**	**Mitigation Measure CUL-1: Inadvertent Discovery of Resources.** In the event that historical, archaeological, tribal cultural, or paleontological resources are accidentally discovered during construction, grading activity in the immediate area shall cease and materials and their surroundings shall not be altered or collected. A qualified archaeologist or paleontologist must make an immediate evaluation, and avoidance measures or appropriate mitigation should be completed, according to CEQA Guidelines. The State Office of Historic Preservation has issued recommendations for the preparation of Archaeological Resource Management Reports that may be used as guidelines. In the event that archaeological resources are discovered, the site should immediately be considered archaeologically sensitive and subject to the following conditions: development on archaeologically sensitive sites requires on-site monitoring by Native American consultant(s) if resources are Native American in origin in addition to a qualified archaeologist of all grading, excavation, and site preparation activities that involve earth-moving operations. It is recommended that if a newly discovered resource is, or is suspected to be, Native American in origin, the resource shall be treated as a significant Tribal Cultural Resource, pursuant to California Public Resources Code 21074, until USACE has determined otherwise with the consultation of a qualified archaeologist and local tribal representative. California laws and regulations state that if human remains are unearthed during construction, the County Coroner will be notified immediately, and no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission (NAHC). The NAHC shall then identify the person(s) thought to be the Most Likely Descendent.	**Less than Significant Impact**

Table 2-1: Summary of Potentially Significant Impacts and Recommended Mitigation Measures			
Impacts	***Significance Before Mitigation***	***Mitigation Measures***	***Significance After Mitigation***
		Title to all archaeological sites and historic or cultural resources on or in the tide and submerged lands of California is Vested in the State under the jurisdiction of the State Lands Commission (Public Resources Code, §6313). If any cultural resources are discovered on State lands during construction, the City shall consult with the State Lands Commission Staff Attorney, Jamie Garrett. Final disposition of archaeological, historical, and paleontological resources recovered on State lands under the jurisdiction of the State Lands Commission must be approved by the Commission.	
Noise			
Impact NOI-1: The construction of the Project could result in the generation of a substantial temporary increase in ambient noise levels in excess of applicable standards established in the City's General Plan and Municipal Code (Less than Significant with Mitigation Incorporated).	**Potentially Significant Impact**	**Mitigation Measure NOI-1a: Provide Notification of Construction Activities.** To ensure receptors in the vicinity of the Project are aware of the Project and its planned construction activities, the City and/or its designated contractors, contractor's representatives, or other appropriate personnel shall: 1. *Notify Residential and Commercial Land uses of Planned Construction Activities*. This notice shall be provided at least 14 calendar days prior to the start of any construction activities, describe the planned schedule of construction activities, describe the noise control measures to be implemented by the Project, and include the name and phone number of the designated contact for the City of Pacifica and its construction contractor responsible for handling construction-related noise complaints (per Section 3 of Mitigation Measure NOI-1b). This notice shall be provided to the owner/occupants of all residential dwelling units within 1,000 feet of construction work areas and the owner/occupants of commercial buildings within 500 feet of construction work areas. 2. *Notify Trail and Beach Users of Construction Activities.* The City shall post signs along overlook trails and trails leading to publicly accessible beaches within 500 feet of work areas warning of potential temporary	**Less than Significant Impact**

Table 2-1: Summary of Potentially Significant Impacts and Recommended Mitigation Measures

Impacts	*Significance Before Mitigation*	*Mitigation Measures*	*Significance After Mitigation*
		elevated noise levels during construction. Signs shall remain posted throughout the duration of all sea wall installation activities. **Mitigation Measure NOI-1b: Reduce Construction Equipment Noise Levels.** To reduce potential noise levels associated with Project construction activities, the City and/or its designated contractors, contractor's representatives, or other appropriate personnel shall: a. Control Construction Traffic and Site Access. Construction truck traffic, including soil and debris and riprap hauling, equipment deliveries, and concrete and other vendor deliveries shall follow City-designated truck routes. Pursuant to City Municipal Code Section 4-7.1601, current designated truck routes in the City include Skyline Boulevard and State Highway Route 1. Pursuant to Municipal Code Section 4-7.1402(b), ingress and egress for the purpose of picking up or delivering construction-related materials shall occur via a direct route between the designated truck route and the Project site. Construction truck traffic shall avoid routes that contain residential dwelling units to the maximum extent feasible given specific Project location and access needs. b. Construction Equipment Selection, Use, and Noise Control Measures. The following measures shall apply to Project construction equipment: c. Contractors shall use the smallest size equipment capable of safely completing work activities. d. Construction staging activities such as receipt of deliveries, equipment and material storage, etc. shall occur as far away from residential land uses as possible. e. All stationary noise-generating equipment such as pumps, compressors, and welding machines shall be shielded and located as	**Less Than Significant Impact**

Table 2-1: Summary of Potentially Significant Impacts and Recommended Mitigation Measures			
Impacts	***Significance Before Mitigation***	***Mitigation Measures***	***Significance After Mitigation***
		far from sensitive receptor locations as practical. Shielding may consist of trailers, stored materials, or a three- or four-sided enclosure f. provided the structure/barrier breaks the line of sight between the equipment and the receptor and provides for proper ventilation and equipment operations. g. Heavy equipment engines shall be equipped with standard noise suppression devices such as mufflers, engine covers, and engine/mechanical isolators, mounts, etc. These devices shall be maintained in accordance with manufacturer's recommendations during active construction activities. h. Pneumatic tools shall include a noise suppression device on the compressed air exhaust. i. The applicant/project representative and/or their contractor shall connect to existing electrical service at the site to avoid the use of stationary power generators (if feasible). j. No radios or other amplified sound devices shall be audible beyond the property line of the construction site. **Mitigation Measure NOI-1c: Install Temporary Noise Barrier along Esplanade Avenue.** To reduce potential construction noise levels at receptors on the east side of Esplanade Avenue, the City and/or its construction contractor shall install a temporary, six-foot-tall noise barrier along the eastern perimeter of the northern staging area. To the maximum extent feasible given site constraints and existing road/curb conditions, vehicular access to this staging area shall occur at the northern terminus of the barrier at Beaumont Avenue. The barrier shall consist of nominal 0.5-inch plywood with a minimum material density of 1.7 pounds per square foot installed at grade (or mounted to structures located at-grade,	**Less Than Significant Impact**

Table 2-1: Summary of Potentially Significant Impacts and Recommended Mitigation Measures

Impacts	*Significance Before Mitigation*	*Mitigation Measures*	*Significance After Mitigation*
		such as a K-Rail) and free of openings or gaps other than weep holes). Alternatively, commercially available acoustic panels or other products such as acoustic barrier blankets that have a minimum sound transmission class or transmission loss value of 20 dB may be attached to a chain link or other security fence. The noise barrier may be removed following the completion of sea wall installation (i.e., it is not necessary during restoration or riprap removal phases). **Mitigation Measure NOI-1d: Prepare Construction Noise Complaint Plan.** To prepare for unanticipated or unexpected construction noise issues, the City and/or its designated contractors, contractor's representatives, or other appropriate personnel shall prepare a Construction Noise Complaint Plan that shall: 1. Identify the name and/or title and contact information (including phone number and email) for designated City and construction contractor representatives responsible for addressing construction-related noise issues. 2. Include procedures describing how the designated Project representative will receive, respond, and resolve construction noise complaints. At a minimum, upon receipt of a noise complaint, the designated representative shall notify the City, verify and determine the nature of the complaint (e.g., identify the noise source generating the complaint), and take steps to resolve the complaint, such as, but not limited to, changing equipment operations, installing a temporary noise shield, etc.	**Less Than Significant Impact**

2.3 SUMMARY OF ALTERNATIVES

To provide a basis for further understanding the potential environmental effects of a proposed project and possible approaches to reducing its identified significant impacts, the CEQA Guidelines require an EIR to also "describe a range of reasonable alternatives to the Project, or to the location of the Project, which would feasibly attain most of the basic objectives of the Project, but would avoid or substantially lessen any of the significant effects of the Project, and evaluate the comparative merits of the alternatives." The following paragraphs provide brief descriptions of the Alternatives proposed for this Project. A more comprehensive description and analysis of the potential impacts of each Alternative is provided in Chapter 5.0 Alternatives of this DEIR.

Alternative Considered but Rejected: Managed Retreat Alternative.

This Alternative would allow the continued retreat of coastal bluffs toward Esplanade Avenue and the development and implementation of a plan that would address the relocation of the infrastructure if possible, provide funding for the movement of residents out of harm's way, and possibly providing compensation for lost assets. Further analysis of this alternative determined that the Managed Retreat Alternative would not preserve the Esplanade Avenue infrastructure, and that in a relatively short time, Esplanade Avenue would need to be closed and the buried and overhead utilities within the street would need to be relocated. This alternative would continue to allow bluff failures that put the public at risk along the beach. This alternative would not meet the project objective of protecting City infrastructure, would not minimize impacts to beach access, water quality or shoreline aesthetics, and that public access to the bluff top would be prohibited due to safety concerns. Although this alternative may be feasible from a constructability standpoint, the analysis found that the costs and impact to residents would make it infeasible. Initial costs (within 10 years) would include beginning to plan for and construct relocation of utilities, and then costs associated with the disposition of existing structures and properties would be significant. Furthermore, the City of Pacifica City Council deemed managed retreat infeasible in the City's most recent sea level rise adaptation plan for this area. If the bluff is allowed to continue to retreat, the adjacent seawalls would be opened to end-around erosion, resulting in additional impacts and the need for additional protection measures in these adjacent areas. For these reasons, the City determined that further consideration of managed retreat as a project alternative was not necessary in the EIR and removed the Managed Retreat Alternative from further consideration. As noted above, a full discussion of this alternative and why it was rejected is contained in Chapter 5, Alternatives.

Alternative 1: No Project Alternative

The No Project Alternative assumes that the proposed Project would not be constructed/implemented and thus that no seawall or blufftop restoration would be constructed at the proposed Project site. The No Project Alternative assumes a continuation of existing conditions at the site. The No Project Alternative would not allow the City to protect infrastructure at Esplanade Avenue and the bluff would be allowed to erode and retreat naturally at the current rate.

Alternative 2: Grading of the Bluff

The Grading of the Bluff Alternative consists of cutting/excavating the existing bluff back to a relatively stable uniform inclination of 45 to 50 degrees. Due to the highly erodible nature of the bluff materials, ongoing erosion is anticipated at present or accelerated rates. This approach would temporarily reduce failure of blocks/slabs of bluff material onto the beach below until the toe erosion caused by wave action below undermines the upper slope.

Alternative 3: Sand Replenishment

The Sand Replenishment alternative would consist of replenishing sand at the base of the bluff to prevent continued wave erosion of the toe of the bluff. This process, also known as beach nourishment, is a process by which the sand, lost through longshore drift or erosion is replaced from other sources. A wider beach can reduce storm damage to coastal structures by dissipating energy across the surf zone, protecting upland structures and infrastructure from storm surges, tsunamis and unusually high tides. It is typically a repetitive and limitless process since it does not remove the physical forces that cause erosion but simply mitigates their effects.[1] It is a protection strategy that relies on a sandy beach of sufficient width to provide a buffer against seasonal and storm related erosion and flooding.

Alternative 4: Rock Revetment

The intent of the Rock Revetment Alternative would be to protect the toe of the bluff from wave erosion by placing buried and exposed sloping layers of large rock below the beach level and against the toe of the bluff. The revetment would consist of large durable rock, similar to but bigger than the existing riprap currently located along the base of the bluff. The size of the stones would be variable, but would be selected to create a stable armor layer above and below the beach, to absorb and dissipate the energy of waves in order to reduce erosion of the bluff and limit scour and undermining of the revetment.

2.3.1 Environmentally Superior Alternative

Section 15126.6 of the CEQA Guidelines requires that if an alternative is considered clearly superior to the proposed Project relative to identified impacts, that alternative is to be identified as the environmentally superior alternative. By statute, if the environmentally superior alternative is the No Project Alternative, an EIR must also identify an environmentally superior alternative among the other alternatives. For this Project, the No Project Alternative would result in reduced impacts in the most environmental issue areas compared to the proposed Project, making it the environmentally superior alternative. However, it would not meet any of the Project objectives. The Grading of the Bluff Alternative (Alternative 2) would meet two of the three objectives (versus one each for Alternatives 3 and 4), and would result in similar or reduced impacts compared to the proposed Project in more environmental issue categories than Alternatives 3 or 4. Therefore in

[1] Wikipedia. Beach Nourishment. Accessed on January 20, 2023 at https://en.wikipedia.org/wiki/Beach_nourishment.

accordance with Section 15126.6 of the CEQA Guidelines, Alternative 2 would be considered the environmentally superior alternative among the other three alternatives.

3 PROJECT DESCRIPTION

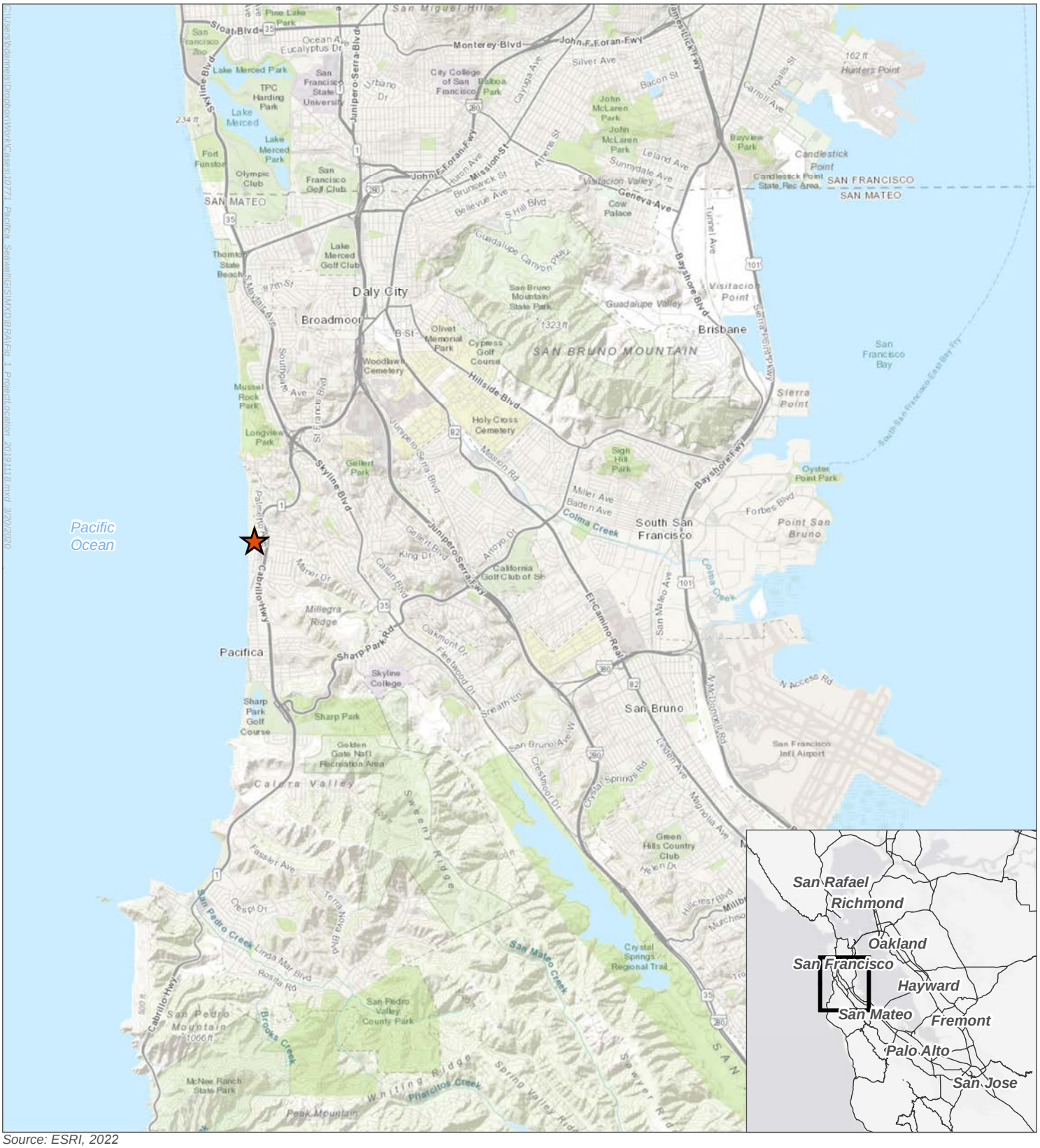
3.1 PROJECT OVERVIEW

The City is implementing a Project to protect and maintain infrastructure along Esplanade Avenue, including the street and underground utilities, which are currently threatened by coastal bluff retreat. The City condemned and removed the residential structures previously on the site in 2016-2017. If the base of the bluff is adequately protected with a seawall, the unsupported portion of the bluff above the seawall will continue to experience raveling and erosion/bluff retreat until ultimately reaching an equilibrium at a static inclination of approximately 40 to 50 degrees (See Appendix B Geotechnical Investigation). The Project therefore proposes to construct a seawall along the existing coastal bluff between 310 and 330 Esplanade Avenue, the design for which includes both protection and retreat. A trail, fencing, signage, and native plant landscaping is proposed on the blufftop where structures once stood. Once the bluff top improvements are completed, the blufftop area would be open for public access.

The purpose of the Project is to protect the City's infrastructure for the life of the seawall which is expected to be 30 years.

3.2 PROJECT LOCATION

The Project site is located along the west side of Esplanade Avenue, between Manor Drive on the south and West Beaumont Boulevard on the north in the City of Pacifica. The proposed Project extends from Esplanade Avenue westward to the shoreline of the Pacific Ocean, including the entirety of the properties located at 310, 320, 330, and portions of 100, 340 and 360 Esplanade Avenue. The residential structures formerly occupying the properties at 310 - 330 Esplanade Avenue have been removed and the lots have been graded towards to the road and covered by a tarp and drain rock. There are two-story apartment buildings still standing at the 340, 350, and 360 Esplanade Avenue properties, and a three-story apartment building at 380 Esplanade Avenue. The proposed seawall construction would extend along the base of the coastal bluff adjacent to these properties as well as 100 Esplanade and will abut or tie into the existing seawalls to the south, adjacent to the 360 and 380 Esplanade Avenue, and to the north, adjacent to 100 Esplanade. The regional location of the Project site, is on Figure 3-1 and Project boundaries are shown on Figure 3-2.



Source: ESRI, 2022

Project Location

0 0.75 1.5 3 Miles

N

Figure 3-1 Project Location

310-330 Esplanade Avenue Infrastructure Preservation Project, City of Pacifica



Source: ESRI, 2022; MIG 2022

Base Map Features

Project Boundary

0 250 500 1,000 Feet

N

Figure 3-2 Project Vicinity

310-330 Esplanade Avenue Infrastructure Preservation Project, City of Pacifica

MIG

3.3 PROJECT OBJECTIVES

The primary objectives of the proposed Project are:

1. Halt bluff toe erosion toward Esplanade Avenue and its critical infrastructure (roadway, water, sewer, and other utilities), to prevent infrastructure collapse due to bluff erosion for at least 30 years.

2. Minimize impacts to sensitive resources, such as, sand supply, beach access, ecological function, water quality, and shoreline aesthetics.

3. Provide public access to ocean views from Esplanade Avenue, except where public access would endanger public safety or fragile coastal resources.

3.4 PROJECT DESCRIPTION

The proposed Project design is based on a site specific geotechnical investigation commissioned by the City and is included in its entirety here as Appendix B. The following provides additional details on the proposed seawall, its construction, and the proposed blufftop restoration.

3.4.1 Seawall

The proposed Project design includes several structural elements to fortify the bluff including a sheet pile wall below the low sand levels, a cap beam on top of the sheet pile wall also below the low sand level, and a shotcrete (sprayed concrete) wall secured to the bluff face with tensioned tieback rods/tendons drilled into the bluff face above the low sand level.

The wall is estimated to be 650 feet long, spanning the length between the existing seawall to the north at Land's End (Ocean Aire apartments) and the existing seawall to the south at 360-380 Esplanade Avenue. The height of the proposed seawall would extend from the base of the bluff to an elevation of 40 feet above sea level, which is approximately a height of 26 feet above the toe of the bluff, and would be constructed from structural shotcrete and anchored to the bluff with high tensioned tiebacks to support the weight of the wall. The tiebacks would consist of double corrosion protected high strength bars or multi-strand tendons installed in a minimum 6-inch diameter hole and declined roughly perpendicular to the bluff face at 15 to 30 degrees downward into the bluff approximately six inches. According to the Project plans, there would be three rows of tiebacks spanning the length of the wall, for a total of approximately 189 tiebacks. Extending the wall to an elevation of 40 feet (North American Vertical Datum of 1988 (NAVD88))[2] allows the remainder of the bluff above to setback naturally to a stable slope. The buried portion of the seawall would extend approximately 20 feet below the sand levels to protect against wave scour from undermining the wall. The buried portion of the wall would consist of interconnected sheet piles that will be driven adjacent to the bluff and below the beach to an elevation of -10 feet

[2] North American Vertical Datum of 1988 is the vertical datum for orthometric heights established for vertical control surface surveying in the United States.

NAVD88. The sheet piles will be installed with a suitably sized vibratory or impact hammer, capable of driving the sheets to their designed embedment depth. See Figure 3-3 for the proposed Site Plan and Figure 3-4 for the Seawall design.

3.4.2 Permanent Removal of Existing Riprap

Following construction of the proposed Project, all existing riprap on the beach coincident with 310-330 Esplanade Avenue (approximately 8,000 tons) would be removed from the Project site. The riprap would be removed within one year of the termination of construction for the Project. The riprap would be disposed of at an appropriate licensed facility.

3.4.3 Bluff Restoration Plan

The Project includes a blufftop restoration plan that involves replanting the developed areas along the top of the bluff within the Project site after the seawall construction is completed. The 0.72-acre restoration area is approximately 600 feet long and 60 to 70 feet wide and is currently covered with plastic, and drain rock. This area would be used as a staging area during construction of the seawall. Following the completion of seawall construction activities, the existing drain rock, and any fill soils present will be removed, and a qualified restoration ecologist will ensure that the replacement soils meet appropriate requirements for soil and sediment characteristics for native northern coastal scrub restoration. If the soils are determined not to be suitable, the placement of a stable three-foot deep zone of horticulturally suitable soil may be required to facilitate long-term establishment of northern coastal scrub plantings. The objectives of the restoration include: (1) restoring upland native scrub habitat (northern coastal scrub); (2) increase runoff infiltration and control erosion; (3) provide habitat for native species; and (4) a minimum amount of long-term maintenance for establishment of plantings.

Hydroseed plantings are planned on the western-most portions of the blufftop, while the eastern-portions closest to Esplanade Avenue are anticipated to receive container plantings. An 8-foot wide asphalt pedestrian trail to provide public access is also shown, along decomposed granite paths to several benches along the length of the path. An interpretive sign would be installed near one of the benches. A cable fence would be installed to prevent visitors from accessing the bluff edge. Watering to establish and maintain the restoration plantings would be accomplished by hand. No irrigation system is proposed to be installed. The success of plant growth in the restoration area would be monitored for a minimum of three years. The bluff restoration plan sheet is shown in Figure 3-5, and the restoration plant palette is shown in Figure 3-6. Figure 3-7 through Figure 3-11 show photos of the Project site and adjacent areas.

3.4.4 Bluff Monitoring Program

An annual evaluation of the condition and performance of the seawall (bluff protection) would be undertaken as part of the Project. The evaluation would identify whether significant weathering, undermining, outflanking, overtopping, impacts, corrosion, or damage has occurred that would adversely impact the integrity or future performance of the structure. As part of the annual

evaluation, measurements of differential retreat between the natural bluff face and the wall face, at the north and south ends of the protective devices, would be taken. In addition to the annual evaluation, a visual inspection of the seawall would be performed immediately after major wave events (as conditions permit) that may impact the wall or cause damage to the structure or nearby sections of shoreline, and after seismic events that create strong ground shaking in the Pacifica area.

The monitoring information would be summarized in a report prepared by a licensed engineer familiar with shoreline processes and would be submitted to the California Coastal Commission Executive Director after each winter storm season. After the first three years, the report would be provided each third year following the last annual report for that year. In addition, inspections with reports would be submitted immediately following either an "El Niño" storm event (comparable to or greater than a 20-year storm) or an earthquake of Magnitude 5.5 or greater with an epicenter in San Mateo or San Francisco counties.

It is reasonably foreseeable that additional construction or repair work may be required to address issues identified in the monitoring reports, however, it is too speculative to define such repairs with any degree of specificity in this EIR. Supplemental environmental review and Project approvals would be required before any such additional construction or repair work would be done.

3.4.5 Construction

Construction of the seawall is estimated to take 260 calendar days and would occur between spring to early winter. Anticipated equipment includes large excavators, crane(s) on top of the bluff, heavy duty tieback drilling equipment, and heavy-duty sheet pile driving equipment (vibratory or impact hammer) on the beach. All existing loose slope debris material located on the lower portions of the bluff between the proposed sheet pile wall alignment and the bluff face would be excavated to expose undisturbed terrace deposit material. The sheet piles would be installed above the high tide line. All of the work, including the sheet pile installation, will be constructed during naturally dewatered conditions (i.e. low tide) in dry sand without the need for artificial dewatering (e.g., use of pumps or coffer dams). The only time that artificial dewatering would be required is if an unanticipated storm/rogue wave topped the temporary riprap wave protection installed around the work area and flooded the construction area. Under those circumstances, small submersible pumps and hoses would be used for dewatering operations. No vehicles or heavy equipment would be operated in open water or tidal habitat. Access to the site by foot and small machinery would occur through the public access trail at 100 Esplanade Avenue directly north of the site. Larger equipment would either be lowered from the blufftop via crane or driven to the work area during low tides from the existing beach access located opposite Manor Drive, at the south end of the Project site.

Artificial dewatering would be required for excavations extending below +5 feet NAVD88; however, no excavations that deep are anticipated. The sheet piles would be driven into place and would not require excavation to install. The excavation would be limited to the depth required to



Source: Cotton, Shires and Associates, Inc, 2019; MME, 2019; Google Earth, 2019; MIG, 2023

Project Features

- Study Area
- Staging Area
- Temporary Construction Access
- Proposed Seawall
- Proposed Pile Cap
- Proposed Tieback

Tidal Lines

- High Tide Line (HTL)[1]
- Highest Astronomical Tide (HAT)[2], 7.32 ft NAVD88
- Mean High Water (MHW)[3], 5.29 ft NAVD88

Base Map Features

- Parcel Boundary, Right of Way
- Contour lines[4]

0 125 250 500 Feet

N

[1] *MIG, 2019, 2020*
[2] *MIG, 2020*
[3] *From 380 Esplanade Ave northward: CSA Survey, January 29, 2019; From 380 Esplanade Ave southward: MIG, 2020* [4] *CSA Survey, January 29, 2019*

MIG

Figure 3-3 Site Plan

310-330 Esplanade Avenue Infrastructure Preservation Project, City of Pacifica

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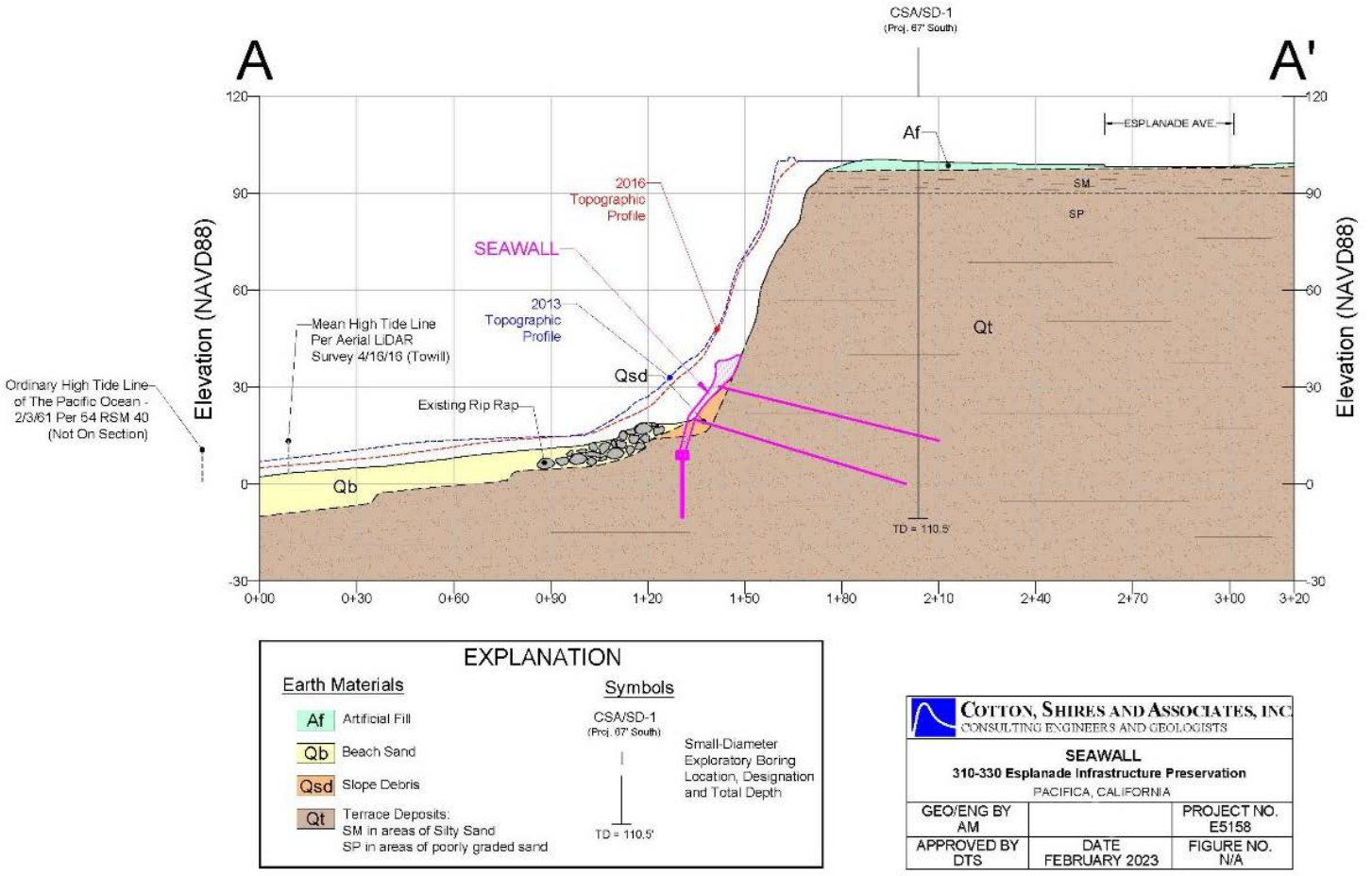
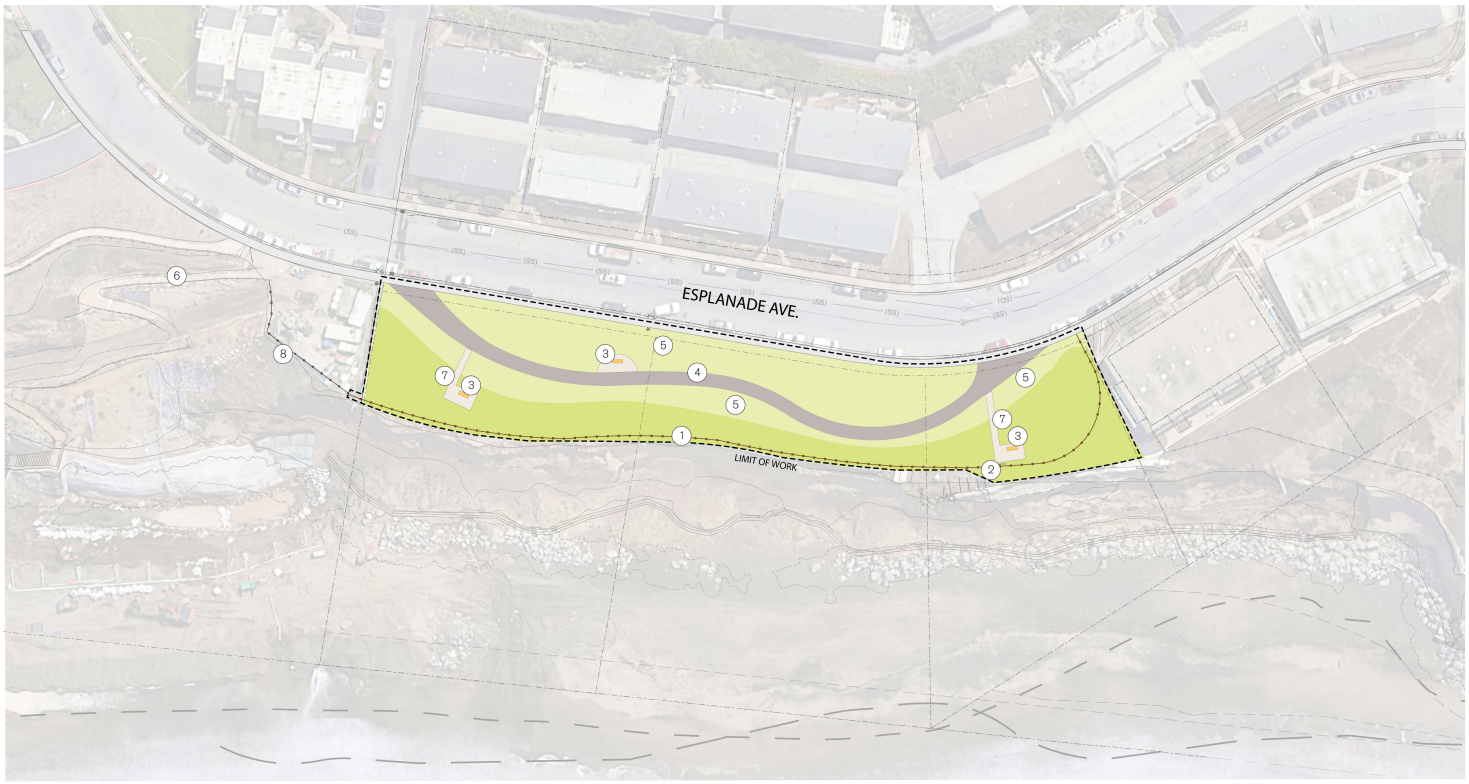


Source: Cotton, Shires, and Associates, Inc. February 2023

Figure 3-4 Seawall



Legend

1. SS Cable Fence
2. Interpretive Sign
3. Bench
4. Asphalt Pedestrian Walkway - 8' Wide
5. Planting Area
6. (E) Access Trail
7. Decomposed Granite with Edging
8. (E) Fence

Northern Coastal Scrub - Container Planting

Northern Coastal Scrub - Hydroseed



BENCH
CONCRETE CONTOUR BENCH W/ARMRESTS



OPTION 1- DECOMPOSED GRANITE WITH FIELD STONE EDGE



OPTION 2- DECOMPOSED GRANITE WITH CUT STONE EDGE



CABLE FENCE

Source: MIG 2022

Figure 3-5 Restoration Plan

310-330 Esplanade Avenue Infrastructure Preservation Project, City of Pacifica

Northern Coastal Scrub Container Plant Palette



Achillea millefolium
Common Yarrow



Baccharus pilularus
Coyote brush



Eriogonum latifolium
Coast buckwheat



Eriophyllum staechadifolium
Seaside golden yarrow



Lupinus albifrons
Silver lupine bush



Rhamnus californica
California coffeeberry

Northern Coastal Scrub Seed Mix



Diplacus aurantiacus
Sticky monkeyflower



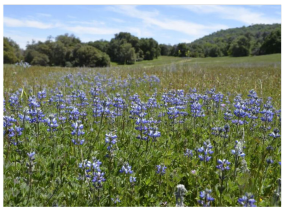
Acmispon glaber
Deerweed



Camissoniopsis cheiranthifolia
Beach evening primrose



Eschscholzia californica
California poppy



Lupinus bicolor
Annual lupine



Bromus carinatus
California bromegrass



Stipa pulchra
Purple needle grass



Castilleja affinis
Coast indian paint brush

Source: MIG 2022

Figure 3-6 Restoration Plan Plant Palette

310-330 Esplanade Avenue Infrastructure Preservation Project, City of Pacifica



Photo 1. View of existing riprap at the toe of the slope in the project area, looking south from the public access trail at Lands End/Ocean Aire parcel to the north of the project site.



Photo 2. View of bluff erosion and landsliding along the project site.

Source: MIG 2022

MIG

Figure 3-7 Site Photos 1 and 2

310-330 Esplanade Avenue Infrastructure Preservation Project, City of Pacifica



Photo 3. Remnants of previous shotcrete along bluff adjacent to 330 Esplanade Avenue.



Photo 4. Viewing toward the project site from the existing adjacent wall on the south. Existing structure at 340 Esplanade Avenue is visible at the top of the bluff.

Source: MIG 2022

MIG

Figure 3-8 Site Photos 3 and 4

310-330 Esplanade Avenue Infrastructure Preservation Project, City of Pacifica



Photo 5. Viewing north across proposed equipment staging area during construction. This area is proposed for restoration after construction of the seawall is completed.



Photo 6. Location of the entrance to the proposed temporary construction access at the top of the bluff on City property south of 380 Esplanade Avenue.

Source: MIG 2022

MIG

Figure 3-9 Site Photos 5 and 6

310-330 Esplanade Avenue Infrastructure Preservation Project, City of Pacifica



Photo 7. Shotcrete and soil nail wall at Lands End property to the north of the project site looking east.



Photo 8. Shotcrete and soil nail wall at Lands End property to the north of the project site looking northeast.

Source: MIG 2022

MIG

Figure 3-10 Site Photos 7 and 8

310-330 Esplanade Avenue Infrastructure Preservation Project, City of Pacifica



Photo 9: View looking north from just west of the existing seawall at 340-360 Esplanade Avenue.

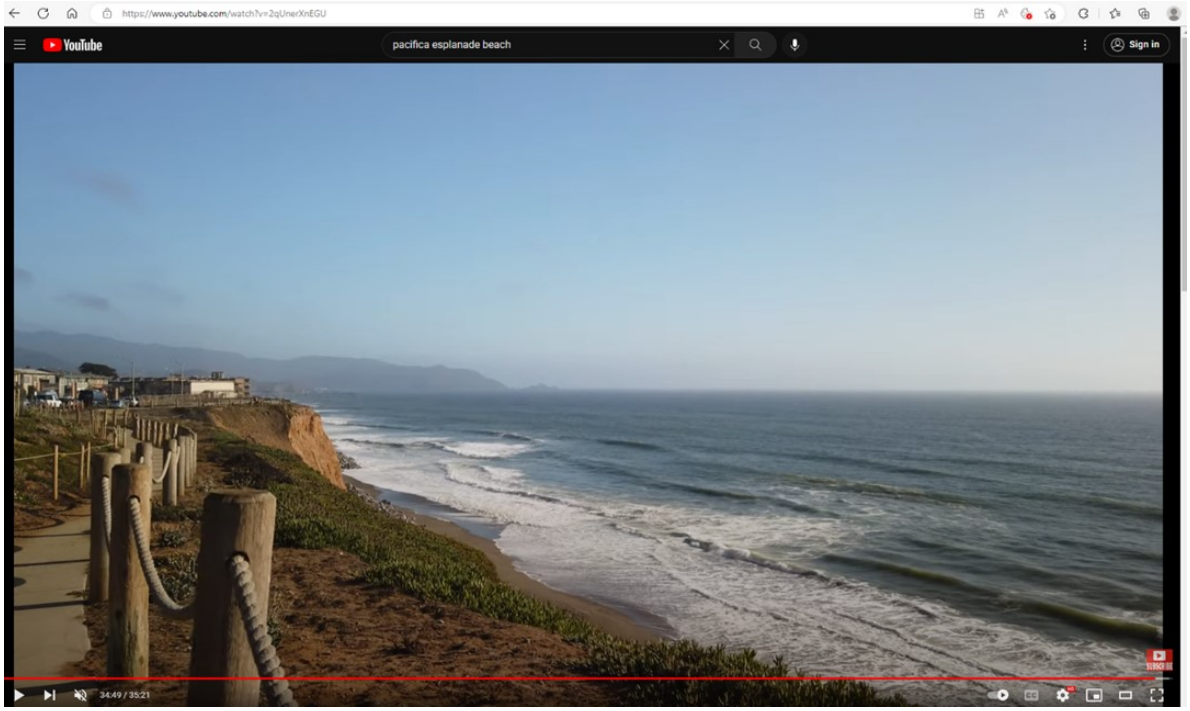


Photo 10: View from pedestrian walkway near OceanAire apartments looking south. Source: 2022. Fresh Escapes. Pacifica California, Walking In Pacifica Esplanade Beach, USA, [4K], Screen grab at 34:49 at www.youtube.com/watch?v=2qUnerXnEGU . July 20.

Source: MIG 2022

Figure 3-11 Site Photos 9 and 10

310-330 Esplanade Avenue Infrastructure Preservation Project, City of Pacifica

install the wall below the sand and the pile cap that sits atop the sheet pile, which according to the plans extends to a depth of +7 feet NAVD88. As previously stated, isolated artificial dewatering could be required if unanticipated storm/rogue waves topped the temporary riprap wave protection measures.

Construction of the proposed seawall would occur on both weekdays and weekends. Because the construction requires a building permit from the City, the days and hours of construction would adhere to the provisions of the Pacifica Municipal Code Section 8-1.05 (Title 8. – Building Regulations, Chapter 1. – Building Code), which limits construction to the hours of 7:00 AM to 7:00 PM Monday through Friday, and from 9:00 AM to 5:00 PM on Saturday and Sunday.

3.4.6 Equipment Staging and Material Storage

Two equipment staging and material storage areas are designated for the Project. The north staging area would be located on the blufftop in the 310 to 330 block of Esplanade Avenue and would be set back a minimum of 10 feet from the bluff edge. The south staging area would be located on the City-owned blufftop property south of 380 Esplanade opposite of Manor Drive, adjacent to the existing ramp that would provide equipment access to the beach. This ramp has also provided public access to the beach, but is currently closed. Following the construction phase of the Project, the ramp would again be available for public access to the beach. A crane pad would be established in the north staging area. As the first part of site preparation, the staging and material storage areas would be fenced, and signage installed to identify the area as the staging and storage area and to keep the public from entering the area. The north staging area is currently fenced with chain link for public safety. The staging and material storage areas would have one point of ingress and egress to and from Esplanade Avenue. All concrete washout basins would be contained in designated locations within these staging/storage areas. Lighting facilities with generators may be used in these areas. A designated parking area for construction workers would also be established in these areas.

3.4.7 Drainage

Following construction, the blufftop between 310 and 330 Esplanade Avenue would be recontoured to ensure that the blufftop slopes uniformly towards Esplanade Avenue to direct stormwater sheet flow towards Esplanade Avenue and away from the bluff face. Recontouring is anticipated to require less than 50 cubic yards of imported material. After construction of the seawall, during the early winter months (e.g., November through January), the top of the bluff would be revegetated with native, drought tolerant species suitable for blufftop habitat to protect the bluff from surface runoff and associated erosion. Native plantings would be hand watered only through establishment of the vegetation; an irrigation system would not be installed for the plantings.

3.4.8 Best Management Practices

Best management practices (BMPs) to address fugitive dust and water quality during construction will be included in Project plans and specifications and therefore included as part of the Project. They are not considered mitigation.

Fugitive Dust Control. As discussed in Chapter 4.2 Air Quality, fugitive dust emissions are considered potentially significant in the BAAQMD's CEQA Guidelines, regardless of the quantity of PM_{10} or $PM_{2.5}$ emitted, unless the BAAQMD's eight recommended fugitive dust control BMPs are implemented during construction activities (BAAQMD 2023, pg. 5-5). Accordingly, to reduce fugitive dust that would be generated during Project construction activities, the City will incorporate the following BAAQMD basic dust control measures into the proposed Project:

- Water all exposed surfaces (e.g., staging areas, soil piles, graded areas, and unpaved access roads) two times per day during construction and adequately wet demolition surfaces to limit visible dust emissions.

- Cover all haul trucks transporting soil, sand, or other loose materials off the project site.

- Use wet power vacuum street sweepers at least once per day to remove all visible mud or dirt track-out onto adjacent public roads (dry power sweeping is prohibited) during construction of the Project.

- Vehicle speeds on unpaved roads/areas shall not exceed 15 miles per hour.

- Complete all areas to be paved as soon as possible and lay building pads as soon as possible after grading unless seeding or soil binders are used.

- Minimize idling time of diesel-powered construction equipment to five minutes and post signs reminding workers of this idling restriction at access points and equipment staging areas during construction of the Project.

- Maintain and properly tune all construction equipment in accordance with manufacturer's specifications and have a California Air Resources Board (CARB)-certified visible emissions evaluator check equipment prior to use at the site.

- Post a publicly visible sign with the name and telephone number of the construction contractor and City staff person to contact regarding dust complaints. This person shall respond and take corrective action within 48 hours. The publicly visible sign shall also include the contact phone number for the Bay Area Air Quality Management District to ensure compliance with applicable regulations.

Water Quality During Construction. Construction projects in California causing land disturbances that are equal to 1.0 acre or greater must comply with State requirements to control the discharge of stormwater pollutants under the National Pollutant Discharge Elimination System

Construction General Permit (CGP). Prior to the start of construction/demolition, a Notice of Intent (NOI) must be filed with the State Water Board describing the Project. A Stormwater Pollution Prevention Plan (SWPPP) must be developed and maintained during project construction and it must include the use of BMPs to protect water quality until the site is stabilized. Standard permit conditions under the Construction General Permit require that the applicant utilize various measures including on-site sediment control BMPs, damp street sweeping, temporary cover of disturbed land surfaces to control erosion during construction, and utilization of stabilized construction entrances and/or wash racks, among other factors. Compliance with regulatory and permitting requirements such as the Construction General Permit is considered part of the Project, and the BMPs would not be considered mitigation.

3.5 RESPONSIBLE AND TRUSTEE AGENCIES

Certain projects or actions undertaken by a Lead Agency require subsequent oversight, discretionary approvals, or permits from other public agencies to be implemented. These agencies are referred to as Responsible Agencies and Trustee Agencies, defined in the CEQA Guidelines Sections 15381 and 15386. "Responsible Agency" includes all public agencies with discretionary approval power over the project. "Trustee Agency" means a state agency having jurisdiction by law over natural resources affected by a project which are held in trust for the people of the State of California. The Responsible or Trustee Agencies for the proposed Project are listed below:

- NOAA Fisheries
- Federal Environmental Management Agency
- California Coastal Commission
- California Department of Fish and Wildlife (CDFW)
- California Department of Transportation (Caltrans)
- San Francisco Bay Regional Water Quality Control Board (RWQCB)
- California State Lands Commission
- U. S. Army Corps of Engineers
- U.S. Fish and Wildlife Service (USFWS)

The City is seeking funding for the project from the State Coastal Conservancy (SCC), however, the SCC is not considered a Responsible or Trustee Agency per CEQA Guidelines 15381 and 15386, respectively.

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4 IMPACT ANALYSIS

This section presents the discussion of impacts related to the following subjects in their respective subsections:

4.1 Aesthetics
4.2 Air Quality
4.3 Biological Resources
4.4 Cultural and Tribal Cultural Resources
4.5 Geology and Soils
4.6 Hazards and Hazardous Materials
4.7 Hydrology and Water Quality
4.8 Land Use
4.9 Noise
4.10 Public Services and Recreation

The discussion for each environmental subject includes the following subsections:

Environmental Setting – This subsection describes the existing, physical environmental conditions in the Project area and in the surrounding area, as relevant.

Regulatory Setting - This subsection provides a brief overview of relevant laws, plans, policies, and regulations that compose the regulatory framework for the Project.

Significance Thresholds - This subsection includes the recommended checklist questions from Appendix G of the CEQA Guidelines used to assess impacts**.**

Impact Discussion – This subsection discusses the Project's potential impacts on the environmental subject as related to the significance thresholds/checklist questions. For potentially significant impacts, feasible mitigation measures are identified. "Mitigation measures" are measures that will minimize, avoid, or eliminate a significant impact (CEQA Guidelines Section 15370).

References – This subsection provides a list of references and persons consulted in the preparation of the subsection.

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4.1 AESTHETICS

This EIR Chapter addresses the Project's potential impacts on scenic vistas and scenic resources, the potential of the Project to degrade the existing visual character or quality of the Project area, and to create substantial and adverse impacts related to light and glare.

4.1.1 Environmental Setting

The Project is located within the West Edgemar, Pacific Manor sub-area in the City of Pacifica, along the coastal bluff to the west of Esplanade Avenue. The adjacent neighborhood consists of multi-family residential land uses. Commercial uses are located nearby to the southwest off of Palmetto Avenue and Monterey Road. Refer to Figures 3-6, 3-7, and 3-8 in Chapter 3.0 Project Description for photos of the site from the beach at the toe of the bluff and from Esplanade Avenue at the top of the bluff.

The top of the bluff at 310-330 Esplanade Avenue is relatively level and is roughly 60 to 70 feet wide between Esplanade Avenue and the steep bluff face. Elevations at this relatively flat top portion of the bluff range from 97 to 100 feet (NAVD88). The base of the bluff varies from about elevation 16 to 20 (NAVD88). The west-facing bluff face is inclined at roughly 62 to 70 degrees. The beach typically slopes gently down at an approximate 8:1 (H:V) slope between the toe of the bluff and ordinary high tide line. An intermittent, up to 25 foot wide, riprap revetment is located adjacent to the toe of the bluff.

The buff face and public access trail at 100 Esplanade Avenue located to the north of the Project site, and adjacent to the residential property known as Land's End (more recently Oceanaire), was improved with a shotcrete and soil nail seawall and a riprap revetment. The top of the Land's End seawall is at about elevation 35 NAVD88 and the toe is at about elevation 7 NAVD88 (Cotton Shires 2019). It also appears that the seawall experienced episodes of ocean waves overtopping the wall in 2017 that resulted in scour at the bottom of the wall (Cotton Shires 2019). As a consequence of the overtopping, material behind the wall was washed away resulting in huge cavities behind the wall that were later backfilled with a cementitious material. The shotcrete facing also shows signs of spalling and delaminating at the structural/sculpted shotcrete interface. As of 2023, repairs to this seawall have been completed, including filling in the cavities.

The coastal bluff to the south of the Project site at 360/380 Esplanade Avenue is equipped with a full height soil nail and shotcrete wall with riprap at the toe (see Figure 3-6, Photo 4, in Project Description). The design appears to consist of 8 to 10 rows of soil nails anchoring a sculpted shotcrete facing. The toe of the shotcrete wall originally appears to have been designed to terminate at about elevation 27 feet, but an extension was added to extend the wall to approximately elevation 17 feet. The as-built plans show riprap extending to elevation 10 feet below the shotcrete wall. The locations of the existing seawalls to the north and south of the Project are shown on Figure 3-4.

Scenic Resources

Scenic vistas are defined in this document as natural landscapes that provide views of unique flora, geologic or other natural features that are generally free from urban intrusions. Typical scenic vistas include views of mountains and hills, large, uninterrupted open spaces and waterbodies. Scenic vistas generally play a large role in the way a community defines itself and also affects development patterns as projects are designed to take advantage of viewsheds. Scenic vistas can be impacted by development in two ways. First, a structure may be constructed that blocks the view of the vista. Second, the vista itself may be altered (i.e., development on a scenic hillside).

Important coastal view corridors at and near the Project site include southwest views to the Pacific Ocean from Palmetto Avenue located just north of the Project site as well as a view corridor extending west to the Pacific Ocean from Manor Drive, just south of the Project site. The Plan Pacifica 2040 General Plan also notes that direct views to the ocean are provided at Esplanade Avenue (see Figure 4-1).

State Scenic Highways

There are no officially designated State Scenic Highways near the Project area (Caltrans 2023). The State and County have identified Highway 1 as eligible for scenic highway designation, however, the local section of Highway 1 has not been officially designated as such. The Project site and proposed improvements are not within the viewshed of Highway 1, which is located approximately 650 feet east of the Project site and blocked from view by intervening trees and development.

City Scenic Routes

Highway 1 in the Project area is designated as a City Scenic Route in the City's General Plan, however, as noted above, the Project site is not visible from Highway 1 due to intervening trees and other development.

Light and Glare

The Project site is located in a coastal urban area adjacent to the Pacific Ocean. On the blufftop, typical residential sources of light are present including lights from the adjacent multi-family housing buildings, streetlights, and cars traveling on the roadways. Structures containing glass, metal, or polished exteriors or roofing materials throughout the blufftop area also reflect natural sunlight and man-made light sources that create localized daytime glare.

4.1.2 Regulatory Setting

State

Coastal Act Policies

The California Coastal Zone Conservation Act of 1972 (Proposition 20) was a temporary measure passed by the voters of the state as a ballot initiative. It set up temporary regional Coastal Commissions with permit authority and a directive to prepare a comprehensive coastal plan. The coastal commissions under Proposition 20 lacked the authority to implement the Coastal Plan but were required to submit the Plan to the legislature for "adoption and implementation." The California Coastal Act of 1976 is the permanent enacting law approved by the State legislature. The Coastal Act established a different set of policies, a different boundary line, and different permitting procedures than Proposition 20. Further, it provides for the transfer of permitting authority, with certain limitations reserved for the State, to local governments through adoption and certification of Local Coastal Programs (LCP) by the Coastal Commission.[3]

Section 30251 of the Coastal Act states that the scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural landforms, to be visually compatible with the character of surrounding areas, and, where feasible; to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas, such as those designated in the California Coastline Preservation and Recreation Plan, prepared by the Department of Parks and Recreation and by local government, shall be subordinate to the character of its setting. There are no such designated areas within or near the Project site.

Local

City of Pacifica Coastal Zone Combining District

The City's Coastal Zone Combining District ensures that the goals and policies of the California Coastal Act are followed by providing special regulations to ensure appropriate protection of the undeveloped coastal bluffs and promontories, as well as of developed coastal areas. These goals include the protection and enhancement of the coastal environment, including its visual resources. "Public shoreline access" is defined in the Coastal Zone Combining District as a path, trail, or area which provides physical or visual public access to the shoreline. Types of access include lateral access along a coastal bluff or along a beach, or vertical access to or across a coastal bluff, beach, scenic overlook, or viewing area.

[3] Quality Code Publishing. https://library.qcode.us/lib/malibu_ca/pub/local_coastal_program/item/land_use_plan-chapter_1-c#:~:text=The%20California%20Coastal%20Zone%20Conservation,prepare%20a%20comprehensive%20coastal%20plan. Accessed on February 16, 2023.

City of Pacifica General Plan 2040

The City of Pacifica General Plan 2040 lists views of the ocean, landforms, and special coastal communities from public roadways, trails, blufftops and vista points as being of primary importance, and also contains a map of coastal view corridors (see Figure 4-1). The Project site is located between two of the Coastal View Corridors shown on the map, however, the proposed seawall would be below the blufftop and would not be visible from these corridors. The proposed revegetation of the blufftop would be visible from the corridors. Skyline Boulevard is described as acting as a coherent eastern boundary for the City, with Sharp Park Road, Manor Drive, and Hickey Boulevard serving as "gateways" into Pacifica from the east. These roadways are all located south of the Project site and do not provide direct views of the site. The City of Pacifica's proposed Local Coastal Land Use Plan (LCLUP, Certification Draft February 2020) is a policy document for the long-range development of the portion of the City of Pacifica within the Coastal Zone. The Coastal Zone includes all land west of State Route 1, as well as Shelldance Nursery and some land south of City limits. The LCLUP (Certification Draft February 2020) is an essential component of the City's Local Coastal Program as required by the California Coastal Act. It was developed in tandem with the City of Pacifica General Plan 2040, which provides the direction for the future growth of the City and articulates a vision of what Pacifica aspires to be.[4]

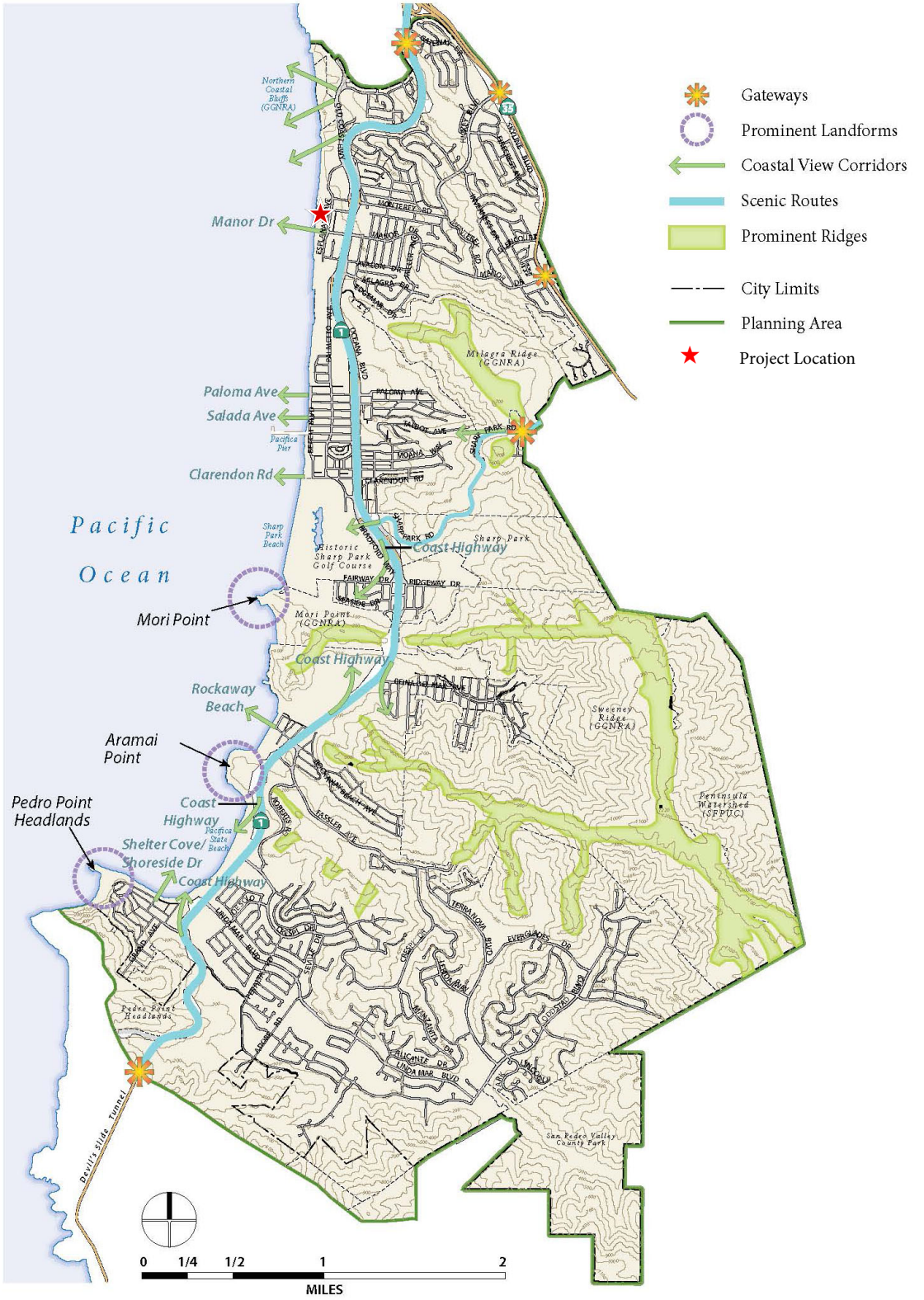
Although the City of Pacifica General Plan 2040 was approved by the City Council in 2022, implementation of the City of Pacifica's proposed LCLUP (February 2020) is currently on hold, pending certification by the Coastal Commission. The City's existing LCLUP, adopted by the City Council and certified by the Coastal Commission in 1980, is incorporated into the 1980 General Plan and is currently in effect until such time as the 2020 LCLUP is certified.

Local Coastal Land Use Plan (1980)

The existing Local Coastal Land Use Plan, adopted in 1980 and currently in effect, contains the following Coastal Act policy regarding scenic resources.

> *Policy 24* - The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural landforms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas -such. as those designated in the California Coastline Preservation and Recreation Plan, prepared by the Department of Parks and Recreation and by loca1 government, shall be subordinate to the character of its setting.

[4] City of Pacifica. Plan Pacifica Local Coastal Land Use Plan – Certification Draft. February 2020.



Source: 2040 General Plan, City of Pacifica, July 2022

Figure 4-1 Visual Resources

310-330 Esplanade Avenue Infrastructure Preservation Project, City of Pacifica

City of Pacifica Design Guidelines

The City adopted Design Guidelines to maintain the quality of physical development within the city and to improve the quality of development where desirable attributes are lacking. Applicable general guidelines for the Project address site improvements and lighting are summarized as follows:

- *Site Improvements.* Locate site improvements to take advantage of desirable site features. For example, existing healthy trees and distinctive berms or rock outcroppings should be incorporated into site design. Buildings should be oriented to capitalize on view of hills and ocean. Site improvements should be designed to work with site features, not against them. Lot grading should be minimized and disruption of natura1 features such as trees, ground forms, rocks, and water courses should be avoided.

- *Lighting*. Exterior lighting should be subdued, and should enhance building design as well as provide for safety· and security. Lighting which creates glare for occupants or neighbors should not be used. In general, large areas should be illuminated with a few low shielded fixtures. Tall fixtures which illuminate large areas should be avoided.

4.1.3 Thresholds of Significance

The Project would have a significant impact to visual and design factors if it would:

a) Substantially degrade the existing visual character or quality of the site and its surroundings.

b) Have a substantial adverse effect on a scenic vista.

c) Substantially degrade the view from a scenic highway, including, but not limited to, trees, rock outcroppings and historic buildings.

d) Expose people to substantial light or glare, which would adversely affect day or nighttime views in the area.

For the purposes of this CEQA document, the City considers a scenic vista as a highly valued landscape that the public can view from public vantage points; a viewpoint that is accessible only from private property is not considered a scenic vista.

4.1.4 Impacts and Mitigation Measures

This section describes potential impacts related to aesthetics which could result from the implementation of the proposed infrastructure preservation Project and recommends mitigation measures as needed to reduce significant impacts.

Impact AES-1 –The Project would not have a substantial adverse effect on a scenic vista. (Less Than Significant Impact)

CEQA does not establish the definition of a scenic vista. Communities can define and identify scenic vistas in a general plan or afford protection to scenic vistas through other land use planning documents. For purposes of determining significance under CEQA, the City is defining a scenic vista as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the public.

Scenic views of the ocean are currently provided from the blufftop along Esplanade Avenue. Because the proposed seawall is located down at the base of the bluff, it would not be visible from Esplanade Avenue. Project features visible from Esplanade Avenue would include the proposed restoration planting of the top of the bluff and recreational amenities such as a paved trail, benches, and fencing (see Figure 3-5). These features would not block broad sweeping views from Esplanade Avenue because they are located close to ground level. A limited view of the top portion of the coastal bluff face is visible from the trail at the top of the bluff at the northern end of the OceanAire residential development.

Existing views of the Project site from the west (i.e., views from the beach/ocean) consist of the existing crumbling bluff with intermittent riprap on the beach and at the project site, as shown in Figure 3-7, Photo 2, and Figure 3-11 Photo 9. Previously installed (i.e., existing) coastal bluff protective measures are visible immediately to the north and south of the site. The access trail from the existing OceanAire development at Esplanade Avenue to the beach is visible to the north of the project site as viewed from the west. This accessway is shown in Figure 3-7, Photo 2, and Figure 3-10, Photo 7 and includes a soil nail and shotcrete wall. The accessway has switchbacks from the top of the slope down to the beach with steps for the last approximately 15 feet in elevation down to the beach. Slope protection above the top of the wall currently consists of jute erosion control netting and restoration plantings. Fencing at this location consists of round wooden fence posts with a single heavy rope strung between them.

The Project would remove all existing loose slope debris material located on the lower portions of the bluff as well as existing riprap. The new seawall would look similar to the existing soil nail wall to the north of the Project site and would extend approximately 30 feet in height from the beach, with the remaining height of the bluff face above left undisturbed to allow it to naturally incline back. Construction of the new seawall would not impact the existing access trail from the OceanAire development. Therefore, Project views from the beach would look similar to existing previously installed coastal bluff protection measures to the north and south of the site.

Among the comments received during the EIR scoping process was a request to provide visual simulations. However, the depiction of the proposed seawall on Figure 3-4, which provides vertical and horizontal dimensions of the wall as well as other features of the existing beach and bluff such as artificial fill, slope debris, beach sand and riprap presents an accurate representation of what the wall will look like following construction of the Project. In addition, the photographs of the

existing seawalls to the north and south of the Project shown in Photos 4 (Figure 3-8) and 7 and 8 (Figure 3-10) have been provided to approximate the visual appearance of the proposed wall.

During construction, public views of the project site would change temporarily due to the presence and operation of various construction equipment, security fencing around work and staging areas, and construction vehicles entering and exiting the site, including from the designated access ramp near Manor Drive. Although views of the ocean from nearby residences and the adjacent Esplanade Avenue could be partially blocked by the equipment, materials, and stockpiles in the staging areas and access ramp, these changes would be temporary for the duration of construction as these visual obstructions would be removed once project construction is completed.

The proposed construction of the seawall on the face of the bluff and restoration of the blufftop would be consistent with General Plan Policies *CD-G-6 Scenic and Visual Amenities of the Coastal Zone, CD-I-15 Minimize Impacts of Coastal Development on Landforms,* and *CD-I-16 Minimize Impacts of Coastal Development on Vegetation.* It would preserve existing viewsheds by not blocking views of the ocean, minimizing impacts on the view from the ocean and beach through construction of a wall that is similar to existing adjacent coastal bluff protection measures located north and south of the Project site, and by incorporating revegetation of disturbed areas with native plants. Crumbling shotcrete at the blufftop edge of the bluff, as well as riprap on the beach and the toe of the slope would be removed as a result of the Project.

Restoration plantings proposed for the top of the bluff include plants found naturally in northern coastal scrub habitat. These plantings consist mostly of grasses, forbs, shrub, and groundcover species and do not include tall trees that would disrupt views of the ocean to the west. A cable fence would be installed along with detailed interpretive signage to inform the public of the ongoing restoration of the blufftop. The Project would therefore not adversely affect the scenic views of the Pacific Ocean, and not have a substantial adverse impact on a scenic vista.

Impact AES-2 – The Project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. (No Impact)

The Project is not visible from an officially designated state scenic highway. Highway 1 east of the Project area is eligible for scenic highway designation, however, it is not yet designated as such. The Project improvements are not visible from Highway 1, nor does the Project remove trees or rock outcroppings, or historic buildings. Therefore, there would be no impact.

Impact AES-3 – Public views are those that are experienced from publicly accessible vantage points. The Project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings or conflict with applicable zoning and other regulations governing scenic quality. (Less Than Significant Impact)

As noted above in response to Impact AES-1, the proposed Project installs a seawall and restoration plantings to protect the coastal bluff from further erosion. The construction method and

design for the seawall proposed is similar to other seawall projects just north and south of the site as viewed from the beach. During construction, public views of the project site would change temporarily due to the presence and operation of various construction equipment, security fencing around work and staging areas, and construction vehicles entering and exiting the site, including from the designated access ramp near Manor Drive. Although views of the ocean from nearby residences and the adjacent Esplanade Avenue could be partially blocked by the equipment, materials, and stockpiles in the staging areas and access ramp, these changes would be temporary for the duration of construction as these visual obstructions would be removed once project construction is completed.

Because of the temporary nature of the construction of the Project, and because it proposes similar improvements to others currently in the area without significant changes to the existing grade of the bluff face, the Project is not anticipated to result in a substantial degradation of the existing visual character or quality of the site from public vantage points. The Project would change the existing view on the blufftop from a flat, gravel, six-foot tall chain-linked fenced area devoid of vegetation, to a more natural state with various coastal scrub plantings, and would also include a paved path, benches, interpretive signage, and less prominent fencing. Therefore, the impact is considered less than significant.

Impact AES-4 – The Project would not result in new sources of substantial light or glare which would adversely affect day or nighttime views in the area. (Less Than Significant Impact)

It is anticipated that the Project will be constructed mostly during daylight hours. However, in order to maintain the construction schedule, it may become necessary to extend the construction hours into the evening, or start the work day early in the morning to begin construction, depending on the tasks being performed, types of equipment involved in operations on the beach, and the timing of the ocean tides. Construction during early morning or late evening hours could require lighting of the beach, bluff face, and staging areas on top of the bluff. Lighting of staging areas on top of the bluff would be visible from surrounding residential areas. The City of Pacifica Design Guidelines require that exterior lighting is subdued and that lighting which creates glare for neighbors should not be used. It further states that large areas should be low shielded fixtures, and that tall fixtures which illuminate large areas should be avoided.[5] Any proposed construction phase lighting would be subject to compliance with the Guidelines.

Compliance with the Pacifica Design Guidelines would ensure that the Project would not introduce sources of light or glare that would pose a hazard or nuisance to neighboring development. The temporary nature of the construction activities would also reduce potential impacts of temporary construction lighting to a less than significant level. No permanent sources of substantial light or

[5] City of Pacifica. Design Guidelines. Revised 4/23/90.

glare would result from the Project as no new permanent lighting is proposed. The impact is considered less than significant. The effects of nighttime lighting to biological resources below the bluff and in the ocean during construction are discussed in Chapter 4.3.

4.1.5 References

California Department of Transportation. 2023. California State Scenic Highway System Map.

City of Pacifica. 2022. General Plan 2040. July 11.

City of Pacifica. 1990. Design Guidelines. April 23. Accessed May 26, 2023 at https://www.cityofpacifica.org/home/showpublisheddocument/2394/637838931965700000.

City of Pacifica. 1980. Local Coastal Land Use Plan. March 24. Reprinted May 1989. Second Printing: August 1992.

4.2 AIR QUALITY

This EIR chapter provides information on the environmental and regulatory air quality setting of the Project area and evaluates the potential air pollutant emissions that could be generated by the proposed Project. The evaluation of the Project's potential air quality impacts is based, in part, on modeled emissions estimates and a health risk assessment (HRA) prepared by MIG for this EIR see Appendix C). Information on existing air quality conditions, federal, and State ambient air quality standards, and pollutants of concern was obtained from the U.S. Environmental Protection Agency (U.S. EPA), California Air Resources Board (CARB), and Bay Area Air Quality Management District (BAAQMD).

4.2.1 Environmental Setting

Air quality is a function of pollutant emissions, and topographic and meteorological influences. The physical features and atmospheric conditions of a landscape interact to affect the movement and dispersion of pollutants and determine its air quality.

Criteria Air Pollutants

The U.S. EPA has established National Ambient Air Quality Standards (NAAQS) for six common air pollutants: ozone (O_3), particulate matter (PM), which consists of "inhalable coarse" PM (particles with an aerodynamic diameter between 2.5 and 10 microns in diameter, or PM_{10}) and "fine" PM (particles with an aerodynamic diameter smaller than 2.5 microns, or $PM_{2.5}$), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead. The U.S. EPA refers to these six common pollutants as "criteria" pollutants because the agency regulates the pollutants on the basis of human health and/or environmentally-based criteria.

The California Air Resources Board (CARB) has established California Ambient Air Quality Standards (CAAQS) for the six common air pollutants regulated by the federal Clean Air Act (the CAAQS are more stringent than the NAAQS) plus the following additional air pollutants: hydrogen sulfide (H_2S), sulfates (SO_X), vinyl chloride, and visibility reducing particles.

Regulated air pollutants are described below:

- **Ground-level Ozone,** or smog, is not emitted directly into the atmosphere. It is created from chemical reactions between oxides of nitrogen (NO_X) and volatile organic compounds (VOCs), also called Reactive Organic Gases (ROG), in the presence of sunlight (U.S. EPA 2022a). Thus, ozone formation is typically highest on hot sunny days in urban areas with NOX and ROG pollution. Ozone irritates the nose, throat, and air pathways and can cause or aggravate shortness of breath, coughing, asthma attacks, and lung diseases such as emphysema and bronchitis.
    - **ROG** is a CARB term defined as any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, and includes several low-reactive organic compounds which have been exempted by the U.S. EPA (CARB 2004).

  - **VOC** is a U.S. EPA term defined as any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions. The term exempts organic compounds of carbon which have been determined to have negligible photochemical reactivity such as methane, ethane, and methylene chloride (CARB 2004).

- **Particulate Matter,** also known as particle pollution, is a mixture of extremely small solid and liquid particles made up of a variety of components such as organic chemicals, metals, and soil and dust particles (U.S. EPA 2022b).

  - **PM_{10},** also known as inhalable coarse, respirable, or suspended PM, consists of particles less than or equal to 10 micrometers in diameter (approximately 1/7th the thickness of a human hair). These particles can be inhaled deep into the lungs and possibly enter the blood stream, causing health effects that include, but are not limited to, increased respiratory symptoms (e.g., irritation, coughing), decreased lung capacity, aggravated asthma, irregular heartbeats, heart attacks, and premature death in people with heart or lung disease (U.S. EPA 2022b).

  - **$PM_{2.5}$,** also known as fine PM, consists of particles less than or equal to 2.5 micrometers in diameter (approximately 1/30th the thickness of a human hair). These particles pose an increased risk because they can penetrate the deepest parts of the lung, leading to and exacerbating heart and lung health effects (U.S. EPA 2022b).

- **Carbon Monoxide (CO)** is an odorless, colorless gas that is formed by the incomplete combustion of fuels. Motor vehicles are the single largest source of carbon monoxide in the Bay Area. At high concentrations, CO reduces the oxygen-carrying capacity of the blood and can aggravate cardiovascular disease and cause headaches, dizziness, unconsciousness, and even death (U.S. EPA 2022c).

- **Nitrogen Dioxide (NO_2)** is a by-product of combustion. NO2 is not directly emitted, but is formed through a reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_X and are major contributors to ozone formation. NO_2 also contributes to the formation of particulate matter. NO_2 can cause breathing difficulties at high concentrations (U.S. EPA 2022d).

- **Sulfur Dioxide (SO_2)** is one of a group of highly reactive gases known as SO_X. Fossil fuel combustion in power plants and industrial facilities are the largest emitters of SO_2. Short-term effects of SO_2 exposure can include adverse respiratory effects such as asthma symptoms. SO_2 and other SO_X can react to form PM (U.S. EPA 2022e).

- **Sulfates (SO_4^{2-})** are the fully oxidized ionic form of sulfur. SO_4^{2-} are primarily produced from fuel combustion. Sulfur compounds in the fuel are oxidized to SO_2 during the combustion process and subsequently converted to sulfate compounds in the atmosphere. Sulfate exposure can increase risks of respiratory disease (CARB 2022a).

- **Hydrogen Sulfide (H_2S)** is a colorless gas with a strong "rotten egg" odor that can be smelled at very low concentrations. H_2S is also an irritant that can affect the eyes and lungs. H_2S is formed during the biological reduction of sulfates and decomposition of organic material.

- **Lead** is a metal found naturally in the environment as well as in manufactured products. Mobile sources used to be the main contributor to ambient lead concentrations in the air. In the early 1970s, the U.S. EPA established national regulations to gradually reduce the lead content in gasoline, and in 1996, lead was banned from gasoline. As a result of these efforts, emissions of lead from the transportation sector and levels of lead in the air decreased dramatically. Lead can adversely affect multiple organ systems of the body and people of every age group. Lead poisoning in young children can cause brain damage, behavioral problems, and liver or kidney damage. Lead poisoning to adults can cause reproductive problems, muscle and joint pain, nerve disorders and kidney disease (CARB 2016a).

- **Visibility Reducing Particles** impact the environment by decreasing visibility (haze). These particles vary greatly in shape, size and chemical composition, and come from a variety of natural and manmade sources. Some haze-causing particles are directly emitted to the air such as windblown dust and soot. Others are formed in the air from the chemical transformation of gaseous pollutants (e.g., sulfates, nitrates, organic carbon particles) which are the major constituents of fine PM. These fine particles, caused largely by combustion of fuel, can travel hundreds of miles causing visibility impairment. Haze not only impacts visibility, but some haze-causing pollutants have been linked to serious health problems and environmental damage as well. Exposure to PM2.5 and PM10 in the ambient air can contribute to a broad range of adverse health effects, including premature death, hospitalizations and emergency department visits for worsened heart and lung diseases (CARB 2020a).

Common criteria air pollutants, such as ozone precursors, SO_2 and PM, are emitted by many sources and have effects on a regional basis (i.e., throughout the Bay Area). Other pollutants, such as hazardous air pollutants (HAPs) and toxic air contaminants (TACs; see below) are generally not as prevalent and/or emitted by fewer and more specific sources and, therefore, have greater effects on local air quality conditions and local receptors.

Toxic Air Contaminants

In addition to criteria air pollutants, the U.S. EPA and CARB have classified certain pollutants as HAPs and TACs, respectively. These pollutants can cause severe health effects at very low concentrations, and many are suspected or confirmed carcinogens. The U.S. EPA has identified 187 HAPs, including such substances as benzene and formaldehyde; CARB also considers particulate emissions from diesel-fueled engines and other substances to be TACs (CARB 2020b).[6]

[6] Since CARB's list of TACs references and includes U.S. EPA's list of HAPs, this EIR uses the term TAC when referring to HAPs and TACs.

- **Diesel Particulate Matter (DPM).** Diesel engines emit both gaseous and solid material; the solid material is known as DPM. Almost all DPM is less than 1 micron in diameter, and thus is a subset of $PM_{2.5}$. DPM is typically composed of carbon particles and numerous organic compounds. Diesel exhaust also contains gaseous pollutants, including VOCs and NOx. The primary sources of diesel emissions are ships, trains, trucks, rail yards and heavily traveled roadways. These sources are often located near highly populated areas, resulting in greater DPM related health consequences in urban areas. The majority of DPM is small enough to be inhaled into the lungs and what particles are not exhaled can be deposited on the lung surface and in the deepest regions of the lungs where the lung is most susceptible to injury. In 1998, CARB identified DPM as a TAC based on evidence of a relationship between diesel exhaust exposure and lung cancer and other adverse health effects. DPM also contributes to the same non-cancer health effects as $PM_{2.5}$ exposure (CARB 2016c).

San Francisco Bay Area Air Basin

The U.S. EPA and CARB are the federal and state agencies charged with maintaining air quality in the nation and state, respectively. The U.S. EPA delegates much of its authority over air quality to CARB. CARB has geographically divided the state into 15 air basins for the purposes of managing air quality on a regional basis. An air basin is a CARB-designated management unit with similar meteorological and geographic conditions. The Project site and City of Pacifica, in San Mateo County, are within the southwestern portion of the San Francisco Bay Area Air Basin (SFBAAB). The SFBAAB covers all of Alameda, Contra Costa, Marin, Napa, Santa Clara, San Mateo, and San Francisco counties, and portions of Solano and Sonoma counties.

Topography and Meteorology

The topography and meteorology of the SFBAAB are characterized by the coast mountain ranges and the seasonal migration of the Pacific high-pressure cell. Regionally, basin airflow is affected by the coast mountain ranges, which create complex terrains consisting of higher elevations, valleys, and bays. The Golden Gate to the west and the Carquinez Strait to the east create gaps in the mountain ranges that allow air to flow into and out of the SFBAAB. In the summer, winds from the northwest are channeled through the Golden Gate and other narrow openings, resulting in localized areas of high wind speeds. Air flowing from the coast inland is called the sea breeze and begins developing in the late morning or early afternoon; air flowing from the inland regions back to the coast, or drainage, occurs at night.

Basin climate is also influenced by the Pacific high-pressure cell, a semi-permanent area of high pressure located over the Pacific Ocean. In the summer, the cell is centered over the northeastern Pacific Ocean, pushing storms to the north and resulting in generally stable conditions within the Bay Area. In the winter, the cell weakens and migrates south, bringing cooler temperatures and stormy conditions.

The SFBAAB is most susceptible to air pollution during the summer when cool marine air flowing through the Golden Gate can become trapped under a layer of warmer air (known as an inversion)

and prevented from escaping the valleys and bays created by the Coast Ranges. Air pollution potential is highest along the southeastern portion of the peninsula because this area is most protected from the high winds and fog of the marine layer, the emission density is relatively high, and pollutant transport from upwind sites is possible. Wintertime inversions are weaker and more localized and are the result of rapid heat radiation from the earth's surface.

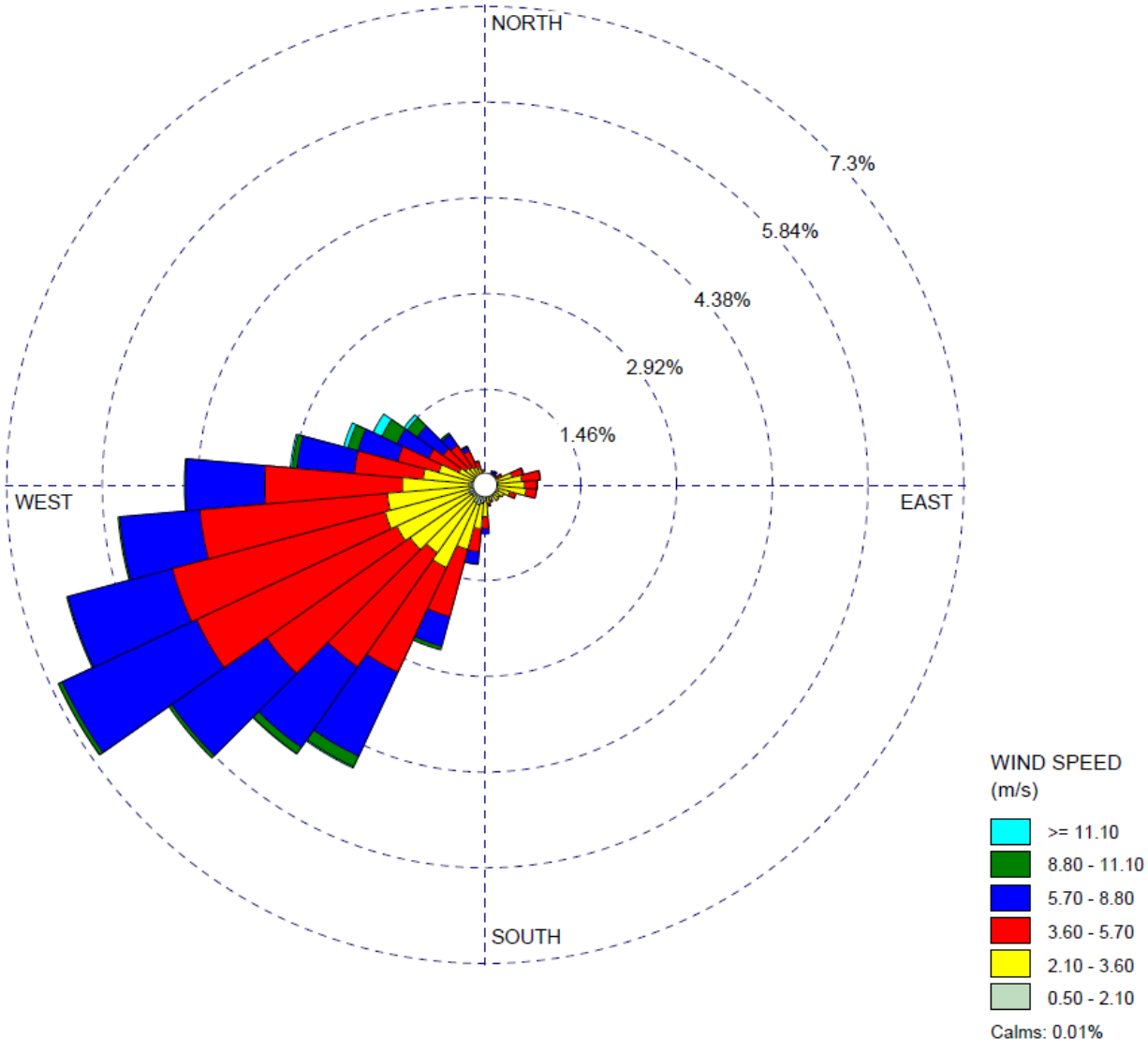
The proposed Project is located within San Mateo County, which lies in the middle of the San Francisco Peninsula, south of San Francisco County, and north of Santa Clara and Santa Cruz counties. It is bounded by the Pacific Ocean to the west and the San Francisco Bay to the east. Cool, foggy weather is prevalent along the western coast of the peninsula, particularly during the summer. Summertime average daily temperatures are moderate along the west coast and warm in the county's east side. In the winter, average daily temperatures across the county range from mild to moderate. Winds are mild, with the highest wind speeds focused along the western coast. Rainfall averages about 20 to 25 inches per year at lower elevations and up to 36 inches in the Santa Cruz Mountains (BAAQMD 2019b).

Wind Conditions

The proposed Project site is located approximately 4.2 miles south of the Fort Funston meteorological station. As shown in Figure 4-2, the prevailing winds at Fort Funston are typically from the southwest during the April through November months.[7] Based on meteorological data collected from 2013 to 2017, coastal regions in the vicinity of Fort Funston (including the Project area) tend to experience less than 1 in 1000 calm wind days during the April to November months. This indicates that the Project area is expected to have regular air migration during this time period.

[7] This time period is presented to be consistent with the meteorological data set used in the health risk assessment, see Appendix C for further details.

Figure 4-2: Fort Funston Wind Rose April to November



Source: BAAQMD 2022a

Ambient Air Quality Standards and Attainments Status

In general, the NAAQS and CAAQS define "clean" air, and are established at levels designed to protect the health of the most sensitive groups in our communities by defining the maximum amount of a pollutant (averaged over a specified period of time) that can be present in outdoor air without any harmful effects on people or the environment. Air pollutant levels are typically described in terms of concentration, which refers to the amount of pollutant material per volumetric unit of air. Concentrations are typically measured in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). The U.S. EPA, CARB, and regional air agencies assess the air quality of an

area by measuring and monitoring the amount of pollutants in the ambient air and comparing pollutant levels against NAAQS and CAAQS. Based on these comparisons, regions are classified into one of the following categories.

- **Attainment.** A region is "in attainment" if monitoring shows ambient concentrations of a specific pollutant are less than or equal to the NAAQS or CAAQS. In addition, an area that has been re-designated from nonattainment to attainment is classified as a "maintenance area" for 10 years to ensure that the air quality improvements are sustained.

- **Nonattainment.** If the NAAQS or CAAQS are exceeded for a pollutant, the region is designated as nonattainment for that pollutant. It is important to note that some NAAQS and CAAQS require multiple exceedances of the standard in order for a region to be classified as nonattainment. Federal and State laws require nonattainment areas to develop strategies, implementation plans, and control measures to reduce pollutant concentrations to levels that meet, or attain, standards.

- **Unclassified.** An area is unclassified if the ambient air monitoring data are incomplete and do not support a designation of attainment or nonattainment.

SFBAAB Attainment Status

Table 4-1 below lists the NAAQS and CAAQS and summarizes the SFBAAB attainment status. The SFBAAB is unclassified or designated attainment for all NAAQS and CAAQS except federal ozone, state ozone, state PM_{10}, federal $PM_{2.5}$, and state $PM_{2.5}$ standards. Ozone is primarily a problem in the summer, and fine particle pollution in the winter.

Table 4-1:Ambient Air Quality Standards and SFBAAB Attainment Status

Pollutant	*Averaging Time*	*CAAQS (A)*		*NAAQS (B)*	
		Standard (C)	**Attainment Status (D)**	**Standard (C)**	**Attainment Status (D)**
Ozone	1-Hour	180 µg/m3	N	--	--
	8-Hour	137 µg/m3	N	137 µg/m3	N
PM10	24-Hour	50 µg/m3	N	150 µg/m3	U
	Annual Average	20 µg/m3	N	--	--
PM2.5	24-Hour	--	--	35 µg/m3	N(E)
	Annual Average	12 µg/m3	N	12 µg/m3	A
Carbon Monoxide	1-Hour	23,000 µg/m3	A	40,000 µg/m3	A
	8-Hour	10,000 µg/m3	A	10,000 µg/m3	A
Nitrogen Dioxide	1-Hour	339 µg/m3	A	188 µg/m3	U(F)
	Annual Average	57 µg/m3	--	100 µg/m3	A
Sulfur Dioxide	1-Hour	655 µg/m3	A	196 µg/m3	U(G)
	24-Hour	105 µg/m3	A	--	--
Sulfates	24-Hour	25 µg/m3	A	--	--
H2S	1-Hour	42 µg/m3	U	--	--
Vinyl Chloride	24-Hour	26 µg/m3	--	--	--

Source: BAAQMD 2023, U.S. EPA 2023 modified by MIG.
(A) Table does not list CAAQS for lead and visibility reducing particles. California standards for ozone, carbon monoxide, sulfur dioxide (1 and 24-hour), nitrogen dioxide, suspended PM_{10} and $PM_{2.5}$ are values that are not to be exceeded. The standards for sulfates, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded.
(B) Standards shown are the primary NAAQS designed to protect public health.
(C) All standards shown in terms of micrograms per cubic meter ($\mu g/m^3$) for comparison purposes.
(D) A= Attainment, N= Nonattainment, U=Unclassifiable.
(E) On January 2013, the U.S. EPA issued a final rule to determine the Bay Area attains the 24-hour PM2.5 national standard. This EPA rule suspends key State Implementation Plan requirements as long as monitoring data continue to show that the Bay Area attains the standard. Despite this EPA action, the Bay Area will continue to be designated as "non-attainment" for the national 24-hour PM2.5 standard until such time as the Air District submits a "redesignation request" and a "maintenance plan" to EPA, and EPA approves the proposed redesignation.
(F) To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100ppm (effective January 22, 2010). The US Environmental Protection Agency (EPA) expects to make a designation for the Bay Area by the end of 2017.
(G) On June 2, 2010, the U.S. EPA established a new 1-hour SO_2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour SO_2 NAAQS however must continue to be used until one year following US EPA initial designations of the new 1-hour SO_2 NAAQS. EPA expects to make this designation for the Bay Area by the end of 2017.

Local Air Quality Conditions

Ozone and $PM_{2.5}$ are the major regional air pollutants of concern in the San Francisco Bay Area. Ozone is primarily a problem in the summer, and fine particle pollution in the winter.

The coastal regions of the peninsula have a lower air pollution potential compared with areas farther inland due to strong onshore winds and fog of the marine layer. Localized pollutant

emissions are relatively high due to motor vehicle traffic, however winds are generally strong enough to transport pollutants downwind before they can accumulate (BAAQMD 2017a, Appendix C).

In San Mateo County, ozone almost never exceeds health standards, and $PM_{2.5}$ exceeds the national standard only on about one day each year. San Mateo County frequently receives fresh marine air from the Pacific Ocean, which passes over the coastal hills. In winter, $PM_{2.5}$ may be transported into San Mateo County from other parts of the Bay Area, adding to wood smoke, which may lead to elevated concentrations, but these are rarely high enough to exceed health standards (BAAQMD 2019b).

The BAAQMD maintains a comprehensive air quality monitoring network consisting of over 30 stations distributed among the nine Bay Area counties in its jurisdiction. Table 4-2 shows the three most recent years' worth of data from the monitor located on Arkansas Street in San Francisco. The Arkansas Street location is the closest station to the project site that collects data for ozone, CO, NO_2, and $PM_{2.5}$.

As shown in Table 4-2, air quality conditions have generally improved or remained about the same over the 2017 to 2019 time period, the most recent period for which data is available:

- PM_{10} CAAQS was only exceeded in 2017 with 2 exceedances, but there were no recorded exceedances in 2018 or 2019;
- $PM_{2.5}$ NAAQS exceedances increased from 7 exceedances to 14 exceedances between 2017 and 2018, but there were no recorded exceedances in 2019; and
- O_3 1-hour CAAQS had no exceedances from 2017 through 2019, the 8-hour CAAQS and NAAQS were exceeded only once in 2019.

Table 4-2: Local Ambient Air Quality (2017-2019)

Monitoring Station	***Pollutant Standard***			***Exceedances***		
	Pollutant	**State / Federal**	**Concentration**	**2017**	**2018**	**2019**
San Francisco (Arkansas Street)	PM_{10} 24-hour(A)	CAAQS	50 µg/m^3	2	0	0
		NAAQS	150 µg/m^3	0	0	0
	$PM_{2.5}$ 24-hour	CAAQS	N/A	--	--	--
		NAAQS	35 µg/m^3	7	14	0
	O_3 8-hour	Both	137 µg/m^3	0	0	1
	O_3 1-hour	CAAQS	180 µg/m^3	0	0	0
		NAAQS	N/A	--	--	--
	CO 8-hour	Both	10,000 µg/m^3	0	0	0
	CO 1-hour	CAAQS	23,000 µg/m^3	0	0	0
		NAAQS	40,000 µg/m^3	0	0	0

Table 4-2: Local Ambient Air Quality (2017-2019)

Monitoring Station	*Pollutant Standard*			*Exceedances*		
	Pollutant	**State / Federal**	**Concentration**	**2017**	**2018**	**2019**
	NO_2 1-hour	CAAQS	339 µg/m^3	0	0	0
		NAAQS	188 µg/m^3	0	0	0
	SO_2 24-hour(A)	CAAQS	105 µg/m^3	--	--	--
		NAAQS	N/A	--	--	--
	SO_2 1-hour(A)	CAAQS	655 µg/m^3	--	--	--
		NAAQS	196 µg/m^3	--	--	--

Source: BAAQMD 2021
Data is from Arkansas Street monitor in San Francisco.

Sensitive Receptors

Some people are more affected by air pollution than others. The BAAQMD defines sensitive receptors as "facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly and people with illnesses" (BAAQMD 2023). In general, children, senior citizens, and individuals with pre-existing health issues (e.g., asthmatics) are considered sensitive receptors. Both CARB and the BAAQMD consider schools, schoolyards, parks and playgrounds, daycare facilities, nursing homes, hospitals, and residential areas as sensitive air quality land uses and receptors. The air quality sensitive receptors in proximity (i.e., within 1,000 feet) of the Project site include:

- A publicly accessible beach (Pacifica Esplanade Beach) bordering the Project to the south
- Multifamily residences on the west side of Esplanade Avenue, approximately 20 feet south of the Project's northern staging area
- Multifamily residences across Esplanade Avenue, approximately 70 feet east of the Project's northern staging area
- Pacifica Nursing and Rehab Center, approximately 320 feet east of the Project
- Esplanade Beach Overlook Trail, approximately 580 feet south of the Project
- Ocean Shore School, an elementary school, approximately 930 feet east of the Project

4.2.2 Regulatory Setting

Federal

Federal Clean Air Act

The Federal Clean Air Act (CAA), as amended, provides the overarching basis for both Federal and State air pollution prevention, control, and regulation. The CAA establishes the U.S. EPA's responsibilities for protecting and improving the nation's air quality. The U.S. EPA oversees

Federal programs for setting air quality standards and designating attainment status, permitting new and modified stationary sources of pollutants, controlling emissions of hazardous air pollutants, and reducing emissions from motor vehicles and other mobile sources. In 1971, to achieve the purposes of Section 109 of the CAA, the U.S. EPA developed primary and secondary NAAQS. Primary standards are designed to protect human health with an adequate margin of safety. Secondary standards are designed to protect property and public welfare from air pollutants in the atmosphere.

The U.S. EPA requires each State prepare and submit a State Implementation Plan that consists of background information, rules, technical documentation, and agreements that an individual State will use to attain compliance with the NAAQS within federally-imposed deadlines. State and local agencies implement the plans and rules associated with the State Implementation Plan, but the rules are also federally enforceable.

State

California Clean Air Act

In addition to being subject to Federal requirements, air quality in the state is also governed by more stringent regulations under the California Clean Air Act, which was enacted in 1988 to develop plans and strategies for attaining the CAAQS. As discussed above, in California, both the Federal and State Clean Air acts are administered by CARB. CARB oversees the functions of local air pollution control districts and air quality management districts, which in turn administer air quality activities at the regional level.

In-Use Off-Road Diesel Vehicle Regulation

CARB's In-Use Off-Road Diesel Equipment regulation is intended to reduce emissions of NOx and PM from off-road diesel vehicles, including construction equipment, operating within California. The regulation imposes limits on idling; requires reporting equipment and engine information and labeling all vehicles reported; restricts adding older vehicles to fleets; and requires fleets to reduce their emissions by retiring, replacing, or repowering older engines or installing exhaust retrofits for PM. The requirements and compliance dates of the off-road regulation vary by fleet size, and large fleets (fleets with more than 5,000 horsepower) must meet average targets or comply with Best Available Control Technology (BACT) requirements beginning in 2014. CARB has off-road anti-idling regulations affecting self-propelled diesel-fueled vehicles of 25 horsepower and up. The off-road anti-idling regulations limit idling on applicable equipment to no more than five minutes, unless exempted due to safety, operation, or maintenance requirements.

ATCM for Diesel PM from Portable Engines Rated at 50 Horsepower and Greater

CARB's Airborne Toxic Control Measures (ATCM) for Diesel Particulate Matter from Portable Engines Rates at 50 Horsepower and Greater (17 CCR §93116) reduces DPM and other emissions from portable diesel-fueled engines having a rated brake horsepower of 50 and greater by requiring compliance with emissions standards that align with U.S. EPA Tier 1 through 4 standards. CARB's

Portable Equipment Registration Program works in concert with this ATCM and allows owners and/or operators of portable engines to register their equipment under the CARB Statewide Portable Equipment Registration Program so it can be operated throughout California without having to obtain individual permits from local air districts.

Regional

Bay Area Air Quality Management District

The BAAQMD is the agency primarily responsible for maintaining air quality and regulating emissions of criteria and toxic air pollutants within the SFBAAB. The BAAQMD carries out this responsibility by preparing, adopting, and implementing plans, regulations, and rules that are designed to achieve attainment of state and national air quality standards. The BAAQMD currently has 14 regulations containing more than 100 rules that control and limit emissions from sources of pollutants. Table 4-3 summarizes the major BAAQMD rules and regulations that may apply to the proposed Project.

Table 4-3: Potentially Applicable BAAQMD Rules and Regulations

Regulation	***Rule***	***Description***
1 – General Provisions	1 – General Provisions and Definitions	301- Public Nuisance: 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.
6 – Particulate Matter	1 – General Requirements	Limits visible particulate matter emissions.
6- Particulate Matter	6- Prohibition of Trackout	Limits the quantity of particulate matter through control of trackout of solid materials on paved public roads from construction sites that are greater than one acre in size.

Source: BAAQMD 2019a

Air Quality Plans

On April 19, 2017, the BAAQMD adopted the 2017 Clean Air Plan: Spare the Air, Cool the Climate (Clean Air Plan), which updates the District's 2010 Clean Air Plan, and continues to provide the framework for assuring that the NAAQS and CAAQS would be attained and maintained in the Bay Area in compliance with state and federal requirements. The BAAQMD's 2017 Clean Air Plan is a multi-pollutant plan focused on protecting public health and the climate. Specifically, the primary goals of the 2017 Clean Air Plan are to:

- Attain all state and national quality standards;
- Eliminate disparities among Bay Area communities in cancer health risk from toxic air contaminants; and
- Reduce Bay Area greenhouse gas emissions to 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050.

The Clean Air Plan includes 85 distinct control measures to help the region reduce air pollutants and has a long-term strategic vision which forecasts what a clean air Bay Area will look like in the year 2050. The control measures aggressively target the largest sources of greenhouse gas (GHG) emissions, ozone pollutants, and particulate matter emissions (transportation). The 2017 Clean Air Plan includes more incentives for electric vehicle infrastructure, off-road electrification projects such as Caltrain and shore power at ports, and reducing emissions from trucks, school buses, marine vessels, locomotives, and off-road equipment.

BAAQMD CEQA Guidelines

BAAQMD has prepared CEQA Guidelines to assist lead agencies, analysts, project proponents, and other interested parties in evaluating potential air quality impacts of projects and plans proposed in the Bay Area. The guidelines recommend procedures for evaluating projects or plans and thresholds to determine whether the impacts are significant; the guidelines are used in this analysis (see Section 4.3.3) to establish thresholds of significance for environmental impacts. These guidelines also provide direction for identifying measures to mitigate impacts related to air quality. BAAQMD's current CEQA air quality guidelines were adopted in 2017. These guidelines include emission-based thresholds for project-level analysis, new procedures and thresholds for evaluating community risk, and greenhouse gas thresholds. On April 20, 2022 the BAAQMD adopted the CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans. These significance thresholds would be used to determine whether a proposed project would have a significant impact on climate change and are not applicable to this air quality analysis (BAAQMD 2022b).

City of Pacifica General Plan 2040

The City of Pacifica's General Plan 2040 (2022) incorporates the following policies relevant to the proposed Project regarding air quality:

- CO-I-49: Impact Guidelines. Use the BAAQMD's Air Quality Guidelines, to determine and mitigate project air quality impacts.
- CO-I-51: Construction Equipment. Require all construction equipment to be maintained and tuned to meet appropriate EPA and CARB emission requirements.

- CO-I-52: Dust Abatement: Require contractors to use best management practices to reduce particulate emissions and dust associated with construction activities. BMPs include, but are not limited to: regular materials and vehicle tire watering; covering of stockpiles; phasing or extension of grading operations; suspension of grading during high wind periods; and revegetation of graded areas.

- CO-I-53: Transportation Control Measures. Ensure compliance with the most current Bay Area Clean Air Plan by implementing the Plan's recommended Transportation Control Measures. The 2017 Clean Air Plan identifies 17 TCMs aimed at reducing vehicle trips and vehicle miles traveled; increasing access to and support of alternative modes of transportation; promoting compact, walkable land use patterns; and increasing public education and awareness.

4.2.3 Significance Thresholds

Consistent with CEQA Guidelines Appendix G Environmental Evaluation Checklist, the Project would have a significant impact to air quality if it would:

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; or

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

4.2.4 Impacts and Mitigation Measures

This section evaluates potential air quality impacts and recommends mitigation measures, as needed, to reduce significant impacts.

Impact AIR-1: The Project would not conflict with Applicable Air Quality Management Plan (No Impact)

As described below, the proposed Project would not conflict with the BAAQMD's 2017 Clean Air Plan.

The BAAQMD's 2017 Clean Air Plan is a multi-pollutant plan focused on protecting public health and the climate. Specifically, the primary goals of the 2017 Clean Air Plan are to:

- Attain all state and national air quality standards;

- Eliminate disparities among Bay Area communities in cancer health risk from toxic air contaminants; and

- Reduce Bay Area GHG Emissions to 40 percent below 1990 levels by 2030, and to 80 percent below 1990 levels by 2050.

The 85 control strategies identified in the 2017 Clean Air Plan are grouped by nine economic-based "sectors.". Table 4-4 presents and summarizes the three sectors that are applicable to the proposed Project.

Table 4-4:BAAQMD 2017 Clean Air Plan Control Measure Sectors

Sector	*No. of Measures*	*General Description of Sector Applicability*
Stationary Sources (SS)	40	Applies to stationary sources generally used in commercial and industrial facilities. Such sources are typically regulated through BAAQMD rulemaking, permitting, and enforcement programs.
Transportation (TR)	23	Applies to on-road motor vehicles such as light-duty automobiles or heavy-duty trucks, as well as off-road vehicles, including airplanes, locomotives, ships and boats, and off-road equipment such as airport ground-support equipment, construction equipment and farm equipment.

The Project would be consistent with the 2017 Clean Air Plan control measures and implementation mechanisms, as follows:

- Stationary source control measure 31 (SS31; General Particulate Matter Emission Limitation) indicates California State law addresses requirements on portable equipment. The generator(s) associated with the proposed Project would be subject to this requirement and permitting through the BAAQMD.

- SS36 (PM from Trackout) reduces $PM_{2.5}$ emissions from track-out of mud and dirt onto paved, public roadways and SS38 (Fugitive Dust) reduces fugitive dust emissions from sources including construction activities. These 2017 Clean Air Plan measures are now implemented via the BAAQMD's rulemaking and permitting authority. In August 2018, the BAAQMD adopted Regulation VI, Rule 6, Prohibition of Trackout, pursuant to SS36. As described under Section 4.2.2, the City would comply with BAAQMD's trackout prevention requirements and has incorporated Best Management Practices (BMPs) into the Project to control and abate fugitive dust emissions that are consistent with BAAQMD recommendations contained in the BAAQMD CEQA Air Quality Guidelines.

For the reasons described above, the proposed Project would be consistent with the 2017 Clean Air Plan. There would be no impact associated with the proposed Project in this regard.

Impact AIR-2 – The Project would not result in a cumulatively considerable net increase of criteria pollutants for which the Project region is non-attainment under an applicable federal or state ambient air quality standard. (Less Than Significant Impact)

The proposed Project consists of the construction of a seawall that would generate equipment exhaust and dust emissions from the use of heavy-duty construction equipment and worker, vendor, and haul truck trips. The Project's potential construction emissions were estimated using the California Emissions Estimator Model (CalEEMod), Version 2022.1.1.5. The Project's construction phasing is summarized in Table 4-5.

Table 4-5: Construction Phasing and Equipment

Phase	*Duration (days)*	*Typical Equipment*
Site Preparation	10	Excavator, Concrete Pump Truck, Dozer
Sheet Pile Wall Install	50	Vibratory Hammer or Impact Hammer, Material Handler
Pile Cap Install	28	Water Pump, Generator, Concrete Trucks and Pump, Boom Truck
Tieback Install and Testing	56	Crane, Auger Drill, Man Lift
Shotcrete Wall Install	60	Crane, Man Lift
Restoration	30	Loader
Riprap Removal	30	Front End Loader, dump

Source: Schrier, 2022

The Project's construction phases, duration, and the type and amount of equipment used during construction was generated in coordination with the Project's design and engineering team and reflects the Project's specific characteristics, as follows:

- *Construction operations and phasing*: Construction was assumed to occur seven days a week. Barrier restoration and riprap removal was assumed to occur after monitoring of the sea wall was completed during the first year.

- *Equipment sizing*: Pumps and generators were upsized to have an engine horsepower (HP) rating of 101 HP.

- *Soil and debris hauling*: During the restoration phase, approximately 6,000 cubic yards of debris removal and approximately 6,000 cubic yards of soil import were assumed to occur.

The above-mentioned Project specific scheduling and equipment characteristics were modeled based on information provided by the engineering team. The estimates associated with these characteristics are considered representative of the proposed Project.

The Project's estimated construction criteria air pollutant emissions are presented in Table 4-6. Refer to Appendix C for detailed equipment operating assumptions and emissions estimates spreadsheets.

Table 4-6: Estimated Construction Criteria Air Pollutant Emissions

Year	*Pollutant Emissions (Tons per Year)*[B]						
	ROG	**NOx**	**CO**	**PM_{10} (Exhaust)**	**$PM_{2.5}$ (Exhaust)**	**PM_{10} (Dust)**	**$PM_{2.5}$ (Dust)**
2023	0.2	4.3	3.7	0.1	0.1	0.5	0.1
2024	<0.1	1.6	1.1	<0.1	<0.1	0.2	0.1

Year	*Pollutant Emissions (Average Pounds per Day)*[B]						
	ROG	**NOx**	**CO**	**PM_{10} (Exhaust)**	**$PM_{2.5}$ (Exhaust)**	**PM_{10} (Dust)**	**$PM_{2.5}$ (Dust)**
2023	1.2	23.4	20.1	0.5	0.4	2.6	0.7
2024	0.2	9.0	5.9	0.1	0.1	1.2	0.3
Total Construction Emissions[A]	1.4	32.4	26.0	0.6	0.5	3.8	1
BAAQMD CEQA Threshold	**54**	**54**	**--**	**82**	**54**	**BMPs**	**BMPs**
Potentially Significant Impact?	**No**	**No**	**No**	**No**	**No**	**No**	**No**

BAAQMD 2023 and MIG 2023. See Appendix C
Totals may not equal due to rounding.
Average daily emission estimates based on 264 active construction days

As shown in Table 4-6, construction emissions associated with the proposed Project would be below all BAAQMD significance thresholds for criteria air pollutant emissions; however, as indicated in the BAAQMD's CEQA Guidelines, fugitive dust emissions are considered potentially significant, regardless of the quantity of PM_{10} or $PM_{2.5}$ emitted, unless the BAAQMD's eight, recommended fugitive dust control BMPs are implemented during construction activities (BAAQMD 2023, pg. 5-5). Accordingly, to reduce fugitive dust that would be generated during Project construction activities, the City shall incorporate the following BAAQMD basic dust control measures into the proposed Project:

- Water all exposed surfaces (e.g., staging areas, soil piles, graded areas, and unpaved access roads) two times per day during construction and adequately wet demolition surfaces to limit visible dust emissions.

- Cover all haul trucks transporting soil, sand, or other loose materials off the project site.

- Use wet power vacuum street sweepers at least once per day to remove all visible mud or dirt track-out onto adjacent public roads (dry power sweeping is prohibited) during construction of the Project.

- Vehicle speeds on unpaved roads/areas shall not exceed 15 miles per hour.

- Complete all areas to be paved as soon as possible and lay building pads as soon as possible after grading unless seeding or soil binders are used.

- Minimize idling time of diesel-powered construction equipment to five minutes and post signs reminding workers of this idling restriction at access points and equipment staging areas during construction of the Project.

- Maintain and properly tune all construction equipment in accordance with manufacturer's specifications and have a California Air Resources Board (CARB)-certified visible emissions evaluator check equipment prior to use at the site.

- Post a publicly visible sign with the name and telephone number of the construction contractor and City staff person to contact regarding dust complaints. This person shall respond and take corrective action within 48 hours. The publicly visible sign shall also include the contact phone number for the Bay Area Air Quality Management District to ensure compliance with applicable regulations.

Once operational, the proposed sea wall would not generate emissions and, therefore, would not result in any operational air quality impacts.

As shown in Section 4.2.1 (Table 4-1), the SFBAAB is an area of non-attainment for national and state ozone, state PM_{10}, and national and state $PM_{2.5}$ air quality standards (BAAQMD 2023). Regarding cumulative impacts, the BAAQMD's CEQA Air Quality Guidelines state (BAAQMD 2017b, pg. 2-1):

> "SFBAAB's non-attainment status is attributed to the region's development history. Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant. In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulative considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Therefore, additional analysis to assess cumulative impacts is unnecessary."

As discussed above, the proposed Project does not conflict with the BAAQMD's Clean Air Plan (see Impact AIR-1) and would not result in construction or operational emissions that exceed BAAQMD thresholds of significance (Impact AIR-2). As such, the proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under applicable federal or state ambient air quality standards. This impact would be less than significant.

Impact AIR-3 – The Project could expose sensitive receptors to substantial pollutant concentrations and associated adverse health risks. (Less than Significant with Mitigation Incorporated)

Project-related construction activities would emit $PM_{2.5}$ from equipment exhaust. Nearly all the Project's $PM_{2.5}$ emissions from equipment exhaust would be diesel particulate matter (DPM), a TAC. As described in Section 4.2.1, sensitive air quality receptors are located to the east and south of the Project site, including residences, a nursing home, an elementary school, and parks/recreational facilities. Proposed Project construction activities could expose sensitive receptors to DPM pollutant concentrations and associated adverse health risks. Accordingly, a health risk assessment (HRA) was prepared to assess potential risks associated with sensitive receptor exposure to DPM during Project construction. The construction HRA evaluated DPM emissions associated with on- and off-road diesel fuel trucks and equipment emissions, as estimated using CalEEMod. The proposed Project would involve different construction activities occurring at different intensities over an approximate 9-month period (including the 60-day period of restoration and riprap removal after monitoring of the sea wall was completed). Receptors would be exposed to varying concentrations of pollutants throughout the construction period. Health risks were assessed according to the recommendations in the BAAQMD's *Recommended Methods for Screening and Modeling Local Risks and Hazards and Air Toxics New Source Review Program Health Risk Guidelines*, as well as the Office of Environmental Health Hazard Assessment's *Air Toxics Hot Spots Program Guidance Manual* (OEHHA 2015; BAAQMD 2012, 2016). The ground level concentrations of pollutants produced by the Project during construction, as estimated using AERMOD, were used to derive the individual excess cancer risk and non-carcinogenic health hazard index from potential exposure to DPM.

The following summarizes the results of the construction HRA. Refer to Appendix C for detailed CalEEMod and AERMOD[8] modeling assumptions, output files, and HRA methodology and calculations.

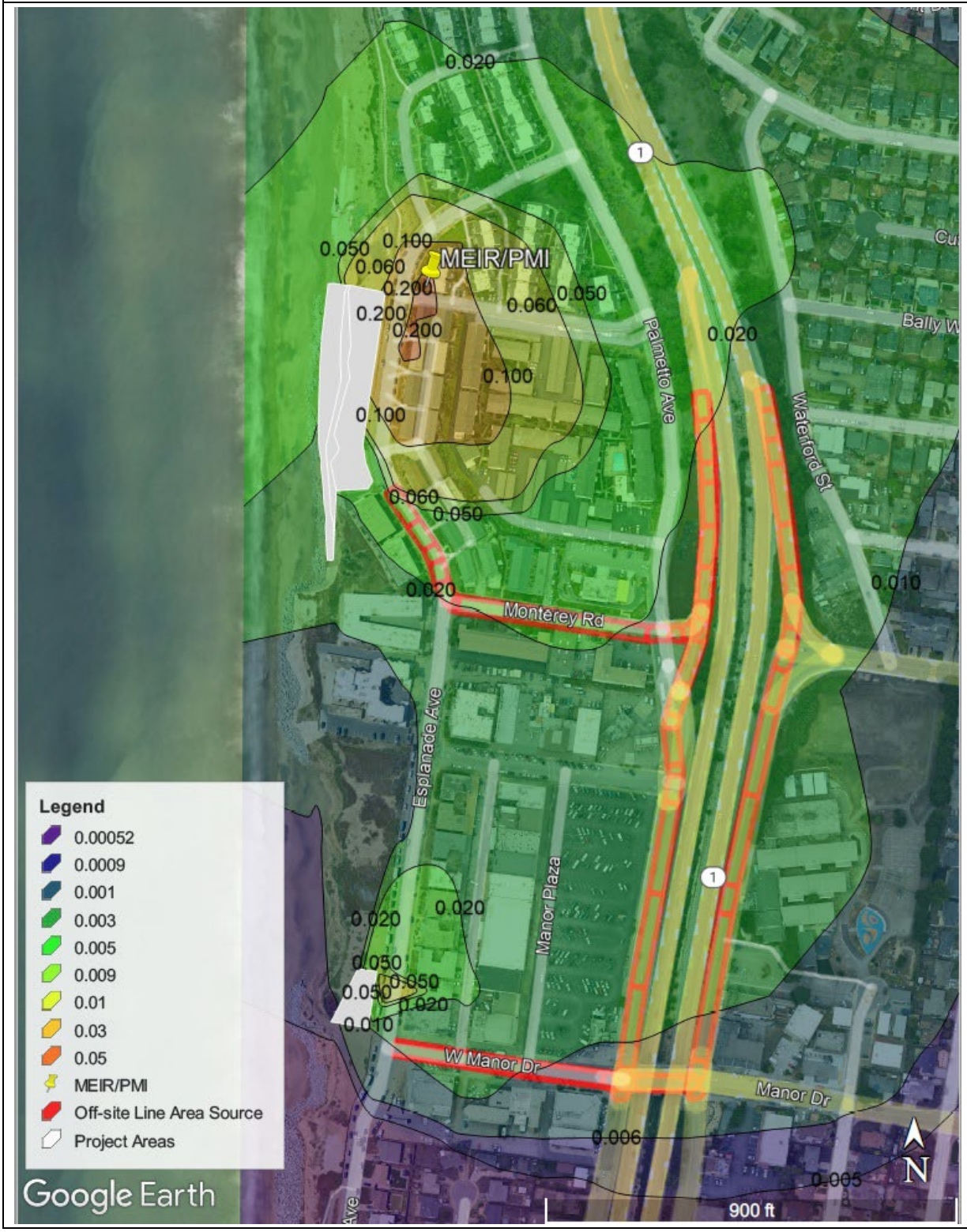
Construction HRA Results

Individual Carcinogenic Risk from Exposure to DPM

The predicted locations of the annual, unmitigated point of maximum impact (PMI) and the maximum exposed individual receptor (MEIR) for DPM exposure are shown in Figure 4-3.

[8] The AERMOD dispersion model is an EPA-approved and BAAQMD-recommended model for simulating the dispersion of pollutant emissions and estimating ground level concentrations of pollutants at specified receptor locations.

Figure 4-3: Construction Health Risk Assessment – Unmitigated DPM Concentrations (µg/m³)



The predicted unmitigated PMI is located northeast of the site, across Esplanade Avenue, at a residential receptor at the northeast corner of Esplanade Avenue and West Beaumont Boulevard. Since the unmitigated PMI for DPM is located on land occupied by a sensitive receptor, it also represents the unmitigated MEIR. Accordingly, health risks were assessed at the modeled unmitigated MEIR/PMI location, which is located at the multi-family residential building at 8 Esplanade Avenue (544753.96 meters east, 4167555.31 meters north). The predicted unmitigated, annual average $PM_{2.5}$ concentration at the unmitigated PMI/MEIR is 0.22723 micrograms per cubic meter ($\mu g/m^3$). The HRA for residential receptors evaluated worst-case carcinogenic and non-carcinogenic risks to child (3rd trimester, 0-2 years, and 2-16 years) and adult (16-30 years and 30-70 years) receptors. Table 4-7summarizes the results of the unmitigated construction HRA.

Table 4-7: Maximum Increased Cancer Risk from Project Construction DPM Emissions

Receptor Age at Start of Exposure	***Health Risk Increase at MEIR/PMI (Excess Cancer Risk per Million Population)*** [(A)]			
	8 Esplanade Avenue		**309 Esplanade Avenue**	
	Unmitigated	**Mitigated**	**Unmitigated**	**Mitigated**
Child Receptor (3rd Trimester)	40.4	7.5	39.2	9.4
Child Receptor (0-2 Years of Age)	37.3	7.0	36.2	8.6
Child Receptor (2 -16 Years of Age)	5.9	1.1	5.7	1.4
Adult Receptor (16 to 30 Years of Age)	0.9	0.2	0.9	0.2
Adult Receptor (30 to 70 Years of Age)	0.8	0.1	0.8	0.2
BAAQMD Significance Threshold	10	10	10	10
Threshold Exceeded?	**Yes**	**No**	**Yes**	**No**

Source: MIG, 2023 (see Appendix C)

(A) The unmitigated MEIR/PMI at 8 Esplanade Avenue is located at 544753.96 m E and 4167555.31 m N, and the mitigated MEIR/PMI at 309 Esplanade Avenue is located at 544741.98 m E and 4167510.09 m N.

As shown in Table 4-7, unmitigated construction exhaust emissions would have the potential to result in incremental cancerogenic health risk increases that are in excess of the BAAQMD's threshold of 10 excess cancers per million population for child receptors less than 2 years old at the start of exposure to Project construction emissions. At the same DPM concentrations, risks to children ages 2-16 would be approximately half the BAAQMD-recommended significance threshold, and risks to adult receptors would be less than one tenth of the BAAQMD-recommended threshold. The magnitude of the Project's predicted cancer risks at sensitive residential receptors

is partly a function of the OEHHA and BAAQMD-guidance for conducting HRAs, which account for increased susceptibility from exposure to TACs in early life stages, but is primarily a function of the anticipated construction activities, equipment usage, and the close proximity of the receptors to the proposed construction activities (i.e., adjacent to the Project site).

To reduce potential DPM (and $PM_{2.5}$) emissions generated by Project construction activities, Mitigation Measure AIR-3 would be incorporated into the Project. Mitigation Measure AIR-3 requires all mobile diesel construction equipment greater than 50 horsepower meet U.S. EPA Tier IV interim exhaust emission standards.

> **Mitigation Measure AIR-3:** To reduce potential, short-term adverse health risks associated with $PM_{2.5}$ exhaust emissions, including emissions of DPM generated during Project construction activities, the City shall require its designated contractors, contractor's representatives, and/or other appropriate personnel to comply with the following construction equipment restrictions. All mobile construction equipment greater than 50 horsepower in size shall meet with U.S. EPA and CARB Tier IV interim exhaust emission standards. This may be achieved via the use of equipment with engines that have been certified to meet U.S. EPA and CARB Tier IV interim emissions standards, or through the use of equipment that has been retrofitted with a CARB-verified diesel emission control strategy (e.g., particulate filter) capable of reducing exhaust $PM_{2.5}$ emissions to levels that meet U.S. EPA and CARB Tier IV interim emissions standards.
>
> As an alternative to having all mobile construction equipment greater than 50 horsepower meet with U.S. EPA and CARB Tier IV interim exhaust emission standards, the City may prepare a refined construction health risk assessment once additional Project-specific construction information is known (e.g., specific construction equipment type, quantity, engine tier, and runtime by phase). The refined health risk assessment shall demonstrate and identify any measures necessary such that the proposed Project's incremental carcinogenic health risk at nearby sensitive receptor locations is below the applicable BAAQMD threshold of 10 cancers in a million.

Mitigation Measure AIR-3 requires all mobile diesel construction equipment greater than 50 horsepower meet U.S. EPA and CARB Tier IV interim emission standards. This measure is estimated to reduce construction related $PM_{2.5}$ emissions by approximately 77%, thus rendering the Project's potential adverse health risks from construction activities a less than significant impact. Figure 4-4 shows the predicted location of the annual, mitigated PMI and MEIR for DPM exposure. It is noted that with Mitigation Measure AIR-3, the predicted mitigated MEIR/PMI migrated slightly to the residence at 309 Esplanade Avenue but is still located east of the site at a residential receptor along Esplanade Avenue (544741.98 meters east, 4167510.09 meters north).[9]

[9] The difference in location of PMI under mitigated conditions, as compared to unmitigated conditions, is due to the fact that only mobile sources were mitigated (i.e., stationary sources contribute more to the predicted PMI under mitigation conditions than unmitigated conditions).

Accordingly, health risks were assessed at the modeled mitigated MEIR/PMI at 309 Esplanade Avenue. As shown in Table 4-7 the maximum, mitigated health risk for the mitigated MEIR/PMI at 309 Esplanade Avenue would be approximately 8.0 excess cancers in a million, which does not exceed the BAAQMD cancer risk threshold of 10 in a million.

Mitigation Measure AIR-3 would reduce potential Project construction DPM emissions by 77%, reducing potential DPM concentrations and the associated adverse carcinogenic health risk to levels below the BAAQMD's carcinogenic risk threshold. This impact would be less than significant with mitigation.

Non-Carcinogenic Health Hazard from Exposure to DPM

The maximum annual average DPM concentration at each MEIR/PMI location under unmitigated and mitigated conditions would be approximately 0.22723 $\mu g/m^3$ (8 Esplanade Avenue at 544753.96 meters east, 4167555.31 meters north) and 0.05261 $\mu g/m^3$ (309 Esplanade Avenue at 544741.98 meters east, 4167510.09 meters north), respectively. All other receptors would be exposed to annual average concentrations below these respective values. Based on the chronic inhalation REL for DPM (5 $\mu g/m^3$), the calculated chronic hazard quotient during the maximum exposure to DPM concentration would be 0.045 (unmitigated) and 0.011 (mitigated), which is below the BAAQMD's non-cancer hazard index threshold value of 1.0. This impact would be less than significant.

Impact AIR-4 – The Project would not result in other emissions such as those leading to odors adversely affecting a substantial number of people. (Less Than Significant Impact)

Construction of the Project would generate typical odors associated with construction activities, such as fuel and oil odors. The odors generated by the Project during construction would be intermittent and localized in nature and would disperse quickly. There are no other anticipated odorous emissions. Therefore, the Project would not create emissions or odors that adversely affect a substantial number of people. This impact would be less than significant.

Figure 4-4: Construction Health Risk Assessment – Mitigated DMP Concentration (µg/m3)



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4.3 BIOLOGICAL RESOURCES

4.3.1 Environmental Setting

The information in this Biological Resources section is from the 310-330 Esplanade Infrastructure Preservation Project General Biological Resources Assessment (GBRA) prepared by MIG, Inc. (MIG) in October 2021. A copy of the report is attached as Appendix D to this EIR. The GBRA provides an evaluation of biological resources that may be impacted by the proposed Project. It identifies sensitive biological resources with potential to occur within or near the Project location, potential impacts to those resources resulting from the Project, and recommended measures to avoid significant impacts defined by CEQA. The GBRA included a database and literature review; field surveys on April 25 and 30, 2019, and September 29, 2021; an assessment of plant communities and wildlife habitats and corridors; an assessment of sensitive habitats and aquatic features; and a habitat evaluation for special-status species.

Minor changes or additions were made to the information in the GBRA for clarity or to update regulatory information, but the basic information, impact assessment, BMPs, and mitigation measures remain unchanged. Scientific references, and Latin names for common species are excluded from this section to improve readability, but are included in the GBRA.

Existing Land Cover Types, Vegetation Communities, and Habitats

The 9.1-acre biological study area is located within the San Francisco Bay Area Subregion of the Central Western Californian Region, both of which are contained within the larger California Floristic Province. The reconnaissance-level field survey identified three general biotic habitat types in the study area: (1) beach/intertidal, (2) coastal bluff, and (3) developed. The study area was previously mapped as part of The City of Pacifica General Plan Draft EIR (Dyett and Bhatia, 2022). However, for this report, the land cover types present in the study area, while based on the 2022 General Plan mapping, have been ground-truthed and reflect a finer mapping scale.

Table 4-8 provides a summary of the land cover and habitat acreages in the study area, and their distribution is depicted in Figure 4-5.

Table 4-8: Summary of Existing Land Use Cover Types, Natural Communities, and Habitats in the Study Area

Land Cover Types, Natural Communities, and Habitats	*Area (acres)*
Beach / Intertidal	6.37
Coastal Bluff	1.52
Developed	1.19
Study Area Total	9.08

Developed

The study area includes developed land and areas covered with base rock and undermined shotcrete facing, where permanent structures and/or hardscape once existed. Most areas within this land cover type are devoid of vegetation, but there are scattered areas of sparse vegetation dominated by ruderal (i.e., disturbed) species, mostly along the perimeter of the study area. Non-native species are strongly dominant, generally outcompeting other forb and native grass species that may otherwise be present. Species observed include iceplant and sea fig, foxtail barley, and coast buckwheat. Iceplant is ranked as a highly invasive species by the California Invasive Plant Council.

Due to the scarcity of vegetation, the developed portion of the study area provides relatively low-quality habitat for wildlife species. The wildlife most often associated with these areas are those that are tolerant of periodic human disturbances, including introduced species such as the European starling, rock pigeon, house mouse, and Norway rat. Several common native species are also able to use this habitat to forage, including the American crow, which was observed during the reconnaissance survey; black phoebe; northern mockingbird; house finch; California towhee; and raccoon. Birds are not likely to nest on the developed portion of the study area due to the sparseness of vegetation and lack of trees.



Source: Google Earth, 2019; MIG, 2020

Land Cover Types and Natural Communities

- Beach/Intertidal
- Coastal Bluff
- Developed

Base Map Features

- Study Area

0 125 250 500 Feet

N

MIG

Figure 4-5 Land Cover Types and Natural Communities

310-330 Esplanade Avenue Infrastructure Preservation Project, City of Pacifica

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Coastal Bluff

The Project area includes coastal bluff habitat which is characterized by marine terraces (stair-step landforms) that have been uplifted by seismic activity. The terraces consist of a thick layer of marine terrace deposits, which are composed of silty sandy substrate capped by dune sand. Bluff habitat forms a transition zone between the shoreline and developed land. The bluff habitat is characterized by reduced vegetative cover with scattered patches of nonnative iceplant and sea fig. Other species observed included coast buckwheat.

The terraces along the bluff provide suitable nesting habitat for American peregrine falcon and other cliff nesting birds, including bank swallow. Other common bird species, including black phoebe, house finch, and mourning dove may also nest and forage along the bluff. Other birds that may forage in this habitat include wintering native species such as the white-crowned sparrow, golden-crowned sparrow, and yellow-rumped warbler. Raptors, such as white-tailed kite, northern harrier, and red-tailed hawk may forage within the coastal bluff habitat. Red-tailed hawk was observed during the reconnaissance survey. The bluff habitat also provides moderately suitable nesting habitat for colonial marine birds. However, marine bird colonies have not been observed within the study area and none were observed during the field surveys. The bluff habitat also supports California ground squirrel, which was observed during the field surveys.

Beach/Intertidal

The intertidal zone includes the sandy beach and riprap (rocky) habitats that are subject to periodic tidal inundation. There are numerous species of shorebirds that may forage in the intertidal zone, including sanderling, snowy plover, semi-palmated plover, killdeer, marbled godwit, long-billed curlew, and willet. Birds commonly found foraging close to shore include Clark's grebe; western grebe; Caspian tern; California gull; Heermann's gull, surf scoter; California brown pelican; Brandt's cormorant, elegant tern; and common murre. Both western gull and Brandt's cormorant were observed in the study area during the field surveys. California sea lion and harbor seal may haul out onto the beach or riprap, although no known rookeries or haul-outs occur for either species within or close to the study area. A single juvenile California sea lion was observed in the study area during the field surveys, hauled out on the rocks.

A variety of invertebrates live in the sand and in wracks of decaying seaweed and other detritus on the sand surface. Sand dollars, polychaetes, mollusks, crabs, surfperches, flatfishes, and other fishes live in the surf zone.

Special-status Plants

The California Native Plant Society (CNPS, 2019) and the California Natural Diversity Database (CNDDB, 2019) identify 36 special-status plant species as potentially occurring in the seven 7.5-minute quadrangles containing and/or surrounding the study area. All special-status plants identified during the background review were not expected to occur or have a low potential to occur in the study area due to one or more of the following reasons: (1) a lack of specific

habitat(e.g., coastal salt marsh) and/or edaphic requirements (e.g., serpentine or alkaline soils) for the species in question; (2) the elevation range of the species is outside of the range on the study area; and (3) the species is known to be extirpated from the site vicinity.

Special-Status Invertebrates

One special-status invertebrate species has been recorded nearby but is not expected to occur in the study area due to a lack of suitable habitat; this species is described below.

Mission blue butterfly (Plebejus icarioides missionensis)

The mission blue butterfly was listed as endangered in June 1976 (USFWS, 1976), but no critical habitat has been established. Its Federal listing status is Endangered, and its State listing status is None. The mission blue is a small butterfly that occupies coastal chaparral and coastal grasslands on the San Francisco and Marin peninsulas. The adult flight season extends from late March to early July, depending on the location and microclimatic conditions. Nectar plants include various composite flowers in the sunflower family (Asteraceae) and seaside buckwheat that grow in association with the larval host plants. The larval food plants include silver lupine, western lupine, and varied lupine.

The most significant mission blue colony is found on San Bruno Mountain in San Mateo County. There is also a population on Milagra Ridge, which is part of the Golden Gate National Recreation Area, approximately 0.75 miles southeast of the study area (CNDDB, 2019). However, the study area has no coastal grassland or chaparral habitat, and no larval host plants were detected in the study area during the field visit. Therefore, mission blue butterfly and suitable habitat for this species are determined to be absent from the study area.

Special-Status Fish and Essential Fish Habitat

The waters offshore of the study area may support three special-status fish species as well as Essential Fish Habitat, as described below.

Central California Coast Steelhead (Oncorhynchus mykiss irideus)

The Central California Coast (CCC) steelhead Distinct Population Segment (DPS) was federally listed as a threatened species on August 18, 1997, and the threatened status was reaffirmed on January 5, 2006. Critical habitat was designated for the CCC steelhead DPS on September 2, 2005, and a final recovery plan was published in October 2016. The CCC steelhead's State listing status is None. Similar to CCC coho salmon, steelhead populations in many areas have declined due to degradation of spawning habitat, introduction of barriers to upstream migration, over-harvesting by recreational fisheries, and reduction in winter flows due to damming and reduction of spring flows due to water diversions. In addition, non-native fish species, such as striped bass, common

carp, and white catfish, may pose risks to native steelhead populations through predation, competition, and habitat modification. Increasing predation pressure at river mouths and in the ocean from the growing California sea lion population is also posing significant risk to CCC steelhead.

Steelhead are found along the entire Pacific Coast of the United States. The CCC steelhead DPS includes all naturally spawned populations of steelhead in coastal streams from the Russian River (inclusive) to Aptos Creek (inclusive), and the drainages of San Francisco, San Pablo, and Suisun bays eastward to Chipps Island at the confluence of the Sacramento and San Joaquin Rivers; and tributary streams to Suisun Marsh including Suisun Creek, Green Valley Creek, and an unnamed tributary to Cordelia Slough (commonly referred to as Red Top Creek), exclusive of the Sacramento-San Joaquin River Basin of the California Central Valley.

Steelhead in the CCC DPS are winter-spawning steelhead, maturing in the ocean and spawning shortly after entering freshwater. Winter steelhead enter rivers and streams in the late fall and winter months when higher flows and associated lower water temperatures occur. Adult female steelhead will prepare a redd (or nest) in a gravel-bottomed, fast-flowing, well-oxygenated rivers and streams. Preferred streams typically support dense canopy cover that provides shade, woody debris, and organic matter, and are usually free of rooted or aquatic vegetation. The length of the incubation period is dependent on water temperature. Fry emerge from the gravel, and rear along the stream margins, moving gradually into pools and riffles as they grow larger. Young juveniles feed primarily on aquatic invertebrate drift.

In California, juveniles usually live in freshwater for 1 to 3 years, then smolt and migrate to the sea; because of this multi-year rearing time period, steelhead can only spawn in tributaries that maintain suitable temperature and other water quality parameters year-round. Most downstream smolt migration takes place between February and June, with peak timing of steelhead smolt outmigration in Central California occurring from March to May.

Critical habitat for the Central California Coast steelhead DPS was designated on September 2, 2005, and includes all river reaches and estuarine areas accessible to listed steelhead in coastal river basins from the Russian River in Sonoma County to Aptos Creek in Santa Cruz County. The San Mateo Hydrologic Unit includes the coastal streams in San Mateo County from San Pedro Creek near Pacifica to Butano Creek near Año Nuevo and the Santa Clara Hydrologic Unit includes South Bay creeks from San Francisquito Creek in Palo Alto eastward to Coyote Creek.

Steelhead in most tributaries to San Francisco and San Pablo bays have been virtually extirpated. However, CCC Steelhead are known to occur in San Pedro Creek, which has been identified as important spawning habitat for CCC Steelhead by CDFW. San Pedro Creek is approximately 4 miles south of the Project area. Even though there is no suitable habitat in the Project area, CCC Steelhead may be migrating in late fall into spring in offshore waters adjacent to the study area.

Coho Salmon (Oncorhynchus kisutch) - Central California Coast Evolutionary Significant Unit

The Central California Coast Evolutionary Significant Unit was federally listed as a threatened species on October 31, 1996 and subsequently reclassified as an endangered species on June 28, 2005. At the time it was reclassified as endangered in 2005, the ESU was defined to include all naturally spawning populations of coho salmon found in coastal watersheds from Punta Gorda in northern California southward to and including the San Lorenzo River in central California, as well as four artificially propagated stocks of coho salmon. On April 2, 2012, NMFS redefined the geographic range of the endangered Central California Coast coho salmon to include all naturally spawned populations that occur in Soquel and Aptos creeks. Critical habitat was designated on May 5, 1999, and includes all river reaches accessible to listed coho within the range of the Central California Coast Evolutionary Significant Unit. Its State listing status is also Endangered.

Coho salmon is an anadromous fish, meaning it spends approximately the first half of its life cycle rearing and feeding in streams and small freshwater tributaries, and the second half of its life foraging in estuarine and marine waters of the Pacific Ocean. Streams with stable gravel substrates provide spawning habitat for this species.

Adults return to their stream of origin to spawn and die, usually at around three years old. Young coho spend one to two years in their freshwater natal streams, often spending the first winter in off-channel sloughs, before undergoing a transformation to the smolt life-stage. Smolts migrate to the ocean in late March through July. Some fish leave fresh water in the spring, spend the summer in brackish estuarine ponds and then migrate back into fresh water in the fall. Coho salmon live in saltwater for one to three years before returning to spawn. Some precocious males known as "jacks" return as two-year-old spawners. Food sources include insects, plankton, and small fish.

Central California Coast (CCC) coho were historically native to California coastal streams from Punta Gorda down to the San Lorenzo River, as well as some streams tributary to San Francisco Bay.

Historically, coho salmon have been documented in only four San Francisco Bay streams with 11 other streams that may have had them at one time. However, all of these populations are extirpated. In streams south of San Francisco Bay, Coho salmon were historically found in 17 streams, as far south as the San Lorenzo River in Santa Cruz County, close to the end of coastal redwood forests. Currently, coho salmon are mostly confined to Waddell, Scott, and Gazos Creeks with runs supported in part by a conservation hatchery.

CCC coho salmon were more or less continuously distributed in coastal streams from Mendocino County south to the San Lorenzo River in Santa Cruz County. However, the general trend has been downward in the number of wild populations, with individual populations becoming more isolated, the overall distribution becoming fragmented, and fish being extremely rare in the southern two-thirds of the historical range of this Evolutionary Significant Unit.

The offshore open water habitat may support migrating coho salmon from September to July. All open water habitat adjacent to the study area has been designated as EFH for Pacific salmon, including Central California Coast coho (see below).

North American Green Sturgeon (Acipenser medirostris), Southern Distinct Population Segment

The Southern Distinct Population Segment (DPS) of the North American green sturgeon was federally listed as threatened on April 7, 2006. Critical habitat for the Southern green sturgeon was designated on October 9, 2009 and includes all tidally influenced waters of the San Francisco Bay and coastal waters of Northern California, south to Monterey Bay to a depth of 360 feet. The Southern green sturgeon's State listing status is Species of Special Concern.

Green sturgeon are the most broadly distributed and wide-ranging species of the sturgeon family, occurring in ocean waters from Ensenada, Mexico to the Bering Sea, and commonly occur in coastal waters from San Francisco Bay to Canada. The historical and current distribution of where this species spawns is unclear because the original spawning distribution may have been reduced due to harvest and other anthropogenic effects and because they make non-spawning movements into estuaries during summer and fall. Spawning has been documented in the Rogue, Sacramento, and Eel rivers.

Green sturgeon are long-lived, slow-growing fish and the most marine-oriented of the sturgeon species. Green sturgeon exhibit delayed sexual maturity, somewhere between 13 and 20 years, and spawn every two to five years. They live to a maximum age of 60 to 70 years.

Juveniles reside in fresh water, with adults returning to freshwater to spawn when they are more than 15 years of age and more than 4 feet in size. Spawning is believed to occur every two to five years. In the Sacramento River, green sturgeon spawn in late spring and early summer. Adults typically migrate into fresh water beginning in late February; spawning occurs March-July, with peak activity in April-June. Juveniles spend one to four years in fresh and estuarine waters before migrating to the ocean.

Green sturgeon spend the majority of their lives in nearshore oceanic waters, bays, and estuaries. In summer and fall, they commonly occur in estuaries where there has been no known spawning activity and where there are no records of their occurrence farther up the river system, suggesting that the species may wander widely in accessible estuarine habitat. Studies in the Sacramento-San Joaquin Delta found that juveniles feed on opossum shrimp (Mysidacea) and amphipods and adults feed on benthic invertebrates and even small fish.

Green sturgeon spawn in deep pools or "holes" in large, turbulent, freshwater rivers. Specific spawning habitat preferences are unclear, but it is likely that cold, clean water and suitable substrate (large cobble, but also clean sand and bedrock) are important for spawning and embryonic development.

Southern green sturgeon may be present year-round as non-breeders in the open water habitat adjacent to the study area. There is no suitable breeding habitat in the open water habitat adjacent or nearby the study area.

Essential Fish Habitat

All subtidal and intertidal habitats adjacent to the study area are designated as Essential Fish Habitat (EFH) for species federally managed under the following three fisheries management plans (FMPs):

- Coastal Pelagic FMP – including krill, Pacific sardine, Pacific mackerel, and jack mackeral
- Pacific Groundfish FMP – various rockfish, flatfish, roundfish, sharks, and skates
- Pacific Salmon FMP – Coho salmon

The open water habitat adjacent to the study area is part of the continental shelf and is relatively shallow with a maximum depth of approximately 70 feet up to one mile offshore. The bottom is mostly composed of unconsolidated substrate (sand) with small areas of consolidated sedimentary bedrock. A number of fish species regulated by these FMPs, such as the leopard shark, English sole, starry flounder, spiny dogfish, and big occur offshore of the study area. Species such as the northern anchovy, Pacific sardine, and jack mackerel may also occur offshore of the study area.

Special-Status Amphibians and Reptiles

One special-status amphibian and one special-status reptile have been recorded nearby but are not expected to occur in the study area due to a lack of suitable habitat and movement barriers between the known occurrences and the study area. These species are described below.

California Red-legged Frog (Rana draytonii)

California red-legged frogs have a federal listing status of Threatened, and a State listing status of Species of Special Concern. They inhabit perennial and seasonal freshwater pools, streams, and ponds throughout the Central California Coast Range as well as isolated portions of the western slopes of the Sierra Nevada. Their preferred breeding habitat consists of deep perennial pools with emergent vegetation for attaching egg clusters, as well as shallow benches to act as nurseries for juveniles. Non-breeding frogs may be found adjacent to streams and ponds in grasslands and woodlands; and may travel up to two miles from their breeding locations across a variety of upland habitats.

The historic distribution of California red-legged frogs extended from the City of Redding in the Central Valley and Point Reyes National Seashore along the coast, south to Baja California, Mexico. The species' current distribution includes isolated locations in the Sierra Nevada and the San Francisco Bay area, and along the central coast. The California red-legged frog was listed as threatened in June 1996 based largely on a significant range reduction and continued threats to surviving populations. Revised critical habitat was designated in March 2010. No critical habitat for this species overlaps the study area, but critical habitat Unit SNM-1 (San Mateo County) is located approximately two miles southeast of the study area.

California red-legged frogs have been found in Milagra Ridge, part of the Golden Gate National Recreation Area, approximately 1.3 miles southeast of the study area and Sharp Park, approximately 1.5 miles south of the study area (CNDDB, 2019). However, the study area does not support suitable breeding, foraging, or dispersal habitat for California red-legged frog. Also, the Project area is surrounded by high-density development, which would prevent red-legged frog from dispersing into the study area from other populations nearby.

San Francisco Garter Snake (Thamnophis sirtalis tetrataenia)

The historical distribution of the San Francisco garter snake included wetland areas on the San Francisco Peninsula from the San Francisco County line south along the eastern and western foothills of the Santa Cruz Mountains to at least Upper Crystal Springs Reservoir and Año Nuevo Point in San Mateo County, and Waddell Creek in Santa Cruz County. Today, the San Francisco garter snake is restricted to San Mateo County and has been found in creeks in Half Moon Bay. It has a federal listing status of Endangered, and also a State listing status of Endangered.

The San Francisco garter snake is a medium-sized snake that occurs in a number of aquatic and terrestrial habitats throughout their range. Juveniles and adults have been observed in natural lagoons, dune ponds, pools in or next to streams, streams, marshlands, sag ponds, and springs, as well as human-created stock ponds, canals, golf course ponds, irrigation ponds, sand and gravel pits (containing water), and large reservoirs. The presence of adjacent upland areas with abundant small mammal burrows is also important as hibernation sites for snakes during the winter. The most abundant populations of snakes are found in natural sag ponds or artificial waterways that have been allowed to develop a dense cover of vegetation such as willows, bulrushes, cattails, and tules and have dense populations of Pacific tree frogs.

San Francisco garter snakes are most active from March to September although they can be observed during any month of the year. Adults mate during the spring (March-April) and fall (September-November), with the latter breeding period characterized by reproductive aggregations of several males and one female. Neonates, which are normally seven to eight inches in total length, are usually born alive in litters of one to 35 (average 16) during late July to early August, although litters can be born as late as early September.

The San Francisco garter snake population in San Mateo County has been severely reduced throughout most of its range due to habitat loss and development; however, the Project region still supports an extant population of the species. San Francisco garter snakes have been documented within the Project region as recently as 2008. Exact CNDDB locations of San Francisco garter snakes are suppressed because of concern about illegal collection of the species. However, there are CNDDB records for the San Francisco South and Montara Mountain U.S. Geological Survey (USGS) quadrangles, mainly associated with Sharp Park, approximately 1.5 miles south of the Project area (CNNDB, 2019). San Francisco garter snake is not expected in the Project area because there is no suitable habitat. Also, the Project area is surrounded by high-density development, which would prevent garter snakes dispersing into the study area from other populations nearby.

Special-Status Birds

Five special-status bird species have the potential to occur in the Study Area based on the presence of essential habitat requirements for the species, the presence of known occurrences within five miles of the study area, and/or the study area's location within the species' known range of distribution. These five species are described below.

American Peregrine Falcon (Falco peregrinus anatum)

The American peregrine falcon occurs throughout much of the world and is known as one of the fastest flying birds of prey. Peregrine falcons prey almost entirely on birds, which they kill while in flight. Peregrine falcons nest on ledges and caves on steep cliffs, as well as on human-made structures such as buildings, bridges, and electrical transmission towers. In California, they are known to nest along the entire coastline, the northern Coast Ranges, and the Cascade Ranges and Sierra Nevada. They have a Federal listing status of None, and a State listing status of Fully Protected.

A severe decline in populations of the widespread North American subspecies anatum began in the late 1940s. This decline was attributed to the accumulation of DDE, a metabolite of the organochlorine pesticide DDT, in aquatic food chains. When concentrated in the bodies of predatory birds such as the peregrine falcon, this contaminant led to reproductive effects, such as the thinning of eggshells. The American peregrine falcon was listed as endangered by the USFWS in 1970 and by the State of California in 1971. Recovery efforts included the banning of DDT in North America, and captive breeding programs to help bolster populations. The USFWS removed the American peregrine falcon from the endangered species list in 1999, and from the state endangered species list in 2009.

The only locations within the Project region where peregrines have been detected nesting are in Sharp Park, approximately 1.5 miles to the south and Mussel Rock Park, approximately one mile to the north (CNNDB, 2019; Cornell Lab of Ornithology, 2019). However, the steep bluffs within the study area provide some suitable nesting habitat for peregrine falcons. Additionally, there is suitable foraging habitat within and around the study area; therefore, there is a moderate potential for peregrine falcon to nest and forage within the study area.

California Brown Pelican (Pelecanus occidentalis)

The California brown pelican is a permanent resident of the coastal marine environment on the Pacific Coast and its range extends from British Columbia, Canada, south to Nayarit, Mexico. The bulk of the population (about 90%) nests in Mexico. The only long-term breeding colonies of California brown pelicans in the United States are on Anacapa and Santa Barbara Islands. They have a Federal listing status of None, and a State listing status of Fully Protected.

California brown pelicans are aquatic birds and are typically found on rocky, sandy or vegetated offshore islands, beaches, open sea (for feeding), harbors, marinas, estuaries, and breakwaters. Nesting colonies are established on islands without mammalian predators and permanent human

habitation. California brown pelicans forage close to shore usually within five miles of land and dive from ten to thirty above the water's surface to catch fish just below the surface of the water.

There are no CNDDB occurrences for brown pelican within five miles of the study area. However, this species was recently observed on the beach adjacent to the study area according to eBird (Cornell Lab of Ornithology, 2019). There is no suitable nesting habitat for this species in the Project area, but it may forage in the open water habitat within the study area.

Northern Harrier (Circus cyaneus)

The northern harrier nests in marshes and grasslands with tall vegetation and sufficient moisture to inhibit accessibility of nest sites to predators. This species forages primarily on small mammals and birds in a variety of open grassland, ruderal, and agricultural habitats. The species is widespread as a forager in grasslands and other open areas in the Project region, especially during migration and winter. Northern harriers are not expected to nest in the study area due to a lack of suitable habitat. However, harriers may nest in nearby grassland habitats and may forage on the site. They have a Federal listing status of None, and a State listing status of Species of Special Concern (Nesting).

Snowy Plover (Charadrius nivosus)

Snowy plover (SNPL) is a resident along the Pacific Coast from British Columbia to Mexico and along the Gulf Coast from Texas to the Florida Panhandle. It also breeds locally in the interior from California and Nevada east to Oklahoma and Texas. The Pacific Coast population of the SNPL is defined as those individuals that nest adjacent to tidal waters of the Pacific Ocean, and includes all nesting birds on the mainland coast, peninsulas, offshore islands, adjacent bays, estuaries, and coastal rivers. The current known breeding range of this population extends from Damon Point, Washington, to Bahia Magdelena, Baja California, Mexico. They have a Federal listing status of Threatened, and a State listing status of Species of Special Concern.

SNPL winter and breed in the same habitats, consisting of mostly sandy, ocean fronting beaches, dry salt flats, and gravel bars. Many beaches that support SNPL nesting, foraging, and wintering activities, are bordered to the east by dense stands of European beachgrass, which often form an abrupt boundary that defines habitat for SNPL. SNPL typically nest, forage, and winter on flat to gently sloping, wide beaches with plentiful food sources and sparse vegetation. Selecting habitats that are open (or wide) and have less vegetative cover can facilitate early detection of predators and reduce predation risk. SNPL nests have been found adjacent to small clumps of vegetation or other beach debris that likely provides additional cover making it more difficult for predators to spot. In addition, SNPL broods have been observed hiding in vegetation clumps in response to adult alarm calls. In general, SNPL nests are most often located within 328 feet of water, or at least within sight of it. After the chicks hatch, they tend to move into areas where there is at least some vegetation or beach debris, which provides cover from the heat of the sun, inclement weather, and predators.

Along the Pacific Ocean coastline, SNPL forage in a wide variety of habitat types, from the dry sandy regions of the backdunes, to wet sands, beach-cast kelp, and wrack lines along the lower

beaches. They may use freshwater edges such as the mouths of creeks as they cross beaches and the edges of lagoons. Their diet can vary considerably but primarily consists of small marine and terrestrial invertebrates. They also pick insects off vegetation, probe sand, and occasionally take small fish.

On March 5, 1993, the Pacific coast population of the western snowy plover was listed as threatened under the federal Endangered Species Act. On June 19, 2012, a final rule of critical habitat for western snowy plovers along the coasts of California, Oregon, and Washington was published. There is no designated critical habitat for western snowy plover in the Project area.

There is no suitable breeding habitat for western snowy plovers at the study area, as the high tide line reaches all the way to the riprap and therefore any nest established on the beach would be washed away. However, western snowy plovers are known to occur throughout the Pacific Coast and may occasionally pass through the Project area or even use the beach for foraging. However, there is no resident population of western snowy plovers in the Project area according to databases such as the CNDDB (2019) and eBird (Cornell Lab of Ornithology, 2019).

White-tailed Kite (Elanus leucurus)

In California, white-tailed kites can be found in the Central Valley and along the coast, in grasslands, agricultural fields, cismontane woodlands, and other open habitats. White-tailed kites are year-round residents of the state, establishing nesting territories that encompass open areas with healthy prey populations, and snags, shrubs, trees, or other nesting substrates. Nonbreeding birds typically remain in the same area over the winter, although some movements do occur. The presence of white-tailed kites is closely tied to the presence of prey species, particularly voles, and prey base may be the most important factor in determining habitat quality for white-tailed kites. Although the species recovered after population declines during the early 20th century, its populations may be exhibiting new declines as a result of recent increases in habitat loss and disturbance.

There are many documented recent records of white-tailed kites in Milagra Ridge and Sharp Point, southeast and south of the study area, respectively (Cornell Lab of Ornithology, 2019). Due to the lack of trees, white-tailed kites are not expected to nest within the study area. However, the open bluffs within the study area provide suitable foraging habitat for the white-tailed kite; therefore, there is a moderate potential for white-tailed kite to occur within the study area at any time during the year. White-tailed kites have a Federal listing status of None, and a State listing status of Fully Protected.

Nesting Birds

Nesting birds may nest within vegetation, shallow scrapes on bare ground, and on the coastal bluffs in and around the study area. Several bird species were noted during the field survey. All bird species are protected under California Fish and Game code.

Marine Birds

Marine birds or seabirds are birds adapted for life in the marine environment. Most species nest in colonies, which can vary in size from a few dozen birds to millions. They forage almost exclusively in the ocean and can be pelagic, coastal, or in some cases spend a part of the year away from the sea entirely. Common murre, western gull, and Brandt's cormorant are common marine birds found in the Project region. Marine birds may be foraging offshore of the study area any time of the year. From September to November, foraging birds are more prevalent closer to shore due to the availability of prey in shallower depths. During these months, bird density and diversity are greatest at the San Francisco Bay tidal plume and inshore near Año Nuevo.

Marine bird breeding colonies are not known to occur within the study area. The most significant colonies in terms of species diversity and number of breeding pairs are located at Devil's Slide Rock and mainland areas as well as the Golden Gate (Seal Rocks, Lobos Rock, and Land's End). Smaller colonies are located at Mori Point, San Pedro Rock, and Mussel Rock, which is one mile north of the study area. All marine birds are protected by the MBTA and California Fish and Game Code.

Marine Mammals

Many species of pinnipeds and cetaceans are common residents along the coastline. All marine mammals are protected by the Marine Mammal Protection Act of 1972.

California Sea Lion (Zalophus californianus)

The range of the California sea lion extends from the Pacific coast of Baja California to southern British Columbia. These animals breed primarily in the southern part of their range from the Gulf of California to San Miguel Island.

California sea lions feed in cool upwelling waters of the continental shelf and prey on rockfishes and salmonids, as well as seasonally abundant schooling species such as Pacific hake, northern anchovy, Pacific sardine, spiny dogfish, and squid. California sea lions can be found in large numbers on and around Año Nuevo and the Farallon Islands, where they also have minor rookeries.

California sea lions have haul out sites along the Point Reyes Headlands, at Bodega Rock, Fish Rocks, and Seal Rocks on the outer San Francisco coast, as well as locations in San Francisco Bay. There are no known haul out or rookery sites in or near the study area. However, California sea lions could be present in the open water habitat as well as on the beach or riprap anytime of the year. During the field survey on April 30, a yearling or juvenile California sea lion was observed hauling out onto the riprap in the northern portion of the study area.

Harbor Seal (Phoca vitulina)

Harbor seals are widely distributed in the coastal areas of the northern Pacific and northern Atlantic. Harbor seals in the eastern Pacific range occur from the Pribilof Islands in Alaska to Isla

San Martin off Baja. The highest concentrations of harbor seals outside of the southern Channel Islands occur at Point Reyes and at several other locations, including Tomales Bay, Tomales Point, Drakes Estero-Estero de Limantour, Double Point, and Bolinas Lagoon. Estuaries provide habitat for large numbers of harbor seals, and Drakes Estero is the largest colony in the region and one of the largest in the state. Harbor seals are also abundant south of the Golden Gate and haul out at several locations, including Fitzgerald State Marine Park. Additionally, harbor seals are the only marine mammal present in San Francisco Bay year-round where they rest ashore on islands, tidal rocks, mudflats, and sand bars. Individual seals may frequent multiple haul outs within the Bay, and also move outside of the bay to coastal sites to the north and south. Harbor seals eat a wide variety of pelagic and benthic prey, including small schooling fishes such as northern anchovy, many species of flatfishes, bivalves, and cephalopods.

The seals are year-round residents at the haul out sites but are seasonally abundant with the highest numbers of seals present during the breeding season (March-June) and the molt (June- July). There are no known haul out or rookery sites in or nearby the study area. However, harbor seals could be present in the open water habitat, as well as on the beach or riprap, anytime of the year.

Cetaceans

More than 33 species of cetaceans have been documented in the Gulf of the Farallones and more than a third occur year-round, including common minke whale, Risso's dolphin, Pacific white-sided dolphin, right whale dolphin, harbor porpoise, and Dall's porpoise. Harbor porpoise occurs mostly in nearshore waters less than 240 feet, where it feeds primarily on squid and small schooling fish such as anchovy, sardines, and smelt.

Gray whales migrate through and over summer at Point Reyes and around the Farallon Islands. The entire California coast is part of the annual gray whale migration route. Other whale species, including blue whale and humpback whale have been found off the Farallon Islands. Whales feed on a variety of species, including krill and schooling fish (such as anchovy and sardines).

Sensitive and Regulated Plant Communities and Habitats

Natural communities have been considered part of the Natural Heritage Conservation triad, along with plants and animals of conservation significance since the state inception of the Natural Heritage Program in 1979. The California Department of Fish and Wildlife (CDFW) determines the level of rarity and imperilment of vegetation types, and tracks sensitive communities in its Rarefind database (CNDDB, 2019). Global rankings (G) of natural communities reflect the overall condition (rarity and endangerment) of a habitat throughout its range, whereas state rankings reflect the condition of a habitat within California. Natural communities are defined using NatureServe's standard heritage program methodology as follows:

- G1/S1: Less than 6 viable occurrences or less than 2,000 ac.
- G2/S2: Between 6 and 20 occurrences or 2,000 to 10,000 ac.

- G3/S3: Between 21 and 100 occurrences or 10,000 to 50,000 ac.
- G4/S4: The community is apparently secure, but factors and threats exist to cause some concern.
- G5/S4: The community is demonstrably secure to ineradicable due to being common throughout the world (for global rank) or the state of California (for state rank).

State rankings are further described by the following threat code extensions:

- S1.1: Very threatened
- S1.2: Threatened
- S1.3: No current threats known

In addition to tracking sensitive natural communities, the CDFW also ranks vegetation alliances, defined by repeating patterns of plants across a landscape that reflect climate, soil, water, disturbance, and other environmental factors. If an alliance is marked G1- G3, all the vegetation associations within it will also be of high priority. The CDFW provides the Vegetation Classification and Mapping Program's (VegCAMP) currently accepted list of vegetation alliances and associations.

Natural Communities of Special Concern

There are no CDFW classified sensitive natural communities within the study area or mapped within five miles of the Project area.

Sensitive Vegetation Alliances

There are no CDFW sensitive vegetation alliances within the study area.

CDFW Stream/Riparian Habitat

There is no stream or riparian habitat within the study area.

ESHA

Environmentally Sensitive Habitat Areas (ESHA) are defined by the California Coastal Act as "any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments."

According to the General Plan, there are no mapped ESHAs within the proposed seawall construction area. However, there is one ESHA mapped as being located west of Esplanade

Avenue and north of Manor Drive, approximately 570 feet south of the seawall construction area.[10] The Site Plan for the Project shows a temporary construction accessway from the existing beach access ramp opposite Manor Drive through this ESHA to the seawall construction site (see Figure 3-3).

Critical Habitat/EFH/HAPC

There is no designated critical habitat, essential fish habitat (EFH), or habitat areas of particular concern (HAPC) within the study area. However, all tidal waters adjacent to the study area are designated EFH (Pacific Fisheries Management Council, 1998, 2012)

Waters of the U.S./State

The study area includes intertidal habitat that may be considered waters of the U.S./State. Any impacts on verified waters of the U.S./state within the study area would require a Section 404 permit, a Section 10 Letter of Permission from USACE, and a Section 401 Water Quality Certification from the San Francisco Regional Water Quality Control Board (RWQCB).

Section 404 Waters

In tidal waters, USACE jurisdiction extends to the landward extent of vegetation associated with salt or brackish water or the high tide line, abbreviated as HTL (see 33 CFR, Part 328.4). The HTL is defined in 33 Code of Federal Regulations (CFR), Part 328.3 as:

"The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The HTL may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gauges, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other tides that occur with periodic frequency, but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm."

The HTL was identified in the field by the wrack line, elevation, and bank slope. The wrack consisted of kelp, crustacean shells, feathers, bits of plastic, and litter.

In 2018, the USACE accepted the use of the Highest Astronomical Tide (HAT) to demarcate the HTL for an infrastructure project located adjacent to the site, at 400 Esplanade Avenue. The HAT is the highest level that can be expected to occur under average meteorological conditions and under any combination of astronomical conditions. Based on the benchmark datum for the station

[10] City of Pacifica General Plan 2040. Figure 7-3: Sensitive and Critical Habitat. July 2022.

nearest the study area with data reported relative to the North American Vertical Datum of 1988 (NAVD88, San Francisco Station #9414290), the HAT is calculated to be 7.32 feet NAVD88 (NOAA, 2014).

Section 10 Waters and California State Lands Commission Jurisdiction

Navigable waters of the U.S., which are defined in 33 CFR, Part 329.4, include all waters subject to the ebb and flow of the tide, and/or those which are presently or have historically been used to transport commerce. The shoreward jurisdictional limit of tidal waters is further defined in 33 CFR, Part 329.12 as "the line on the shore reached by the plane of the mean (average) high water." According to 33 CFR, Part 329.9, a waterbody that was once navigable in its natural or improved state retains its character as "navigable in law" even though it is not presently used for commerce as a result of changed conditions and/or the presence of obstructions. Additionally, the Commission's jurisdiction for tidal lands extends from the mean high water (MHW) to three nautical miles offshore. The elevation of the MHW was obtained from long-term monitoring records (i.e., average over 18.6-year tidal epoch) maintained by the National Oceanic and Atmospheric Administration (NOAA). Based on the benchmark datum for the station nearest the study area with data reported relative to NAVD88 (San Francisco Station # 9414290), the MHW is calculated to be 5.29 feet NAVD88 (NOAA, 2014).

Wildlife Corridors

The City's General and Local Coastal Land Use Plans did not identify key wildlife migration corridors within the study area. However, the shoreline along the study area is used by birds migrating through the area as part of the Pacific flyway. Also, the shoreline is part of a continuous stretch of coastline that links tidal habitat and coastal scrub/dune habitat at Mussel Rock Park, located approximately one mile north and Sharp Point Park, approximately 1.5 miles to the south. Because the study area is at the interface of urban development and open space of the shoreline, natural habitats in the study area (e.g., intertidal habitat) likely function as a pathway for wildlife movement which allows animals to avoid urban development.

4.3.2 Regulatory Setting

Federal

Federal Endangered Species Act

The Federal Endangered Species Act (FESA) of 1973, as amended, provides the regulatory framework for the protection of plant and animal species (and their associated critical habitats), which are formally listed, proposed for listing, or candidates for listing as endangered or threatened under FESA. FESA has the following four primary components: (1) provisions for listing species, (2) requirements for consultation with the United States Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries), (3) prohibitions against "taking" (i.e., harassing, harming, hunting, shooting,

wounding, killing, trapping, capturing, or collecting, or attempting to engage in any such conduct) of listed species, and (4) provisions for permits that allow incidental "take". FESA also discusses recovery plans and the designation of critical habitat for listed species.

Both the USFWS and NOAA Fisheries share the responsibility for administration of FESA. Section 7 requires federal agencies, in consultation with, and with the assistance of the USFWS or NOAA Fisheries, as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. Non-federal agencies and private entities can seek authorization for take of federally listed species under Section 10 of FESA, which requires the preparation of a Habitat Conservation Plan (HCP).

U.S. Migratory Bird Treaty Act

The U.S. Migratory Bird Treaty Act (MBTA; 16 USC §§ 703 et seq., Title 50 Code of Federal Regulations [CFR] Part 10) states it is "unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill; attempt to take, capture or kill; possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage, or export any migratory bird, any part, nest, or egg of any such bird, or any product, whether or not manufactured, which consists, or is composed in whole or in part, of any such bird or any part, nest or egg thereof…" In short, under MBTA it is illegal to disturb a nest that is in active use, since this could result in killing a bird, destroying a nest, or destroying an egg. The USFWS enforces MBTA. The MBTA does not protect some birds that are non-native or human-introduced or that belong to families that are not covered by any of the conventions implemented by MBTA. In 2017, the USFWS issued a memorandum stating that the MBTA does not prohibit incidental take; however, the new rule was revoked in October 2021.

Marine Mammal Protection Act

The Marine Mammal Protection Act prohibits the take of marine mammals, with certain exceptions, in waters under the jurisdiction of the U.S. or by citizens of the U.S. on the high seas, as well as the importation of marine mammals and marine mammal products into the U.S. Take is defined as "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal." Harassment is 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; or has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering."

Clean Water Act

The Clean Water Act (CWA) is the primary federal law regulating water quality. The implementation of the CWA is the responsibility of the U.S. Environmental Protection Agency (EPA). However, the EPA depends on other agencies, such as the individual states and USACE, to assist in implementing the CWA. The objective of the CWA is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Section 404 and 401 of the CWA apply to activities that would impact waters of the U.S. The USACE enforces Section 404 of the CWA and the California State Water Resources Control Board (SWRCB) enforces Section 401. Section 402 of the CWA authorizes the EPA to regulate water quality in California by controlling the discharge of pollutants to water bodies from point and non-point sources.

Section 404. As part of its mandate under Section 404 of the CWA, the EPA regulates the discharge of dredged or fill material into "waters of the U.S.". "Waters of the U.S." include territorial seas, tidal waters, and non-tidal waters in addition to wetlands and drainages that support wetland vegetation, exhibit ponding or scouring, show obvious signs of channeling, or have discernible banks and high-water marks. Wetlands are defined as those areas "that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3(b)). The discharge of dredged or fill material into waters of the U.S. is prohibited under the CWA except when it is in compliance with Section 404 of the CWA. Enforcement authority for Section 404 was given to the USACE, which it accomplishes under its regulatory branch. The EPA has veto authority over the USACE's administration of the Section 404 program and may override a USACE decision with respect to permitting.

In tidal waters, USACE jurisdiction extends to the landward extent of vegetation associated with salt or brackish water or the high tide line (HTL) (see 33 CFR, Part 328.4). The HTL is defined in 33 CFR, Part 328.3 as:

"The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The HTL may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gauges, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other tides that occur with periodic frequency, but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.".

Substantial impacts to waters of the U.S. may require an Individual Permit. Projects that only minimally affect waters of the U.S. may meet the conditions of one of the existing Nationwide Permits, provided that such permits' other respective conditions are satisfied. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions (see below).

Section 401. Any applicant for a federal permit to impact waters of the U.S. under Section 404 of the CWA, including Nationwide Permits where pre-construction notification is required, must also provide to the USACE a certification or waiver from the State of California. The "401 Certification" is provided by the State Water Resources Control Board through the local RWQCB.

The RWQCB issues and enforces permits for discharge of treated water, landfills, storm-water runoff, filling of any surface waters or wetlands, dredging, agricultural activities, and wastewater recycling. The RWQCB recommends the "401 Certification" application be made at the same time that any applications are provided to other agencies, such as the USACE, USFWS, or NOAA Fisheries. The application is not final until completion of environmental review under the CEQA. The application to the RWQCB is similar to the pre-construction notification that is required by the USACE. It must include a description of the habitat that is being impacted, a description of how the impact is proposed to be minimized and proposed mitigation measures with goals, schedules, and performance standards. Mitigation must include a replacement of functions and values, and replacement of wetland at a minimum ratio of 2:1, or twice as many acres of wetlands provided as are removed. The RWQCB looks for mitigation that is on site and in-kind, with functions and values as good as or better than the water-based habitat that is being removed.

Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act of 1899 prohibits the creation of any obstruction to the navigable capacity of waters of the U.S., including discharge of fill and the building of any wharfs, piers, jetties, and other structures without Congressional approval or authorization by the Chief of Engineers and Secretary of the Army (33 U.S. Code 403). Navigable waters of the U.S., which are defined in 33 CFR, Part 329.4, include all waters subject to the ebb and flow of the tide, and/or those which are presently or have historically been used to transport commerce. The shoreward jurisdictional limit of tidal waters is further defined in 33 CFR, Part 329.12 as "the line on the shore reached by the plane of the mean (average) high water (MHW)." Where precise definition of the actual location of the MHW line becomes necessary, it must be established by survey with reference to the available tidal datum. The USACE does not regulate wetlands under Section 10, only the open waters component of tidal habitat (under the Rivers and Harbors Appropriation Act of 1899), and there is overlap between Section 10 jurisdiction, which extends landward to the MHW and Section 404 jurisdiction, which extends landward to the HTL.

As mentioned above, Section 404 of the CWA authorizes the USACE to issue permits to regulate the discharge of dredged or fill material into waters of the U.S. If a project also proposes to discharge dredged or fill material and/or introduce other potential obstructions in navigable waters of the U.S., a Letter of Permission authorizing these impacts must be obtained from the USACE under Section 10 of the Rivers and Harbors Act.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act governs all fishery management activities that occur in federal waters within the United States' 200-nautical-mile

limit. The Act establishes eight Regional Fishery Management Councils responsible for the preparation of fishery management plans (FMPs) to achieve the optimum yield from U.S. fisheries in their regions. These councils, with assistance from the NOAA Fisheries, establish Essential Fish Habitat (EFH) in FMPs for all managed species. Additionally, along the West Coast, NOAA Fisheries relies on Fishery Management Councils to identify habitats that fall within Habitat Areas of Particular Concern (HAPC). These areas provide important ecological functions and/or are especially vulnerable to degradation. HAPCs are discreet subsets of Essential Fish Habitat that are rare, particularly susceptible to human-induced degradation, especially ecologically important, or located in an environmentally stressed area. Designated HAPC are not afforded any additional regulatory protection under the Magnuson-Stevens Act; however, federal projects with potential adverse impacts on HAPC are more carefully scrutinized during the consultation process. Federal agencies that fund, permit, or implement activities that may adversely affect EFH are required to consult with the NOAA Fisheries regarding potential adverse effects of their actions on EFH and respond in writing to recommendations by NOAA Fisheries.

State

California Coastal Act

The California Coastal Act of 1976, administered by the California Coastal Commission, was created to provide long-term protection of California's 1,100-mile coastline for the benefit of future generations. Integral to the Coastal Act are its policies which provide for protection and expansion of public access to the shoreline and recreational opportunities and resources; protection, enhancement and restoration of environmentally sensitive habitats, including intertidal and nearshore waters, wetlands, bays, estuaries, riparian habitat, certain woodlands and grasslands, streams, lakes and habitat for rare or endangered plants or animals; protection of productive agricultural lands, commercial fisheries and archaeological resources; protection of the scenic beauty of coastal landscapes and seascapes; practical establishment of urban-rural boundaries and directing new housing and other development into areas with adequate services to avoid wasteful urban sprawl and leapfrog development; environmentally sound expansion of existing industrial ports and electricity-generating power plants, as well as for the siting of coastal dependent industrial uses; and protection against loss of life and property from coastal hazards.

The following are definitions given for specific ecological features that fall within the purview of the California Coastal Act: §30121 defines a wetland as: lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, or fens; Commission Regulation §13577(b) elaborates: wetlands are lands where the water table is at near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent or drastic fluctuation of surface water levels, wave action, water flow, turbidity or high concentrations of salt or other substance in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deep-

water habitats…; §30107.5 defines an Environmentally Sensitive Habitat Area as any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.

Under the Coastal Act, local governments that lie in whole or in part within the Coastal Zone are required to prepare Local Coastal Programs (LCPs; Cal. Pub. Res. Code §30500). LCPs identify the location, type, densities, and other ground rules for future development in the coastal zone. Each LCP includes a land-use plan and its implementing measures. The Coastal Commission helps shape each LCP and then formally reviews them for consistency with Coastal Act standards. Once finalized, coastal permitting authority is transferred to the local government, with the exception of proposed development on the immediate shoreline, which stays with the Commission. In developing an LCP, a local government may choose to recognize specific botanical or wildlife resources as locally rare and therefore garner protection under the LCP.

California Environmental Quality Act (CEQA) Guidelines

CEQA Guidelines Section 15380 defines endangered, threatened, and rare species for purposes of CEQA and clarifies that CEQA review extends to other species that are not formally listed under the state or federal Endangered Species acts but that meet specified criteria. The state maintains a list of sensitive, or "special-status," biological resources, including those listed by the state or federal government or the California Native Plant Society (CNPS) as endangered, threatened, rare or of special concern due to declining populations. During CEQA analysis for a proposed project, the CNDDB is usually consulted. CNDDB relies on information provided by the California Department of Fish and Wildlife (CDFW), USFWS, and CNPS, among others. Under CEQA, the lists kept by these and any other widely recognized organizations are considered when determining the impact of a project.

California Endangered Species Act

The California Endangered Species Act (CESA; Fish and Game Code 2050 et seq.) generally parallels FESA. It establishes the policy of the State to conserve, protect, restore, and enhance threatened or endangered species and their habitats. Section 2080 of the California Fish and Game Code prohibits the take, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or by the regulations. "Take" is defined in Section 86 of the California Fish and Game Code as to "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." This definition differs from the definition of "take" under FESA. CESA is administered by CDFW. CESA allows for take incidental to otherwise lawful projects but mandates that State lead agencies consult with the CDFW to ensure that a project would not jeopardize the continued existence of threatened or endangered species.

California Fish and Game Code Sections 1600-1607

Sections 1600-1607 of the California Fish and Game Code require that a Notification of Lake or Streambed Alteration Agreement (LSAA) application be submitted to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." CDFW reviews the proposed actions in the application and, if necessary, prepares a LSAA that includes measures to protect affected fish and wildlife resources, including mitigation for impacts to bats and bat habitat.

Native Plant Protection Act

The Native Plant Protection Act (NPPA) was created in 1977 with the intent to preserve, protect, and enhance rare and endangered plants in California (California Fish and Game Code sections 1900 to 1913). The NPPA is administered by CDFW, which has the authority to designate native plants as endangered or rare and to protect them from "take." CDFW maintains a list of plant species that have been officially classified as endangered, threatened, or rare. These special-status plants have special protection under California law and projects that directly impact them may not qualify for a categorical exemption under CEQA guidelines.

Fully Protected Species and Species of Special Concern

The classification of California fully protected (CFP) species was the CDFW's initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, amphibians and reptiles, birds, and mammals. Most of the species on these lists have subsequently been listed under CESA and/or FESA. The Fish and Game Code sections (§5515 for fish, §5050 for amphibian and reptiles, §3511 for birds, §4700 for mammals) deal with CFP species and state that these species "…may not be taken or possessed at any time and no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected species" (CDFW Fish and Game Commission 1998). "Take" of these species may be authorized for necessary scientific research. This language makes the CFP designation the strongest and most restrictive regarding the "take" of these species. In 2003, the code sections dealing with CFP species were amended to allow the CDFW to authorize take resulting from recovery activities for state-listed species.

California species of special concern are broadly defined as animals not listed under the FESA or CESA, but which are nonetheless of concern to the CDFW because they are declining at a rate that could result in listing, or historically occurred in low numbers and known threats to their persistence currently exist. This designation is intended to result in special consideration for these animals by the CDFW, land managers, consulting biologists, and others, and is intended to focus attention on the species to help avert the need for costly listing under FESA and CESA and cumbersome recovery efforts that might ultimately be required. This designation also is intended to stimulate collection of additional information on the biology, distribution, and status of poorly

known at-risk species, and focus research and management attention on them. Although these species generally have no special legal status, they are given special consideration under CEQA during project review.

Nesting Birds

Nesting birds, including raptors, are protected under California Fish and Game Code Section 3503, which reads, "It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto." In addition, under California Fish and Game Code Section 3503.5, "it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Passerines and non-passerine land birds are further protected under California Fish and Game Code 3513. As such, CDFW typically recommends surveys for nesting birds that could potentially be directly (e.g., actual removal of trees/vegetation) or indirectly (e.g., noise disturbance) impacted by project-related activities. Disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by CDFW.

Non-Game Mammals

Sections 4150-4155 of the California Fish and Game Code protects non-game mammals, including bats. Section 4150 states "A mammal occurring naturally in California that is not a game mammal, fully protected mammal, or fur-bearing mammal is a nongame mammal. A nongame mammal may not be taken or possessed except as provided in this code or in accordance with regulations adopted by the commission." The non-game mammals that may be taken or possessed are primarily those that cause crop or property damage. Bats are classified as a nongame mammal and are protected under California Fish and Game Code.

Sensitive Vegetation Communities

Sensitive vegetation communities are natural communities and habitats that are either unique in constituent components, of relatively limited distribution in the region, or of particularly high wildlife value. These communities may or may not necessarily contain special-status species. Sensitive natural communities are usually identified in local or regional plans, policies or regulations, or by the CDFW (i.e., CNDDB) or the USFWS. The CNDDB identifies a number of natural communities as rare, which are given the highest inventory priority (Holland, 1986; CDFW, 2016). Impacts to sensitive natural communities and habitats must be considered and evaluated under the CEQA (CCR: Title 14, Div. 6, Chap. 3, Appendix G).

Porter-Cologne Water Quality Control Act

The intent of the Porter-Cologne Water Quality Control Act (Porter-Cologne) is to protect water quality and the beneficial uses of water, and it applies to both surface and ground water. Under

this law, the State Water Resources Control Board develops statewide water quality plans, and the RWQCBs develop basin plans, which identify beneficial uses, water quality objectives, and implementation plans. The RWQCBs have the primary responsibility to implement the provisions of both statewide and basin plans. Waters regulated under Porter-Cologne, referred to as "waters of the State," include isolated waters that are not regulated by the USACE. Projects that require a USACE permit, or fall under other federal jurisdiction, and have the potential to impact waters of the State are required to comply with the terms of the Water Quality Certification Program. If a

proposed project does not require a federal license or permit, any person discharging, or proposing to discharge, waste (e.g., dirt) to waters of the State must file a Report of Waste Discharge and receive either waste discharge requirements or a waiver to water discharge requirements before beginning the discharge.

California State Lands Commission

The California State Lands Commission has jurisdiction and management over sovereign state-owned lands, lands sold directly to settlers from the federal government, lands granted to the state for sale or use, and lands granted by a prior sovereign (i.e., rancho and pueblo lands). Sovereign lands include approximately four million acres of land underlying the State's navigable and tidal waterways, including the beds of California's navigable rivers, lakes and streams, as well as the state's tide and submerged lands along the State's approximately1,100 miles of coastline and offshore islands.

The Commission holds its sovereign lands for the benefit of all the people of the State, subject to the Public Trust for water related commerce, navigation, fisheries, recreation, open space, and other recognized Public Trust uses. Authorization from the Commission is required if there are plans to build upon or otherwise occupy any lands described above, such activity may be within the Commission's jurisdiction. The Commission also monitors sovereign land granted in trust by the California Legislature to approximately 70 local jurisdictions that generally consist of prime waterfront lands and coastal waters. The Commission protects and enhances these lands and natural resources by issuing leases for use or development, providing public access, resolving boundaries between public and private lands, and implementing regulatory programs to protect state waters from oil spills and invasive species introductions.

The Commission's jurisdiction for tidal lands extends from the mean high tide line to three nautical miles offshore. Except for those locations where the boundary has been permanently fixed by either a court or an agreement with the Commission, the boundary of tidal lands is classified as an ambulatory boundary because it is based on the location of the water. The ambulatory boundary is determined from the mean high tide, which can be determined by either the published mean high water (MHW) elevation from the closest NOAA tide station to the Project or a linear interpolation between two adjacent tide stations, depending on tidal regime characteristics. The current tidal datum and epoch should be used (presently NAVD88 and 1983-2001, respectively). Local, published control benchmarks should be used in determining elevations at the survey site. Control benchmarks are the monuments on the ground that have been precisely located and referenced to

the local tide stations and vertical datum used to calculate the mean high tide elevation and the elevation datum must match that of the tidal datum.

Local

City of Pacifica General Plan 2040 and Local Coastal Land Use Plan (February 2020)

The City of Pacifica General Plan 2040 (July 2022) and LCLUP (Certification Draft February 2020) aim to ensure that the goals of the California Coastal Act are furthered by land use actions and policies that affect land within the Coastal Zone as defined by the California Coastal Commission. The City's zoning code features a Coastal Zone Combining District, with development regulations based on Coastal Act goals. These include the provision of public access to the shoreline and recreational opportunities, the protection and enhancement of the coastal environment, and the prioritization of coastal-dependent and visitor-serving uses. The City of Pacifica General Plan 2040 contains the guiding and implementation policies that would be relevant to the proposed Project. However, although the General Plan was approved by the City Council in 2022, the LCLUP (Certification Draft February 2020) is currently on hold, pending certification by the Coastal Commission. The City's existing LCLUP, adopted by the City Council and certified by the Coastal Commission in 1980, is incorporated into the 1980 General Plan and is currently in effect until such time as the 2020 LCP is certified.

Local Coastal Land Use Plan (1980)

The existing LCLUP, adopted in 1980 and currently in effect, contains the following Conservation Element policies regarding biological resources.

- *Policy 2:* Require the protection and conservation of indigenous rare and endangered species.

- *Policy 4:* Protect and conserve the coastal environment, sand dunes, habitats, unique and endangered species, and other natural resources and features which contribute to the coastal character.

- *Policy 7:* Promote the conservation of all water, soil, wildlife, vegetation, energy, minerals and other natural resources.

Local Coastal Program, California Coastal Act

The California Coastal Act (1976) gives local government the duty to prepare and implement Local Coastal Programs (LCPs). An LCP is a local government's land use plans, zoning ordinances, zoning district maps, and other implementing actions within sensitive coastal resource areas. Together, these tools must adhere to and implement the California Coastal Act. LCPs carry out the mandate of the Coastal Act: to protect coastal resources and maximize public access to the shoreline. LCPs that are certified by the Coastal Commission issue permits for new development subject to standards outlined in the LCP. LCPs can address public access, recreation and visitor

facilities, water quality, natural resources, agricultural resources, new development, scenic resources, coastal hazards, shoreline erosion, and other coastal development.

The California Coastal Act included 35 coastal policies which were intended to form the parameters for planning the State's Coastal Zone. Unlike the General Plan where the policies evolved from the public input (primarily workshops) and then formed the basis for land use decisions, in coastal planning the policies are given. These policies are used to justify the various proposed land uses. The coastal policies are included here. It is important to note that these policies are binding on the coastal portion of Pacifica's Plan; and can be amended only with the State Coastal Commission's approval. However, although they supplement the mandatory elements of the General Plan, the policies are not binding on the area east of Highway 1, which is outside the Coastal Zone.

Coastal Act Policies

- *Policy 11:* Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

- *Policy 12:* The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means minimizing adverse effects of wastewater discharge and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging wastewater reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams. Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development of transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.

- *Policy 16:* Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fish kills should be phased out or upgraded where feasible.

- *Policy 18:* Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on such resources shall be allowed

within such areas. Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade such areas and shall be compatible with the continuance of such habitat areas.

City of Pacifica Strategic Plan

The Pacifica Strategic Plan describes the vision, mission, goals, and objectives for the City. These guiding principles include specific directives pertaining to biological resources. The vision statement states that in five years, Pacifica will be "economically and ecologically vibrant." Pacifica is dedicated/committed to "the stewardship of its exceptional natural attributes." Goal 1 is to "preserve and enhance Pacifica's natural resources and open space to ensure an ecologically vibrant community."

4.3.3 Thresholds of Significance

Potential impacts to biological resources were determined in accordance with Appendix G of the CEQA Guidelines. Impacts would be considered potentially significant if the proposed Project will:

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 HCP, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

4.3.4 Impacts and Mitigation Measures

Impact BIO-1: The Project could have a significant adverse effect, either directly or through habitat modifications, special-status fish (steelhead, Coho salmon, and green sturgeon), Essential Fish Habitat (EFH), and American peregrine falcon and other nesting birds.. Implementation of Mitigation Measures BIO-1a through BIO-1c would reduce potential impacts to a less than significant level (Less Than Significant with Mitigation Incorporated)

Direct take of a federal or state listed species is considered a significant impact. Temporary and/or permanent habitat loss is not considered a significant impact to sensitive species (other than for listed or candidate species under the FESA and CESA), unless a significant percentage of total suitable habitat throughout the species' range is degraded or somehow made unsuitable, or areas supporting a large proportion of the species' population are substantially and adversely impacted.

Potential impacts to nesting bird species would be considered significant due to their protection under California Fish and Game Code.

Impacts to Special-Status Plants and Invertebrates – No Impact

No special-status plant or invertebrate species are expected to occur within the study area due to the lack of suitable habitat. Therefore, the proposed Project would not result in a substantial adverse effect on any special-status plant or invertebrate species.

Impacts to Special-Status Fish and EFH – Less than Significant Impact with Mitigation

Steelhead, Coho salmon, and green sturgeon may be present in waters just offshore of the study area. Additionally, all open water habitat is designated as EFH. Because Project activities are proposed to take place below the HTL, the Project may indirectly impact special-status fish and EFH through the degradation of surface or ground water quality due to erosion and transport of fine sediments, unintentional release of contaminants, and soil compaction from access and equipment in tidal areas. The Project may also directly impact individuals of these species if they are present during construction activities because they may be crushed or injured by personnel or equipment working below the HTL. Project-related impacts on EFH or individual steelhead, Coho salmon, and green sturgeon would be significant under CEQA (Criteria A and B). Potential impacts to special-status fish and EFH would be reduced to a less than significant level through implementation of Mitigation Measure BIO-1a, listed below.

The Project proposes the installation of sheet piles with a vibratory or impact hammer. The sheet piles would be installed above the HTL under dewatered conditions; therefore, it is not expected that fish would be exposed to elevated levels of underwater sound produced during sheet pile driving.

Mitigation Measure BIO-1a: Best Management Practices (BMPs) to Protect Water Quality, Special-Status Fish, and EFH

The project shall minimize to the greatest extent feasible all construction in tidal / open water habitat areas. During all construction in and near tidal aquatic habitat, standard BMPs shall be used to minimize erosion and impacts to water quality as well as direct impacts to special-status fish and EFH. The following BMPs shall be included in the Project to minimize erosion, impacts to water quality, and impacts to special-status species (also see BMPs in Chapter 3.3.9, of the Project Description):

- The contractor shall monitor the tides and coordinate work to avoid construction activities in open water habitat. The timing and elevation of tides can be monitored by checking the San Francisco NOAA tidal station (#9414290) found online at https://tidesandcurrents.noaa.gov/noaatidepredictions.html?id=9414290. Because the Project area is approximately 16 miles south of the tidal station, the actual timing and elevation of tides needs to be adjusted specifically for the Project area.

- No vehicles or heavy equipment shall be operated in open water habitat.

- Earthmoving and clearing activities shall be performed in dry weather only.

- Spoils shall be removed promptly and stockpiling of fill materials shall be avoided when rain is forecast. Stockpiles shall only be placed in designated locations, including near the 500 Esplanade ramp and at the staging area at the 310-330 lots at least 20 feet from the bluff face. No stockpiles shall be located on the beach. Soil stockpiles and other materials shall be covered with a tarp or other waterproof material during rain events.

- In the event of rain, all grading work is to cease immediately.

- Implement an erosion control plan during the wet season (October 15 through April 15), including, at a minimum, the following:

    - During the rainy season, all paved areas will be kept clear of earth material and debris.

    - Inlet protection will be installed at open inlets to prevent sediment from entering the storm drain system.

    - Straw rolls will be placed at the toe of slopes, and along the down slope perimeter of the Project area.

- Equipment staging and parking of vehicles shall occur on defined staging areas only.

- The integrity and effectiveness of erosion control measures shall be inspected on a daily basis or as required under the approved SWPPP. Corrective actions and repairs shall be carried out immediately for ineffective BMPs.

- Fueling, washing, and maintenance of vehicles shall occur in the defined staging areas, away from open water habitat. Equipment shall be regularly maintained to avoid fluid leaks. Any leaks shall be captured in containers until equipment is moved to a repair location. Hazardous materials shall be stored only within the defined staging areas. Containment and cleanup plans shall be prepared and implemented for the immediate cleanup of fluid or hazardous materials spills.

- Sediment-laden water shall not be allowed to enter the ocean.

- All litter and construction debris shall be disposed of off-site in accordance with state and local regulations. All trash and debris within the work area shall be placed in containers with secure lids before the end of work each day to reduce the likelihood of predators being attracted to the site by discarded food wrappers and other rubbish. If containers meeting these criteria are not available, all rubbish shall be removed from the study area on a daily basis.

- Discharge of all potential pollutants, including solid wastes, paints, concrete, petroleum products, chemicals, wash water or sediment and non-stormwater discharges to storm drains and water courses shall be controlled and prevented.

- A hazardous spill plan shall be developed prior to construction. The plan shall describe what actions shall be taken in the event of a spill. The plan shall also incorporate preventative measures to be implemented, such as vehicle and equipment staging, cleaning, maintenance, and refueling; and contaminant (including fuel) management and storage. In the event of a contaminant spill, work at the site shall immediately cease until the contractor has contained and mitigated the spill. The contractor shall immediately prevent further contamination and notify appropriate authorities and mitigate damage as appropriate. Adequate spill containment materials, such as oil diapers and hydrocarbon cleanup kits, shall be available on site at all times. Containers for storage, transportation, and disposal of contaminated absorbent materials shall be provided in the study area.

- Trash and construction related solid wastes shall be deposited into a covered receptacle to prevent contamination and dispersal by wind. Trash and solid waste shall not be stored on the beach.

- Work areas that are temporarily impacted shall be restored with respect to pre-existing contours and conditions, to the extent feasible, upon completion of work. Restoration work including re-vegetation and soil stabilization will be evaluated upon completion of work and performed, as needed. Construction materials and

wastes shall be stored, handled, and disposed of properly, so as to prevent their contact with stormwater.

Impacts to Special-Status Amphibians and Reptiles- No Impact

California red-legged frogs and San Francisco garter snakes have been recorded nearby but are not expected to occur in the study area due to a lack of suitable habitat and movement barriers between the known occurrences and the study area. Therefore, the Project would not impact special-status amphibians or reptiles.

Impacts to American Peregrine Falcon – Less than Significant Impact with Mitigation

Peregrine falcon is a year-round resident in the Project region. Suitable nesting habitat for peregrine falcon is present in the study area in the coastal bluff areas, with suitable foraging habitat in open areas of the study area as well as nearby areas.

Construction Outside of the Nesting Season. Impacts outside of nesting season (September 16 to January 31) would be less than significant since any foraging peregrine falcons would disperse, in response to construction activities, before they could be killed or injured. As a result, no direct disturbance of these species would occur.

There would still be some potential for disturbance of foraging individuals in the adjacent areas as a result of construction noise and/or movement of construction equipment and personnel. However, such impacts would have minimal effects due to the presence of nearby suitable foraging habitat. Such effects would not result in substantial harassment or disturbance of individuals and would not result in a reduction in the populations of peregrine falcons. Therefore, impacts to foraging peregrine falcons would be less than significant.

Construction During the Nesting Season. Project activities during the nesting season (February 1 to September 15) that cause a substantial increase in noise, movement of equipment, or human presence near active nests could result in the abandonment of active peregrine falcon nests with eggs or nestlings. Increases in human concentration and activity associated with construction may also result in an increase in native and non-native predators that would be attracted to trash left in work areas However, adult birds are not expected to be killed or injured, as they could easily fly from the work site.

The Project would restore coastal bluff habitat in areas impacted by the Project. Therefore, the proposed Project would increase the availability of foraging habitat after construction is completed. Additionally, the construction of a seawall would not result in a significant loss of potential nesting habitat for peregrine falcon if the height of the seawall is restricted to the proposed 40 feet NAVD88, which is below the height of suitable nesting habitat on the bluff. Implementation of BMPs (removal of litter – see above under Impacts to Special-Status Fish and EFH) and Mitigation Measure BIO-1b below would avoid impacts to active nests of peregrine

falcon protected by the MBTA or California Fish and Game Code and reduce impacts to a less than significant level. Mitigation Measure BIO-1b is consistent with the City's Policy CO-I-33 (Construction During Nesting Season) in both the General and Local Coastal Land Use Plans.

Impacts to California Brown Pelican, Northern Harrier, Western Snowy Plover, and White-Tail Kite – Less than Significant Impact

California brown pelican, northern harrier, western snowy plover, and white-tailed kite are seen regularly in the Project region (Cornell Laboratory of Ornithology, 2019) and may fly through or forage in the study area. However, there is not suitable nesting habitat in the study area or the immediate area around the study area. All four species may be temporarily displaced by construction noise and can forage in areas surrounding the Project. Therefore, impacts to California brown pelican, northern harrier, western snowy plover, and white-tail kite would be less than significant. In the unlikely event that any of these species nest in the study area, compliance with Mitigation Measure BIO-1b would reduce Project impacts on these species to less than significant.

Impacts to Nesting Birds – Less than Significant Impact with Mitigation

All migratory bird species and their nests are protected under the MBTA and California Fish and Game Code. Project activities must comply with the provisions of the MBTA and California Fish and Game Code (i.e., avoid take of protected nesting birds).

Construction disturbance during the avian breeding season (February 1 through September 15) could result in the incidental loss of eggs or nestlings, either directly through the destruction or disturbance of active nests or indirectly by causing the abandonment of nests. In addition, noise and increased construction activity could temporarily impact foraging behavior, and potentially result in the abandonment of nest sites.

Implementation of Mitigation Measure BIO-1b would avoid impacts on active nests of birds protected by the MBTA or California Fish and Game Code and reduce impacts to a less than significant level. Mitigation Measure BIO-1b is consistent with the City's Policy CO-I-36 (Construction During Nesting Season) in both the General and Local Coastal Land Use Plans.

Mitigation Measure BIO-1b: Pre-Construction/Pre-Disturbance Surveys for Nesting Birds

Avoidance. To the extent feasible, construction activities should be scheduled to avoid the nesting season. If construction activities are scheduled to take place outside the nesting season, all impacts to nesting birds protected under the MBTA and California Fish and Game Code would be avoided. The nesting season for most birds in San Mateo County extends from February 1 through September 15.

Pre-Construction Surveys. If it is not possible to schedule construction activities between September 1 and January 31, then preconstruction surveys for nesting birds will be conducted by a qualified biologist to ensure that no nests would be disturbed during Project

implementation. These surveys will be conducted no more than five days prior to the initiation of any site disturbance activities and equipment mobilization. If Project activities are delayed by more than five days, an additional nesting bird survey will be performed. During this survey, the biologist will inspect all potential nesting habitats (e.g., shrubs, ruderal areas, cliff terraces, etc.) in the impact area and a 250-foot buffer around the area for nests. Active nesting is present if a bird is building a nest, sitting in a nest, a nest has eggs or chicks in it, or adults are observed carrying food to the nest. The results of the surveys will be documented.

If an active nest is found in the impact area or the 250-foot buffer, the biologist will determine the extent of a construction-free buffer zone to be established around the nest (typically up to 1000 feet for raptors and up to 250 feet for other species, though this may sometimes be reduced in urban areas at the discretion of the biologist), to ensure that no nests of species protected by the MBTA and California Fish and Game Code will be disturbed during Project implementation. Within the buffer zone, no site disturbance and mobilization of heavy equipment, including but not limited to equipment staging, fence installation, clearing, grubbing, vegetation removal, demolition, and grading will be permitted until the chicks have fledged. Monitoring will be required to ensure compliance with MBTA and relevant California Fish and Game Code requirements. Monitoring dates and findings will be documented.

Impacts to Marine Birds – Less than Significant Impact

Marine birds are seen regularly in the Project region and can forage at any time of the year offshore of the study area. Further, marine bird breeding colonies are not known to occur in the study area or immediate area. Marine birds may be temporarily displaced by construction noise and can forage in areas surrounding the Project. The Project would not result in permanent substantial changes to the availability of foraging habitat after construction is completed. Therefore, impacts to foraging marine birds would be less than significant. In the unlikely event that a marine bird nests in the study area, compliance with Mitigation Measure BIO-1b would reduce Project impacts on nesting marine birds to less than significant.

Impacts to Marine Mammals – Less than Significant Impact

Marine mammals are seen regularly in the Project region and can forage at any time of the year offshore of the study area. Further, individual California sea lions and harbor seals can haul out into the study area any time of the year to rest. However, the study area is not known to be a significant haul-out site. Additionally, there are no known significant haul-out sites or rookery sites for either species near the study area. Marine mammals will only be temporarily displaced by construction noise and can forage in areas surrounding the Project. Marine mammals are not expected to be killed or injured, as they could easily avoid the work site. Also, the proposed Project would not result in permanent substantial changes to the availability of foraging habitat after construction is completed. However, the removal of the riprap at the base of the eroding bluff

would eliminate haul out habitat but would have minimal effects due to the presence of nearby suitable haul out habitat. Therefore, impacts to foraging or resting marine mammals would be less than significant.

Impacts on Native Species and Communities from Introduction or Spread of Invasive Species – Less than Significant with Mitigation Incorporated

The study area contains iceplant, a highly invasive species. Invasive plants degrade habitat quality for native plants and animals by altering vegetative structure and often reducing specific food and structural resources required by native animals. As a result, invasion of native habitats by non-natives results in adverse effects on both the native plants being displaced and native animals that would otherwise use those habitats. Because many invasive plants easily colonize recently disturbed areas and/or tolerate repeated disturbance better than many natives, Project construction activities, such as clearing and grading, could create conditions suitable for spreading of invasive plant species. In addition, bare upland soils left after construction of temporary staging areas could encourage growth of weedy species; and mulching or erosion control mixes could include and thus introduce invasive, non-native plant species.

Even though iceplant is already present within and adjacent to coastal bluff habitat, Project activities could cause iceplant to spread further into previously unoccupied areas within the coastal bluff habitat. Therefore, this impact is considered significant. Implementation of Mitigation Measure BIO-3 would reduce potential weed-related impacts on sensitive habitats and the species they support. Mitigation Measure BIO-3 is consistent with City's Policy CO-I-39 (Invasive Plant Species) in both the General and Local Coastal Land Use Plans. Also, the Project includes a post-construction bluff restoration plan, which will include the removal of invasive weeds as defined by the Cal-IPC. With the implementation of Mitigation Measure BIO-1c and the post-construction restoration plan, impacts from invasive species would be less than significant.

Mitigation Measure BIO-1c: Invasive Species Best Management Practices

The following measures shall be implemented to limit the spread of invasive species into native habitats:

- All ground disturbing equipment used adjacent to native habitats shall be washed (including wheels, tracks, and undercarriages) at a legally operating equipment yard both before and after being used at the site.

- All applicable construction materials used on site, such as straw wattles, mulch, and fill material, shall be certified weed free.

- The Project shall follow a Stormwater Pollution Prevention Plan as per the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit; Water Board Order No. 2009-0009- DWQ) if applicable.

- All disturbed soils shall be stabilized and planted with a native seed mix from a local source following construction.

- If excavating, soil and vegetation removed from weed-infested areas shall not be used in general soil stockpiles and shall not be redistributed as topsoil cover for the newly filled areas. All weed-infested soil shall be disposed of off-site at a landfill or buried at least 2.5 feet below final grade.

Impact BIO-2: The Project would not 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. (No Impact)

No riparian habitat or other sensitive communities occur within the study area. Therefore, the proposed Project would not result in a substantial adverse effect on any sensitive communities.

Impact BIO-3: The Project could have an 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. Implementation of Mitigation Measure BIO-1 would reduce potential impacts to a less than significant level (Less Than Significant with Mitigation Incorporated)

The tidal habitat present within the study area is subject to the regulatory jurisdiction of the USACE and RWQCB and will require CWA 401/404 permits, if impacted. The Project proposes to construct a seawall, including the removal of approximately 8,000 tons of riprap located at the base of the eroding bluff. Therefore, tidal habitat could be affected by Project activities. Specifically, construction activities could cause the degradation of surface or ground water quality due to erosion and transport of fine sediments, unintentional release of contaminants, trampling and removal of vegetation, and soil compaction from access and equipment in tidal areas. Mitigation Measure BIO-1a, listed above under Impact BIO-1, would prevent water quality impacts to protected tidal habitats.

In addition, construction projects in California causing land disturbances that are equal to 1.0 acre or greater must comply with State requirements to control the discharge of stormwater pollutants under NPDES/Construction General Permit. Prior to the start of construction/demolition, a Notice of Intent must be filed with the State Water Board describing the Project. A SWPPP must be developed and maintained during the Project and it must include the use of BMPs to protect water quality until the site is stabilized. Standard permit conditions under the NPDES/Construction General Permit require that the applicant utilize various measures including on-site sediment control best management practices, damp street sweeping, temporary cover of disturbed land surfaces to control erosion during construction, and utilization of stabilized construction entrances and/or wash racks, among other factors.

In many Bay Area counties, including San Mateo County, projects must also comply with the RWQCB, San Francisco Bay Region, Municipal Regional Stormwater NPDES Permit (Water Board Order No. R2-2009-0074). This permit requires that all projects implement BMPs and incorporate Low Impact Development practices into the design that prevents stormwater runoff pollution, promotes infiltration, and holds/slows down the volume of water coming from a site. In order to meet these permit and policy requirements, projects must incorporate the use of green roofs, impervious surfaces, tree planters, grassy swales, bioretention and/or detention basins, among other factors.

Compliance with Mitigation Measure BIO-1a and the requirements to control the discharge of stormwater pollutants under the NPDES Construction General Permit and Municipal Regional Stormwater NPDES Permit ensure impacts to tidal habitat remain less than significant. In addition, the Project requires permits from the USACE and RWQCB for impacts on tidal habitat.

Impact BIO-4. The Project would not 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. (Less Than Significant Impact)

The beach/intertidal habitat in the study area functions as an environmental corridor, connecting natural areas along the coast. In addition, other natural habitats (e.g., coastal bluff) function as pathways for terrestrial wildlife movement that allow animals to avoid developed areas in and around the study area. The beach/intertidal and bluff habitat in the study area is not documented as a significant migratory corridor during particular seasons when flocks or herds would move through the site to reach breeding or wintering grounds.

By disrupting the bluff and beach environment, grading and excavation activities could reduce wildlife movement in the project area during construction. Wildlife would still be able to move through the area, but may be deterred when equipment is operating. Equipment would not be operating 24/7, and the area would not be blocked off, so wildlife would not be prevented from moving through the construction site during the entire construction period. If Project construction occurs at night, when many mammals, reptiles, and amphibians are active, use of the study area by dispersing nocturnal animals could be disrupted during the Project construction period. Night lighting during construction could disrupt foraging behavior of nocturnal birds that rely on darkness when hunting. Night lighting would be localized, temporary, and night work is not expected to occur throughout the duration of the Project, only when necessary to address tidal conditions. Numerous animals may breed within and around the study area, but no particularly important wildlife nursery areas are present in the study area or would be impacted by the Project. Once construction activities are complete wildlife movement conditions would be similar to pre-Project conditions, and wildlife dispersal through the study area is expected to return to existing conditions.

Although Project activities may temporarily affect wildlife movement during construction, animals would still be able to move through the study area during times when construction is not

taking place, and no permanent impacts to wildlife movement would result from the Project. The Project would not affect any significant seasonal migration patterns. Thus, the Project would not interfere substantially with the movement of any native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, and this impact is less than significant.

Impact BIO-5: The Project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (including the County Heritage and Significant Tree Ordinances) with implementation of Mitigation Measures BIO-1 through BIO-3. (Less Than Significant with Mitigation Incorporated)

There are no trees in the study area, therefore the proposed Project would not conflict with a tree preservation policy or ordinance.

The existing LCLUP, adopted in 1980, contains policies protecting special-status species, sensitive habitats, marine and coastal biological resources, and water quality (see Section 3.4.2 Regulatory Setting, under Local). Although the proposed Project has the potential to impact special-status fish and EFH, nesting birds, and tidal habitat, Mitigation Measures BIO-1a through BIO-1c, and compliance with applicable federal and state regulations protecting water quality and biological resources, would prevent conflicts with local policies or ordinances protecting biological resources.

Impact BIO-6: The Project would not conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan, or other approved local, regional, or state HCP. (No Impact)

The Project is not within the plan area of an adopted HCP or other regional conservation plan. Therefore, the proposed Project would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

4.3.5 References

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4.4 CULTURAL RESOURCES AND TRIBAL CULTURAL RESOURCES

This section addresses the Project's potential impacts on historic, archaeological, cultural, and tribal cultural resources and recommends mitigation measures as appropriate. The following discussion is based on information contained in a Cultural Resource Evaluation prepared by MIG, dated May 2020 [Appendix E: Confidential – held on file at the City].

4.4.1 Environmental Setting

The City of Pacifica is located in San Mateo County along the coast of the Pacific Ocean and is approximately 12 miles south of San Francisco. Pacifica was incorporated in 1957, although the area has been an important part of the San Francisco Bay Area's history from the earliest days of the Ohlone Native American tribe, through Spanish exploration, and the arrival of the railroad industry.

According to the City of Pacifica's General Plan Draft EIR, the City limits possess a high potential for discovery of unrecorded sites.[11] This is due to the occurrence of permanent and intermittent streams, productive coastal environments, sheltered locations for permanent habitations, occurrence of ridgelines, terraces, spurs, and saddles, and the significant amount of alluvial soils (which may be overlaid by artificial fill) that carry increased potential for buried archaeological deposits.

The proposed Project is located at the bluff face on the seaward side of Esplanade Avenue. The majority of the Project site is adjacent to and west of 310, 320, and 330 Esplanade Avenue on the beach. The parcels consisted of apartment buildings that were built in the 1960s. Following the 2015-2016 El Niño storm season and resulting episodic coastal erosion, all three structures were obtained by the City under eminent domain and demolished under Emergency Coastal Development Permits due to safety issues.

The base of the cliff is formed of beach sands. Riprap was previously placed at the base of the bluffs to protect against erosion. Shotcrete has also been applied against the upper portion of the bluff at 330 Esplanade to protect against erosion.

Ethnographic Background

The land surrounding the Project site is in the traditional territory of the Ohlone (or Costanoans as they were known by the Spanish) Native American tribe. Costanoan is derived from the Spanish word Costanos meaning "coast people" and has come to denote a language family consisting of eight similar languages that are distinguished from one another by their distinctive dialects.

[11] City of Pacifica. General Plan Update and Sharp Park Specific Plan Environmental Impact Report. SH: 2012022046. Public Review Draft. January 7, 2022.

Linguistic history indicates that the Ohlone migrated from the San Joaquin-Sacramento Delta River System into the San Francisco Peninsula during the Middle/Late Transition Period, between 1,000 and 750 B.C.

The Ohlone lived in tribelets or nations that had distinct dialects, were autonomous, and were territorially separated from each other. Each tribelet consisted of one or more permanent villages, with various seasonal temporary encampments located throughout their territory for the gathering of raw material resources, hunting, and fishing. The Ohlone lived in extended family units in domed dwellings constructed from tule, grass, wild alfalfa, and ferns. The subsistence practices included the consumption of plant resources such as acorns, buckeyes, and seeds that were supplemented with the hunting of elk, deer, and waterfowl as well as fishing. The Ohlone peoples practiced controlled burning on an annual basis throughout their territory as a form of land management to ensure plant and animal yields for the coming year.

The Ohlone established temporary villages along coastal streams to have a consistent source of food, water, and fuel. Each tribe-built dome-shaped shelters, thatched with brush and grass, and these surrounded a much larger assembly house. Spanish explorer Portola encountered one of these at White House Flat, south of Pigeon Point. He was so impressed when he saw 200 natives disappear inside the assembly house that he called the structure, "Big House." (City of Pacifica 2019).

The group of Ohlones in the Project area would have likely spoken the Ramaytush Dialect of the Costanoan language (Kroeber 1975/1925). Members of this language family numbered approximately 1,400 people at the time of the Spanish invasion and were spread throughout San Mateo and San Francisco counties (Levy 1976).

Prior to European contact, the City of Pacifica was home to the Aramai. The Aramai were an Ohlone tribe consisting of approximately 50 people who lived in one of two villages along the Pacific coast. Pacifica was once the village of Pruristac, and Rockaway Beach was once Timigtac (Milliken et al. 2009).

At low tide, the Ohlone in the Pacifica region scoured the rocky shoreline for food. They gathered all the visible abalone, mussels, sea urchins and limpets. All these, plus fresh roots and insects steamed in water-tight baskets, added to their diet of local edibles (City of Pacifica 2019).

Historic

The first Europeans to reach the San Francisco Bay area were Spanish explorers in 1769 as part of the Portola Expedition. Portola and his crew were reported to have entered Aramai territory at the end of October 1769 (Milliken et al. 2009). A short time later they continued onwards over Sweeney Ridge and were credited with the European discovery of San Francisco Bay. Following the discovery, Spanish influence of the area dramatically and quickly increased. In 1774, the de Anza Expedition had set out to convert the Native American tribes to Christianity through the establishment of seven missions within Ohlone territory, including Mission San Francisco de Asis (Mission Dolores). During this time, the Ohlone people were subjugated and absorbed into the

mission system for compulsory baptism and conversion to Christianity, resulting in the loss of their culture and customs.

In 1786, a mission outpost was created in the San Pedro Valley in what was once the Ohlone village of Pruristac (County of San Mateo Parks Department, 2019). The purpose of the outpost, called San Pedro y San Pablo, was to provide agricultural support to Mission Dolores. Crops included eight acres of corn, 36 acres of wheat, vineyards, and an orchard (City of Pacifica 2019). The outpost also included pastures for livestock, a granary, chapel, and living quarters (Babal 1990). By 1790, provisions for the mission came almost entirely from the San Pedro Valley. However, in 1791 an epidemic struck the community, killing much of the population and forcing San Pedro y San Pablo's operations to be transferred to a separate outpost located along San Mateo Creek. The mission outpost was abandoned by 1796 and remained in ruins until the Mexican government secularized the missions in 1833 (Babel 1990, City of Pacifica 2019).

Following secularization, "more than 100,000 acres in what is now San Mateo County was divided into eighteen land grant ranchos" (Babel 1990:14). Among these was a grant to Don Francisco Sanchez from Alta California Governor, Juan Alvarado on June 26, 1839. Rancho San Pedro consisted of two leagues of land, or 8,926-acres, the boundaries of which roughly parallel that of present-day City of Pacifica (San Mateo County Historical Association). From 1842 to 1846, Sanchez constructed an adobe house on the site of the abandoned San Pedro y San Pablo mission. From the time of Sanchez's death in 1862 to the mid-twentieth century, Sanchez Adobe changed hands several times and was used for various purposes including a hotel, bordello, speakeasy, bootleg saloon, hunting lodge, and an artichoke packing shed (City of Pacifica 2019).

In 1905, construction started on the Ocean Shore Railway. The line was planned as a high-speed, double-track electric line that would run 83 miles from 12th and Mission Street in San Francisco to Santa Cruz (Langhoff 1996). The railway was designed to follow the shoreline as closely as possible, in the hopes of attracting weary San Franciscans and tourists for weekend excursions to the beach. The railroad purchased land for use as a right-of-way as well as residential housing, industrial and commercial development (Whaley 2018). Several coastal suburbs were planned, including the construction of model homes that would later become Pacifica (Hall 2018). The Ocean Shore Railway also planned extensive resort-like development along the length of the route, though much of it never came to fruition.

After the 1906 San Francisco earthquake, the Ocean Shore Railway faced a series of financial setbacks, and as a result, the full route was never completed. In 1911 the Ocean Shore Railway reincorporated as the Ocean Shore Railroad. When operations ceased in 1920, the railroad ran south from San Francisco to Tunitas Glen, and north from Santa Cruz to Swanton. To complete the full route, passengers were bused via a Stanley Steamer for the 26-mile long middle leg (Hall 2018). The Ocean Shore Railroad made several stops in present-day Pacifica, including Tobin, Salada Beach, and Rockaway Beach (City of Pacifica 2014a). The railroad can be credited with the growth of several communities near the railroad stops, including Edgemar (the modern-day location of the Project site), Sharp Park, Pacifica Manor, Vallemar, Rockaway Beach, and San Pedro Terrace-by-the-Sea. Development continued through the building boom that followed

World War II. A few remnants of the Ocean Shore Railway exist today including a railway berm in Pedro Point, three railroad stations, and Car #1409, which is being restored by the Pacifica Coastside Museum.

Records Search Results

California Historical Resources Information System

A California Historical Resources Information System (CHRIS) record search from the Northwest Information Center (NWIC) was returned to MIG on May 17, 2019. The NWIC, an affiliate of the State of California Office of Historic Preservation, is the official State repository of cultural resource records and reports for San Mateo County.

The CHRIS Project area was an artificially generated rectangular area fully encompassing and exceeding the area of work. It was created to fully encompass the Project site before the full extent of the site was known. The CHRIS study area extended to 0.5 miles from the CHRIS Project area.

The records search also included a review of the following State and Federal inventories:

- Five Views: An Ethnic Historic Site Survey for California (California Office of Historic Preservation 1988);
- California Points of Historical Interest (California Office of Historic Preservation 2019);
- California Historical Landmarks (California Office of Historic Preservation 2019);
- National Register of Historic Places (US National Park Service, 2019).

The results revealed two built environment structures in the Project area (within 0.5 mile of the site). One structure called, 'The Bluffs,' is located 100 feet east of the site. It was found ineligible for both the National Register of Historic Places (NRHP) and the California Register of Historic Resources (CRHR) and is not considered to be a historic resource under either NEPA or CEQA.

In addition to these cultural resources, the CHRIS search revealed two cultural resource reports completed within the CHRIS Study Area. One of the reports was prepared to assess potential impacts from a proposed bike route project that included lane striping along Esplanade Avenue, and the other was prepared to assess the proposed installation of antennae and other cellular equipment on an existing apartment building in the vicinity of the Project on Esplanade Avenue. Neither report was deemed relevant to the Project as they did not involve subsurface excavation near the Project site.

A search of the National Register of Historic Places, California Points of Historical Interest, and California Historical Landmarks digital archives failed to reveal any resources within the CHRIS Study Area or the surrounding 0.5-mi radius (National Park Service 2019, and California Office of Historic Preservation 2019). The Sacred Lands File (SLF) search was returned with negative

results (NAHC 2019). Five Views: An Ethnic Historic Site Survey for California (California Department of Parks and Recreation, and Office of Historic Preservation 1988) does not reveal sites in the Project area or Study Area.

Native American Consultation

An SLF search was requested from the Native American Heritage Commission (NAHC). The search was returned to MIG on April 25, 2019. The NAHC identifies, catalogs, and protects Native American cultural resources -- ancient places of special religious or social significance to Native Americans, and known ancient graves and cemeteries of Native Americans on private and public lands in California. Tribal representatives, as recommended by the NAHC, were contacted as an extension of the SLF search.

Historic Resources

No listed or known potential National Register of Historic Places and/or California Register of Historical Resources are located within or adjacent to the Project site. No other significant or potentially significant local, state or federal cultural resources/historic properties, landmarks, points of interest, etc. have been identified within or adjacent to the Project site.

Paleontological Resources

The underlying geology of the Project site is in Franciscan Greenstone, part of the Franciscan Complex Formation (Cotton Shires & Associates 2019). Greenstone being a field term for is an altered or metamorphosed basic igneous rock (USGS 2020).

A paleontological search for previously discovered vertebrate fossils in the Project area was conducted through the San Diego Natural History Museum (SDNHM 2020). No results were located within a half-mile of the Project site, The only results in the geological vicinity were between two and three miles away, in a different geological formation, the Merced Formation.

4.4.2 Regulatory Setting

Federal

National Historic Preservation Act of 1966

Enacted in 1966, the National Historic Preservation Act (NHPA) (16 U.S.C §§ 470 et seq.) declared a national policy of historic preservation and instituted a multifaceted program, administered by the Secretary of the Interior, to encourage the achievement of preservation goals at the federal, state, and local levels. The NHPA authorized the expansion and maintenance of the National Register of Historic Places (NRHP), established the position of State Historic Preservation Officer (SHPO), provided for the designation of State Review Boards, set up a mechanism to certify local governments to carry out the purposes of the NHPA, assist Native American tribes in preserving their cultural heritage, and created the Advisory Council on Historic

Preservation (ACHP).

NHPA establishes the nation's policy for historic preservation and sets in place a program for the preservation of historic properties by requiring federal agencies to consider effects to significant cultural resources (i.e., historic properties) prior to undertakings.

Section 106 of the Federal Guidelines

Section 106 of the NHPA states that federal agencies with direct or indirect jurisdiction over federally funded, assisted, or licensed undertakings must take into account the effect of the undertaking on any historic property that is included in, or eligible for inclusion in, the NRHP and that the ACHP and SHPO must be afforded an opportunity to comment, through a process outlined in the ACHP regulations at 36 Code of Federal Regulations (CFR) Part 800, on such undertakings.

National Register of Historic Places

The NRHP was established by the NHPA of 1966 as "an authoritative guide to be used by federal, state, and local governments, private groups, and citizens to identify the Nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment." The NRHP recognizes properties that are significant at the national, state, and local levels. To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must also possess integrity of location, design, setting, materials, workmanship, feeling, or association. A property is eligible for the NRHP if it is significant under one or more of the following criteria:

Criterion A: It is associated with events that have made a significant contribution to the broad patterns of our history.

Criterion B: It is associated with the lives of persons who are significant in our past.

Criterion C: It embodies the distinctive characteristics of a type, period, or method of construction; represents the work of a master; possesses high artistic values; or represents a significant and distinguishable entity whose components may lack individual distinction.

Criterion D: It has yielded, or may be likely to yield, information important in prehistory or history.

Cemeteries, birthplaces, or graves of historic figures; properties owned by religious institutions or used for religious purposes; structures that have been moved from their original locations; reconstructed historic buildings; and properties that are primarily commemorative in nature are not considered eligible for the NRHP unless they satisfy certain conditions. In general, a resource must be at least 50 years of age to be considered for the NRHP, unless it satisfies a standard of exceptional importance.

Native American Graves Protection and Repatriation Act (NAGPRA) of 1990

The NAGPRA of 1990 sets provisions for the intentional removal and inadvertent discovery of human remains and other cultural items from federal and tribal lands. It clarifies the ownership of human remains and sets forth a process for repatriation of human remains and associated funerary objects and sacred religious objects to the Native American groups claiming to be lineal descendants or culturally affiliated with the remains or objects. It requires any federally funded institution housing Native American remains or artifacts to compile an inventory of all cultural items within the museum or with its agency and to provide a summary to any Native American tribe claiming affiliation.

State

California Environmental Quality Act (CEQA)

Pursuant to CEQA, a historical resource is defined as a resource listed in, or eligible for listing in, the California Register of Historical Resources (CRHR). In addition, resources included in a local register of historic resources or identified as significant in a local survey conducted in accordance with state guidelines are also considered historic resources under CEQA, unless a preponderance of the facts demonstrates otherwise. According to CEQA, the fact that a resource is not listed in or determined eligible for listing in the CRHR or is not included in a local register or survey shall not preclude a Lead Agency, as defined by CEQA, from determining that the resource may be a historic resource as defined in California Public Resources Code (PRC) Section 5024.1.

CEQA applies to archaeological resources when (1) the archaeological resource satisfies the definition of a historical resource or (2) the archaeological resource satisfies the definition of a "unique archaeological resource." A unique archaeological resource is an archaeological artifact, object, or site that has a high probability of meeting any of the following criteria:

- The archaeological resource contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information.
- The archaeological resource has a special and particular quality such as being the oldest of its type or the best available example of its type.
- The archaeological resource is directly associated with a scientifically recognized important prehistoric or historic event or person.

California Register of Historical Resources

Created in 1992 and implemented in 1998, the California Register of Historical Resources (CRHR) is "an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate properties that are to be protected, to the extent prudent and feasible, from substantial adverse change (CA Public Resources Code)." Certain properties, including those listed in or formally determined eligible for listing in the NRHP

and California Historical Landmarks (CHLs) numbered 770 and higher, are automatically included in the CRHR. Other properties recognized under the California Points of Historical Interest program, identified as significant in historic resources surveys, or designated by local landmarks programs may be nominated for inclusion in the CRHR. A resource, either an individual property or a contributor to a historic district, may be listed in the CRHR if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on NRHP criteria (Public Resources Code):

Criterion 1: It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

Criterion 2: It is associated with the lives of persons important in our past.

Criterion 3: It embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of an important creative individual; or possesses high artistic values.

Criterion 4: It has yielded, or may be likely to yield, information important in history or prehistory.

Resources nominated to the CRHR must retain enough of their historic character or appearance to be recognizable as historic resources and to convey the reasons for their significance. It is possible that a resource whose integrity does not satisfy NRHP criteria may still be eligible for listing in the CRHR. A resource that has lost its historic character or appearance may still have sufficient integrity for the CRHR if, under Criterion 4, it maintains the potential to yield significant scientific or historical information or specific data. Resources that have achieved significance within the past 50 years also may be eligible for inclusion in the CRHR, provided that enough time has lapsed to obtain a scholarly perspective on the events or individuals associated with the resource.

California Historical Landmarks (CHLs)

CHLs are buildings, structures, sites, or places that have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value and that have been determined to have statewide historical significance by meeting at least one of the criteria listed below. The resource must also be approved for designation by the County Board of Supervisors or the City or Town Council in whose jurisdiction it is located, be recommended

by the State Historical Resources Commission, or be officially designated by the Director of California State Parks. The specific standards in use now were first applied in the designation of CHL No. 770. CHLs No. 770 and above are automatically listed in the CRHR.

To be eligible for designation as a Landmark, a resource must meet at least one of the following criteria:

- The first, last, only, or most significant of its type in the state or within a large geographic

region (Northern, Central, or Southern California); or

- Associated with an individual or group having a profound influence on the history of California. A prototype of, or an outstanding example of, a period, style, architectural movement or construction or one of the more notable works or the best surviving work in a region of a pioneer architect, designer, or master builder.

California Points of Historical Interest

California Points of Historical Interest are sites, buildings, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. Points of Historical Interest (Point or Points) designated after December 1997 and recommended by the State Historical Resources Commission are also listed in the CRHR. No historic resource may be designated as both a Landmark and a Point. If a Point is later granted status as a Landmark, the Point designation will be retired. In practice, the Point designation program is most often used in localities that do not have a locally enacted cultural heritage or preservation ordinance.

To be eligible for designation as a Point, a resource must meet at least one of the following criteria:

- The first, last, only, or most significant of its type within the local geographic region (city or county).

- Associated with an individual or group having a profound influence on the history of the local area.

- A prototype of, or an outstanding example of, a period, style, architectural movement or construction or one of the more notable works or the best surviving work in the local region of a pioneer architect, designer, or master builder.

California Native American Historical, Cultural, and Sacred Sites Act

The California Native American Historical, Cultural, and Sacred Sites Act applies to both state and private lands. The act requires that upon discovery of human remains, construction or excavation activity must cease and the county coroner be notified.

Native American Heritage Commission, Public Resources Code Sections 5097.9–5097.991

Section 5097.91 of the Public Resources Code (PRC) established the Native American Heritage Commission (NAHC), whose duties include the inventory of places of religious or social significance to Native Americans and the identification of known graves and cemeteries of Native Americans on private lands. Under Section 5097.9 of the PRC, a state policy of noninterference with the free expression or exercise of Native American religion was articulated along with a prohibition of severe or irreparable damage to Native American sanctified cemeteries, places of worship, religious or ceremonial sites or sacred shrines located on public property. Section 5097.98

of the PRC specifies that in the event of human remains discovery, no further disturbance is allowed until the county coroner has made the necessary findings regarding the origin and disposition of the remains. If the remains are of a Native American, the county coroner must notify the NAHC. The NAHC then notifies those persons most likely to be related to the Native American remains. The code section also stipulates the procedures that the descendants may follow for treating or disposing of the remains and associated grave goods. Section 5097.5 defines as a misdemeanor the unauthorized disturbance or removal of archaeological, historic, or paleontological resources located on public lands.

California Native American Graves Protection and Repatriation Act of 2001

Codified in the California Health and Safety Code Sections 8010–8030, the California Native American Graves Protection Act (NAGPRA) is consistent with the federal NAGPRA. Intended to "provide a seamless and consistent state policy to ensure that all California Indian human remains, and cultural items be treated with dignity and respect," the California NAGPRA also encourages and provides a mechanism for the return of remains and cultural items to lineal descendants. Section 8025 established a Repatriation Oversight Commission to oversee this process. The act also provides a process for non–federally recognized tribes to file claims with agencies and museums for repatriation of human remains and cultural items.

Senate Bill (SB) 18

California Government Code, Section 65352.3 incorporates the protection of California traditional tribal cultural places into land use planning for cities, counties, and agencies by establishing responsibilities for local governments to contact, refer plans to, and consult with California Native American tribes as part of the adoption or amendment of any general or specific plan proposed on or after March 1, 2005. SB18 requires public notice to be sent to tribes listed on the Native American Heritage Commission's SB18 Tribal Consultation list within the geographical areas affected by the proposed changes. Tribes must respond to a local government notice within 90 days (unless a shorter time frame has been agreed upon by the tribe), indicating whether or not they want to consult with the local government. Consultations are for the purpose of preserving or mitigating impacts to places, features, and objects described in Sections 5097.9 and 5097.993 of the Public Resources Code that may be affected by the proposed adoption or amendment to a general or specific plan.

Assembly Bill (AB) 52

AB 52 specifies that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource, as defined, is a project that may have a significant effect on the environment. AB 52 provides for consultation between lead agencies and Native American tribal organizations during the CEQA process. It requires a lead agency to begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the Project, if the tribe requested to the lead agency, in writing, to be informed by the lead agency of proposed projects in that geographic area and the tribe requests consultation, prior to

determining whether a negative declaration, mitigated negative declaration, or environmental impact report is required for a project. AB 52 specifies examples of mitigation measures that may be considered to avoid or minimize impacts on tribal cultural resources. The bill makes the above provisions applicable to CEQA projects that have a notice of preparation or a notice of negative declaration filed or mitigated negative declaration on or after July 1, 2015. AB 52 amends Sections 5097.94 and adds Sections 21073, 21074, 2108.3.1., 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3 to the California Public Resources Code (PRC), relating to Native Americans. Because California Native American tribes have not requested that the City of Pacifica provide formal notification of proposed projects in the geographic area, consultation pursuant to AB 52 is not required for the proposed Project.

AB 52 amended the California Environmental Quality Act (CEQA) to address California Native American tribal concerns regarding how cultural resources of importance to tribes are treated under CEQA. CEQA now specifies that a project that may cause a substantial adverse change in the significance of a "tribal cultural resource" [as defined in PRC 21074(a)] is a project that may have a significant effect on the environment. According to the AB 52, tribes may have expertise in tribal history and "tribal knowledge about land and tribal cultural resources at issue should be included in environmental assessments for projects that may have a significant impact on those resources."

The AB 52 process entails the following:

- Upon deciding to undertake a project or deeming an application complete for a project requiring preparation of a Negative Declaration, Mitigated Negative Declaration (MND) or an Environmental Impact Report (EIR), the CEQA lead agency must provide notice of the project and the right to request formal consultation to any/all California Native American tribes that are traditionally and culturally affiliated with the geographic area of the proposed project, if the tribe(s) requested to the lead agency, in writing, to be informed by the lead agency of proposed projects in that geographic area and the tribe requests consultation.

- If the tribe(s) responds to the notice and timely requests formal consultation, the project MND or EIR cannot be released for public review until consultation between the tribe(s) and the lead agency is completed. Consultation ends when either the lead agency and the tribe(s) agree to measures to avoid or mitigate a significant effect on a tribal cultural

  resource (in which case the agreed upon mitigation measures shall be included in the MND or EIR) or when a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

AB 52 further defines the following legislative terms:

Tribal Cultural Resource: The passage of AB 52, created a new category of resource called a "tribal cultural resource" (TCR). The statute clearly identifies a TCR as a separate and distinct category of resource, separate from a historical resource. PRC Section 21074 defines a "tribal

cultural resource" as any of the following under its subsections (a) through (c):

(a) (1) Sites, features, places, and objects with cultural value to descendant communities or cultural landscapes that are any of the following:

- Included in the California Register of Historical Resources.
- Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
- Deemed to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1.

(a) (2) Sacred places, including, but not limited to, Native American sanctified cemeteries, places of worship, religious or ceremonial sites, or sacred shrines that meet either of the following criteria:

- Listed on the California Native American Heritage Commission's Sacred Lands File pursuant to Section 5097.94 or 5097.96 and a California Native American tribe has submitted sufficient evidence to the lead agency demonstrating that the sacred places are of special religious or cultural significance to the California Native American tribe or contain known graves and cemeteries of California Native Americans.
- Listed or determined pursuant to criteria set forth in subdivision (g) of Section 5024.1 to be eligible for listing in the California Register of Historical Resources.

(b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

(c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 also may be a tribal cultural resource if it conforms with the criteria of subdivision (a).

California Native American Tribe: PRC Section 21074 defines a "California Native American Tribe" to mean a Native American tribe located in California that is on the contact list maintained by the Native American Heritage Commission (NAHC). This definition is broader than the concept of a "federally recognized tribe" that is typically used to implement various federal laws, including the National Environmental Policy Act (NEPA).

Formal Tribal Consultation: 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 notice that includes a brief description

of the proposed project and its location as well as the lead agency contact information, and a notification statement that the federally recognized California Native American tribe has 30 days to request consultation.

Treatment of Mitigation Measures and Alternatives: PRC Section 21080.3.2 provides that as part of the consultation process, parties could propose mitigation measures. If the California Native American tribe requests consultation to include project alternatives, mitigation measures, or significant effects, the consultation would be required to cover those topics. PRC Section 21082.3 provides that any mitigation measures agreed upon during this consultation "shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring program" if determined to avoid or lessen a significant impact on a tribal cultural resource.

Health and Safety Code, Sections 7050 and 7052

Health and Safety Code Section 7050.5 declares that, in the event of the discovery of human remains outside a dedicated cemetery, all ground disturbances must cease, and the county coroner must be notified. Section 7052 establishes a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives.

Penal Code, Section 622.5

Penal Code Section 622.5 provides misdemeanor penalties for injuring or destroying objects of historic or archaeological interest located on public or private lands but specifically excludes the landowner.

Local

City of Pacifica General Plan 2040

The following policies are included in the Pacifica General Plan Conservation Element (2040).

- *CO-G-17 Historic and Cultural Sites.* Conserve designated historic and cultural sites and structures that help define Pacifica's identity and character and increase public awareness and appreciation of them.

- *CO-G-18 Ensure Mitigation.* Require mitigation for any new development that would adversely affect archaeological or paleontological resources.

- *CO-I-65 Historic Preservation Ordinance.* Continue to evaluate development projects for their historical significance and preservation value, using the criteria in the Historic Preservation Ordinance.

- *CO-I-66 Integration of Historic and Cultural Resources with City Identity.* Incorporate historic and cultural resources into the City's marketing and branding efforts.

- *CO-I-67 Public Agency Support for Local Historic Sites.* Seek support from public agencies, such as Golden Gate National Recreation Area, for local historic preservation programs for designated sites.

- *CO-I-68 Resource Impact Mitigation.* Ensure that new development analyzes and avoids potential impacts to historic, archaeological, and paleontological resources by:

    - Requiring a records review for development proposed in areas that are considered archaeologically or paleontologically sensitive;

    - Requiring pre-construction surveys and monitoring during any ground disturbance for all development in areas of historic or archaeological sensitivity; and

    - Implementing appropriate measures as a condition of project approval—such as avoidance, preservation in place, and excavation,—to reduce or avoid impacts.

- *CO-I-69 Adaptive Reuse.* Promote adaptive reuse of historic structures—preserving their original design and character—as an option for preserving sites that are threatened with demolition or degradation.

- *CO-I-70 Native American Sites.* Work with local Native American tribes to protect recorded and unrecorded cultural and sacred sites, and educate developers and the community-at-large about the connections between Native American history and the environmental features that characterize the local landscape.

City of Pacifica Local Coastal Land Use Plan (1980)

The City of Pacifica Local Coastal Land Use Plan contains the following that apply to cultural resources:

- *Coastal Act Policy 22.* Where development would adversely impact archeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.

- *Conclusion:* Historic buildings and sites shall be protected.

4.4.3 Thresholds of Significance

Per the CEQA Guidelines, implementation of the proposed Project would have a significant impact related to historic, cultural, or tribal cultural resources if it would:

a) Cause a substantial adverse change in the significance of a historic resource as defined by CEQA Guidelines Section 15064.5;

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines section 15064.5;

c) Disturb any human remains, including those interred outside of dedicated cemeteries?

d) Cause a substantial adverse change in the significance of a tribal cultural resources, 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:

    1. 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

    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 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

4.4.4 Impacts and Mitigation Measures

This section describes potential impacts related to cultural and tribal cultural resources which could result from the implementation of the proposed Project and recommends mitigation measures as needed to reduce significant impacts.

Impact CUL-1: The Project would not cause a substantial adverse change in the significance of a historical resource as defined by CEQA Guidelines Section 15064.5. (No Impact)

There are no built environment historic resources that remain within the Project area. The foundations of 310, 320, and 330 Esplanade are still in place, but the buildings have been demolished and have lost all potential historic integrity. There is no other known historic or modern development within the Project footprint.

Impact CUL-2: The Project would not cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines section 15064.5. (Less Than Significant With Mitigation Incorporated)

Although significant archaeological resources are known in the City, there are no known archaeological sites in the Project vicinity, and sizable areas in the Project vicinity have been previously disturbed to significant depths. It is not likely that there are archaeological remains within the Project area. Sand deposition may cover early Native American activity at depths on the beach within the littoral area; however, there is a low potential for such remains to have survived long enough in the beach environment to have been covered and preserved by layers of sand deposition. Also, as noted in the Project Description above, the bluff has receded by 200 feet since 1943. Therefore, the current beach where excavation is proposed was not a beach in prehistoric times. Previous ground moving associated with the construction of the buildings within the Project area is also likely to have destroyed any archaeological remains if any were present.

Although there is the potential for archaeological remains to exist below the level of ground disturbance on the cliff bluff, and at depths beneath beach sand, it is considered to have a low potential.

Due to the potential for the discovery of buried Native American archaeological remains (albeit low), the City of Pacifica's General Plan includes policies that are designed to safeguard impacts to historic and archaeological resources. Language from these policies are included as BMPs in the Project construction documents, and incorporated into the following mitigation measure that would reduce potential impacts to a less than significant level:

Impact CUL-1: The Project could inadvertently encounter cultural resources.

Mitigation Measure CUL-1: Inadvertent Discovery of Resources. In the event that historical, archaeological, tribal cultural, or paleontological resources are accidentally discovered during construction, grading activity in the immediate area shall cease and materials and their surroundings shall not be altered or collected. A qualified archaeologist or paleontologist must make an immediate evaluation, and avoidance measures or appropriate mitigation should be completed, according to CEQA Guidelines. The State Office of Historic Preservation has issued recommendations for the preparation of Archaeological Resource Management Reports that may be used as guidelines.

In the event that archaeological resources are discovered, the site should immediately be considered archaeologically sensitive and subject to the following conditions: development on archaeologically sensitive sites requires on-site monitoring by Native American consultant(s) if resources are Native American in origin in addition to a qualified archaeologist of all grading, excavation, and site preparation activities that involve earth-moving operations.

It is recommended that if a newly discovered resource is, or is suspected to be, Native American in origin, the resource shall be treated as a significant Tribal Cultural Resource, pursuant to California Public Resources Code 21074, until USACE has determined otherwise with the consultation of a qualified archaeologist and local tribal representative.

California laws and regulations state that if human remains are unearthed during construction, the County Coroner will be notified immediately, and no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission (NAHC). The NAHC shall then identify the person(s) thought to be the Most Likely Descendent.

Title to all archaeological sites and historic or cultural resources on or in the tide and submerged lands of California is Vested in the State under the jurisdiction of the State Lands Commission (Public Resources Code, §6313). If any cultural resources are

discovered on State lands during construction, the City shall consult with the State Lands Commission Staff Attorney, Jamie Garrett. Final disposition of archaeological, historical, and paleontological resources recovered on State lands under the jurisdiction of the State Lands Commission must be approved by the Commission.

These recommendations ensure that any resources present will be spotted, remain undamaged, and treated respectfully.

Impact CUL-3: The Project could potentially disturb human remains, including those interred outside of dedicated cemeteries. However, impacts would be reduced to less than significant levels with the implementation of General Plan policies. (Less Than Significant Impact)

As described above, the Project includes BMPs as part of Mitigation Measure CUL-1 that the City or the City's contractor would follow in the event human remains are discovered during construction. See discussion and analysis for Impact CUL-2, above.

Impact TRIB-1: The Project would not cause a substantial adverse change in the significance of a tribal cultural resources, 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). (Less Than Significant Impact)

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. (Less Than Significant Impact)

Under CEQA, a significant resource is one that is listed in a California or local historic register or is eligible to be listed. As such, lead agencies have a responsibility to evaluate such resources

against the California Register criteria prior to making a finding as to a proposed Project's impacts to historical resources (PRC § 21084.1, 20174, 14 CCR § 15064.5(3).

It is possible for a lead agency to determine that an artifact, site, or feature is considered significant to a local tribe, without necessarily being eligible for the CRHR. A determination of such by a lead agency would make an artifact a significant resource under CEQA.

No recorded Tribal Cultural Resources are known to be present at the area of proposed work or within a quarter-mile of said area, according to the aforementioned CHRIS record search via the NWIC at Sonoma State University.

The SLF search was negative for tribal resources in the Project area. Subsequent outreach was made to the tribal contacts provided by the NAHC for information on the location and nature of the resource(s) to determine if the Project would impact known resources. Certified letters were sent to tribal representatives by MIG staff on behalf of the City of Pacifica on April 25, 2019, informing them of the Project and requesting any information they may have about Tribal Cultural Resources in the vicinity of the Project. A follow up email message was sent to one of the representatives on August 2, 2019 after the original certified letter was returned. No specific information was provided by the tribal contacts regarding the location and nature of tribal resources in the area in response to the letters, therefore, there is no confirmed potential for impacting known tribal cultural resources.

The implementation of Mitigation Measure CUL-1 (see Response for Impact CUL-2, above) would safeguard any TCRs if they are found to be present.

4.4.5 References

Cotton Shires & Associates 2019. 310 - 330 Esplanade Infrastructure Preservation Project Geotechnical Investigation.

MIG. 2020. 310-330 Esplanade Infrastructure Preservation Project – Cultural Resource Evaluation. Prepared for City of Pacifica. May.

San Diego Natural History Museum, 2020. Paleontological Records Locality Search. Unpublished Personal Communication with MIG.

4.5 GEOLOGY AND SOILS

This section describes the existing geologic, groundwater, seismic, and soil characteristics of the Project area. It includes a description of the regulatory framework and analyzes impacts that could result from the implementation of the proposed Project. The discussions and analyses that follow are based in part on a Geotechnical Investigation prepared by Cotton, Shires & Associates, Inc., dated April 2019. A copy of the report is attached as Appendix B to this EIR.

4.5.1 Environmental Setting

Existing Terrain

The top of the costal bluff at 310 – 330 Esplanade Avenue is relatively level and is roughly 60 to 70 feet wide between Esplanade Avenue and the steep bluff face with top elevations ranging from 97 to 100 feet (NAVD88). The base of the bluff varies from about elevation 14 to 20 (NAVD88). The elevation of the base of the bluff also varies seasonally as the beach sand tends to be pulled offshore by the higher energy waves that occur during the winter and carried back by the lower energy waves during the summer.[12] The bluff face is inclined at roughly 62 to 70 degrees (which is coincident to an active wedge angle based on a friction angle of 42 degrees) and oriented towards the west. The beach typically slopes gently down at an approximate 8:1 (H:V) slope between the toe of the bluff and ordinary high tide. An intermittent, up to 25 feet wide, riprap revetment is located adjacent to the toe of the bluff.

Geologic Setting

The Project site is located within the Coast Ranges geomorphic province. The Coast Ranges geomorphic province is bordered by the Pacific Ocean to the west and by the Great Valley geomorphic province to the east. In general, the Coast Ranges geomorphic province is comprised of mountain ranges and valleys that trend northwest subparallel to the San Andreas Fault. The subject site lies on the Pacific tectonic plate approximately ¾ mile southwest of the San Andreas Fault, the major transform boundary that separates the Pacific Plate from the North American tectonic plate. The subject site is located within a basin that collects sediment eroded from the surrounding hillsides. At depth, the subject site is underlain by greenstone bedrock of the Franciscan Complex. No bedrock is exposed at the subject site; however, Franciscan Complex greenstone is exposed in the bluffs approximately 2,200 feet to the north and south of the site. Above the Franciscan Complex bedrock are thick layers of Marine Terrace Deposits. In general, the Terrace Deposits encountered in the Project area consisted of well sorted sand and minor

[12] UC Santa Barbara.Explore Beaches.Accessed on 4.6.23 at: https://explorebeaches.msi.ucsb.edu/sandy-beach-life/sand-movement.

amounts of silty sand. A regional geologic map of the area indicates that the bluff consists of Marine Terrace Deposits capped by Dune Sands and the surrounding hillsides are composed of Franciscan Complex bedrock.

Seismic Setting

The 310 - 330 Esplanade Avenue site is situated in an area of high seismicity. The nearest and controlling active fault, with respect to site seismicity, is the San Andreas Fault which is located approximately 3/4 mile (2.5 km) to the northeast.

Surface Conditions

Various attempts were made to arrest the bluff retreat and protect the apartment buildings formerly located on the site, including constructing a 20-foot long sand berm along the toe of the bluff in 2008, placing 6,000 tons of riprap in 2009, placing an additional 2,000 tons of 4- to 6-ton riprap at the toe of the bluff in 2009, and constructing the upper portion of a soil nail and shotcrete wall around 2010. Portions of the riprap are still visible adjacent to the base of the bluff; however, there is no indication or documentation about how deep the revetment was installed. Similarly, a remnant of a shotcrete and soil nail facing is visible near the top of the bluff face at 330 Esplanade Avenue.

Presently, varying sizes of riprap are exposed along the beach (coincident with 310 to 330 Esplanade Avenue), close to and against the toe of the bluff. The exposed riprap is not continuous and the width varies. Sandy terrace deposits in the exposed bluff face and isolated pockets of slope debris along the toe of the bluff are also present.

Subsurface Conditions

Subsurface testing included four deep exploratory borings drilled from the surface of the blufftop at 310, 320 and 330 Esplanade Avenue to a depth of 100 to 175 feet. The testing revealed one to three feet of silty sandy artificial fill, overlying terrace deposits of silty sand and poorly graded sand that extended to the bottoms of the borings. The sands in the upper 15 to 18 feet of the borings were loose to medium dense, while the material below 15 to 18 feet was dense to very dense.

Groundwater

The Geotechnical Investigation did not determine accurate measurements of groundwater depths due to the drilling method for the subsurface testing. However, it did note that a previous investigation for a nearby property we encountered sea water in test pits excavated into terrace deposits at the beach level at elevation 5.0 feet during a +2.0-foot tide.

Hydrology

The existing relatively level portions of 310 – 330 Esplanade Avenue occupy approximately 2/3 of an acre on the top of the coastal bluff. Following the seawall construction, these three lots will

be graded to uniformly slope toward Esplanade Avenue (east) to direct stormwater sheet flow towards Esplanade Avenue and away from the bluff face, and be covered with relatively permeable materials including native plantings.

Faulting and Seismicity

The San Francisco Bay Area contains numerous active faults and is considered seismically active. Numerous small earthquakes occur every year in the San Francisco Bay Region, and larger earthquakes have been recorded and can be expected to occur in the future. The City lies within the Coast Range Geomorphic province. Much of the Coast Range province is composed of marine sedimentary deposits and volcanic rocks that form northwest trending mountain ridges and valleys, running subparallel to the San Andreas Fault Zone. West of the San Andreas Fault lies the Salinian Block, a granitic core that extends from the southern end of the province to north of the Farallon Islands.

Modern seismic activity within the Coast Range continues to be associated with movement along the San Andreas system of faults. Regionally, this fault system is the boundary between large sections, or plates, of the earth's crust known as the North American Plate and Pacific Plate. The Bay Area is considered an area of high seismic activity, with an estimated 72 percent probability of an earthquake of magnitude 6.7 or higher occurring in the region over the next 30 years (Pacifica 2022). The San Andreas Fault and associated Alquist Priolo Zone are located on the northeast side of the City approximately 0.72 miles away.

Liquefaction

Liquefaction occurs when loose, saturated sandy soils lose strength and flow like a liquid during earthquake shaking. Ground settlement often accompanies liquefaction. Soils most susceptible to liquefaction are saturated, loose, silty sands, and uniformly graded sands. Liquefaction is most often triggered by seismic shaking, but can also be due to improper grading, landslides, or other factors. The Project site is shown within a liquefaction hazard zone according to Figure 8-1 Seismic Hazard Zones in the General Plan (Pacifica 2022).

Landslides

Landslides are downward and outward movements of slope-forming materials such as rock, soil and/or artificial fill. The general characteristics that influence landslide hazards include slope material, slope steepness, water content, vegetation coverage and proximity to areas of erosion or man-made cuts.

The best predictor of where slides might occur is the location of past movements. The Project site is shown within a landslide hazard zone according to Figure 8-1 Seismic Hazard Zones in the General Plan (Pacifica 2022).

Lateral Spreading

Lateral spreading involves lateral ground movements caused by seismic shaking. These lateral ground movements are often associated with a weakening or failure of an embankment or soil mass overlying a continuous layer of liquefied sand or weak soils. Lateral spreading is generally the most pervasive and damaging type of liquefaction-induced ground failure generated by earthquakes.

Expansive Soils

Expansive soils contain higher levels of clay which expand and shrink depending on water content. Consequently, expansive soils present hazards for structures that were not appropriately engineered.

Subsidence

Subsidence—the sinking of a portion of the ground surface—can occur from immediate settlement, consolidation, shrinkage of expansive soil, and liquefaction. Earthquakes could also cause subsidence and it can also occur due to excess extraction of groundwater.

Soil Erosion

Erosion is the wearing away of soil and rock by processes such as mechanical or chemical weathering, mass wasting, and the action of waves, wind and underground water. Excessive soil erosion can eventually lead to damage of building foundations and roadways. The parts of the City where soils are most susceptible to erosion caused by wind or rainfall include the northern slope of Mori Point; upper Sharp Park; Shamrock Ranch; and along San Pedro Creek in San Pedro Valley County Park. Bluff erosion is commonplace along much of the Pacifica coastline such as the erosion occurring in the Project area.

The bluff face in the proposed Project area is approximately 85 feet tall and mainly composed of moderately cemented fine sand that is subject to extreme wave force scour, bluff failures, and erosion. The Geotech Report revealed that between 1943 and 2017 the coastal bluff adjacent to 310 – 330 Esplanade Avenue retreated approximately 200 feet (average of 2.7 feet per year), and between 2004 and 2017 the bluff retreated approximately 70 to 80 feet, an average of about 5.4 feet per year (Cotton Shires and Associates 2019). As noted above, the Project seeks to prevent further erosion from occurring in order to protect the City's infrastructure at Esplanade Avenue.

Paleontological Resources

Paleontology is a branch of geology that studies the life forms of the past, especially prehistoric life forms, through the study of plant and animal fossils. Paleontological resources represent a limited, non-renewable, and impact-sensitive scientific and educational resource. As defined in this section, paleontological resources are the fossilized remains or traces of multi-cellular

invertebrate and vertebrate animals and multi-cellular plants, including their imprints, from a previous geologic period.

Fossil remains such as bones, teeth, shells, and leaves are found in the geologic deposits (rock formations) where they were originally buried. Paleontological resources include not only the actual fossil remains, but also the collecting localities, and the geologic formations containing those localities. Paleontological resources preserve an aspect of Northern California's scientific prehistory that is important in understanding the development of the region as a whole.

Protection of potential paleontological resources can be achieved by estimating the probability of finding such resources in the Project area, looking for formations in which they occur, and taking precautions, such as construction monitoring in areas with equivalent or similar formations, to avoid damaging sites.

4.5.2 Regulatory Setting

State

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act regulates development in California near known active faults due to hazards associated with surface fault ruptures. As noted above, the San Andreas Fault and associated Alquist Priolo zone occur in the northeastern portion of the City, but outside of the Project footprint.

Seismic Hazard Mapping Act

The Seismic Hazard Mapping Act was passed in 1990 following the Loma Prieta earthquake to reduce threats to public health and safety and to minimize property damage caused by earthquakes. The act directs the U.S. Department of Conservation to identify and map areas prone to the earthquake hazards of liquefaction, earthquake-induced landslides, and amplified ground shaking. The act requires site-specific geotechnical investigations to identify potential seismic hazards and formulate mitigation measures prior to permitting most developments designed for human occupancy within the Zones of Required Investigation.

California Building Code

The 2019 California Building Codes (CBC) covers grading and other geotechnical issues, building specifications, and non-building structures.

California Public Resources Code

Section 5097 of the Public Resources Code specifies the procedures to be followed in the event of the unexpected discovery of historic, archaeological, and paleontological resources, including human remains, historic or prehistoric resources, paleontological resources on nonfederal land.

The disposition of Native American burials falls within the jurisdiction of the California Native American Heritage Commission (NAHC). Section 5097.5 of the Code states the following:

> *No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.*

Local

Local Hazard Mitigation Plan

In 2021, City developed a Local Hazard Mitigation Plan which evaluated the City's exposure to natural hazards and identified mitigation strategies as part of a San Mateo County-wide effort to update the San Mateo County Multi-Jurisdictional Local Hazard Mitigation Plan (MJ-LHMP). Pacifica's Local Hazard Mitigation Plan (LHMP) is an annex to the MJ-LHMP. It was adopted by City Council 2021.

The MJ-LHMP notes Pacifica's vulnerability to ground shaking, liquefaction, and subsidence caused by potential seismic activity along the San Andreas fault. It also describes Pacifica's susceptibility to landslides and slope failures, which can be caused by earthquakes, hillside erosion, or coastal erosion. Major landslides in Pacifica have been triggered by heavy rainfall. Coastal erosion is another serious hazard that exists in Pacifica, as bluffs are progressively undercut by wave action and eroded from above by rainfall, with the most severe erosion occurring during winter storms.

The MJ-LHMP concludes that landslide/mass movements, which includes traditional landslides as well as coastal erosion, and earthquakes, with the potential to cause ground shaking, liquefaction, and landslides, are Pacifica's two highest priorities for the mitigation of geologic and seismic hazards. All goals and policies in the adopted MJ-LHMP are applicable to the Proposed Project, including those that concern geologic hazards.

City of Pacifica General Plan 2040

Pacifica updated the General Plan in 2022. The Seismic and Geologic Hazards Element details known and potential hazards from hillside erosion and landslides; coastal erosion; seismic events; and other issues. Relevant Policies include:

- *SA-I-6 Restrictions on Mitigation Measures***.** Prohibit mitigation measures for potential geotechnical hazards if those measures could adversely affect surrounding property, including the use of public rights-of-way or adversely affect public health, safety, and welfare.

- *SA-I-7 Erosion Prevention***.** Require erosion prevention of hillside areas by revegetation or other acceptable methods.

- *SA-I-8 Geotechnical Studies*. Within the Coastal Zone and hillside areas, continue to require geotechnical site investigation for proposed development on sites located in any of the following areas, prior to allowing site development:

    - On slopes greater than 15 percent.

    - In areas showing evidence of landslides or landslide potential.

    - In areas showing evidence of ground shaking or earth movement

    - Within 50 feet of a coastal bluff

    - Within sand dune areas.

- SA-I-10 Soil Study. Require any geotechnical studies to include study of expansive and creeping soils, as well as analysis of erosion, seismic, tsunami, and other geotechnical hazards and make recommendations, as warranted.

- *SA-I-11 Grading and Drainage Plans*. Continue to require a grading and drainage plan for proposed development requiring a coastal development permit and a grading permit. The Plan should demonstrate how the Project will maintain natural surface drainage and existing vegetation to the greatest extent feasible, by minimizing alteration of natural topography and removal of existing trees and vegetation; stabilizing cut-and-fill surfaces with native vegetation; restricting the movement of heavy equipment and machinery; and other means. Prohibit development-related grading and vegetation clearance on slopes steeper than 35 percent. Driveways and utilities may be allowed in the case that there is no less environmentally damaging alternative for providing access to the building site.

- *SA-I-12 Bluff Drainage and Erosion*. The City will pursue feasible funding mechanisms to investigate areas that may be significantly contributing to groundwater flows to the bluffs and determine whether improving drainage and/or reducing irrigation could reduce bluff erosion. Measures to improve drainage and reduce over-watering shall be communicated to the public and property owners as part of existing water conservation outreach programs, and included as conditions on new development where applicable.

- *SA-I-15 New Development in Coastal Zone***.** Continue to enforce provisions of the California Coastal Act requiring new development within the Coastal Zone to:

    - Minimize risks to life and property in areas of high geologic, flood, or fire hazard;

    - Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area

or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs;

- Not accelerate the need for a shoreline structure or increase the likelihood of a future seawall beyond the existing development's expected life; and

- Not violate required setback provisions.

City of Pacifica Local Coastal Plan 1980

The following criteria are applicable to the Project in order to conserve the soil and to protect people from geotechnical hazards in these and adjacent areas:

- A geological report shall be prepared by a registered geologist before new development is permitted on blufftops or steep (35% +/- slope) parcels. Items examined should include geologic: and seismic stability, the appropriate hazard setback from bluff edges to protect structures during their economic life (i.e., net developable area), and specific recommendations for type of construction, drainage, landscaping, irrigation, beach access (if determined to be safe for the public) and mitigation of other identified problems.

- The "net developable area" of the site shall be the basis for determining intensity of use, i.e., number of units allowed under the land use and zoning designations.

- Unless no other buildable area exists on the parcel, development shall be prohibited on slopes in excess of 35 percent and on bluff faces, except for drainage improvement~ and necessary shoreline protection structures.

4.5.3 Thresholds of Significance

Per the CEQA Guidelines, implementation of the Project would have a significant impact related to geology and soils if it would:

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; or

   iv. Landslides;

b) Result in substantial soil erosion or the loss of topsoil;

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse;

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property; or

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 geological feature.

4.5.4 Impacts and Mitigation Measures

This section describes potential impacts which could result from the implementation of the Project and recommends mitigation measures as needed to reduce significant impacts.

Impact GEO-1: The Project would not directly or indirectly cause potential substantial adverse effects involving faults, liquefaction, or seismic-related ground failure. (Less than Significant Impact)

No active faults have been recognized on, or mapped through the Project site; therefore, there are no Alquist Priolo Earthquake Fault zones are mapped trending through or immediately adjacent to the Project site. The site is located roughly 0.72 miles away from the primary mapped trace of the San Andreas Fault.

Seismic ground shaking associated with a large earthquake on the San Andreas Fault is considered to be a high potential hazard at the Pacifica coastal bluffs. Peak ground accelerations of up to 1.23g should be anticipated at the site. Seismically-induced ground failure mechanisms include fault rupture, lurching, landslides, liquefaction, dry densification, and lateral spreading.

The potential for lurching due to earthquake shaking is considered to be moderate due to the relative low blow counts of the near-surface material. Due to the over-steepened slope, the potential for seismically induced bluff failure above the proposed seawall is considered to be high. However, a seismically induced bluff failure will likely be shallow and not impact the Esplanade Avenue infrastructure. The potential for a seismically triggered bluff failure that could impact the proposed seawall is considered to be high. Consequently, the wall should be designed to resist seismically triggered bluff failures that could impact the wall.

The potential for deep landsliding, which could impact (undermine) the Esplanade Avenue infrastructure, is considered to be low because the underlying terrace deposits at depth are dense.

Soil liquefaction is a phenomenon in which a saturated, cohesionless or non-plastic, near-surface soil layer loses strength during cyclic loading (such as that typically generated by earthquakes).

During the loss of strength, the soil develops mobility sufficient to permit both horizontal and vertical movements. Soils that are most susceptible to liquefaction are loose, saturated, fine-grained sands and non-plastic silts and clays that are generally located within 50 feet of the ground surface. Due to the depth of groundwater (groundwater is estimated at a depth of 7 to 10 feet below the beach elevation at the wall site), and the dense underlying material, the potential for liquefaction is considered to be low, except in the beach sand area which is considered to be high. However, liquefaction in the beach sand should not adversely impact the integrity of the seawall or the 310 – 330 Esplanade Avenue infrastructure. The seawall would be anchored to the underlying terrace deposits by sheet piles that extend 20 feet deep below the surface and are not in contact with the beach sand, as well as attached to the face of the bluff with tensioned tiebacks. Existing infrastructure in Esplanade Avenue has no physical contact with the beach sand, which is located approximately 65 to 85 feet to the west of and approximately 85 feet lower in elevation than Esplanade Avenue.

The proposed Project's purpose is to address the current erosion and landslide/bluff failure hazard present at the Project site. Based on the geotechnical investigation, the potential for future coastal bluff failures and upslope propagation of the bluff toward Esplanade Avenue due to calving type landslides and/or erosion was determined to be high. The investigation also noted that the failures/retreat and upslope propagation of shallow failures occur primarily during winter months coinciding with periods of high tides and/or high wave energy. The proposed Project therefore includes the construction of a seawall at the base/toe of the bluff in order to preserve Esplanade Avenue infrastructure from coastal bluff retreat. The geotechnical investigation determined that if the base of the bluff is adequately protected with a seawall, the unsupported portion of the bluff above the seawall will continue to experience raveling and erosion/bluff retreat until ultimately achieving equilibrium at a relatively stable static inclination of approximately 40 to 50 degrees. The Project, by constructing the proposed seawall which would be designed to resist seismically triggered bluff failures and protect the base of the bluff would therefore not directly or indirectly cause potential substantial adverse effects involving faults, liquefaction, or seismic-related ground failure, and would result in a less than significant impact.

Impact GEO-2: The Project would not result in substantial soil erosion or the loss of topsoil. (Less Than Significant Impact)

As previously described in Chapter 3.0 Project Description, the Project design would anticipate erosion of the bluff, with the unsupported portion of the bluff above the seawall continuing to experience raveling and erosion/bluff retreat until ultimately reaching an equilibrium at a static inclination of approximately 40 to 50 degrees. This design reflects the anticipated amount of erosion and raveling that would occur naturally, regardless of whether or not a seawall is constructed, and provides the basis for location of the seawall. The seawall is designed to prevent additional erosion after the bluff reaches static equilibrium. Because the Project would not

exacerbate the naturally-occurring erosion and raveling of the bluff but would in fact prevent additional erosion and raveling, it would therefore not result in substantial soil erosion or the loss of topsoil.

After final grading on the top of the bluff, the existing vacant lots at 310, 320 and 330 Esplanade Avenue would be uniformly graded to drain (very gently) towards Esplanade Avenue; consequently, the potential for runoff from the lots to adversely impact the bluff face would be low. In addition, the proposed revegetation of the blufftop with native plantings and the use of pervious paving materials for pedestrian paths would further reduce the potential for erosion. The Project would therefore not result in substantial soil erosion or the loss of topsoil and would result in a less than significant impact.

Impact GEO-3: The Project would not directly or indirectly cause potential substantial adverse effects involving landslides or be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project. (Less Than Significant Impact)

Dry densification is a process that causes cohesionless loose soils located above the groundwater surface to densify and settle during cyclic loading (such as that typically generated by earthquakes). Based on the loose to medium dense consistency of the sandy material encountered in the near -surface materials of the blufftop, there is a moderate potential for dry densification of this material. However, dry densification on the blufftop would not be expected to adversely impact the 310 – 330 Esplanade Avenue infrastructure, as seismically-induced bluff failure would likely be shallow. Potential impacts to the seawall would be reduced by its design to resist seismically-triggered bluff failures.

Due to the slope of the beach sand towards the ordinary high tide line, the potential for lateral spreading in the beach sand is considered to be high. However, due to the sheet pile wall forming a barrier, lateral spreading in the beach sand would be contained to the beach west of the wall and would not adversely impact the integrity of the seawall.

The design of the proposed seawall and sheet pile wall would resist potential impacts from seismically-induced bluff failures. Therefore, the Project would not directly or indirectly cause potential substantial adverse effects involving landslides or be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and would result in a less than significant impact.

Impact GEO-4: The Project would not involve expansive soils, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property. (Less than Significant Impact)

The Project involves the installation a seawall to protect the area from further coastal bluff retreat and protect City infrastructure along Esplanade Avenue. The Project may occur in expansive soils, however, the sandy soils are not expansive, and the Project would not include construction of habitable structures and is not expected to create substantial risks to life or property because of

expansive soil. The impact is considered less than significant.

Impact GEO-5: The Project would not involve 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. (No Impact)

The Project involves the installation a seawall along the toe of a coastal bluff slope. Septic tanks or alternative wastewater facilities are not included as part of the proposed Project.

Impact GEO-6: The Project would not cause a substantial adverse impact to unique paleontological resources or sites or unique geological features. (Less Than Significant Impact)

There are no known geologic features that fit this description or that could reasonably be construed as unique geological features in the Project vicinity. Although the cliff bluffs are a notable geologic feature, they are not dissimilar to cliffs along long stretches of the California coastline. There would be no impact to unique geologic features.

The underlying geology of the Project site is in Franciscan Greenstone, part of the Franciscan Complex Formation (Cotton, Shires & Associates 2019). Greenstone is an altered or metamorphosed basic igneous rock. Both igneous and metamorphic rocks are extremely unlikely to contain fossilized material. A paleontological search for previously discovered vertebrate fossils in the Project area was conducted through the San Diego Natural History Museum (MIG 2020). No results were located within a half-mile of the Project site. The only results in the geological vicinity were between two and three miles away, in a different geological formation, the Merced Formation.

Due to the unlikelihood of the discovery of fossilized material in the underlying bedrock of the area, the chance of discovery of a unique paleontological resource is extremely limited, and there is a less than significant impact to unique paleontological resources.

4.5.5 References

City of Pacifica. 1980. Local Coastal Land Use Plan. March 24. Reprinted May 1989. Second Printing: August 1992.

City of Pacifica. 2022. General Plan 2040. July

MIG. 2020. Unpublished personal communication, email between MIG and San Diego Natural History Museum. April 9.

Cotton, Shires & Associates, Inc. Geotechnical Investigation – 310-320 Esplanade Infrastructure Preservation Project – Pacifica, California. April 2019.

Macrostrat 2022. Macrostrat Geologic Map. Accessed April 11, 2022 at https://macrostrat.org/map/#/z=14.0/x=-122.4795/y=37.6599/bedrock/lines/fossils

4.6 HAZARDS AND HAZARDOUS MATERIALS

This section describes the existing hazards and hazardous materials within the Project area. It includes a description of the regulatory framework and analyzes impacts that could result from the implementation of the proposed Project.

4.6.1 Environmental Setting

A "hazardous material" is defined by the California Health and Safety Code Section 25501 as "any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment." Products as diverse as gasoline, paint solvents, film solvents, household cleaning products, refrigerants and radioactive substances are categorized as hazardous materials. What remains of hazardous material after use, or processing, is considered to be hazardous waste.

The Project is located along a coastal bluff between Esplanade Avenue and the ocean. The site previously contained multifamily residential uses, and other residential uses currently surround the site. These types of uses do not typically use significant amounts of hazardous materials. Hazardous materials testing, including testing for asbestos materials and lead based paint, was conducted prior to the demolition of the apartment homes on 310-330 Esplanade Avenue to ensure the safe handling and removal of these materials.

A search of the Department of Toxic Substances EnviroStor database revealed there are no hazardous materials cleanup sites near the proposed Project's location. Several former leaking underground storage tank sites associated with gas station uses appear on the State Water Resources Control Board's GeoTracker database near the Project site, however these cleanup sites are considered "Completed – Case Closed.". These records include:

- Chevron 9-5085 (T0608100133), 329 Palmetto Avenue, Pacifica, CA 94044, approximately 500 feet northeast of the Project site
- Shell (T0608100309), 75 Aura Vista, Pacifica, CA 94044, approximately 1,000 feet southeast of the Project site
- Arco #433 (T0608100039), 498 Palmetto Avenue, Pacifica, CA 94044, approximately 1,700 feet southeast of the Project site.

4.6.2 Regulatory Setting

Federal

U.S. Environmental Protection Agency (EPA)

The U.S. EPA regulates chemical and hazardous materials use, storage, treatment, handling, transport, and disposal practices. It protects workers and the community (along with CalOSHA, see below) and integrates the Federal Clean Water Act and Clean Air Act into California Legislation.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)

Adopted in 1980, CERCLA was developed to remove contamination of water, air, and land resources caused by past chemical disposal practices. Also known as the "Superfund Act," CERCLA contains a list of sites referred to as Superfund sites, on which there is an imminent threat to human health. CERCLA collects taxes from the chemical and petroleum industries to fund the clean-up of abandoned or uncontrolled hazardous sites.

The Resources Conservation and Recovery Act (RCRA)

RCRA is a federal law that regulates hazardous wastes from a 'cradle-to-grave' approach, meaning that all hazardous wastes are tracked and strictly regulated from generation to disposal, and waste generators are required to report use or transport of hazardous wastes to the U.S. EPA. Hazardous waste generators range from small producers such as dry cleaners and automobile repair facilities to larger producers such as hospitals and manufacturing operations. The U.S. EPA categorizes Small Quantity Generators (SQG) as those facilities that produce between 220.5 and 2,205 pounds (i.e., 100 and 1,000 kilograms) of hazardous waste per month. Facilities producing less than 220.5 pounds of hazardous waste per month are not subject to RCRA. Large Quantity Generators (LQG) produce 2,205 pounds or more hazardous waste per month. LQG and SQG facilities are subject to the storage and transportation requirements of RCRA.

The Federal Emergency Planning and Community Right-To-Know Act (EPCRA)

Enacted to inform communities and residents of chemical hazards in their area, EPCRA requires the U.S. EPA to maintain and publish a list of toxic chemical releases, known as the Toxic Release Inventory. Facilities required to report include industrial uses that manufacture, process, or use significant amounts of chemicals. Reporting includes types and amounts of chemicals that are released each year into the air, water, and land or transferred off-site. Listing as a Toxic Release Inventory facility doesn't necessarily mean that releases are harmful to humans or the environment.

Federal Occupational Safety and Health Administration (OSHA)

OSHA is an agency that establishes and enforces federal regulations related to health and safety of workers exposed to toxic and hazardous materials. OSHA also sets health and safety guidelines for construction activities and manufacturing facility operations.

U.S. Department of Transportation (DOT)

The U.S. DOT regulates the shipment of hazardous material. It also administers the Hazardous Materials Transportation Uniform Safety Act (HMTUSA) to clarify conflicting state, local, and federal regulations. HMTUSA requires the Secretary of Transportation to promulgate regulations for the safe transport of hazardous material in intrastate, interstate, and foreign commerce. The Secretary also retains authority to designate materials as hazardous when they pose unreasonable risks to health, safety, or property.

State

California Occupational Safety and Health Administration (CalOSHA)

CalOSHA is the agency that is responsible for promulgating and enforcing state health and safety standards and implementing federal OSHA Laws. For example, CalOSHA's regulatory scope includes provisions to minimize the potential for release of asbestos and lead during construction and demolition activities.

California Environmental Protection Agency (Cal EPA)

Cal EPA implements and enforces a statewide hazardous materials program known as the Certified Unified Program Agency established by Senate Bill 1802 to enable counties and local government to enforce the administrative requirements, permits, inspections, and enforcement activities for the following environmental and emergency management programs for hazardous materials:

- Hazardous Materials Release Response Plans and Inventories (Business Plans)
- California Accidental Release Prevention Program
- Underground Storage Tank Program
- Aboveground Petroleum Storage Act Requirements for Spill Prevention, Control, and Countermeasure Plans
- Hazardous Waste Generator and On-site Hazardous Waste Treatment Programs
- California Uniform Fire Code, Hazardous Materials Management Plans, and Hazardous Material Inventory Statements

CUPAs are accountable for carrying out responsibilities previously handled by approximately 1,300 different state and local agencies.

Cal EPA Office of Emergency Services (CalEPA/OES)

Cal EPA/OES establishes regulations governing the use of hazardous materials in the state to protect air, water, and soil. Cal EPA/OES also coordinates state and local agencies and resources for educating, planning, and warning citizens of hazardous materials and related emergencies, including organized response efforts in case of emergencies.

California Department of Toxic Substances Control (DTSC)

The DTSC regulates hazardous substances and wastes, oversees remedial investigations, protects drinking water from toxic contamination, and warns the public that could potentially be exposed to listed carcinogens. The DTSC evaluates and provides technical assistance for the Hazardous Waste Generator Program, including Onsite Treatment (Tiered Permitting) and the RCRA. In addition, EnviroStor is the DTSC's data management system for tracking cleanup, permitting, enforcement and investigation efforts at hazardous waste facilities and sites with known contamination or sites where there may be reasons to investigate further. There are no waste sites currently mapped on the DTSC EnviroStor website within a mile of the Project site (DTSC EnviroStor).

Coastal Zone

The California Coastal Act of 1976 included thirty-three coastal policies which were intended to form the parameters for planning the State's Coastal Zone. Unlike the General Plan where the policies evolved from public input (primarily workshops) and then formed the basis for land use decisions, in coastal planning the policies are given. The following hazardous materials policy is applicable to the Project:

- *Chapter 3, Article 4 (Marine Environment), Section 30232 Oil and Hazardous Substance Spills* - Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development of transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.

Cortese List

California Government Code Section 65962.5 established the "Cortese List," which requires state agencies to compile a list of all properties affected by hazardous waste and develop a framework for how they will continue to be monitored and addressed by the State. A site's presence on the list has bearing on the local permitting process as well as on compliance with the California Environmental Quality Act (CEQA). Below are the data resources that provide information regarding the facilities or sites identified as meeting the "Cortese List" requirements:

- List of hazardous waste and substances sites from Department of Toxic Substances Control (DTSC) EnviroStor database
- List of leaking underground storage tank sites from the State Water Board's GeoTracker database
- List of solid waste disposal sites identified by the State Water Resources Control Board (SWRCB) with waste constituents above hazardous waste levels outside the waste management unit
- List of "active" Cease and Desist Orders and Cleanup and Abatement Orders from SWRCB
- List of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code, identified by DTSC.

California Porter Cologne Water Quality Control Act

Division 7 of the California Water Code (Water Code) identifies the enforcement and implementation obligations of the Regional Water Quality Control Board to remedy discharges to surface waters or groundwater that would or could violate water quality standards. Standard remedies include issuance of Cease-and-Desist Orders and cleanup and abatement procedures.

Regional

Regional Water Quality Control Board (RWQCB)

One of nine regional boards in the State, the San Francisco Bay Regional Water Quality Control Board (RWQCB) protects surface and groundwater quality from pollutants discharged or threatened to be discharged to the waters of the State. The RWQCB issues and enforces National Pollutant Discharge Elimination System (NPDES) permits and regulates leaking underground storage tanks and other sources of groundwater contamination.

The RWQCB most recently re-issued the Municipal Regional Stormwater NPDES Permit (MRP) in May 2022 to regulate stormwater discharges from municipalities and local agencies (co-permittees) in Alameda, Contra Costa, San Mateo, and Santa Clara Counties, and the cities of Fairfield, Suisun City, and Vallejo.

Bay Area Air Quality Management District

The Bay Area Air Quality Management District (BAAQMD) regulates the demolition and renovation of buildings and structures that may contain asbestos, and the manufacture of materials known to contain asbestos. The BAAQMD is vested with authority to regulate airborne pollutants through both inspection and law enforcement, and is to be notified 10 days in advance of any proposed demolition or abatement work. BAAQMD regulations must always be followed when removing asbestos or demolishing buildings.

Local

City of Pacifica Local Coastal Land Use Plan 1980

The City of Pacifica Local Coastal Land Use Plan, certified in 1980 and currently in effect, contains the following policy regarding hazardous materials:

Coastal Act Policies

13. Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.

City of Pacifica General Plan 2040

The currently adopted General Plan 2040 contains the following policies related to Hazards and Hazardous Materials:

- *SA-I-2 Development in Hazardous Areas.* Prohibit development in areas of mostly landslides or high or very high liquefaction risk as shown in Figure 8-2, or on slopes steeper than 35 percent, unless detailed site investigations ensure that risks can be reduced to acceptable levels and the structure will be protected for its design life.

- *SA-I-9 Maintain Restrictions on Hazardous Areas.* Continue enforcing the existing Coastal Zone Combing District and Hillside Preservation District regulations that restrict development in hazardous areas where access is impractical and areas prone to hillside and coastal erosion, landslides, seismic shaking, tsunami inundation, or flooding.

- *SA-I-15 New Development in Coastal Zone***.** Continue to enforce provisions of the California Coastal Act requiring new development within the Coastal Zone to:

    - Minimize risks to life and property in areas of high geologic, flood, or fire hazard;

    - Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs;

    - Not accelerate the need for a shoreline structure or increase the likelihood of a future seawall beyond the existing development's expected life; and

    - Not violate required setback provisions.

4.6.3 Significance Thresholds

Per the CEQA Guidelines, implementation of the proposed Project would have a significant impact related to hazards and hazardous materials if it would:

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 development within the project area 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; or

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

4.6.4 Impacts and Mitigation

This section describes potential impacts related to hazards and hazardous materials which could result from the implementation of the proposed Project and recommends mitigation measures as needed to reduce significant impacts.

Impact HAZ-1: The Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. (Less Than Significant Impact)

Hazardous materials include substances that are flammable, corrosive, explosive, radioactive, infectious, thermally unstable, and poisonous. The Project proposes the construction of a seawall to protect the City's infrastructure. Once installed, there would be no operational use of hazardous materials in maintaining the seawall. Use of hazardous materials would be limited to small quantities of construction fuels and fluids during the short-term construction period. These

materials would be stored and used in accordance with the manufacturer's specifications. In addition, the Project would be subject to conformance with the Construction General Permit, which requires the development and implementation of a SWPPP, which in turn contains BMPs for the fueling, washing, and maintenance of vehicles to avoid and contain fluid leaks and for the proper storage, containment and cleanup of spills of hazardous materials. Compliance with these BMPs would reduce any chance of upset conditions to less than significant levels and consequently would ensure that the Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Impact HAZ-2: The Project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. (Less Than Significant Impact)

The proposed construction of a seawall would not include the use of hazardous materials following completion of Project construction. Construction of the Project would involve the use of hazardous materials (fuels, oils and other vehicle-related products). These materials would be used in relatively small quantities, and in compliance with local and state safety requirements. Waste management and materials pollution control BMPs include designated areas for material delivery and storage, materials use, stockpile management, spill prevention and control, solid and hazardous waste management, contaminated soil, concrete waste, sanitary/septic, and liquid waste management would also be implemented as required at the construction site. As noted previously, the Project would also be subject to implementation of hazardous materials management BMPs during construction. With the implementation of these BMPs, the proposed Project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving hazardous materials.

Impact HAZ-3: The 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. (Less Than Significant Impact)

The proposed Project site is approximately 0.2 mile northwest of the Ocean Shore Elementary School located just east of Highway 1 at 411 Oceana Boulevard. Project construction would involve the installation of sheet pile walls and structural shotcrete anchored to the bluff using high tensioned tiebacks. Potentially hazardous construction emissions are evaluated in Chapter 4.2 Air Quality. The analysis described in Chapter 4.2 concluded that construction emissions would not significantly affect nearby sensitive receptors. Therefore, the proposed Project would not create a significant hazard to schools in the vicinity.

Impact HAZ-4: The Project area does not contain sites that are included on lists of hazardous materials sites compiled pursuant to Government Code Section 65962.5, therefore the Project would result in less than significant impacts. (Less Than Significant Impact).

The following resources were searched for sites present in the vicinity of the Project Site including DTSC's EnviroStor database (DTSC 2022), State Water Resources Control Board's GeoTracker

database (SWRCB 2022), CalEPA's list of solid waste disposal sites identified by the Water Board with waste constituents above hazardous waste levels outside the waste management unit (CalEPA 2023), CalEPA's list of "active" cease and desist and cleanup abatement orders (CalEPA 2023b), and list of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code, identified by DTSC (DTSC 2023). None of these resources contained sites on or immediately adjacent to the Project site, therefore, the Project site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (otherwise known as the Cortese List). The impact is considered less than significant.

Impact HAZ-5: The Project is not located within two miles of an airport and would not result in a safety hazard or excessive noise for people residing or working in the Project area. (No Impact)

The Project site is located approximately 5 miles west of the nearest airport, San Francisco International Airport. Therefore, the Project would not result in a safety hazard or excessive noise for people residing or working in the Project area.

Impact HAZ-6: The Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (Less Than Significant Impact)

The Project is the installation of a seawall along a coastal bluff to protect the City's infrastructure. The construction contractor would maintain access for emergency vehicles on public roadways for the duration of construction and therefore would not significantly impair or physically interfere with an adopted emergency evacuation plan. After Project construction is completed, there would be no impediment to vehicular or emergency vehicle access. Thus, the proposed Project would have a less-than-significant impact to emergency plans.

Impact HAZ-7: The Project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires. (No Impact)

The Project site is not within the wildland-urban interface (ABAG 2022). The nearest mapped wildland-urban interface is located approximately 0.3 mile south of the site. The Project does not propose new habitable or occupied structures within areas designated within the wildland-urban interface and is therefore not subject to wildfire-related building practices.

4.6.5 References

Association of Bay Area Governments (ABAG). Bay Area Hazards: Wildland-Urban Interface. Accessed April 12, 2022 at https://mtc.maps.arcgis.com/apps/mapviewer/index.html?layers=d45bf08448354073a26675776f2d09cb

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California Environmental Protection Agency (CalEPA). 2021. Cortese List Data Resources, Solid Waste Disposal Sites. Accessed April 12, 2022 at: https://calepa.ca.gov/wp-content/uploads/sites/6/2016/10/SiteCleanup-CorteseList-CurrentList.pdf.

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4.7 HYDROLOGY AND WATER QUALITY

This section describes the existing hydrologic and water quality conditions within the Project area. It includes a description of the regulatory framework and analyzes impacts that could result from the implementation of the proposed Project.

4.7.1 Environmental Setting

Climate

The climate in the area of the Project site is coastal Mediterranean, with most rain falling in the winter and spring. Fog and cool temperatures are common in the summer. Rainfall averages about 20 to 25 inches per year at lower elevations and up to 36 inches in the Santa Cruz Mountains (BAAQMD 2019b) with an average temperature range from 46ºF to 62ºF. Elevations within the study area range from approximately 10 feet to 100 feet above sea level.

The Project area is in the Big Inch Watershed according to Map 7-1 of the City's General Plan (City of Pacifica 2022), an area without creeks where stormwater runoff drains to the Pacific Ocean through the City's storm drain system. There are 21-inch and 51-inch diameter storm drain lines located in Esplanade Avenue and Bill Drake Way, respectively, that serve the Project area. These storm drain lines are part of a network of underground storm drain pipes that convey stormwater runoff collected by curb inlets in neighborhood streets to an outfall located opposite of Bill Drake Way and west of Esplanade Avenue, where the stormwater is discharged to the ocean.

The study area is within the San Pedro Valley groundwater basin. Alluvial deposits consisting primarily of clays, sands, silts, and some gravels are found throughout the majority of the basin and are the primary water-bearing formation in the Project area (City of Pacifica 2022).

4.7.2 Regulatory Setting

In addition to CEQA, other federal and state laws and local regulation apply to hydrology and water quality. Each of these laws and regulations is identified and discussed below.

Federal

Clean Water Act

The Clean Water Act (CWA) is the primary federal legislation governing water quality and forms the basis for several state and local laws throughout the nation. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Important and applicable sections of the Act are:

- Section 404 authorizes the United States (U.S.) Army Corps of Engineers (USACE) to regulate the discharge of dredged or fill material to waters of the U.S., including wetlands. The USACE issues individual site-specific or general (Nationwide) permits for such discharges.

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines. The state implements Section 303 through the State Water Resources Control Board and Regional Water Quality Control Board (RWQCB), as discussed below. Section 304 requires the U.S. EPA to publish water quality criteria that accurately reflects the latest scientific knowledge on the kind of effects and extent of effects that pollutants in water may have on health and welfare. Section 304 also provides guidance to the state in adopting water quality standards.

- Section 401 requires an applicant for any federal permit that proposes an activity that may result in a discharge to "waters of the U.S." to obtain certification from the state that the discharge will comply with other provisions of the CWA. In California, a Water Quality Certification is provided by the State Water Resources Control Board and/or RWQCB.

- Section 402 establishes the NPDES, which is a permitting system for the discharge of any pollutant (except for dredge or fill material) into waters of the U.S. In California, this permit program is administered by the RWQCBs, and is discussed in detail below.

The CWA provides jurisdiction over waters of the United States and authorizes the United States Environmental Protection Agency (EPA) to implement water quality regulations. The intent of the CWA is to maintain and restore the chemical, physical, and biological integrity of the waters of the United States. The CWA includes regulatory and nonregulatory guidance to reduce direct and indirect pollution discharges into waterways.

National Pollutant Discharge Elimination System

The CWA has nationally regulated the discharge of pollutants to the waters of the U.S. (e.g., streams, lakes, bays, etc.) from any point source since 1972. In 1987, amendments to the CWA added Section 402(p), which established a framework for regulating nonpoint source storm water discharges under the NPDES permit program. These regulations are implemented at the regional level by the RWQCBs. The City of Pacifica is within the jurisdiction of the San Francisco Bay RWQCB.

Section 402(p) of the CWA establishes the NPDES permit program. The NPDES permit program regulates stormwater discharges into the waters of the United States. The EPA has given authority for NPDES permitting to the California State Water Resources Control Board (SWRCB) and the nine regional water quality boards. The San Francisco Bay Regional Water Quality Control Board (RWQCB) regulates water quality for the City of Pacifica.

National Flood Insurance Program

The National Flood Insurance Program branch of the Federal Emergency Management Agency (FEMA) maintains maps of floodways and floodplains for the United States. FEMA maps these areas on Flood Insurance Rate Maps or FIRMs. A typical FIRM will show specific flood hazard areas, flood risk zones, and floodplains at a local level of detail. In some identified flood hazard zones, certain types of construction and/or uses are prohibited or property owners are required to carry flood insurance. The western portion of the study area adjacent to the Pacific Ocean is in Special Flood Hazard Area Zone VE, which is defined as Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. The eastern portion of the study area is in Zone X, an area of minimal flood hazard.

State

Porter-Cologne Water Quality Control Act

The state's Porter-Cologne Water Quality Control Act, as revised in January 2023 (California Water Code Sections 13000-14290), provides for protection of the quality of all waters of the State of California for use and enjoyment by the people of California. It further provides that all activities that may affect the quality of waters of the state shall be regulated to obtain the highest water quality that is reasonable, considering all demands being made and to be made on those waters. The Act also establishes provisions for a statewide program for the control of water quality, recognizing that waters of the state are increasingly influenced by interbasin water development projects and other statewide considerations, and that factors such as precipitation, topography, population, recreation, agriculture, industry, and economic development vary regionally within the state. The statewide program for water quality control is, therefore, administered most effectively on a local level with statewide oversight. Within this framework, the Act authorizes the State Water Resources Control Board and RWQCBs to oversee the coordination and control of water quality within California.

The Act provides the basis for water quality regulation within California. It defines water quality objectives as the limits or levels of water constituents that are established for protection of beneficial uses. The SWRCB administers water rights, water pollution control, and water quality functions throughout California. The RWQCB conducts planning, permitting, and enforcement activities. The act requires the RWQCB to establish water quality objectives for specific water bodies. The RWQCB has prepared the San Francisco Bay Basin Plan (Basin Plan), which establishes water quality objectives and implementation programs to meet these objectives (see Regional section below). Additionally, the Act authorizes the NPDES program and permit requirements for the City of Pacifica.

State Water Resources Control Board

Created by the California State Legislature in 1967, the State Water Resources Control Board (SWRCB) holds authority over water resources allocation and water quality protection within the

State. The five-member SWRCB allocates water rights, adjudicates water right disputes, develops statewide water protection plans, establishes water quality standards, and guides the nine RWQCBs. The mission of the SWRCB is to, "preserve, enhance, and restore the quality of California's water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations." The proposed Project is under the jurisdiction of the San Francisco Bay RWQCB.

Statewide Construction General Permit

The SWRCB has implemented an NPDES General Construction Permit for the State of California (Construction General Permit). For projects disturbing one acre or more of soil, a Notice of Intent (NOI) and Storm Water Pollution Prevention Plan (SWPPP) must be prepared by a qualified professional prior to commencement of construction. The Construction General Permit includes requirements for training, inspections, record keeping, and, for projects of certain risk levels, monitoring. The general purpose of the requirements is to minimize the discharge of pollutants and to protect beneficial uses and receiving waters from the adverse effects of construction-related storm water discharges.

Projects that disturb one (1) or more acres of soil are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009-DWQ (Construction General Permit). Construction activity subject to this permit includes clearing, grading and disturbances to the ground such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer. Typical best management practices (BMPs) contained in SWPPPs are designed to minimize erosion during construction, stabilize construction areas, control sediment, control pollutants from construction materials, and address post construction runoff quantity (volume) and quality (treatment). The SWPPP must also include a discussion of the program to inspect and maintain all BMPs.

Construction Dewatering Permit

The RWQCB construction dewatering permit is required for construction activities such as excavating and trenching in areas with shallow groundwater. Dewatering is regulated under state requirements for stormwater pollution prevention and control. Discharge of non-stormwater from an excavation or trench that contains sediments or other pollutants to water bodies is prohibited. Discharge of uncontaminated groundwater from an excavation or trench is a conditionally exempted discharge by the RWQCB. Since the removed water could be contaminated by chemical released from construction equipment, disposal of this water would require permits either from the RWQCB for discharge to surface creeks or local agencies for discharge to sewers. Dewatering operations would require a NPDES permit, or an exemption, from the RWQCB, which would establish discharge limitations for specific chemicals, as applicable.

Regional

San Francisco Bay Basin Plan

The Basin Plan contains descriptions of the technical, legal, and programmatic bases of water quality regulations for the San Francisco Bay Region, which includes the City of Pacifica. The Basin Plan defines beneficial uses for water bodies in the region. The beneficial uses listed for water bodies in the City of Pacifica are Municipal and Domestic Supply, Body Contact Recreation, Noncontact Recreation, Warm Freshwater Habitat, Cold Freshwater Habitat, Fish Migration, Fish Spawning, Wildlife Habitat, Freshwater Replenishment, and Preservation of Rare and Endangered Species.

The 2007 Basin Plan contains descriptions of the technical, legal, and programmatic bases of water quality regulations for the San Francisco Bay Region, which includes the City of Pacifica. The Basin Plan defines beneficial uses for water bodies in the region. The beneficial uses listed for water bodies in the City of Pacifica are Municipal and Domestic Supply, Body Contact Recreation (REC-1), Noncontact Recreation (REC-2), Warm Freshwater Habitat, Cold Freshwater Habitat, Fish Migration, Fish Spawning, Wildlife Habitat, Freshwater Replenishment, and Preservation of Rare and Endangered Species.

Municipal Regional Permit

The San Francisco Bay RWQCB most recently re-issued the MRP in May 2022 to regulate stormwater discharges from municipalities and local agencies (co- permittees) in Alameda, Contra Costa, San Mateo, and Santa Clara Counties, and the cities of Fairfield, Suisun City, and Vallejo. Under Provision C.3 of the MRP, new and redevelopment projects that create or replace 10,000 square feet or more of impervious surface area are required to implement site design, source control, and Low Impact Development (LID)-based stormwater treatment controls to treat post-construction stormwater runoff. LID-based treatment controls are intended to maintain or restore the site's natural hydrologic functions, maximizing opportunities for infiltration and evapotranspiration, and using stormwater as a resource (e.g., rainwater harvesting for non-potable uses). The MRP also requires that stormwater treatment measures be properly installed, operated, and maintained. The 10,000-square foot minimum impervious area threshold will be reduced to 5,000 square feet for most projects, beginning in July 2023. The applicability of these requirements to the proposed Project will be determined at the time of the final design of the asphalt path to be constructed on the blufftop as part of the proposed restoration plan. The requirements would apply if the total area of the path, which is impervious, would equal or exceed 5,000 square feet.

In addition to water quality controls, the MRP requires new development and redevelopment projects that create or replace one acre or more of impervious surface to manage development-related increases in peak runoff flow, volume, and duration, where such hydromodification is likely to cause increased erosion, silt pollutant generation, or other impacts to local rivers, streams, and creeks.

Projects may be deemed exempt from these requirements if they do not meet the minimum size threshold, drain into tidally influenced areas or directly into the Bay, or drain into hardened channels, or if they are infill projects in subwatersheds or catchment areas that are greater than or equal to 65 percent impervious.

Local

San Mateo Countywide Water Pollution Prevention Program

The San Mateo Countywide Water Pollution Prevention Program is the local agency responsible for the oversight of implementation of the applicable provisions, including Provision C.3 of the MRP by local jurisdictions within San Mateo County. Participating agencies, including the City of Pacifica, must comply with the MRP by ensuring that development and redevelopment mitigate water quality impacts to stormwater runoff during construction and operation phases of projects.

Local Hazard Mitigation Plan

Pacifica's Local Hazard Mitigation Plan (LHMP) was adopted in 2005, updated in 2016, and updated again most recently in 2021. The LHMP examines Pacifica's vulnerability to flooding during and after intense storms as well as the potential effects of other hazards. It notes that approximately 384 flood insurance policies are in effect in the City of Pacifica covering approximately $85 million in property value. The MJ-LHMP concludes that Pacifica's two highest priorities for mitigation are landslide/mass movements, including coastal erosion, which can result in sudden losses of property and property damage; and, earthquakes, which may cause ground shaking, liquefaction, and landslides. The Pacifica Annex of the LHMP notes a key hazard encountered in the City during the past five years has been coastal erosion at the northern and central extents of the Pacifica coastline. Mitigation actions addressing these issues were prioritized for consideration in the action plan for the Pacifica Annex. The following Actions listed in the Hazard Mitigation Action Plan are relevant to the Project:

- *Action PAC-9*—Pacifica will pursue opportunities to preserve and protect critical transportation infrastructure (including Beach Blvd.) to mitigate against isolation, economic loss and ensure public safety.

- *Action PAC-11*—Pacifica will preserve, protect, or relocate hazard prone infrastructure to maintain critical services and maintain the environment.

City of Pacifica Municipal Code

The City of Pacifica's municipal code includes the following applicable codes related to hydrology and flooding (City of Pacifica, 2020):

Title 7 Public Works, Chapter 5 Flood Damage Prevention, Article 5 Provisions for Flood Hazard Reduction:

- Sec. 7-5.501. Standards of construction.

- Sec 7-5.507. Coastal high hazard areas.

City of Pacifica Local Coastal Land Use Plan 1980

The 1980 LCLUP contains the following policy that is relevant to water quality and hydrology in the Project area.

- *Policy 12.* The biological productivity and the quality of coastal, waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharge and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

City of Pacifica General Plan 2040 (June 2022)

The General Plan 2040 aims to ensure that the goals of the California Coastal Act are furthered by land use actions and policies that affect land within the Coastal Zone as defined by the California Coastal Commission. The City's zoning code features a Coastal Zone Combining District, with development regulations based on Coastal Act goals. These include the provision of public access to the shoreline and recreational opportunities, the protection and enhancement of the coastal environment, and the prioritization of coastal-dependent and visitor-serving uses. The following policies are relevant to water quality and hydrology in the Project area.

- *CO-G-1 Water Quality.* Support the improvement of Pacifica's water quality, including both surface water and groundwater, through Best Management Practices (BMPs) for stormwater management, stream restoration, and riparian habitat restoration.

- *CO-I-10 Stormwater Discharge.* Ensure compliance with the Municipal Regional Permit, the Construction General Permit, and the Construction Dewatering Permit, which regulate stormwater discharge from new and existing development.

- *CO-I-11 Protect Water Quality through Best Management Practices.* Continue to require the use of best management practices to reduce water quality impacts from construction and development. Measures include:

    - Site Design and Source Control. Ensure that all new development incorporates site design and source control BMPs into the project design in order to preserve the infiltration, purification, and retention functions of each site's natural drainage systems, and to prevent or minimize the runoff of pollutants, sediments, waste, and pathogens from the site.

  - Construction Pollution Control. Require all construction projects to adopt measures to avoid when possible or minimize erosion and runoff of pollutants and sediments from construction-related activities, and to limit activities that result in the disturbance of land or natural vegetation.

  - Construction projects will be required to use appropriate erosion prevention techniques, sediment control measures, and best management practices in accordance with City specifications and the San Mateo Countywide Water Pollution Prevention Program.

  - Treatment Control. Require that new development implement treatment control BMPs (or structural treatment BMPs) where the combination of site design and source control BMPs is not sufficient to protect water quality and comply with applicable water quality permits.

  - Site Design and Source Control. Ensure that all new development incorporates site design and source control BMPs into the project design in order to preserve the infiltration, purification, and retention functions of each site's natural drainage systems, and to prevent or minimize the runoff of pollutants, sediments, waste, and pathogens from the site

- *CO-I-13 Erosion Control.* Manage erosion in the Planning Area, particularly in watershed areas, though on-site erosion control.

- *CO-I-14 Minimize Site Disturbance.* Require use of best practices during development design and construction to preserve natural resources, such as soil, trees, native plants and permeable surfaces.

- *CO-I-15 Reduce Impervious Surfaces.* Enable natural drainage by reducing the amount of impervious surfaces on a development site, whenever feasible.

- *CO-I-16 On-site Stormwater Management***.** Continue to require all small projects and detached single-family home projects, as defined under the NPDES Permit, to incorporate site design measures that facilitate groundwater recharge and natural hydrological processes, allowing stormwater to infiltrate the ground on-site and/or be collected for reuse in landscaping and designated to on-site stormwater detention facilities.

- *CO-I-16.1 Runoff Capacity Management***.** Require new development for all project types to include storm drainage design that results in runoff below or equal to pre-development conditions.

4.7.3 Thresholds of Significance

Consistent with CEQA Guidelines Appendix G, the Project would have a significant impact on hydrology and water quality if it would:

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;

a) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; or

b) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

4.7.4 Impacts and Mitigation Measures

This section describes potential impacts related to hydrology and water quality which could result from the implementation of the proposed Project and recommends mitigation measures as needed to reduce significant impacts.

Impact HYD-1: The Project would not violate any water quality standard or waste discharge requirements or otherwise substantially degrade surface or ground water quality. (Less Than Significant Impact)

The proposed Project would not violate any water quality standards or waste discharge requirements. The Project would not impact water quality over the long term. However, the proposed Project could impact water quality during the short-term construction period through the accidental release of construction fuels or fluids or through an increase in sedimentation or erosion due to ground disturbance. The sheet piles would be installed above the high tide line under dewatered conditions. No vehicles or heavy equipment would be operated in open water habitat.

During all construction in and near tidal aquatic habitat, standard BMPs will be used to minimize erosion and impacts to water quality. The Project would be subject to conformance with the Construction General Permit, which requires the development and implementation of a SWPPP, which in turn contains BMPs for the management of hazardous materials as well as erosion and sediment control during construction. The following BMPs, described in Section 4.3.4 of the Biological Resources chapter, are also included in the Project to minimize erosion, impacts to water quality, and impacts to special-status species:

- The contractor shall monitor the tides and coordinate work to avoid construction activities in open water habitat. The timing and elevation of tides can be monitored by checking the San Francisco NOAA tidal station (# 9414290) found online at https://tidesandcurrents.noaa.gov/noaatidepredictions.html?id=9414290. Because the Project area is approximately 16 miles south of the tidal station, the actual timing and elevation of tides needs to be adjusted specifically for the Project area.

- No vehicles or heavy equipment shall be operated in open water habitat.

- Equipment staging and parking of vehicles shall occur on defined staging areas only.

- The integrity and effectiveness of erosion control measures shall be inspected on a daily basis or as required under the approved SWPPP. Corrective actions and repairs shall be carried out immediately for ineffective BMPs.

- Fueling, washing, and maintenance of vehicles shall occur in the defined staging areas, away from open water habitat. Equipment shall be regularly maintained to avoid fluid leaks. Any leaks shall be captured in containers until equipment is moved to a repair location. Hazardous materials shall be stored only within the defined staging areas. Containment and cleanup plans shall be prepared and implemented for the immediate cleanup of fluid or hazardous materials spills.

- Sediment-laden water shall not be allowed to enter the ocean.

- All litter and construction debris shall be disposed of off-site in accordance with state and local regulations. All trash and debris within the work area shall be placed in containers with secure lids before the end of work each day to reduce the likelihood of predators being attracted to the site by discarded food wrappers and other rubbish. If containers meeting these criteria are not available, all rubbish shall be removed from the study area on a daily basis.

Absorbent materials designated for spill containment and clean-up activities shall be available on site for use in an accidental spill.

With the development and implementation of a SWPPP that contains BMPS to minimize erosion, impacts to water quality and biological resources, the Project would not violate any water quality

standard or waste discharge requirements or otherwise substantially degrade surface or ground water quality and would result in a less than significant impact.

Impact HYD-2: The Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin. (No Impact)

The proposed Project is a new seawall to prevent coastal bluff erosion and protect existing infrastructure. The Project would not require the use of groundwater. Therefore, the Project would not affect groundwater supplies, quality, or management.

Impact HYD-3: The Project would not 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 result in substantial erosion or siltation on- or off-site, substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; 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 impede or redirect flood flows. (Less Than Significant Impact)

The proposed Project is a new seawall designed to prevent coastal bluff erosion and protect existing infrastructure. The Project would not alter any creeks in the area. An 8-foot wide asphalt trail will be constructed on the top of the bluff as part of the proposed restoration plan, however, the final design and alignment of the path has not been determined at this time. If the final design of the path results in a total surface area that exceeds the MRP threshold for Regulated Projects (5,000 square feet as of July 1, 2023) then the Project would be required to conform to the MRP requirements for providing appropriate site design, source control and on-site treatment measures as prescribed in the MRP (Provision C.3).

During Project construction, BMPs would be utilized to protect water quality and prevent erosion and sedimentation (see Impact HYD-1 discussion, above). After construction of the seawall is completed, the blufftop between 310 and 330 Esplanade Avenue would be recontoured to ensure that the blufftop slopes uniformly towards Esplanade Avenue to direct stormwater sheet flow, towards Esplanade Avenue and away from the bluff face. After construction of the seawall, during the winter months (e.g., November through January), the top of the bluff would be revegetated with native, drought tolerant species suitable for blufftop habitat to protect the bluff from surface runoff and associated erosion. Therefore, the Project would not result in substantial erosion or siltation on- of off-site; substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; 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 impede or redirect flood flows.

Impact HYD-4: The Project is located in an area subject to flood and tsunami hazards, however the risk of release of pollutants is low as the Project is a shoreline protection structure. (Less Than Significant Impact)

The western portion of the study area adjacent to the Pacific Ocean is in Special Flood Hazard Area Zone VE, which is defined as Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. The western portion of the study area is also in a tsunami hazard zone (California Department of Conservation 2021). However, the proposed Project is a new seawall to prevent coastal bluff erosion and protect existing infrastructure. BMPs to prevent the accidental release of hazardous materials are incorporated in the Project during construction (see Impact HYD-1 discussion, above). Following construction, inundation of the new seawall is not expected to release pollutants because no hazardous materials would be used in the seawall. The seawall is designed to regularly withstand partial inundation by wave action, high tides, and storm tides and therefore would result in a less than significant impact regarding the risk of release of pollutants.

Impact HYD-5: The Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. (No Impact)

The proposed Project would not conflict with a water quality control plan or sustainable groundwater management plan. As stated in the discussion of Impact HYD-1, BMPs are incorporated into the Project to protect water quality during construction and no water quality impacts are anticipated following construction. As stated in the discussion of Impact HYD-2, the Project would not utilize groundwater or increase impervious surface area such that groundwater recharge would be impeded. Therefore, the Project would not inhibit water quality control or groundwater management.

4.7.5 References

FEMA. Flood Insurance Rate Maps, San Mateo County, California and Incorporated Areas, Map Nos. 06081C0038F. August 2, 2017.

California Department of Conservation. 2009. San Mateo County Tsunami Hazard Areas. Accessed April 8, 2022 at: https://www.conservation.ca.gov/cgs/tsunami/maps/san-mateo

City of Pacifica 1980. Local Coastal Land Use Plan. March 24.

City of Pacifica. 2022. General Plan 2040. June.

MIG. 2019. 310-330 Esplanade Infrastructure Preservation Project General Biological Resources Assessment (GBRA). October.

4.8 LAND USE

This EIR section addresses the Project's potential impacts on land use and planning and suggests mitigation measures, if required.

4.8.1 Environmental Setting

The Project site is located in the City of Pacifica on parcels that had buildings removed because they were condemned due to public safety concerns associated with hazardous conditions from the adjacent retreating blufftop. The site's General Plan Designation is High Density Residential (up to 16-21 units per acre or up to 31 units per acre allowed for senior or affordable housing with Bonus program) and the current zoning is R-3.

4.8.2 Regulatory Setting

Local

Local Coastal Land Use Plan

The California Coastal Act requires every city and county lying partly or wholly within the Coastal Zone to prepare a Local Coastal Program (LCP). The LCP consists of a local coastal land use plan (LCLUP) which specifies the intended uses of land within the Coastal Zone; and an implementation plan comprised of the zoning ordinances, zoning district maps, and other actions which taken together implement the local coastal land use plan and Coastal Act provisions. These provisions seek to ensure that public access to and along the shoreline is maintained; that water quality, marine life, and environmentally sensitive habitat areas are protected; and that coastal visual resources and special communities are preserved. The Coastal Act calls for certain land uses within the Coastal Zone to have priority over other uses: recreation and visitor-serving uses, fishing, boating, and other coastal-dependent uses, and public works and industrial facilities needed to support priority uses.

Pacifica's current Local Coastal Land Use Plan (LCLUP) was adopted in 1980. The heart of the LCLUP is a detailed description of each coastal neighborhood, and a statement of land use and coastal access policies for each neighborhood. The LCLUP follows with a detailed description of each existing or proposed beach access point (the Access Component) and concludes with a set of policies to achieve the Coastal Act goals. In February 2020, an update to the LCLUP was approved by the City Council and it was sent to the California Coastal Commission in June 2020. It is currently being reviewed by the Commission (certification is pending).

The1980 LCLUP, currently in effect, contains the following Coastal Act policies applicable to the proposed Project.

- *Policy 12:* The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and

for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of wastewater discharge and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging wastewater reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

- *Policy 16:* Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fish kills should be phased out or upgraded where feasible.

- *Policy 18:* Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on such resources shall be allowed within such areas. Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade such areas and shall be compatible with the continuance of such habitat areas.

- *Policy 27*: New or expanded public works facilities shall be designed and limited to accommodate needs generated by development or uses permitted consistent with the provisions of this policy; provided, however, that it is the intent of the Legislature that State Highway Route 1 in rural areas of the Coastal Zone remain a scenic two-lane road. Special districts shall not be formed or expanded except where assessment for, and prov1s1on of, the service would not induce new development inconsistent with this policy. Where existing or planned public works facilities can accommodate only a limited amount of new development, services to coastal-dependent land use, essential public services and basic industries vital to the economic health of the region, State or Nation, public recreation, commercial recreation, and visitor-serving land uses shall not be precluded by other development.

<u>City of Pacifica General Plan 2040</u>

The City of Pacifica General Plan 2040, adopted by the Pacifica City Council in July 2022, is a policy document for the long range development of the City. It provides for future growth and articulates a vision for what Pacifica aspires to be. The General Plan draws it's ideas form residents, business owners, elected officials and City staff, and translates these ideas into a set of policies and actions to guide present and future generations. The Land Use Element and Open Space and Community Facilities Element of the General Plan include the following policies which are relevant to the proposed Project.

- *LU-I-23: Esplanade.* Establish appropriate zoning for privately-owned, undeveloped land on the west side of Esplanade Avenue to ensure minimal development consistent with the General Plan designation New development shall preserve the view corridor to the ocean along Bill Drake Way and shall be sited and designed to ensure that any proposed development could with-stand erosion resulting from a 100-year seismic or storm event and in accordance with LCLUP Policy CR-I-44 and preserve the view corridor to the ocean along Bill Drake Way.

- *OC-G-5: Open Space Preservation.* Preserve open space that protects natural resources, visual amenities, and public health and safety. The top priority areas for conservation are beaches, oceanfront bluffs, ridgelines, hill-sides areas adjacent to existing open space, and areas that support critical wildlife habitat and endangered species.

- *OC-I-16: Northern Coastal Bluffs.* Promote the permanent conservation of private land on the Northern Coastal Bluffs to protect sensitive natural communities and protect against coastal erosion. Managed protected land together with adjacent GGNRA land.

- *OC-I-22: Open Space Preservation.* Continue to support local volunteer or community service organizations in implementing revegetation programs on the City's greenbelts or elsewhere to reduce erosion potential and enhance the visual quality of these areas for adjacent neighborhoods.

- *OC-I-46: Northern Coastal Bluffs.* Promote potential trail improvements by GGNRA to create controlled public access to the bluffs, while protecting Northern Coastal scrub and other vegetation.

- *OC-I-47: Esplanade Bluff.* Develop a small public park or viewing area and a trail on City-owned bluff top land along the 400-block of Esplanade Avenue, if such improvements are feasible.

Pacifica Zoning Ordinance

The Pacifica Zoning Ordinance can be found under Title 9 of the Municipal Code. The Zoning Ordinance has been amended many times (most recently in 2021), to address changes to Pacifica's growth and planning legislation. The Zoning Ordinance provides development standards, identifies allowable land uses, and specifies other regulations related to development within the City. The following are the most applicable provisions relevant to the proposed Project.

Article 43 - Coastal Zone Combining District, Sec. 9-4.4300. **– Purpose.** The purpose of this article is to establish a Coastal Zone Combining District, known as the Coastal Zone District, for the entire Pacifica Coastal Zone. This District will be superimposed over the underlying basic zones and will supplement the regulations and requirements of those zones. Consistent with the California Coastal Act, the intent of these regulations is to:

(a) Protect, maintain and, where feasible, enhance and restore the overall quality of the coastal zone and its natural and built resources;

(b) Assure orderly, balanced use and conservation of resources within the coastal zone, taking into account the social and economic needs of the people of the state;

(c) Maximize public access to and along the coast and maximize public recreational opportunities in the coastal zone consistent with sound resource conservation principles and constitutionally protected rights of private property owners;

(d) Assure priority for coastal-dependent and coastal-related development over other types of development in the coastal zone;

(e) Encourage state and local initiatives and cooperation in procedures used to implement coordinated planning and development for mutually beneficial uses, including educational uses, in the coastal zone.

Sec. 9-4.4406. - Shoreline protection.

(a) Intent. The provisions of this section shall apply to all new development requiring a coastal development permit in the Coastal Zone District and shall be subject to the regulations found in Article 43, Coastal Zone Combining District. The intent of these provisions is to minimize erosion and to stabilize the shoreline in areas along the coastal bluff where ocean wave and tidal action create potentially hazardous or damaging conditions.

(b) Required survey. A site stability survey, prepared by a qualified soils engineer or engineering geologist, shall be required for new development proposed on coastal bluffs.

(c) Development standards. The following standards apply to all new development along the shoreline and on coastal bluffs.

(1) Alteration of the shoreline, including diking, dredging, filling and placement or erection of a shoreline protection device, shall not be permitted unless the device has been designed to eliminate or mitigate adverse impacts on local shoreline sand supply and it is necessary to protect existing development or to serve coastal-dependent uses or public beaches in danger from erosion or unless, without such measures, the property at issue will be rendered undevelopable for any economically viable use;

(2) Consistent with the City's Seismic Safety and Safety Element, new development which requires sea-walls as a mitigation measure or projects which would eventually require seawalls for the safety of the structures shall be prohibited, unless without such seawall the property will be rendered undevelopable for any economically viable use;

(3) Required shoreline protection devices shall be designed and sited to consider and reflect:

(i) Maximum expected wave height,

(ii) Estimated frequency of overtopping,

(iii) Normal and maximum tidal ranges,

(iv) Projected erosion rates with and without a shoreline protection device,

(v) Impact on adjoining properties,

(vi) Design life of the device,

(vii) Maintenance provisions, including methods and materials, and

(viii) Alternative methods of shoreline protection, including "no project";

(4) The impact on beach scouring and sand replenishment shall be minimized;

(5) Water runoff from beneath existing seawalls shall be minimized;

(6) Existing unauthorized rubble or protective devices shall be removed prior to the approval of additional development in such areas; and

(7) A geotechnical engineer shall certify that the shoreline protection device will withstand storms comparable to the major winter storms of 1982 and 1983 along the California coast.

(8) The seawall shall be designed to minimize impacts upon existing lateral and vertical access and in any case shall not result in the blocking of an accessway. In cases where it is not possible to engineer a wall without blocking access, then appropriate mitigation measures shall be incorporated into the design. These measures can include a stairway over the seawall to provide continuous vertical access or a platform over the seawall to provide continuous lateral access.

4.8.3 Thresholds of Significance

The Project would result in a significant land use impact if it would:

a) Physically divide an established community; or

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.

4.8.4 Impacts and Mitigation Measures

This section analyzes potential land use impacts that would result from implementation of the Project. It begins with the criteria of significance which establish the thresholds to determine whether an impact is significant (see Section 4.8.3, above). The latter part of this section describes potential impacts associated with the Project and identifies mitigation measures to address these impacts, as needed.

It should be noted that policy conflicts do not, in and of themselves, constitute a significant environmental impact unless it is a policy adopted for the purpose of avoiding or mitigating an environmental effect and the inconsistency would result in a significant adverse physical impact. Please note that planning documents that pertain to specific technical topics (e.g., Noise) are discussed in those topical sections of this Draft EIR.

Impact LAND-1: The Project would not physically divide an established community. (No Impact)

The proposed Project would construct a seawall along the toe of the coastal bluff. The Project does not include any physical barriers such as new roads or barriers such that existing land use patterns would change resulting in a division of an established community. There is an "SS cable fence" that is included in the Project to protect trail users from the edge of the cliff, however, this fence would not physically divide a community.

Impact LAND-2: The Project would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. (Less Than Significant Impact)

The Project is the construction of a seawall to protect the toe of the coastal bluff from further erosion and compromising the City's infrastructure. The Project would not conflict with the goals and policies in the City's General Plan or the City's Local Coastal Program with incorporation of the fugitive dust and water quality BMPs described in Chapters 3.0 (Project Description), 4.2 (Air Quality), 4.3 (Biological Resources), and 4.7 (Hydrology and Water Quality), and with compliance with applicable laws and regulations and implementation of the mitigation measures contained in this document.

The Project is consistent with Article 43 Coastal Zone Combining District Section 9-4.4406 - Shoreline protection as the Project includes the following:

1) A Geotechnical report as required by provision (b) to prepare a site stability survey prepared by a qualified soils engineer or engineering geologist, as required for new development on coastal bluffs.

   The Project is consistent with the Development Standards presented in provision (c)(1) which require that erection of a shoreline protection device shall not be permitted unless the device has been designed to eliminate or mitigate adverse impacts on local shoreline

sand supply and is necessary to protect existing development or to serve coastal dependent uses or public beaches in danger from erosion or unless, without such measures, the property at issue will be undevelopable for any economically viable use. Provision (c)(2) is not applicable because the Project's purpose is to mitigate an existing condition and protect existing infrastructure; and without the proposed Project, the blufftop would remain undevelopable.

Provision (c)(3) requires that shoreline protection structures shall be designed and sited to consider and reflect maximum wave height, estimated frequency of overtopping, normal and maximal tidal ranges, projected erosion rates with and without a shoreline protection device, impact on adjoining properties, design life, maintenance provisions (including methods and materials) and alternative methods of shoreline protection including "no project". The Project's design is based on a site specific Geotechnical Investigation prepared by Cotton, Shires, and Associates (April 2019, included here as Appendix B) and addresses these consideration. In addition to the Geotechnical Investigation, Cotton, Shires, and Associates prepared a memorandum in 2020 that presented calculations of the proposed seawall's impacts on beach sand supply. The calculated volume of beach quality sand that would have been supplied to the beach if natural erosion continued is 2,145 yards. Based on comparisons of bluff material sand beach sand sieve analyses, the bluff material was determined to be significantly finer than the beach sand material. Consequently, the memorandum concluded that the bluff materials compose zero or a very small fraction of the beach sand. Chapter 5 in this EIR addresses alternative methods for shoreline protection.

Provision (c)(4) states that beach scouring and sand replenishment shall be minimized.

Provision (c)(5) states that runoff from beneath existing seawalls shall be minimized.

Provision (c)(6) states existing rubble or protective devices shall be removed prior to approval of additional development. The Project includes removal of riprap and prior application of shotcrete on the bluff face at the proposed seawall location.

Provision (c)(7) states a geotechnical engineer shall certify that the shoreline protection device shall withstand storms comparable to the major winter storms of 1982 and 1983 along the California coast.

Provision (c)(8) states the seawall shall be designed to minimize impacts on existing lateral and vertical access and in any case shall not result in blocking of any accessway. There is no existing vertical access at the proposed seawall location. Vertical access currently exists just north of the proposed seawall at the Ocean Aire Apartments and this access will not change as a result of the Project. Lateral access north and south of the site along the beach shall be maintained with the Project and lateral access across the blufftop will be permitted once construction activities cease. Currently, lateral access across the blufftop is not allowed for safety reasons and a chain link fence is in place to keep people off the blufftop

above the proposed seawall.

No new uses are proposed. Mitigation is included with the Project, as described in this EIR to reduce potential environmental effects of the Project to less than significant levels.

4.8.5 References

City of Pacifica. 2022. General Plan 2040. July

City of Pacifica. 1980. Local Coastal Land Use Plan.

4.9 NOISE

This EIR chapter provides background information on the nature of sound and vibration transmission; describes the existing noise environment in the Project area; summarizes applicable noise guidelines, standards, and regulations; and evaluates potential noise and vibration impacts that could result from the implementation of the proposed Project. The information on the existing noise environment in the Project area and the magnitude of the proposed Project's potential noise and vibration effects is based, in part, on ambient noise data collected by MIG in December 2022 and construction noise and vibration modeling conducted by MIG for this EIR. Technical noise data collection and modeling results are attached as Appendix E to this EIR. Where necessary, this section includes mitigation measures that would reduce potential noise and vibration impacts associated with the Project.

4.9.1 Fundamentals of Environmental Acoustics

Noise is generally defined as unwanted sound and is widely recognized as a form of environmental degradation. Airborne sound is the rapid fluctuation of air pressure above and below atmospheric pressure. The frequency (pitch), amplitude (intensity or loudness), and duration of a sound all contribute to the effect on a listener, or receptor, and whether or not the receptor perceives the sound as "noisy" or annoying. A summary of the key environmental noise and vibration analysis terms used in this chapter is provided in Table 4-9.

Pitch is the height or depth of a tone or sound and depends on the frequency of the vibrations by which it is produced. Sound frequency is expressed in terms of cycles per second, or Hertz (Hz). Humans generally hear sounds with frequencies between 20 and 20,000 Hz and perceive higher frequency sounds, or high pitch noise, as louder than low-frequency sound or sounds low in pitch. Sound intensity or loudness is a function of the amplitude of the pressure wave generated by a noise source combined with the reception characteristics of the human ear. Atmospheric factors and obstructions between the noise source and receptor also affect the loudness perceived by the receptor. Sound pressure levels are typically expressed on a logarithmic scale in terms of decibels (dB). A dB is a unit of measurement that indicates the relative amplitude (i.e., intensity or loudness) of a sound, with 0 dB corresponding roughly to the threshold of hearing for the healthy, unimpaired human ear. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 dBs represents a ten-fold increase in acoustic energy, while 20 dBs is 100 times more intense, 30 dBs is 1,000 times more intense, and so on. In general, there is a relationship between the subjective noisiness or loudness of a sound and its intensity, with each 10 dB increase in sound level perceived as approximately a doubling of loudness. Due to the logarithmic basis, decibels cannot be directly added or subtracted together using common arithmetic operations:

$$50 \text{ decibels} + 50 \text{ decibels} \neq 100 \text{ decibels}$$

Instead, the combined sound level from two or more sources must be combined logarithmically. For example, if one noise source produces a sound power level of 50 dBA, two of the same sources would combine to produce 53 dB as shown below.

$$10 * 10 \log\left(10^{\left(\frac{50}{10}\right)} + 10^{\left(\frac{50}{10}\right)}\right) = 53 \text{ decibels}$$

Table 4-9: Noise and Vibration Terms Used in the EIR

Term	*Definition*
Decibel (dB)	A decibel is one-tenth of a bel. It is a measure on a logarithmic scale that indicates the squared ratio of sound pressure to a reference sound pressure (unit for sound pressure level) or the ratio of sound power to a reference sound power (unit for sound power level.)
Frequency or Hertz (Hz)	The number of oscillations per second of a periodic wave sound and of a vibrating solid, expressed in units of Hz; formerly, cycles per second.
A-Weighted Sound Level (dBA)	Expressed in dBA or dB(A). Frequency-weighted sound pressure level approximating the frequency response of the human ear.
L01, L10, L50, L90	The energy-average of the A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Equivalent Noise Level (L_{eq})	The equivalent steady-state sound level that in a given period of time would contain the same acoustical energy as the time-varying sound level during the same period.
Community Noise Equivalent Level (CNEL)	A noise level that accounts for all the A-weighted noise energy from a source during 24 hours and weights the evening (7:00 PM to 10:00 PM) and night (10:00 PM to 7:00 AM) noise by adding 5 and 10 dBA, respectively, during these periods.
Day/Night Noise Level (DNL or L_{dn})	The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring from 10:00 PM to 7:00 AM
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
Ambient Noise	All-encompassing noise at a given place and time. This is usually a composite of sounds from all sources near and far, including any specific sources of interest.
Atmospheric Effects	Sound absorption by air molecules and water vapor, sound refraction caused by temperature and near-ground wind gradients, and air turbulence are collectively called atmospheric effects. Although atmospheric effects are mostly responsible for substantial noise fluctuations at distant receivers, they also can have a significant effect at distances within 330 feet.

Table 4-9: Noise and Vibration Terms Used in the EIR	
Shielding	A noise reduction at the receiver because of the placement or existence of natural or artificial barriers (e.g., walls, berms, rows of buildings, or trees, if thick and dense enough).
Vibration	An oscillation wherein the quantity is a parameter that defines the motion of a mechanical system.
Peak Particle Velocity	The peak signal value of an oscillating vibration velocity waveform. Usually expressed in inches/second in the United States.
Source: Caltrans 2013	

In general, when one source is 10 dB higher than another source, the quieter source does not add to the sound levels produced by the louder source because the louder source contains ten times more sound energy than the quieter source.

Sound Characterization

Humans generally can hear sounds with frequencies between 20 and 20,000 Hz. Most of the sounds humans are normally exposed to do not consist of a single frequency, but rather a broad range of frequencies that are perceived differently by the human ear. In general, humans are most sensitive to sounds with frequencies in the range of 1,000 to 8,000 Hz; the human ear perceives sounds within that range better than sounds of the same amplitude at higher or lower frequency ranges. Therefore, instruments used to measure sound include an electrical filter that enables the instrument's detectors to replicate human hearing. This filter, known as the "A-weighting" or "A-weighted sound level," filters low and very high frequencies, giving greater weight to the frequencies of sound to which the human ear is typically most sensitive. Most environmental measurements are reported in dBA, meaning decibels on the A-scale. See Table 4-10 for a list of common noise sources and their A-weighted noise levels.

Sound levels are usually not steady and vary over time. Therefore, a method for describing either the average character of the sound or the statistical behavior of the variations over a period of time is necessary. The continuous equivalent noise level (L_{eq}) descriptor is used to represent the average character of the sound over a period of time. The L_{eq} represents the level of steady-state noise that would have the same acoustical energy as the time-varying noise measured over a given time period. L_{eq} is useful for evaluating shorter time periods over the course of a day. The most common L_{eq} averaging period is hourly, but L_{eq} can describe any series of noise events over a given time period.

Variable noise levels are the values that are exceeded for a portion of the measured time period. Thus, the L_{01}, L_{10}, L_{50}, and L_{90} descriptors represent the sound levels exceeded 1%, 10%, 50%, and 90% of the time the measurement was performed. The L_{90} value usually corresponds to the background sound level at the measurement location.

When considering environmental noise, it is important to account for the different responses people have to daytime and nighttime noise. In general, during the nighttime, background noise levels are generally quieter than during the daytime but also more noticeable due to the fact that household noise has decreased as people begin to retire and sleep. Noise exposure over the course of an entire day is described by the day/night average sound level, DNL (or L_{dn}), and the community noise equivalent level, or CNEL, descriptors. Both descriptors represent the 24-hour noise exposure in a community or area. For DNL, the 24-hour day is divided into a 15-hour daytime period (7:00 AM to 10:00 PM) and a 9-hour nighttime period (10:00 PM to 7:00 AM), and a 10 dB "penalty" is added to measure nighttime noise levels when calculating the 24-hour average noise level. For example, a 45 dBA nighttime sound level would contribute as much to the overall day-night average as a 55 dBA daytime sound level. The CNEL descriptor is similar to DNL, except that it includes an additional 5 dBA penalty for noise events that occur during the evening time period (7:00 PM to 10:00 PM). The artificial penalties imposed during DNL and CNEL calculations are intended to account for a receptor's increased sensitivity to noise levels during quieter nighttime periods.

Table 4-10: Typical Noise Levels

Common Outdoor Activities	*Noise Level (dBA)*	*Common Indoor Activities*
	110	Rock Band
Jet flyover at 1,000 feet	105	
	100	
Gas lawn mower at 3 feet	95	
	90	
Diesel truck at 50 feet at 50 mph	85	Food blender at 3 feet
	80	Garbage disposal at 3 feet
Noise urban area, daytime	75	
Gas lawnmower, 100 feet	70	Vacuum cleaner at 10 feet
Commercial area	65	Normal speech at 3 feet
Heavy traffic at 300 feet	60	
	55	Large business office
Quiet urban daytime	50	Dishwasher next room
	45	
Quiet urban nighttime	40	Theater, large conference room
Quiet suburban nighttime	35	
	30	Library
Quite rural nighttime	25	Bedroom at night
	20	
	15	Broadcast/recording studio
	10	
	5	
Typical threshold of human hearing	0	Typical threshold of human hearing
Source: Caltrans 2013		

Sound Propagation

The energy contained in a sound pressure wave dissipates and is absorbed by the surrounding environment as the sound wave spreads out and travels away from the noise-generating source. The strength of the source is often characterized by its "sound power level." Sound power level is independent of the distance a receiver is from the source and is a property of the source alone. Knowing the sound power level of an idealized source and its distance from a receiver, the sound pressure level at a specific point (e.g., a property line or a receiver) can be calculated based on geometrical spreading and attenuation (noise reduction) as a result of distance and environmental factors, such as ground cover (asphalt vs. grass or trees), atmospheric absorption, and shielding by terrain or barriers.

For an ideal "point" source of sound, such as mechanical equipment, the energy contained in a sound pressure wave dissipates and is absorbed by the surrounding environment as the sound wave spreads out in a spherical pattern and travels away from the point source. Theoretically, the sound level attenuates, or decreases, by 6 dB with each doubling of distance from the point source. In contrast, a "line" source of sound, such as roadway traffic or a rail line, spreads out in a cylindrical pattern and theoretically attenuates by 3 dB with each doubling of distance from the line source; however, the sound level at a receptor location can be modified further by additional factors. The first is the presence of a reflecting plane such as the ground. For hard ground, a reflecting plane typically increases A weighted sound pressure levels by 3 dB. If some of the reflected sound is absorbed by the surface, this increase will be less than 3 dB. Other factors affecting the predicted sound pressure level are often lumped together into a term called "excess attenuation." Excess attenuation is the amount of additional attenuation that occurs beyond simple spherical or cylindrical spreading. For sound propagation outdoors, there is almost always excess attenuation, producing lower levels than what would be predicted by spherical or cylindrical spreading. Some examples include attenuation by sound absorption in air; attenuation by barriers; attenuation by rain, sleet, snow, or fog; attenuation by grass, shrubbery, and trees; and attenuation from shadow zones created by wind and temperature gradients. Under certain meteorological conditions, like fog and low-level clouds, some of these excess attenuation mechanisms are reduced or eliminated due to noise reflection.

Noise Effects

Noise effects on human beings are generally categorized as:

- Subjective effects of annoyance, nuisance, and/or dissatisfaction
- Interference with activities such as speech, sleep, learning, or relaxing
- Physiological effects such as startling and hearing loss

Most environmental noise levels produce subjective or interference effects; physiological effects are usually limited to high noise environments such as industrial manufacturing facilities or airports.

Predicting the subjective and interference effects of noise is difficult due to the wide variation in individual thresholds of annoyance and past experiences with noise; however, an accepted method to determine a person's subjective reaction to a new noise source is to compare it with the existing environment without the noise source, or the "ambient" noise environment. In general, the more a new noise source exceeds the ambient noise level, the more likely it is to be considered annoying and to disturb normal activities.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1-dB changes in sound levels when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000–8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5 dB increase is generally perceived as a distinctly noticeable increase, and a 10 dB increase is generally perceived as a doubling of loudness that would almost certainly cause an adverse response from community noise receptors.

Groundborne Vibration and Noise

Vibration is the movement of particles within a medium or object such as the ground or a building. Vibration may be caused by natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or humans (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources are usually characterized as continuous, such as factory machinery, or transient, such as explosions.

As is the case with airborne sound, groundborne vibrations may be described by amplitude and frequency; however, unlike airborne sound, there is no standard way of measuring and reporting amplitude. Vibration amplitudes can be expressed in terms of velocity (inches per second) or discussed in dB units in order to compress the range of numbers required to describe vibration. Vibration impacts to buildings are usually discussed in terms of peak particle velocity (PPV) in inches per second (in/sec). PPV represents the maximum instantaneous positive or negative peak of a vibration signal and is most appropriate for evaluating the potential for building damage. Vibration can impact people, structures, and sensitive equipment. The primary concern related to vibration and people is the potential to annoy those working and residing in the area. Vibration with high enough amplitudes can damage structures (such as crack plaster or destroy windows). Groundborne vibration can also disrupt the use of sensitive medical and scientific instruments, such as electron microscopes.

Common sources of vibration within communities include construction activities and railroads. Groundborne vibration generated by construction projects is usually highest during pile driving,

rock blasting, soil compacting, jack hammering, and demolition-related activities. Next to pile driving, grading activity has the greatest potential for vibration impacts if large bulldozers, large trucks, or other heavy equipment are used.

Groundborne noise is noise generated by vibrating building surfaces such as floors, walls, and ceilings that radiate noise inside buildings subjected to an external source of vibration. The vibration level, the acoustic radiation of the vibrating element, and the acoustical absorption of the room are all factors that affect potential groundborne noise generation.

4.9.2 Environmental Setting

The proposed Project is located along the Pacific coast, west of Esplanade Avenue, between approximately West Beaumont Boulevard and West Manor Drive. The noise environment near the Project area is most influenced by the ocean waves and the amount of vehicles traveling on State Route (SR) 1, which is approximately 780 feet east of the Project. Using noise contours developed for use in preparing the City's General Plan 2040, the Project site is located within the 60-65 dB noise contour. The nearest airport, San Francisco International Airport, is approximately 5.6 miles southeast of the Project.

Measured Ambient Noise Levels

MIG conducted ambient noise level monitoring at and near the proposed Project area from approximately 2:00 PM on Tuesday, December 6, 2022, to approximately 2:00 PM on Wednesday, December 7, 2022. The results of the monitoring are included in Appendix E of this EIR. A summary of the methodology and results for the ambient noise survey is provided below.

Ambient noise levels in the vicinity of the Project area were digitally measured and stored using two (2) Larson Davis SoundTrack LxT sound level meters that meet American National Standards Institute requirements for a Type 1 integrating sound level meter. Each sound meter was calibrated immediately before and after the monitoring period using a reference one kilohertz (1kH) check frequency and 114 dB sound pressure level and found to be operating within normal parameters for sensitivity. Measurements were continuously collected over the sample period in 1-minute intervals. This interval was selected to capture short-term noise events and increases in noise levels above typical background conditions. Weather conditions during the monitoring were partly cloudy during the daytime and clear and cool during the nighttime. Temperatures ranged from the mid 40's (overnight) to the mid 50's (in the later afternoon). Winds were generally light and ranged from approximately 5 to 10 miles per hour (mph) all day.

The ambient noise monitoring conducted for this EIR included three (3) short-term (ST) and one long-term (LT) measurements at locations selected to:

- Provide direct observations of existing noise sources in and in the vicinity of the Project area;

- Determine ambient noise levels in the vicinity of the Project area; and

- Evaluate potential noise levels at nearby sensitive receptors (see "Noise Sensitive Receptors" below).

The ambient noise monitoring locations are shown on **Figure 4-6** and described below.

- **Location LT-1** was at the northwestern corner of the property at 340 Esplanade Avenue. This location was approximately 11 feet from the northern façade of the building and 18 feet from the sandbags adjacent to the edge of the bluff. The ambient noise levels measured at location LT-1 are considered representative of background noise levels at residential land uses on Esplanade Avenue.

- **Location ST-1** was located along the bluff west of Esplanade Avenue. This location was approximately 4 feet from the bluff edge and 40 feet from the long-term measurement location. The ambient noise levels measured at ST-1 are considered representative of background daytime noise levels associated with sound generation from the beach and bluff adjacent to the northern staging area.

- **Location ST-2** was located on the beach west of location ST-1. This location was approximately 22 feet west of the rocks at the toe of the bluff and approximately 80 feet below ST-1. The ambient noise levels measured at ST-2 are considered representative of background daytime noise levels along the beach.

- **Location ST-3** was located northwest of the Esplanade Avenue and Manor Drive intersection. This location was approximately 10 feet from the bluff edge. The ambient noise levels measured at ST-3 are considered representative of background daytime noise levels associated with sound generation from the beach and bluff adjacent to southern staging area.



Figure 4-6: Ambient Noise Monitoring Locations

Based on observations made during the ambient noise monitoring, the existing noise environment in the project area consists primarily of ocean, air traffic, and local vehicle traffic noise sources. Table 4-11 and Table 4-12 summarize the results of the long- and short-term ambient noise monitoring conducted for this EIR, respectively.

Table 4-11: Measured Long-term Ambient Noise Levels in the Project Area

Day/ Site	Duration	L_{min}	L_{max}	Measured L_{eq} Range (dBA)[A]			CNEL[B]
				Daytime (7 AM - 7 PM)	Evening (7 PM - 10 PM)	Nighttime (10 PM - 7 AM)	
Tuesday, December 6 to Wednesday, December 7, 2022							
LT-1	24 Hours	43.7	81.6	53.5-59.5	55.3-57.9	54.0-56.7	62.5

Source: MIG, 2022 (see Appendix F)
Values are the lowest and highest measured average hourly values during the listed time.
CNEL calculated from 2:00 PM on December 6th to 2:00 PM on December 7th

Table 4-12: Measured Short-term Ambient Noise Levels in the Project Area

Day / Site	Start Time	Duration	Measured Noise Level (dBA)		
			L_{eq}	L_{min}	L_{max}
Tuesday, December 6, 2022					
ST-1	1:51 PM	30-minutes	64.7	60.8	72.3
LT-1	1:51 PM	30-minutes	59.0	53.0	71.8
ST-2	2:36 PM	30-minutes	63.3	59.3	71.1
LT-1	2:36 PM	30-minutes	59.6	54.1	75.9
ST-3	3:30 PM	30-minutes	63.2	59.2	68.3
LT-1	3:30 PM	30-minutes	57.8	53.2	71.0
Source: MIG, 2022 (see Appendix F)					

As shown in Table 4-11 and Table 4-12, the ambient noise environment in the Project area is relatively steady during the evening and nighttime (varying by 3 dBA L_{eq}) and somewhat variable during the daytime (varying by 6 dBA L_{eq}). The evening and nighttime noise steadiness is likely associated with ocean noise, while the daytime noise variability is likely associated with local activity on Esplanade Avenue (i.e., pedestrian activity, etc.) and higher daytime traffic noise levels associated with SR 1. The measured daytime noise levels were lower at LT-1 than at ST-1, ST-2, and ST-3. This is likely because LT-1 was farther back from the bluff edge, with no direct line of site to the waves breaking on the beach, while ST-1, ST-3, and ST-3 had a direct line of sight to the surf zone. The short-term monitoring occurred when tides were approaching the daily low, which was expected around 3:55 PM on December 6th, 2022 (NOAA, 2022). Based on the difference in measured noise levels between the short-term and long-term locations, the bluff provided between approximately 3 to 6 dBA of noise attenuation between the toe of the bluff and the top of the bluff.

Noise Sensitive Receptors

Noise-sensitive receptors are buildings or areas where unwanted sound or increases in sound may have an adverse effect on people or land uses. Noise sensitive land uses are locations where people reside or where the presence of noise could adversely affect the use of the land, including places where people live, sleep, recreate, worship and study. In general, potential noise-sensitive receptors in the vicinity of the Project area include:

- A publicly accessible beach (Pacifica Esplanade Beach) bordering the Project to the south.
- Multifamily residences on the west side of Esplanade Avenue, approximately 20 feet south of the Project's northern staging area.
- Multifamily residences across Esplanade Avenue, approximately 70 feet east of the Project's northern staging area.
- Pacifica Nursing and Rehab Center, approximately 320 feet east of the Project.
- Esplanade Beach Overlook Trail, approximately 580 feet south of the Project.
- Ocean Shore School, an elementary school, approximately 930 feet east of the Project.

4.9.3 Regulatory Setting

Federal

No federal regulations apply to noise or vibration from the proposed Project.

State

Caltrans

The California Department of Transportation's (Caltrans) Transportation and Construction Vibration Guidance Manual provides a summary of vibration criteria that have been reported by researchers, organizations, and governmental agencies (Caltrans 2020). Chapters 6 and 7 of the aforementioned guidance manual summarizes vibration detection and annoyance criteria from various agencies and provides Caltrans' recommended guidelines and thresholds for evaluating potential vibration impacts on buildings and humans from transportation and construction projects. These thresholds are summarized in Table 4-13 and Table 4-14.

Table 4-13: Caltrans' Vibration Threshold Criteria for Building Damage		
Structural Integrity	**Maximum PPV (in/sec)**	
	Transient	**Continuous**
Historic and some older buildings	0.50	0.12 to 0.2
Older residential structures	0.50	0.30
New residential structures	1.00	0.50
Modern industrial and commercial structures	2.00	0.50
Source: Caltrans 2020		

Table 4-14: Caltrans' Vibration Threshold Criteria for Human Response		
Human Response	**Maximum PPV (in/sec)**	
	Transient	**Continuous**
Slightly perceptible	0.035	0.01
Distinctly perceptible	0.24	0.04
Strongly perceptible	0.90	0.10
Severe/Disturbing	2.0	0.7 (at 2 Hz) to 0.17 (at 20 Hz)
Very disturbing	--	3.6 (at 2 Hz) to 0.4 (at 20 Hz)
Source: Caltrans 2020		

Local

City of Pacifica Municipal Code

Title 5, Public Welfare, Morals, and Conduct, Chapter 10, Loud, Disturbing, Unusual, and Unnecessary Noises, establishes that loud, unnecessary, unnatural, or unusual noises which are prolonged, unusual, and unnatural in their time, place and use are a detriment to the public health, comfort, safety, and welfare of the City's residents. The chapter includes the following standards that are relevant to the proposed Project:

- Section 5-10.02 (Unlawful) sets forth that it shall be unlawful for any person to make or continue, or cause to be made or continues, any loud, disturbing, unnecessary or unusual noises or any noise which annoys, disturbs, injures, or endangers the comfort, health, repose, peace, or safety of other persons within the City.

- Section 5-10.03 (Enumerated), declares the following noises, among others, to be loud, disturbing, unnecessary, and unusual noises in violation of the Municipal Code:

    - Exhausts: The discharge into the open air of the exhaust of any steam engine, stationary internal combustion engine, motorboat, or motor vehicle, except through a muffler or other device which will effectively prevent loud or explosive noises therefrom (Section 5-10.03(g));

- Defective or loaded vehicles: The use of any automobile, motorcycle, or vehicle so out of repair, so loaded, or in such manner as to create loud and unnecessary grating, grinding, rattling, or other noise (Section 5-10.03(h));

- Loading and unloading vehicles and opening boxes: The creation of loud and excessive noise in connection with loading or unloading any vehicle or the opening and destruction of bales, boxes, crates, and containers (Section 5-10.03(i));

- Pile drivers, hammers, and similar equipment. The operation, between the hours of 8:00 PM and 7:00 AM, of any pile driver, steam shovel, pneumatic hammer, derrick, steam or electric hoist, or other appliance, the use of which is attended by loud or unusual noise (Section 5-10.03(m)); and

- Blowers, fans, and combustion engines. The operation of any noise-creating blower, power fan, or internal combustion engine, the operation of which causes noise due to the explosion of operating gases or fluids, unless the noise from such blower or fan is muffled and such engine is equipped with a muffler device to deaden such noise (Section 5-10.03(n)).

- Section 8-1.05 (Amendments: Section 105.8 "Hours of construction"), the hours of construction for any project for which a building permit is required within the City of Pacifica shall be limited to the hours of 7:00 a.m. to 7:00 p.m. on Monday, Tuesday, Wednesday, Thursday, and Friday. The hours of construction shall be limited to 9:00 a.m. to 5:00 p.m. on Saturday and Sunday.

City of Pacifica General Plan 2040

The City's General Plan Noise Element identifies noise issues within the City and establishes goals and policies to minimize noise conflicts. The following guiding and implementing policies from the Noise Element are relevant to the proposed Project.

- NO-G-2: Acceptable Noise Environment. Strive to achieve an acceptable noise environment for the environmental, health and safety needs of present and future residents of Pacifica.

- NO-G-3: Sensitive Land Uses. Protect noise sensitive land uses, such as schools, hospitals, and senior care facilities, from encroachment of and exposure to excessive levels of noise.

- NO-I-6: Construction Noise. Continue to limit hours for certain construction and demolition work to reduce construction-related noises.

In addition to the above policies, the City's General Plan includes land use compatibility standards for community noise environments and allowable noise exposure limits for new land uses. These standards establish 45 dBA DNL/CNEL and 65 dBA DNL/CNEL as the normally acceptable interior and exterior noise exposure limits, respectively, for multi-family residential land uses; the

conditionally acceptable and normally unacceptable exterior noise standards for multi-family residential land uses are 70 and 75 dBA DNL/CNEL, respectively (City of Pacifica 2022, Table 9-1 and Table 9-2).

The City's General Plan also establishes 70 dBA DNL/CNEL, 75 dBA DNL/CNEL, and 80 dBA DNL/CNEL as the normally acceptable, conditionally acceptable, and normally unacceptable limits for office and commercial land uses, respectively, and sets 45 dBA L_{eq} (based on the worst-case hour during periods of use) as the allowable interior noise level for office buildings (City of Pacifica 2022, Table 9-1 and Table 9-2).

4.9.4 Significance Thresholds

Per the CEQA Guidelines, project implementation would have a significant impact related to noise or vibration if it would:

a) Generate a substantial temporary or permanent increase in ambient noise levels in excess of the standards established in:

   - City Municipal Code Title 5, Chapter 10 (Loud, Disturbing, Unusual, and Unnecessary Noises);
   - City Municipal Code Title 8, Chapter 1, Section 8-1.05 (Building Permit)

b) Generate excessive ground-borne vibration or ground-borne noise levels; or

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, expose people residing or working in the project area to excessive noise levels.

With regard to criterion (a) and potential temporary, construction-related noise levels, the City considered the nature and general applicability of Municipal Code and General Plan standards for the proposed Project (e.g., is the standard intended to apply to intermittent, non-transportation noise sources such as construction activities), and determined the City's General Plan noise and land use compatibility guidelines are not applicable to construction activities because they are 24-hour noise standards intended to evaluate a development project's compatibility with typical noise exposure levels, and not standards intended to evaluate temporary, short-term noise levels that would occur for part of a day. With regard to criterion (a) and potential long-term, operational noise levels, the proposed Project would not result in long-term operational noise and, therefore, does not have the potential to generate a permanent increase in ambient noise levels above the City's standards. This topic is not discussed further in this EIR.

With regard to criterion (b), the proposed Project would result in a significant construction and/or operational vibration impact if it would:

- Generate construction-related vibration levels that exceed Caltrans' guidance for potential building damage (see Table 4-13) at any time; or

- Generate construction-related vibration levels that exceed Caltrans' criterion for human annoyance response to slightly perceptible vibrations (0.01 PPV in/sec; see Table 4-14) during the nighttime (10:00 PM to 7:00 AM).

With regard to criterion (c), the proposed Project is not within two miles of any public or private airport or airstrip, or a planning area associated with an existing airport land use plan. The closest airport is San Francisco International Airport, located approximately six miles southeast of the Project area). The City is not located in a noise contour zone associated with San Francisco International Airport. The Project, therefore, would not expose people working in the Project area to excessive airport-related noise levels. This topic is not discussed further in this EIR.

4.9.5 Impacts and Mitigation Measures

This section evaluates potential noise and vibration impacts and recommends mitigation measures, as needed, to reduce potentially significant impacts.

Impact NOI-1: The construction of the Project could result in the generation of a substantial temporary increase in ambient noise levels in excess of applicable standards established in the City's General Plan and Municipal Code (Less Than Significant with Mitigation Incorporated)

Implementation of the Project would involve construction activities that temporarily increase ambient noise levels, primarily from the use of heavy-duty construction equipment. Project construction would occur over a 200-day period for the initial installation of the sea wall, and then over a 60-day period for restoration after monitoring of the sea wall was completed. Construction activities would include site preparation, sheet pile wall installation, pile cap installation, tieback installation and testing, shotcrete wall installation, barrier restoration and riprap removal. Project construction activities would generate noise and vibration from the following sources:

- Heavy equipment operations at different work areas (e.g., northern and southern staging areas on the top of the bluff, tieback installation on the bluff face, and sheet pile wall installation at the bluff toe). Some heavy equipment would consist of mobile equipment such as a loader and excavator that would move around work areas; other equipment would consist of stationary equipment (e.g., cranes or material hoists/lifts) that would generally operate in a fixed location until work activities are complete. Heavy equipment generates noise from engine operation, mechanical systems and components (e.g., fans, gears, propulsion of wheels or tracks), and other sources such as backup alarms. Mobile equipment generally operates at different loads, or power

outputs, and produces higher or lower noise levels depending on the operating load. Stationary equipment generally operates at a steady power output that produces a constant noise level.

- Vehicle trips, including worker, vendor, and haul truck trips. These trips are likely to primarily occur on Esplanade Avenue and on the beach between the northern and southern staging areas (for hauling soil/debris to and from the work sites).

The anticipated construction sequencing and work activity duration, and typical equipment that would be used to conduct the work activities are summarized in Table 4-15.

Table 4-15: Project Construction Schedule and Phasing

Phase	Duration (Active Days)	Equipment / Work Area	
		Blufftop	Bluff Toe or Face
Site Preparation	10	Concrete Pump Truck, Material Handler, Generator	Excavator, Loader, Dozer, Pump
Sheet Pile Wall Install	50	Material Handler, Generator	Vibratory or Impact Pile Driver, Excavator, Loader, Dozer, Pump
Pile Cap Install	28	Concrete Pump Truck, Generator	Excavator, Loader, Water Pump, Dozer
Tieback Install and Testing	56	Crane, Material Handler, Generator	Auger or Impact Tieback Drill Rig (bluff face), Man Lift
Shotcrete Wall Install	60	Crane, Concrete Pump Truck, Generator	Man Lift
Restoration	30	Loader	--
Riprap Removal	30	--	Crane
Source: Cotton Shires 2022			

As shown in Table 4-15, equipment operations would occur in different work areas (i.e., at the top of the bluff and at the bluff toe) at the same time during each sea wall construction phase. During the blufftop restoration phase, other equipment may be used for planting and trail construction. However, noise levels associated with equipment for this activity would likely be similar to those of professional landscaping equipment. For example, noise levels associated with a typical trail construction equipment rig would be similar to those associated with a smaller construction backhoe operating at a lower maximum load. According to the Caltrans typical construction equipment noise table, a backhoe would generate similar noise levels to those of a loader (Caltrans 2013, Table 7-2). However, the noise profile associated with the proposed Project would mainly be attributed to the heavy equipment operating during each phase. Therefore, the noise impact analysis presented in this report is focused on noise generating construction activities associated with heavy equipment. The Project's design and engineering team estimates that equipment operations would usually be limited to between 6 and 8 hours of daily daytime operation because of high tide concerns and concerns involving the ability of construction crews to safely maneuver and operate equipment on the bluff face and at the toe of the bluff in the dark. Construction activities would be limited to 7:00 AM to 7:00 PM Monday through Friday, and 9:00 AM to 5:00 PM on Saturday and Sunday, in accordance with City Municipal Code Section 8-1.05.

The Project's potential construction noise emissions were estimated using the Federal Highway Administration's (FHWA) Roadway Construction Noise Model (RCNM), Version 1.1. The RCNM is a computer program that uses empirical data and sound propagation principles to predict noise levels from a variety of construction equipment and operations. For the Project, potential construction noise levels were modeled separately for each construction activity. The noise modeling was based on the Project-specific equipment information compiled by the Project's design and engineering team. During sheet pile wall installation, a vibratory pile driver would be used initially, and an impact pile driver would only be used if it was determined that the vibratory pile driver was not able to sufficiently penetrate the bedrock for wall installation purposes. Up to two pile drivers would be in operation at the same time during the sheet pile wall installation phase. The RCNM was used to model noise levels at eight (8) different receptor locations meant to be representative of the noise-sensitive receptors that could be impacted by the Project's construction activities. The locations of the modeled construction noise receptors are shown on **Figure 4-7** and summarized in Table 4-16.

Table 4-16: Modeled Construction Noise Receptors

Receptor ID	Receptor Type	Location
R1	Residential	360 Esplanade Avenue
R2	Residential	340/350 Esplanade Avenue
R3	Residential	335 Esplanade Avenue
R4	Residential	325 Esplanade Avenue
R5	Residential	305 Esplanade Avenue
R6	Residential	8 Esplanade Avenue
R7	Residential	100 Esplanade Avenue
R8	Commercial	5 Manor Drive

Receptors R1 through R7 represent the closest sensitive receptors to the northern staging area, while R8 represents the closest sensitive receptor to the southern staging area. Noise-generating equipment used during site preparation, sheet pile wall installation, tieback installation and testing, and shotcrete wall installation would operate intermittently along the sea wall area and throughout the northern staging area for receptors R1 – R7. Receptor R8 was only modeled for the site preparation phase equipment at the top of the bluff in the southern staging area as R8 is at least 1,100 feet away from the northern staging area and seawall installation activities.



Figure 4-7: Ambient Noise Monitoring Locatio

Construction equipment noise was modeled from the typical work area as well as a "worst-case" scenario from the closest edge of the work area to the receptor. For each phase, equipment noise was modeled based on the respective distances between the equipment operating at the top of the bluff, on the face of the bluff, or at the toe of the bluff and each receptor. Specifically for the sheet pile wall installation phase, two worst-case scenarios were modeled, one scenario with one impact pile driver in operation and one scenario with two impact pile drivers in operation. Under the worst-case scenario with two pile drivers, one pile driver was modeled from the closest edge of the work area and the other was modeled from the typical work area (in the approximate center of the work area). Typical noise levels during the sheet pile wall installation phase were modeled for one pile driver only as it is unknown at the time of this report whether one or two pile drivers would be operated for the proposed Project.[13] The RCNM input distances between work areas and receptors are shown in Table 4-17.

Table 4-17: Distance Between Work Areas and Modeled Noise Receptors

Construction Work Area	Typical Distance Between Work Area and Receptor (feet)(A)							
	R1	R2	R3	R4	R5	R6	R7	R8(B)
Site Preparation	239	105	110	125	145	210	395	105
Sheet Pile Wall, Pile Cap, Tieback, Shotcrete Wall Install	206	107	210	197	192	316	493	-
Restoration	310	105	110	125	145	210	395	-
Riprap Removal	239	125	210	197	257	316	493	-
Construction Work Area	**Worst-case Distance Between Work Area and Receptor (feet)(C)**							
	R1	**R2**	**R3**	**R4**	**R5**	**R6**	**R7**	**R8**
Site Preparation	97	20	65	70	70	95	265	-
Sheet Pile Wall, Pile Cap	79	61	65	70	70	95	265	-
Tieback, Shotcrete Wall	77	51	65	70	70	95	265	-

Source: MIG (see Appendix F)
(A) Typical case scenario is based on the distance between the receptor and the center of the work area.
(B) Receptor R8 was only modeled for the site preparation phase at the top of the bluff in the southern staging area because it is more than 1,000 feet away from the northern staging area and seawall installation activities.
(C) Worst-case scenario is based on the distance between the receptor and closest edge of work area.

[13] Although typical noise levels were modeled for one pile driver only, two scenarios were modeled, one scenario using an impact pile driver and one scenario using a vibratory pile driver. These scenarios were modeled to reflect the fact that the proposed Project may require either an impact or a vibratory pile driver, it is unknown at the time of this report which type equipment would be required for the proposed Project.

The resulting construction equipment noise levels at modeled noise receptors are summarized in Table 4-18. Based on the ambient noise monitoring conducted for the Project (see Section 4.9.2), the bluff face was assumed to provide 3 dBA of noise attenuation for equipment operating on the bluff face or at the toe of the bluff.

Table 4-18: Potential Hourly Construction Noise Levels at Sensitive Receptors

Construction Phase	Days	Potential Typical Hourly Construction Noise Level (dBA L_{eq})(A)							
		R1	R2	R3	R4	R5	R6	R7	R8
Site Preparation	10	68.9	76.1	74.1	73.5	71.9	69.2	64.4	73.2
Sheet Pile Wall (Impact Pile Driver)	50	79.4	85.2	79.8	80.2	80.3	76.1	72.1	--
Sheet Pile Wall (Vibratory Pile Driver)	50	79.0	84.9	79.5	79.8	79.9	75.7	71.7	--
Pile Cap Install	28	70.9	77.9	75.3	74.7	73.9	70.3	65.5	--
Tieback Install and Testing	56	68.2	75.9	74.0	73.2	72.3	68.8	63.8	--
Shotcrete Wall Install	60	65.5	74.6	74.1	73.0	71.7	68.5	63.0	--
Restoration	30	59.3	68.7	68.3	67.2	65.9	62.7	57.2	--
Riprap Removal	30	56.0	61.6	57.1	57.7	55.4	53.6	49.7	--
Construction Phase	**Days**	**Potential Worst-Case Hourly Construction Noise Level (dBA L_{eq})(A)**							
		R1	**R2**	**R3**	**R4**	**R5**	**R6**	**R7**	**R8**
Site Preparation	1-2	75.8	87.9	78.0	77.6	77.5	75.2	68.0	--
Sheet Pile Wall (One Impact Pile Driver)	2-3	85.9	89.7	81.9	82.3	81.7	80.4	75.8	--
Sheet Pile Wall (Two Impact Pile Drivers)	2-3	86.7	90.9	83.6	84.1	83.8	81.6	77.1	
Sheet Pile Wall (Vibratory Pile Driver)	2-3	85.5	89.5	81.6	81.9	81.4	80.1	75.4	--
Pile Cap Install	1-2	76.8	89.1	79.2	78.8	78.7	76.3	69.0	--
Tieback Install and Testing	2-3	73.9	88.1	78.1	77.6	77.6	75.1	67.3	--
Shotcrete Wall Install	2-3	69.3	88.8	78.6	78.0	78.0	75.3	66.5	--

Source: MIG (see Appendix F)

(A) Modeled noise levels would occur during the daytime only (7 AM to 7 PM) periods. Restoration and riprap removal would not involve worst-case equipment operations at property lines. Therefore, worst-case noise levels for these phases are not provided.

As shown in Table 4-18, Project's construction activities could:

- Generate temporary exterior noise levels that would be approximately 15 dBA Leq to 35 dBA Leq higher than ambient noise levels in the surrounding area.

- Generate temporary exterior noise levels of approximately 72 dBA Leq or higher during all typical sea wall construction phases (200 days) at modeled receptors R2 (360 Esplanade Avenue), R3 (335 Esplanade Avenue), R4 (325 Esplanade Avenue, and R5 (305 Esplanade Avenue).

- Generate temporary exterior noise levels of 75 dBA Leq or higher during typical sheet pile wall installation activities (50 days) at R1 (360 Esplanade Avenue), R2, R3, R4, R5, and R6 (8 Esplanade Avenue).

- Generate temporary exterior noise levels of 80 dBA Leq or higher during worst-case sheet pile wall installation activities (2 to 3 days) at all receptors except R7.

- Generate temporary noise levels above 85 dBA Leq during worst-case sheet pile wall installation activities at R1 (2 to 3 days) and during all worst-case sea wall construction activities at R2 (up to 16 total days).

The above noise level estimates are exterior noise level estimates. Typical residential and school construction in California typically provides at least 12 dBA of exterior to interior noise attenuation with windows open and 20 dBA of exterior to interior noise attenuation with windows closed.[14] Interior noise level would, therefore, be approximately 12 dBA L_{eq} to 20 dBA L_{eq} lower than exterior noise levels.

If the Project would require the use of an additional pile driver during the sheet pile wall installation phase, nearby sensitive receptors could be exposed to noise generated from a pile driver operating at a worst-case scenario distance and a pile driver operating at a typical scenario distance at the same time. Based on the results presented in Table 4-18, worst case noise levels at the nearest sensitive receptors could be approximately 1 to 2 dBA louder with two impact pile drivers in operation than those with one impact pile driver in operation during the sheet pile wall installation phase. A scenario with two vibratory pile drivers was not modeled as, based on Table 4-18, the difference in worst-case noise levels at nearby sensitive receptors between operating an impact pile driver and a vibratory pile driver is relatively small (approximately 0.2 dBA). It is assumed that a modeled scenario with two vibratory pile drivers would yield similar (likely slightly lower)

[14] The U.S. Department of Housing and Urban Development Noise Guidebook and supplement (2009a, 2009b) includes information on noise attenuation provided by building materials and different construction techniques. As a reference, a standard exterior wall consisting of 5/8-inch siding, wall sheathing, fiberglass insulation, two by four wall studs on 16-inch centers, and 1/2-inch gypsum wall board with single strength windows provides approximately 35 dBs of attenuation between exterior and interior noise levels, provided windows do not occupy more than 30% of the exterior wall space.

noise levels as those presented in Table 4-18 for the modeled scenario with two impact pile drivers. Therefore, the modeled results presented in Table 4-18 are considered representative of worst-case noise levels at nearby receptors.

The magnitude of the Project's predicted construction noise levels at modeled receptor locations is primarily a function of the anticipated construction activities, equipment usage, and distance between modeled receptors and the proposed construction activities; however, there are other factors that could influence sound propagation and the Project's predicted construction noise levels, including:

- The RCNM model computes predicted noise levels based on a fixed point of equipment operation and a direct line–of-sight between the construction activity and the receiver; however, as construction proceeds, equipment moves around the work area and may increase or decrease slightly from modeled locations.

- The RCNM model does not compute predicted noise levels that include potential effects associated with the reflection and/or diffraction of sound waves off of or around hard, reflective surfaces such as roads and buildings, etc. Conversely, the RCNM model does not compute noise levels that include potential effects associated with excess attenuation from soft ground cover.

- The RCNM model does not account for prevailing wind direction, which is generally from southwest to northeast near the staging areas, wind turbulence, or other atmospheric conditions that can influence sound propagation such as temperature gradients, humidity, etc.

The above factors, which are not accounted for in the RCNM modeling results, would likely result in an overestimation of construction noise levels at specific receptor locations. Thus, although there is some uncertainty regarding the potential construction noise levels associated with the Project, the values shown in Table 4-18 are considered to be a conservative, worst-case estimate (i.e., likely to overestimate) of potential construction equipment noise levels at modeled receptor locations.

Significance Determination

Consistent with the City's Municipal Code and General Plan Noise Element (see Section 4.9.3), the City is evaluating the significance of the Project's potential construction noise levels based on the following factors:

- Loudness: The City's Municipal Code considers loud noises a detriment to the City's residents. As described above, the Project's construction noise levels could routinely exceed 72 dBA L_{eq} at most residential receptors near the Project area. Project construction activities could also exceed 75 dBA L_{eq} at most residential receptors during typical sheet pile wall installation activities, 80 dBA L_{eq} at most residential receptors during worst-case

sheet pile wall installation activities, and 85 dBA L_{eq} during worst-case sheet pile wall installation activities at R1 (360 Esplanade Avenue) and R2 (340/350 Esplanade Avenue). During certain times, instantaneous maximum noise levels (Lmax) from specific equipment such as an impact pile driver could be several decibels higher than sustained (hourly Leq) construction equipment noise levels. In general, the Project's temporary construction noise levels could be between approximately 15 dBA Leq to 35 dBA Leq above existing measured ambient noise levels and constitute more than a quadrupling of loudness. This temporary increase in noise levels is considered a substantial temporary increase in noise levels.

- Need: The project is necessary to protect and maintain infrastructure along Esplanade Avenue, including the street and underground utilities. Therefore, the Project's construction activities and the noise generated by these activities is not unnecessary.

- Duration: Project construction activities are anticipated to occur seven days a week for approximately 200 days, then again for another 60 days (for restoration and riprap removal) following monitoring and verification of the sea wall's performance. The daily nature of Project construction activities, as well as the total duration of sea wall installation activities (200 days) would result in the temporary but prolonged exposure of receptors to construction noise levels.

- Unusual or Unnatural in time, place, and affect: Construction activities occur throughout the City as part of typical development, maintenance, and other activities and, therefore, are not necessarily an unusual or unnatural occurrence. Sheet pile and tieback installation activities, however, are less common and are likely to be construed by nearby receptors as unusual noises.

- Compliance with Municipal Code Construction Hours: The proposed Project would limit construction activities, as allowed by Municipal Code Section 8-1.05, to the hours of 7:00 AM to 7:00 PM Monday to Friday and 9:00 AM to 5:00 PM Saturday and Sunday.

- Compliance with Other Municipal Code Enumerations: The City anticipates all Project construction equipment and deliveries would comply with the Municipal Code's exhaust (Section 5-10.03(g)), defective or loaded vehicle (Section 5-10.03(h)), loading and unloading vehicle (Section 5-10.03(i)), and blowers, fans, and combustion engine (Section 5-10.03(n)) requirements because construction equipment and vehicles include standard mufflers, engine covers, etc. and will be maintained accordingly.

Based on the above factors, the Project's construction noise levels are considered a potentially significant impact because the Project has the potential to result in a substantial temporary increase in ambient noise levels on a daily and prolonged basis.

Although Project construction may result in a substantial temporary increase in ambient noise levels, it is not anticipated to result in physical harm (e.g., temporary or permanent hearing loss or

damage) to any sensitive noise receptor near the Project area for several reasons. First, worst-case noise levels are anticipated to occur for no more than 16 total days (not necessarily consecutive) at any specific receptor location, while typical exterior noise levels during the remaining 248 construction days would be 72 dBA L_{eq} to 75 dBA L_{eq} or less. In addition, most construction activities and equipment would occur for six (6) to eight (8) hours per day, so receptors would not be continuously exposed to elevated noise levels (i.e., noise levels would return to ambient conditions when construction ceases for the day). Finally, modeled construction noise level values presented in Table 4-18 are exterior noise levels, whereas receptors would be likely to be inside residential buildings. Interior noise levels associated with the Project's construction at nearby sensitive receptors would be approximately 12 dBA to 30 dBA lower depending on façade construction and whether windows or doors were open or closed. Physiological effects occur when the human ear is subjected to prolonged exposure to high noise environments. For example, to protect workers from noise-induced hearing loss, the U.S. Occupational Safety and Health Administration (OSHA) limits worker noise exposure to 90 dBA as averaged over an 8-hour time period (29 CFR 1910.95). Similarly, the National Institute for Occupational Safety and Health (NIOSH) recommends workers limit noise exposure to no more than 85 dBA over an 8-hour period to protect against noise-induced hearing loss (NIOSH, 1998). Although hourly construction noise levels may approach 85 dBA L_{eq} or 91 dBA L_{eq}, such noise levels would not be sustained over an 8-hour period (due to movement of equipment and changes in operations that occur during daily construction activities). Therefore, at worst-case, noise from construction activities may pose a temporary interference or annoyance effect on nearby sensitive receptors but would not result in adverse physiological effects on human receptors in the surrounding area.

To reduce the potential for Project construction activities to result in a substantial temporary increase in ambient noise levels at receptors near the Project area, the City is incorporating Mitigation Measures into the Project.

> **Mitigation Measure NOI-1a: Provide Notification of Construction Activities.** To ensure receptors in the vicinity of the Project are aware of the Project and its planned construction activities, the City and/or its designated contractors, contractor's representatives, or other appropriate personnel shall:
>
> 1. *Notify Residential and Commercial Land Uses of Planned Construction Activities*. This notice shall be provided at least 14 calendar days prior to the start of any construction activities, describe the planned schedule of construction activities, describe the noise control measures to be implemented by the Project, and include the name and phone number of the designated contact for the City of Pacifica and its construction contractor responsible for handling construction-related noise complaints (per Mitigation Measure NOI-1b). This notice shall be provided to the owner/occupants of all residential dwelling units within 1,000 feet of construction work areas and the owner/occupants of commercial buildings within 500 feet of construction work areas.

2. *Notify Trail and Beach Users of Construction Activities.* The City shall post signs along overlook trails and trails leading to publicly accessible beaches within 500 feet of work areas warning of potential temporary elevated noise levels during construction. Signs shall remain posted throughout the duration of all sea wall installation activities.

Mitigation Measure NOI-1b: Reduce Construction Equipment Noise Levels. To reduce potential noise levels associated with Project construction activities, the City and/or its designated contractors, contractor's representatives, or other appropriate personnel shall:

1) *Control Construction Traffic and Site Access.* Construction truck traffic, including soil and debris and riprap hauling, equipment deliveries, and concrete and other vendor deliveries shall follow City-designated truck routes. Pursuant to City Municipal Code Section 4-7.1601, current designated truck routes in the City include Skyline Boulevard and State Highway Route 1. Pursuant to Municipal Code Section 4-7.1402(b), ingress and egress for the purpose of picking up or delivering construction-related materials shall occur via a direct route between the designated truck route and the Project site. Construction truck traffic shall avoid routes that contain residential dwelling units to the maximum extent feasible given specific Project location and access needs.

2) *Construction Equipment Selection, Use, and Noise Control Measures.* The following measures shall apply to Project construction equipment:

   a. Contractors shall use the smallest size equipment capable of safely completing work activities.

   b. Construction staging activities such as receipt of deliveries, equipment and material storage, etc. shall occur as far away from residential land uses as possible.

   c. All stationary noise-generating equipment such as pumps, compressors, and welding machines shall be shielded and located as far from sensitive receptor locations as practical. Shielding may consist of trailers, stored materials, or a three- or four-sided enclosure provided the structure/barrier breaks the line of sight between the equipment and the receptor and provides for proper ventilation and equipment operations.

   d. Heavy equipment engines shall be equipped with standard noise suppression devices such as mufflers, engine covers, and engine/mechanical isolators, mounts, etc. These devices shall be maintained in accordance with manufacturer's recommendations during active construction activities.

   e. Pneumatic tools shall include a noise suppression device on the compressed air exhaust.

f. The applicant/project representative and/or their contractor shall connect to existing electrical service at the site to avoid the use of stationary power generators (if feasible).

g. No radios or other amplified sound devices shall be audible beyond the property line of the construction site.

Mitigation Measure NOI-1c: Install Temporary Noise Barrier along Esplanade Avenue. To reduce potential construction noise levels at receptors on the east side of Esplanade Avenue, the City and/or its construction contractor shall install a temporary, six-foot-tall noise barrier along the eastern perimeter of the northern staging area. To the maximum extent feasible given site constraints and existing road/curb conditions, vehicular access to this staging area shall occur at the northern terminus of the barrier at Beaumont Avenue. The barrier shall consist of nominal 0.5-inch plywood with a minimum material density of 1.7 pounds per square foot installed at grade (or mounted to structures located at-grade, such as a K-Rail) and free of openings or gaps other than weep holes). Alternatively, commercially available acoustic panels or other products such as acoustic barrier blankets that have a minimum sound transmission class or transmission loss value of 20 dB may be attached to a chain link or other security fence. The noise barrier may be removed following the completion of sea wall installation (i.e., it is not necessary during restoration or riprap removal phases).

Mitigation Measure NOI-1d: Prepare Construction Noise Complaint Plan. To prepare for unanticipated or unexpected construction noise issues, the City and/or its designated contractors, contractor's representatives, or other appropriate personnel shall prepare a Construction Noise Complaint Plan that shall:

1) Identify the name and/or title and contact information (including phone number and email) for designated City and construction contractor representatives responsible for addressing construction-related noise issues.

2) Include procedures describing how the designated Project representative will receive, respond, and resolve construction noise complaints. At a minimum, upon receipt of a noise complaint, the designated representative shall notify the City, verify and determine the nature of the complaint (e.g., identify the noise source generating the complaint), and take steps to resolve the complaint, such as, but not limited to, changing equipment operations, installing a temporary noise shield, etc.

The implementation of Mitigation Measures NOI-1a to NOI-1d would reduce construction noise levels by 5 dBA to 10 dBA at individual receptors locations during the daytime. Based on the modeled worst-case scenario exterior noise levels of 91 dBA (see Table 4-18) with the above measures incorporated, exterior noise levels at individual receptors could reach 81 to 86 dBA. Such construction noise levels would be similar to the maximum measured daytime noise levels in the project vicinity, but noticeably louder (20 to 30 dB) than the typical measured daytime noise

levels (see Table 4-11). Noise levels during typical construction activities would typically be at least 10 dBA to 20 dBA lower than worst case conditions and would not annoy or interfere with the use of adjacent residential properties.

Although worst-case construction noise levels could be noticeably louder than typical hourly daytime noise levels (approximately 53 dBA Leq to 60 dBA Leq), Mitigation Measures NOI-1a to NOI-1d would require the City to provide advanced warning of the proposed Project's potentially noisy construction activities, restrict work hours to periods when period humans are less sensitive to elevated noise levels as in accordance with Municipal Code requirements, implement equipment noise control measures, install temporary noise barriers at impacted receptors, and prepare and plan for unanticipated or unexpected construction noise issues. By providing advanced notice of loud construction activities and implementing equipment control and temporary noise barriers, the potential for receptors to be surprised or annoyed by loud exterior noises would be substantially reduced. In addition, daytime noise levels inside residential buildings would be approximately 12 dBA to 20 dBA lower, depending on whether windows and doors were open or closed (see footnote 2). Thus, interior noise levels at individual residential receptors could potentially reach 61 dBA Leq to 74 dBA Leq during daytime hours when humans are less sensitive to higher noise levels. At no time are the proposed Project's exterior or interior construction noise levels estimated to result in physical harm to a receptor. Finally, although worst-case construction noise levels could be noticeably louder than typical conditions, this worst-case temporary increase would occur intermittently (no more than 6 to 8 hours per day) for a period of no more than 2 to 3 days, which would not constitute sustained or prolonged exposure to temporary noise increases. The implementation of these Mitigation Measures NOI-1a to NOI-1d would lower overall Project construction noise levels, reduce the potential for Project construction noise levels to annoy residential receptors, and reduce the potential for Project construction noise levels to interference with normal use of residential properties. The implementation of Mitigation Measures NOI-1a to NOI-1d would, therefore, render the Project's construction noise levels less than significant with mitigation.

Impact NOI-2: The construction of the Project could result in the generation of excessive groundborne vibration or groundborne noise levels. (Less Than Significant)

Construction activities have the potential to result in varying degrees of ground vibration, depending on the specific construction equipment used and activities involved. Vibration generated by construction equipment spreads through the ground and diminishes with increases in distance. The effects of ground vibration may be imperceptible at low levels, result in low rumbling sounds and detectable vibrations at moderate levels, and can disturb human activities such as sleep and vibration sensitive equipment at high levels. Ground vibration can also potentially damage the foundations and exteriors of existing structures even if it does not result in a negative human response.

Construction vibration impacts generally occur when construction activities occur in close proximity to buildings and vibration-sensitive areas, during evening or nighttime hours, or when construction activities last extended periods of time. The construction activities associated with

the proposed Project would occur in phases over approximately 265 total active workdays and, as described under Impact Noise-1, occur at the blufftop, along Esplanade Avenue, where noise and vibration-sensitive uses occur, as well as the bluff face and toe, below Esplanade Avenue. The Project's construction work areas are, in general, located close to existing residential buildings that would be sensitive to groundborne vibration, including buildings addressed at 360, 340/350, 335, 325, 305, 100, and 8 Esplanade Avenue (Receptors R1 to R7, respectively; see Table 4-19).

Potential construction equipment vibration levels were estimated using construction phasing and equipment usage provided by the Project's design and engineering team and reference vibration levels documented and contained in Caltrans' Transportation and Construction Vibration Guidance Manual and the Federal Transit Administration's (FTA) Transit Noise and Vibration Impact Assessment Manual (Caltrans 2020 and FTA 2018). Vibration estimates are provided for equipment operating at the top of the bluff, the middle of the bluff face, and the toe of the bluff for both typical and worst-case construction activities. Refer to Appendix F for detailed information regarding groundborne vibration estimates.

Like the construction noise estimates discussed in Impact Noise-1, the magnitude of the Project's construction-related groundborne-vibration levels at modeled receptor locations is also a function of the anticipated construction activities, equipment usage, and distance between modeled receptors and the proposed construction activities. The vibration impact assessment prepared for this EIR is a generalized assessment that estimates groundborne vibration levels primarily as a function of distance; however, there are other factors that could influence vibration transmission and the Project's predicted grounborne vibration levels, such as subsurface geologic conditions that reduce or promote vibration propagation (e.g., changes in strata, depth to bedrock, etc.) and the building foundation where vibrations may be of interest (lighter buildings are more prone to vibration effects). The above factors would likely result in an overestimate of groundborne vibration levels at specific receptor locations. Thus, although there is some uncertainty regarding potential groundborne vibration noise levels associated with the Project, the values presented in this EIR are considered worst-case estimates.

Groundborne Vibration from Equipment at the Top of the Bluff

As shown in Table 4-19, the construction equipment that would operate at the top of the bluff during all phases except riprap removal would include material handers, cranes, etc. This type of equipment does not include specific impact or vibration-inducing components and does not generate substantial ground borne vibrations.

During typical construction periods, the equipment at the top of the bluff would operate at least 105 feet from all residential buildings (see Table 4-19); however, in certain instances, equipment operations at the top of the bluff could occur closer to a receptor. For example, as installation of the shotcrete wall proceeds, the concrete pump truck used to pump the shotcrete down to the bluff face would move from one end of the northern staging area to the other end, moving away from R1 and R2 and getting closer to R5, R6, and R7 (or vice versa). During worst-case construction activities, the equipment at the top of the bluff would temporarily operate close to residential

buildings, within approximately 20 feet of R2 (340/350 Esplanade Avenue), 65 feet of R3 (335 Esplanade Avenue), 70 feet of R4 (325 Esplanade Avenue) and R5 (305 Esplanade Avenue), and 95 feet of R6 (8 Esplanade Avenue). During these worst-case periods, equipment would operate for short periods of time (i.e., a few minutes to a few hours). The number of days that construction activities at the top of the bluff could occur closest to any single receptor is estimated to be 10 total days of construction across all planned phases.

The ground-borne vibration levels generated by the type of equipment that would be used at the top of the bluff are shown in Table 4-19.

Table 4-19: Estimated Typical and Worst-Case Construction Groundborne Vibration Levels - Top of Bluff Equipment Operations

Equipment	Days[C]	Typical Vibration Level (PPV, in/sec) at Modeled Receptor[A],[B]							
		R1 (310 ft)	R2 (105 ft)	R3 (110 ft)	R4 (125 ft)	R5 (145 ft)	R6 (210 ft)	R7 (395 ft)	R8 (105)
Truck	98	0.003	*0.012*	*0.011*	0.009	0.008	0.005	0.002	0.012
Loader	10	0.003	*0.014*	*0.013*	*0.011*	0.009	0.006	0.002	*0.014*
Crane	116	0.003	*0.014*	*0.013*	*0.011*	0.009	0.006	0.002	*0.014*
Equipment	**Days[E]**	**Worst-case Vibration Level (PPV, in/sec) at Modeled Receptor[B],[D]**							
		R1 (210 ft)	R2 (20 ft)	R3 (65 ft)	R4 (70 ft)	R5 (70 ft)	R6 (95 ft)	R7 (265 ft)	R8 (--)[F]
Truck	10	0.005	***0.102***	*0.022*	*0.020*	*0.020*	*0.013*	0.004	N/A
Loader	10	0.006	***0.119***	*0.026*	*0.023*	*0.023*	*0.016*	0.004	N/A
Crane	10	0.006	***0.119***	*0.026*	*0.023*	*0.023*	*0.016*	0.004	N/A

Source: MIG (see Appendix F)
(A) Typical vibration level is based on the distance between receptor and center of closest staging/ work area.
(B) Italicized, underlined, and **bold** text indicates the estimated vibration level would exceed Caltrans' "slightly perceptible" (0.01 PPV in/sec), "distinctly perceptible" (0.04 PPV in/sec), and "strongly perceptible" (0.1 PPV in/sec) guidelines, respectively, for human detection and annoyance from continuous vibration sources (see Table 4-14).
(C)Typical vibration exposure duration excludes tieback installation, shotcrete wall installation, and rip-rap removal because these phases would not include vibration inducing construction equipment at the blufftop.
(D) Worst-case vibration level is based on the distance between receptor and edge of closest staging/ work area.
(E) Worst-case vibration exposure duration assumes equipment only operates in the part of the staging/work area directly opposite the receptor for no more than 10 days total during site preparation, tieback installation, shotcrete wall installation, and restoration phases. Worst-case vibration estimates exclude sheet pile wall and pile cap installation phases because these phases would not include the use of vibration inducing construction equipment at the top of the bluff.
(F) Receptor R8 is a commercial receptor adjacent to the southern staging area where worst-case equipment operations would not occur. Therefore, no worst-case vibration estimates are provided for R8. .

As shown in Table 4-19, the typical temporary but continuous operation of construction equipment at the top of the bluff could exceed Caltrans' "slightly perceptible" guideline for human detection and annoyance from continuous vibration sources (0.01 PPV in/sec, see Table 4-14) at R2 (340/350 Esplanade Avenue), R3 (335 Esplanade Avenue), R4 (325 Esplanade Avenue), and R8 (5 Manor Drive), but not at R1 (360 Esplanade Avenue), R5 (305 Esplanade Avenue), R6 (8 Esplanade Avenue), or R7 (100 Esplanade Avenue). The potential groundborne vibration levels

during typical equipment operations at the top of the bluff would not exceed Caltrans' "distinctly perceptible" (0.04 PPV in/sec) or "strongly perceptible" (0.1 PPV in/sec) guidelines for human detection and annoyance at any receptor location.

Also as shown in Table 4-19, the worst-case operation of construction equipment at the top of the bluff could exceed Caltrans' slightly perceptible guideline for human detection and annoyance from continuous vibration sources (0.01 PPV in/sec) at R2 (340/350 Esplanade Avenue), R3 (335 Esplanade Avenue), R4 (325 Esplanade Avenue), R5 (305 Esplanade Avenue), and R6 (8 Esplanade Avenue), but not at R1 (360 Esplanade Avenue) R7 (100 Esplanade Avenue), or R8 (5 Manor Drive). The operation of construction equipment at the top of the bluff could also exceed Caltrans' "distinctly perceptible" and "strongly perceptible" guidelines for human detection and annoyance (0.04 PPV in/sec and 0.10 PPV in/sec, respectively, see Table 4-14) at R2 only. During worst-case operations, potential groundborne vibration levels at R3, R4, R5, and R6 would not exceed Caltran's distinctly or strongly perceptible guidelines.

The operation of the equipment at the top of the bluff would not exceed Caltrans' criterion for structural damage to older residential buildings from a continuous vibration source (0.3 PPV in/sec, see Table 4-19) at any receptor building during typical and worst-case operations.

Groundborne Vibration from Equipment on the Face of the Bluff

As shown in Table 4-20, the construction equipment that could operate on the bluff face below Esplanade Avenue would be limited to a tieback drill rig, which is a portable auger or hammer drill device that would install the tieback rods necessary to support the shotcrete wall.

During typical tieback installation periods, the equipment at the top of the bluff would operate at least 105 feet, and usually approximately 190 feet or more, horizontally away from all residential buildings (see Table 4-20); however, certain tieback installation activities would occur closer to receptors at certain times. For example, the installation of the southernmost tieback rods would occur closest to R1 (360 Esplanade Avenue) and R2 (340/350 Esplanade Avenue), and farthest from R5 (305 Esplanade Avenue), R6 (8 Esplanade Avenue), and R7 (100 Esplanade Avenue). At worst-case, the tieback drill rig could operate within approximately 77 horizontal feet of R1 and 51 horizontal feet of R2. All other tieback installations would occur at least 164 feet from all other receptors. The tieback drill rig equipment would directly contact the bluff face at least 30 feet below the surface of the blufftop. The vertical difference between receptors on the blufftop and the contact point of the tieback drill rig on the bluff face increases the distance vibrations must travel and would likely limit or alter the potential for surface (or Rayleigh) waves, the primary wavefront of concern from construction activities, to form above the vibration source (i.e., the tieback drill rig) and affect the receptor closest to the drill rig contact point.[15] The tieback

[15] Groundborne vibrations consist of compression or primary waves, shear or secondary waves, and Rayleigh or surface waves. Rayleigh waves are considered the most significant disturbance, particularly for construction (Caltrans 2020).

installation phase would involve the placement of approximately 128 tieback rods over 56 days, or approximately 2.3 tieback rods per day. Therefore, during worst-case operations, the tieback drill rig could operate close to any single receptor for up to 8 hours per day for approximately 1 to 3 days.

The ground-borne vibration levels generated by the tieback drill rig are shown in Table 4-20.

Table 4-20: Estimated Typical and Worst-Case Construction Groundborne Vibration Levels – Bluff Face Equipment Operations

Equipment	Days[C]	Typical Vibration Level (PPV, in/sec) at Modeled Receptor[A],[B]							
		R1 (206 ft)	R2 (107 ft)	R3 (210 ft)	R4 (197 ft)	R5 (192 ft)	R6 (316 ft)	R7 (493 ft)	R8 (--)[D]
Tie-back drill rig	56	0.006	*0.013*	0.006	0.006	0.006	0.003	0.002	N/A
Equipment	**Days[F]**	**Worst-case Vibration Level (PPV, in/sec) at Modeled Receptor[B],[E]**							
		R1 (83 ft)	**R2 (59 ft)**	**R3 (178 ft)**	**R4 (164 ft)**	**R5 (178 ft)**	**R6 (199 ft)**	**R7 (321 ft)**	**R8 (--)[D]**
Tie-back drill rig	3	*0.019*	*0.023*	0.007	0.008	0.007	0.006	0.003	N/A

Source: MIG (see Appendix F)
(A) Typical vibration level is based on the distance between receptor and center of tie back area. The typical vibration estimates do not account for any vertical elevation differences between the equipment and receptor.
(B) Italicized text indicates the estimated vibration level would exceed Caltrans' "slightly perceptible" (0.01 PPV in/sec) guideline for human detection and annoyance from continuous vibration sources (see Table 4-14).
(C)Typical vibration exposure duration would occur for entire tieback installation phase.
(D) Receptor R8 would be more than 1,000 feet away from tieback installation activities, which is far enough away from work areas for vibrations to be null/imperceptible.
(E) Worst-case vibration level is based on the distance between receptor and edge of closest tieback area. Distances for R1 and R2 account for vertical elevation differences between the equipment and receptor.
(F) Worst-case vibration estimate assumes 2 to 3 tie backs installed per day and that equipment operates closest to the receptor for no more than 3 days.

As shown in Table 4-20, the typical tieback drill rig operation on the bluff face would not exceed Caltrans' slightly perceptible guideline for human detection and annoyance from continuous vibration sources (0.01 PPV in/sec, see Table 4-17) at all receptors except R2 (340/350 Esplanade Avenue). At R2, potential vibration levels would slightly exceed Caltrans' slightly perceptible guideline for human detection and annoyance, but not Caltrans' distinctly perceptible guideline (0.04 PPV in/sec).

Also as shown in Table 4-20, the worst-case tieback drill rig operation could exceed Caltrans' slightly perceptible guideline for human detection and annoyance from continuous vibration sources (0.01 PPV in/sec) at R1 (360 Esplanade Avenue) and R2 (340/350 Esplanade Avenue), but not Caltrans' distinctly perceptible guideline (0.04 PPV in/sec). All other receptors would be subject to vibrations below Caltrans' slightly perceptible guidelines for human detection and annoyance during worst-case operation of the tieback drill rig.

The operation of the tieback drill rig would not exceed Caltrans' criterion for structural damage to older residential buildings from a continuous vibration source (0.3 PPV in/sec, see Table 4-13) at any receptor building during typical and worst-case tieback drill rig operations.

Groundborne Vibration from Equipment at the Toe of the Bluff

As shown in Table 4-21, the construction equipment that would operate at the toe of the bluff during all phases except restoration would include but not be limited to excavators, loaders, dozers, pumps, material handlers, and vibratory or impact pile drivers. With the exception of the pile drivers, the type of equipment that would operate at the bluff toe does not include specific impact or vibration-inducing components and does not generate substantial ground borne vibrations.

During typical construction periods, the equipment at the toe of the bluff would operate at least 105 feet horizontally away from all residential buildings (see Table 4-17); however, the installation of certain sheet piles would occur closer to receptors at certain times. For example, the installation of the southernmost sheet pile would occur closest to R1 (360 Esplanade Avenue) and R2 (340/350 Esplanade Avenue), and farthest from R5 (305 Esplanade Avenue), R6 (8 Esplanade Avenue), and R7 (100 Esplanade Avenue). At worst-case, a pile driver could operate within approximately 79 horizontal feet of R1 and 61 horizontal feet of R2. All other sheet pile installations would occur at least 164 feet from all other receptors. The pile driver could include noise and vibration-generating equipment such as a hammer, pile cap, engine, etc. mounted approximately 30 feet above the surface of the bluff toe. However, from a groundborne vibration perspective, the pile driver would contact the ground at the toe of the bluff at least 90 feet below the surface of the blufftop. The vertical difference between receptors on the blufftop and the contact point of the pile driver increases the distance vibrations must travel and would likely limit or alter the potential for surface waves to affect the receptor closest to the pile driving (see footnote in subsection "Groundborne Vibration from Equipment on the Face of the Bluff"). The sheet pile phase would involve the placement of approximately 195 pairs of sheet piles over 50 days, or approximately 4 pairs of sheet piles per day (approximately 16 to 20 feet of linear wall length). Therefore, during worst-case operations, the pile driver could operate close to any single receptor for up to 8 hours per day for approximately 1 to 2 days.

The ground-borne vibration levels generated by the type of equipment that would be used at the toe of the bluff are shown in Table 4-21.

Table 4-21: Estimated Typical and Worst-Case Construction Groundborne Vibration Levels – Bluff Toe Equipment Operations

Equipment	Days[C]	Typical Vibration Level (PPV, in/sec) at Modeled Receptor[A],[B]							
		R1 (225 ft)	R2 (140 ft)	R3 (228 ft)	R4 (217 ft)	R5 (212 ft)	R6 (329 ft)	R7 (501 ft)	R8 (--)[D]
Pile Driver[E]	50	*0.037*	*0.069*	*0.037*	*0.039*	*0.040*	*0.023*	*0.013*	N/A
Equipment	**Days[G]**	**Worst-case Vibration Level (PPV, in/sec) at Modeled Receptor[B],[F]**							
		R1 (120 ft)	**R2 (109 ft)**	**R3 (199 ft)**	**R4 (187 ft)**	**R5 (197 ft)**	**R6 (218 ft)**	**R7 (333 ft)**	**R8 (--)[D]**
Pile Driver[E]	2	*0.085*	*0.096*	*0.044*	*0.048*	*0.044*	*0.039*	*0.022*	N/A

Source: MIG (see Appendix F)
(A) Typical vibration level is based on the distance between receptor and center of tie back area. The typical vibration estimates account for any vertical elevation differences between the equipment and receptor.
(B*) Italicized*, underlined, and **bold** text indicates the estimated vibration level would exceed Caltrans' "slightly perceptible" (0.01 PPV in/sec), "distinctly perceptible" (0.04 PPV in/sec), and "strongly perceptible" (0.1 PPV in/sec) guidelines, respectively, for human detection and annoyance from continuous vibration sources (see Table 4-14).
(C) Typical vibration exposure duration would occur for entire sheet pile wall installation phase.
(D) Receptor R8 would be more than 1,000 feet away from sheet pile installation activities, which is far enough away from work areas for vibrations to be null/imperceptible.
(E) Although vibratory pile drivers typically generate lower groundborne vibration levels, Caltrans guidance (2020) identifies a 0.65 PPV (in/sec) reference groundborne vibration level for both impact and vibratory pile drivers. Therefore, no distinction is made between vibratory and impact drivers in this analysis.
(E) Worst-case vibration level is based on the distance between receptor and edge of closest tieback area. Distances for R1 and R2 account for vertical elevation differences between the equipment and receptor.
(F) Worst-case vibration estimate assumes 4 sheet piles installed per day and that equipment operates closest to the receptor for 2 days.

As shown in Table 4-21, the typical pile driver operation at the bluff toe would exceed Caltrans' slightly perceptible guideline for human detection and annoyance from continuous vibration sources (0.01 PPV in/sec, see Table 4-14) at all modeled receptors. At R2 (340/350 Esplanade Avenue) and R5 (305 Esplanade Avenue), potential vibration levels could also exceed Caltrans' distinctly perceptible guideline for human detection and annoyance (0.04 PPV in/sec), but not Caltrans' strongly perceptible guideline (0.10 PPV in/sec). During typical operations, potential groundborne vibration levels at R1 (360 Esplanade Avenue), R3 (335 Esplanade Avenue), R4 (325 Esplanade Avenue), R6 (8 Esplanade Avenue), and R7 (100 Esplanade Avenue) would not exceed Caltrans distinctly perceptible guideline.

Also as shown in Table 4-21, the worst-case pile driver operation could exceed Caltrans' slightly perceptible (0.01 PPV in/sec) and distinctly perceptible (0.04 PPV in/sec) guidelines for human detection and annoyance from continuous vibration sources at R1 (360 Esplanade Avenue), R2 (340/350 Esplanade Avenue), R3 (335 Esplanade Avenue), R4 (325 Esplanade Avenue) and R5 (305 Esplanade Avenue). At R6 and R7, worst-case operations would only exceed Caltrans' slightly perceptible guideline (0.01 PPV in/sec).

If the proposed Project would require an additional pile driver during the sheet pile wall installation phase, the cumulative effect in terms of vibration would be relatively small. Peak vibration levels are short-lived and pass very quickly, and so the peak particle velocity at each nearby receptor would not significantly change with more than one pile driver in operation. Having more than one pile driver in operation would likely result in a greater number of peak velocities during the pile driving activity, however the cumulative peak velocity would likely remain relatively unchanged compared to the scenario with one pile driver in operation. Potential vibration levels are not expected to exceed Caltrans's strongly perceptible guideline (0.10 PPV in/sec) if more than one pile driver would be operating during the sheet pile wall installation phase.

Pile driver operations would not exceed Caltrans' criterion for structural damage to older residential buildings from a continuous vibration source (0.3 PPV in/sec, see Table 4-13) at any receptor building during typical and worst-case tieback drill rig operations.

Significance Determination

As described above, most Project construction activities could generate groundborne vibration levels that would be slightly to distinctly perceptible, particularly during worst-case conditions, when equipment operates at its closest point to modeled receptors. These vibration levels do not exceed Caltrans' guidance for potential building damage during the day. The proposed Project would not include nighttime construction activities, thus the Project would not exceed Caltrans' criterion for human annoyance response to slightly perceptible vibrations (0.01 PPV in/sec) during nighttime (see Table 4-13 and Table 4-14). Furthermore, typical and worst-case vibrations during the daytime would not be excessive because they would be intermittent (occurring only when equipment is in use), occur during the daytime (when people are less sensitive to vibration effects), and would not result in damage to existing structures near the Project area. This impact is less than significant.

Impact NOI-3: The Project would not cause substantial adverse cumulative impacts with respect to noise or vibration. (No Impact)

The proposed Project would involve construction activities along the west side of Esplanade Avenue. For the purposes of this cumulative noise and vibration impact analysis, the geographic context is limited to the extent the potential noise impacts caused by the proposed Project that could combine with other relevant cumulative developments. Although construction noise may, theoretically, be audible far from the source, in practice ambient noise from wind and other land uses is substantially louder than construction equipment operating 1,000 feet away or further. Therefore, the geographic context is limited to the area within 1,000 feet of the proposed construction work areas and primary roads used to access the Project area site (Esplanade Avenue).

Although the proposed Project would result in potentially significant construction noise (Impact Noise-1) and vibration (Impact Noise-2) impacts, it does not have the potential to result in a cumulative construction noise or vibration impact because there are not projects located within 1,000 feet of the proposed Project that could generate construction noise and vibrations that would combine with the proposed Project. The proposed Project, therefore, would not result in a cumulative considerable contribution to cumulative noise and vibration impacts.

4.9.6 References

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4.10 PUBLIC SERVICES AND RECREATION

This EIR section address the Project's potential impacts on public services and recreation and suggests mitigation measures, if necessary.

4.10.1 Environmental Setting

The following describes the existing public services and recreation setting within the Project area.

Fire protection and medical emergency services in Pacifica are provided by the North County Fire Authority. The closest fire station to the site is Fire Station 71, located at 616 Edgemar Avenue in Pacifica. Fire Station 71's primary response area is the Pacifica Manor District and north end of Pacifica, including the Project site.

The Pacifica Police Department is responsible for public safety in the Project area. The Police Department has an office at 2075 Pacific Coast Highway, approximately three miles south of the Project site.

Several school districts serve the residents of Pacifica. These include the Jefferson Union High School District and Pacifica School District. The nearest school to the Project site is Ocean Shore Elementary School, approximately 0.2 mile southeast of the Project site.

The beach at the toe of the bluff is noted as "beach" in the City's 2040 General Plan and also notes dogs are allowed off-leash at this beach. The General Plan shows Esplanade Avenue as an existing on-street trail route known as the Coastal Trail. Other recreational facilities in the Project area include the coastal bluffs to the north operated by the Golden Gate National Recreation Area as well as the area near 400 Esplanade Avenue which is identified as Regional Open Space and a park opportunity site on the City's Parks and Open Space System map.

4.10.2 Regulatory Setting

State

Coastal Act Policies

Chapter 3, Article 2 Public Access of the Coastal Act contains the following policy sections related to recreation and public access that are relative to the proposed Project.

Public Resources Code Section 30210. In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.

Public Resources Code Section 30211. Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rock coastal beaches to the first line of terrestrial vegetation.

Public Resources Code Section 30223. Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.

Local

City of Pacifica Local Coastal Land Use Plan 1980

The LCLUP lists the following Coastal Act Policies related to public services and recreation:

- *Policy 1*: Maximum access shall be conspicuously posted and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of property owners, and natural resource areas from overuse.

- *Policy 5:* lower cost visitor and recreational facilities and housing opportunities for persons of low and moderate income shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred. New housing in the Coastal Zone shall be developed in conformity with the standards, policies, and goals of the local housing elements adopted in accordance with the requirements of subdivision (c) of Section 65302 of the Government Code.

- *Policy 6:* Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.

- *Policy 7:* Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.

- *Policy 11:* Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic. significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

- *Policy 18:* Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on such resources shall be allowed within such areas. Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade such areas, and shall be compatible with the continuance of such habitat areas.

City of Pacifica General Plan 2040

The General Plan 2040 includes the following applicable guiding and implementation policies.

- *OC-G-6: Coastal Areas Suited for Water-Oriented Recreation*. Continue to protect coastal areas suited for water-oriented recreational activities.

- *OC-G-8: Coastal Access and Recreational Opportunities*. Provide maximum coastal access and recreational opportunities for all people consistent with public safety and the need to protect public rights, rights of property owners, and natural resource areas from overuse, including access at each point identified on Figure 6-3.

- *OC-G-9: Management of Public Access*. Regulate the time, place, and manner that public access is provided, based on such factors as topographic and site constraints; the fragility of natural resources; public safety; and the privacy of adjacent residential uses.

- *OC-I- 38: New Development and Coastal Access*. Require that new development along the coastline provide public access from the nearest public roadway to the shoreline and along the coast, and be designed to minimize impacts to public coastal access and recreation. Ensure that impacts are mitigated through the dedication of access or trail easements or the provision of improvements to other public access points. The City may grant exceptions to this requirement where public access would pose a safety risk or threat to fragile resources, or where adequate access exists nearby.

- *OC-I-42: Structures on Public Beaches*. Limit structural development on public beaches to that which is necessary for public access or safety, such as lifeguard towers, waste receptacles, or wheelchair accessways. Such development shall be able to be removed or relocated, and shall be sited and designed to minimize adverse impacts on public access, recreation, and coastal resources.

- *OC-I-47: Esplanade Bluff.* Develop a small public park or viewing area and a trail on City-owned bluff top land along the 400-block of Esplanade Avenue (Point 5 on Figure 6-3 of the General Plan), if such improvements are feasible.

4.10.3 Thresholds of Significance

The Project would have a significant impact with regard to public services and recreation if it would:

a) 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:

1. Fire protection;
2. Police protection;
3. Schools;
4. Libraries; or
5. Parks and Recreation Facilities.

b) Result in increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

c) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

4.10.4 Impacts and Mitigation Measures

This section describes potential impacts related to public services and recreational facilities that would result from implementation of the Project.

Impact PUB-1: The Project would not 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 fire protection, police protection, schools, libraries, or parks and recreation facilities. (No Impact)

The proposed Project is the construction of a new seawall along the toe of a coastal bluff. Construction could restrict access in the area during construction, however the construction site would be managed in accordance with established mandates regarding access for emergency service vehicles and would not necessitate the alteration of any other facilities, including fire protection, police protection, schools, libraries or parks, and recreation facilities to accommodate the construction process.

The proposed Project does not include new housing and would not induce population; therefore, it would not increase enrollment at local schools, or require the provision of new or physically altered schools nor increase the use of local and regional parks or require the provision of new or physically altered parks, or other governmental facilities.

Impact REC-1: The Project would not increase the use of existing neighborhood or regional parks or other recreational facilities such that significant physical deterioration of the facility would occur or be accelerated or include recreational facilities or require or expansion of recreational facilities which might have an adverse effect on the environment. (Less than Significant Impact)

The City proposes to construct a seawall to protect the coastal bluff from further erosion and would not involve or effect parks or recreational facilities. The blufftop will be restored with native coastal bluff plantings. Passive recreation will be allowed in the area through the provision of a paved walkway with pedestrian amenities such as benches. The bluff edge include a fence for safety.

The Project may restrict some adjacent beach uses during construction, as the existing access ramp to the beach from Esplanade Avenue near Manor Drive (currently closed to the public) would be used for construction vehicle and equipment access and would remain closed to the public during construction. However, these impacts would be temporary, lasting only for the duration of construction, and would only impact roughly 650 linear feet of beach. It is likely that the access will be improved following the project construction in conjunction with the City's planned park and infrastructure preservation improvements for the adjacent 400 block of Esplanade Avenue. (City of Pacifica, 2023).

Therefore, it would not increase the use of existing neighborhood and regional parks or other recreational facilities and would not include or require the construction or expansion of recreational facilities.

4.10.5 References

City of Pacifica 1980. Local Coastal Land Use Plan. March 24.

City of Pacifica. 2022. General Plan 2040. July

City of Pacifica. Police Department website.
https://www.cityofpacifica.org/depts/police/default.asp

City of Pacifica. Fire Department website. https://www.cityofpacifica.org/depts/fire/default.asp

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5 ALTERNATIVES TO THE PROPOSED PROJECT

Section 15126.6 of the CEQA Guidelines requires an EIR to *"describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." The section also states that "the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if those alternatives would impede to some degree the attainment of the project objectives, or would be more costly."* Under Section 15126.6(a) of the CEQA Guidelines, an EIR does not need to consider alternatives that are not feasible, nor does it need to address every conceivable alternative to the Project. The range of alternatives "is governed by the 'rule of reason' that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice" (CEQA Guidelines § 15126.6(f).)

Pursuant to Section 15126.6, this chapter describes four alternatives to the Esplanade Avenue Infrastructure Preservation Project: 1) the CEQA-mandated No Project Alternative; 2) Grading of the Bluff Alternative; 3) Sand Replenishment Alternative; and 4) Rock Revetment Alternative. The impacts of each alternative are compared to the Project. The ability of each alternative to meet the basic project objectives is also described, and the "environmentally superior" alternative among the four alternatives is identified, as required by the CEQA Guidelines.

5.1 IMPACTS OF THE PROPOSED PROJECT

CEQA requires the alternatives discussion to describe alternatives to the Project that would avoid or substantially lessen any of the significant effects of the Project. This EIR has identified the following significant but mitigable impacts that could result from the proposed infrastructure preservation project.

5.1.1 Less Than Significant with Mitigation Project Impacts

Impact BIO-1: The Project would not have a significant adverse effect, either directly or through habitat modifications, on any species listed as candidate, sensitive or special status species in local or regional plans, policies, or regulations by the California Department of Fish and Game or U. S. Fish and Wildlife. Implementation of Mitigation Measures BIO-1a through BIO-1c would reduce potential impacts to a less than significant level.

Impact CUL-1: The Project could inadvertently encounter cultural resources. Implementation of Mitigation Measure CUL-1 would reduce the potential impact to a less than significant level.

Impact NOISE-1 – The construction of the Project could result in the generation of a substantial temporary increase in ambient noise levels in excess of applicable standards established in the City's General Plan and Municipal Code. Implementation of Mitigation Measures NOI-1a through NOI-1d would reduce potential impacts to a less than significant level.

5.2 RATIONALE FOR ALTERNATIVE SELECTION

In accordance with CEQA Guidelines Section 15126.6(a), an EIR does not need to evaluate every conceivable alternative. Section 15126.6(c) of the CEQA Guidelines states, "Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental effects." CEQA Guidelines Section 15126(f)(2) indicates that alternatives that are remote or speculative, or the effects of which cannot be reasonably predicted, need not be considered.

CEQA Guidelines Section 15126.6(f) indicates that the Lead Agency should consider site suitability, economic viability, availability of infrastructure, general plan consistency, other regulatory limitation, jurisdictional boundaries, and the proponent's control over alternative sites in determining the range of alternatives to be evaluated in an EIR.

With respect to alternative sites, CEQA Guidelines Section 15126.6(f) indicates that alternative locations need not be evaluated in every case. For this Project, examining an alternative location for the Project is not a feasible alternative since the purpose of the Project is to protect a coastal bluff from further erosion and preserve existing City infrastructure at a specific location (310-330 Esplanade Avenue). Therefore, this chapter does not discuss an alternative project location.

A feasible range of alternatives has been evaluated that will allow decision-makers to make a reasoned choice and that meets most of the project objectives. The project objectives included in Chapter 3, Project Description, are:

Project Objectives:

1. Halt bluff toe erosion toward Esplanade Avenue and its critical infrastructure (roadway, water, sewer, and other utilities), to prevent infrastructure collapse due to bluff erosion for at least 30 years.

2. Minimize impacts to sensitive resources, such as, sand supply, beach access, ecological function, water quality, and shoreline aesthetics.

3. Provide public access to ocean views from Esplanade Avenue, except where public access would endanger public safety or fragile coastal resources.

While selecting alternatives to be considered for analysis, the City focused on alternatives which could potentially reduce the significant effects of the Project and would also achieve most of the

project objectives. The EIR impact analysis did not identify any significant and unavoidable impacts associated with adoption and implementation of the proposed infrastructure preservation project.

5.3 ALTERNATIVE CONSIDERED BUT REJECTED

The following alternative was reviewed but not included for further evaluation in this EIR for the reasons discussed below.

Managed Retreat Alternative

The Managed Retreat Alternative would allow the continued retreat of the coastal bluff toward Esplanade Avenue and its associated infrastructure and develop and implement a plan to relocate utilities, provide funding for the movement of residents out of harm's way, and possibly compensate landowners for loss of assets. Under certain circumstances, managed retreat can put land to beneficial use by creating public parks, restoring wetlands to absorb floodwaters, or providing habitats for endangered species. However, this is a temporary benefit at 310-330 Esplanade Avenue since over time, wave erosion will continue, and ultimately erode the area and retreat process would then need to repeat.

The time frame for eventual undermining of Esplanade Avenue would be highly dependent on winter swell and rainfall conditions. It is estimated that current critically over steepened slopes will lay themselves back to more stable inclinations forming a top of bluff located 20 to 30 feet from the edge of roadway. However, this section of narrowed bluff would remain vulnerable to loss from one significant storm season. There is also a significant potential for impacts to utilities and pavement prior to a roadway undermining event. Along bluffs to the west of Esplanade Avenue, tension cracks have been observed anywhere from 5 to 15 feet back from the top edge of the bluff. It is therefore reasonable to assume that separation cracks and some lateral displacement of utilities will occur when the top of bluff is approximately 15 feet away from the roadway. Regarding when such impacts may occur, much depends on the winter season intensity over future years, including projected sea level rise associated with climate change. Based on comparison of historic photographs, the average bluff retreat rate locally (over several decades prior to 2010) has been calculated at 2.5 feet per year. Also, if this section of bluff is allowed to retreat under a managed retreat plan, the stability of adjacent bluffs could be impacted making future predictions of how much area should be subject to managed retreat difficult.

For an urbanized area with existing infrastructure as well as structures, the cost of relocation and compensation may also be prohibitive. It is also uncertain when geomorphic stability would be achieved under a managed retreat plan and the continued erosion of the over steepened and unstable bluffs would also pose a continued risk to the public, especially along the beach under the bluffs. The timing for moving infrastructure such as water and wastewater lines, and planning for construction of a new pump station is lengthy, and may require acquisition of private easements, the success of which would not be guaranteed. Managed retreat would likely result in the creation of additional coastal bluff habitat, which will ultimately benefit native wildlife species,

and may or may not provide future opportunities for public access, depending on site conditions. However, given the urbanized land cover in the area, managed retreat and associated costs and timeframe is not a practical alternative for protecting existing infrastructure. Therefore, this alternative is rejected and is not considered for further consideration in this EIR.

5.4 ALTERNATIVES SELECTED

The following alternatives have been evaluated in comparison to the proposed infrastructure preservation project:

- Alternative 1: No Project
- Alternative 2: Grading of the Bluff
- Alternative 3: Sand Replenishment
- Alternative 4: Rock Revetment

Per CEQA Guidelines Section 15126.6(d), the discussion of impacts associated with the alternatives is less detailed than the evaluation included in Chapters 4.1 through 4.11.1. The alternatives' potential impacts are evaluated in the following Sections 5.4.1 through 5.4.4. Also in accordance with Section 15126.6, an "environmentally superior alternative" has been identified.

5.4.1 Alternative 1: No Project

State CEQA Guidelines Section 15126.6(e) requires an EIR to analyze the specific alternative of "No Project." The purpose of describing and analyzing the No Project alternative is to allow decision makers to compare the impacts of approving a proposed Project with the impact of not approving the proposed Project. The No Project Alternative shall discuss the existing conditions at the time the EIR notice of preparation is published, as well as what would be reasonably expected to occur in the foreseeable future if the Project were not approved, based on current plans and consistent with available infrastructure and community services.

Although the No Project Alternative does not meet any of the infrastructure preservation project objectives and is not considered a viable project alternative, it is presented below as required by CEQA for informational purposes.

Principal Characteristics

Under the No Project Alternative, the City would not construct seawalls or implement any other type of protection of the coastal bluff along Esplanade Avenue in the proposed Project area (310-330 Esplanade Avenue). The bluff would continue to erode and retreat, and would be expected to adversely impact the Esplanade Avenue infrastructure within a short period of time. The average

bluff retreat rate over the past 75 years at 330 Esplanade Avenue is roughly 2-1/2 feet per year, however, it is not unusual to lose ten feet per year. In 2016 the bluff at the project location retreated approximately seven feet in some locations.[16]

Under the No Project Alternative, the City would not replant the developed areas along the top of the bluff within the project site to restore native scrub habitat on top of the bluff within the project site, and no other passive recreational facilities (pedestrian path, benches) would be constructed. The blufftop would remain vacant, fenced with chain link fencing, covered with base rock and eroding shotcrete with patches of non-native vegetation.

Analysis of No Project Alternative

The impacts of the No Project Alternative are examined qualitatively to allow comparison with the Project. The City does not contain agricultural, forestry, or mineral resources, and is not located in a Very High Fire Hazard Severity zone and does not represent features that would substantially alter the wildfire risk in the area. The Project also does not involve Population and Housing-related issues. Therefore, these topics are not discussed below. They are discussed in Chapter 6 - CEQA Mandated Section of this EIR.

a. *Aesthetics.* The DEIR analysis found the aesthetic impacts of the proposed infrastructure preservation project to be less than significant. The Project would not have a substantial adverse effect on a scenic vista, damage scenic resources within a state designated highway, conflict with applicable zoning or other city regulations governing scenic quality or create a new source of light and glare. Although no significant impact would result, the analysis notes that temporary nighttime lighting during the construction period could occur on the blufftop areas where construction equipment is staged. For this reason the No Project Alternative could result in a slight reduction of impacts compared to the Project.

b. *Air Quality.* The DEIR analysis found the impacts of the proposed infrastructure preservation project to be less than significant. Potential impacts were related to short-term construction vehicle emissions of criteria pollutants and fugitive dust emissions. The No Project Alterative would result in no new construction at the project site, and therefore no construction related emissions of criteria pollutants or fugitive dust compared to the Project. As such, the No Project Alternative would have no Air Quality impact, but air quality impacts would be reduced in number and level of emissions compared to the Project.

c. *Biological Resources.* The DEIR analysis found the impacts of the infrastructure preservation Project on biological resources to be potentially significant under Impact BIO-1. However, implementation of Mitigation Measures BIO-1, BIO-2 and BIO-3 would reduce the Project's potentially significant impacts to less than significant. The No Project

[16] City of Pacifica, Public Works Department.

Alternative would not include proposed blufftop restoration activities that could improve native plant habitat, and in addition could result in soil and existing remnant pieces of shotcrete and rebar on the bluff face falling down to the beach and ocean below as erosion of the bluff proceeds unimpeded. This could potentially affect biological resources in these areas. For these reasons, the No Project Alternative could potentially have a greater, although still less than significant Biological Resources impact compared to the Project.

d. *Cultural Resources and Tribal Cultural Resources.* The DEIR analysis concluded the Project would have a less than significant impact related to Cultural Resources and Tribal Cultural Resources. Although it is not likely that there are archaeological remains or artifacts within the project site due to its location on the beach and prior ground disturbing activities that occurred during construction of the existing buildings on the top of the bluff, the possibility exists that buried archaeological and historical resources, including tribal cultural resources could be discovered during construction of the Project. The Project therefore includes Mitigation Measure CUL-1 that construction contractors would be required to follow that would ensure the protection and proper treatment of such resources. Under the No Project Alternative, there would be no construction activities that could potentially impact buried archaeological and historical resources, including tribal cultural resources. Thus, the No Project Alternative is considered to have a reduced level of impact compared to the Project.

e. *Energy.* The DEIR analysis concluded that the Project would not result in operational uses that would increase energy consumption and therefore would not result in a potentially significant environmental effect due to wasteful, inefficient, or unnecessary consumption of energy resources. In addition, as the proposed Project involves the construction of a seawall for coastal bluff fortification and would not increase energy consumption over the long term, it would neither conflict with nor obstruct a state or local plan adopted for the purposes of increasing the amount of renewable energy or energy efficiency. The No Project Alternative would result in no increases in energy consumption over existing conditions and would therefore also not result in a potentially significant environmental effect due to wasteful, inefficient, or unnecessary consumption of energy resources or conflict with or obstruct a state or local plan adopted for the purposes of increasing the amount of renewable energy or energy efficiency.

f. *Geology and Soils.* The DEIR analysis found that the Project's Geology and Soils impacts would be less than significant. Under the No Project Alternative there would be no construction, and therefore impacts related to seismic conditions (faults, liquefaction, ground failure), soil erosion, landslides and expansive soils would be irrelevant. The No Project Alternative would result in lesser Geology and Soils impacts than the Project.

g. *Greenhouse Gas Emissions.* The DEIR analysis found that the Project would generate GHG emissions from short-term construction activities, but would not generate any long-term, operational GHG emissions because it does not involve active operations or energy use following bluff stabilization. The Project also would not conflict with any plan or

policy adopted for the purposes of reducing GHG emissions, including the CARB Scoping Plan, the BAAQMD Clean Air Plan, and the Pacifica Climate Action Plan. Most of the policies and control measures contained in these plans would be implemented at the state or regional level and would not directly apply to the Project. In addition, the Project will

incorporate BMP AIR-1 and Mitigation Measure BMP NOI-1, which would reduce GHG emissions from construction equipment. Therefore, these impacts would be less than significant. The No Project Alternative would not generate either short-term or long-term emissions as it proposes no construction activities, and therefore would result in no impact.

h. *Hazards and Hazardous Materials.* The DEIR analysis found that the Project's impacts to Hazards and Hazardous Materials would be less than significant. Construction of the Project would involve the use of hazardous materials (fuels, oils and other vehicle-related products), which would be used in relatively small quantities, and in compliance with local and state safety requirements. No construction activities would occur under the No Project Alternative, therefore no use or transport of hazardous materials would occur. For these reasons, the No Project Alternative would have a reduced impact compared to the proposed Project.

i. *Hydrology and Water Quality.* The DEIR analysis concluded the project's hydrology and water quality impacts would be less than significant. The Project would not violate any water quality standards or waste discharge requirements, degrade surface or ground water quality, decrease groundwater supplies or recharge capabilities, or alter drainage patterns of the site or area. In addition, the Project was found not to risk the release of pollutants due to project inundation or conflict with the implementation of water quality or groundwater management plans. Under the No Project Alternative, no construction activities would occur, therefore the No Project Alternative would have a reduced impact compared to the proposed Project.

j. *Land Use and Planning.* The DEIR analysis found that the Project's impacts to Land Use would be less than significant. The Project would not physically divide an established community or 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. As with the Project, the No Project Alternative would not physically divide an established community. The No Project Alternative would have fewer potential land use conflicts than the proposed Project because it would result in no construction of any seawall and no short-term construction impacts to the surrounding community.

k. *Noise.* The Project would generate noise and vibration during construction. The DEIR found that the Project's impacts related to noise would be short term and less than significant with the implementation of noise control mitigation measures as noted in Mitigation Measures NOI-1A through NOI-1G and Mitigation Measures NOI-2A and NOI-2B. Vibration impacts were found to be less than significant. Because the No Project

Alternative would not result in any construction, it would not generate any construction noise and thus would have a reduced noise impact compared to the proposed Project.

l. *Public Services and Recreation.* The DEIR found that the Project would have less than significant impacts to Public Services and Recreation. By protecting the existing bluff face from further erosion, the proposed seawall would help to preserve recreational uses of the beach below. In addition, the Project would provide opportunities for passive recreation on the blufftop by restoring this area and installing a pedestrian path and benches. Under the No Project Alternative, the bluff would continue to erode, jeopardizing recreational uses of the beach below, and the blufftop would not be restored, providing no additional recreational opportunities for the community. For these reasons, the No Project Alternative could potentially have a greater Public Services and Recreation impact compared to the proposed Project.

m. *Transportation.* The DEIR found that the Project would have less than significant impacts to Transportation. The Project would not generate traffic over the long term or cause any changes to the circulation system during construction. Flaggers and/or other traffic control measures such as signage would be utilized during construction to ensure the safe transport of construction equipment and materials to and from the project site. With the exception of flaggers and traffic controls, the impacts to Transportation under the No Project Alternative would be similar compared to the Project.

n. *Utilities Systems.* The DEIR found that no utility connections are required to operate the Project and there would be no need to connect to utility infrastructure such as water, sewer, stormwater, electrical, natural gas or telecommunications utilities. Therefore, the Project would have no impact on utilities and would not require relocation of existing utilities. Because it is considered a short-term construction project, it would not generate a significant demand for water or wastewater treatment, and construction waste would be expected to be minimal and not exceed the capacity of the landfill that serves the area. The Project would therefore have no impact on utilities, require relocation of existing utilities, generate a significant demand for water or wastewater treatment, generate solid waste in excess of State or local standards or the capacity of local infrastructure, and would not conflict with any federal, state or local statutes and regulations related to solid waste. Similarly, the No Project Alternative, which proposes no construction, would result in no impact to Utilities Systems.

Attainment of Project Objectives

The No Project Alternative would not meet any of the project objectives and would not allow the City to control erosion of the bluff and protect infrastructure in the Esplanade Avenue area.

5.4.2 Alternative 2: Grading of the Bluff

Principal Characteristics

Local coastal bluffs are approximately 75 to 85 feet in height with bluff face inclinations ranging from 70 to 85 degrees. As of 2017, the top of bluff is located approximately 70 to 80 feet from the top of curb adjoining Esplanade Avenue. Local bluffs are composed of marine terrace deposits that are poorly to moderately cemented and highly susceptible to erosion from wave attack. Local long term average erosion rates (bluff retreat) have been calculated at approximately 2½ feet per year; however, it is not unusual to lose 15 or more feet of bluff during a single adverse El Nino winter season.[17] This Alternative would propose to grade the top of the bluffs so that the resulting inclination would be 45 to 50 degrees and otherwise would not propose or implement any other components of the proposed Project.

Analysis of the Grading of the Bluff Alternative

The impacts of the Grading of the Bluff Alternative are examined qualitatively to allow comparison with the Project. The City does not contain agricultural, forestry, or mineral resources, and is not located in a Very High Fire Hazard Severity zone and does not represent features that would substantially alter the wildfire risk in the area. The Project also does not involve Population and Housing-related issues. Therefore, these topics are not discussed below. They are discussed in Chapter 6 - CEQA Mandated Section of this EIR.

a. *Aesthetics.* The DEIR analysis found the aesthetic impacts of the infrastructure preservation Project to be less than significant. The Project would not have a substantial adverse effect on a scenic vista, damage scenic resources within a state designated highway, conflict with applicable zoning or other city regulations governing scenic quality or create a new source of light and glare.

   Under the Grading of the Bluff Alternative, views from these areas would be altered by the proposed grading, which would reduce the width of the blufftop between the edge of the bluff and Esplanade Avenue. No revegetation of the graded blufftop is proposed with this Alternative. Grading the blufftop under this Alternative would also result in alteration of the existing views of the bluff from the beach. There would be no riprap removal and no seawall construction and the area closer to the top of the bluff would be graded to a slope of approximately 45-50 degrees, which would result in a noticeably gentler slope than the current condition. While this Alternative would initially result in changes to existing views from above and below the bluff, the changes would be temporary, and would not obstruct views of the ocean or coastline from these areas. The Grading of the Bluff Alternative would therefore have a similar impact compared to the proposed Project.

[17] Van Ocampo, Public Works Director, City of Pacifica. Geotechnical Feasibility Study and Alternative Analysis. April 13, 2016.

b. *Air Quality.* The DEIR analysis found the impacts of the infrastructure preservation Project to be less than significant. Potential impacts were related to short-term construction vehicle emissions of criteria pollutants and fugitive dust emissions. The Grading of the Bluff Alternative would result in grading of the blufftop, but no seawall construction activities on the beach. There would be no excavation, sheet pile driving, or shotcrete application work involved, however, the grading required by this Alternative would generate criterial air pollutant emissions as well as fugitive dust emissions from the grading activity itself, and in addition from the haul trucks that would be required to export the soil materials from the site. Some amount of grading activity on the blufftop would be required under the Project in order to facilitate the proposed habitat restoration plan, so there could potentially be some offset in the criteria air pollutant and fugitive dust emission generation with the implementation of this Alternative, but overall, the Grading of the Bluff Alternative would have greater air quality impacts compared to the Project.

c. *Biological Resources.* The DEIR found impacts to biological resources to be potentially significant under Impact BIO-1. However, implementation of Mitigation Measures BIO-1a through BIO-1c would reduce the Project's potentially significant impacts to less than significant. Because it proposes no revegetation/habitat restoration on the blufftop and could result in the loss of potential cliff nesting habitat, the Grading of the Bluff Alternative could potentially have a greater, although still less than significant biological resources impact compared to the Project. As described in *Subsection f. Geology and Soils*, below, habitat restoration goals of the bluff may not be achievable due to unstable geomorphological conditions resulting from this Alternative.

d. *Cultural Resources and Tribal Cultural Resources.* The DEIR analysis concluded the Project would have a less than significant impact related to Cultural Resources and Tribal Cultural Resources. Although it is not likely that there are archaeological remains or artifacts within the Project site due to its location on the beach and prior ground disturbing activities that occurred during construction of the existing buildings on the top of the bluff, the possibility exists that buried archaeological and historical resources, including tribal cultural resources could be discovered during construction of the Project. The Project therefore includes Best Management Practices that construction contractors would be required to follow that would ensure the protection and proper treatment of such resources. Under the Grading of the Bluff Alternative, construction activities that could potentially impact buried archaeological and historical resources would be limited to grading on the blufftop. Thus, the Grading of the Bluff Alternative is considered to have a reduced level of impact to Cultural Resources and Tribal Cultural Resources compared to the Project, which would also include construction activities on the beach.

e. *Energy.* The DEIR analysis concluded that the Project would not result in operational uses that would increase energy consumption and therefore would not result in a potentially significant environmental effect due to wasteful, inefficient, or unnecessary consumption of energy resources. In addition, as the proposed Project involves the construction of a seawall for coastal bluff fortification and would not increase energy consumption over the

long term and would not conflict with nor obstruct a state or local plan adopted for the purposes of increasing the amount of renewable energy or energy efficiency. The Grading of the Bluff Alternative would result in less construction activity and therefore less energy consumption than the Project, and would similarly not result in a potentially significant environmental effect due to wasteful, inefficient, or unnecessary consumption of energy resources or conflict with or obstruct a state or local plan adopted for the purposes of increasing the amount of renewable energy or energy efficiency.

f. *Geology and Soils.* The DEIR analysis found the Geology and Soils impacts of the proposed Project to be less than significant. The geotechnical investigation prepared for the Project determined that if the base of the bluff is adequately protected with a seawall as proposed, the unsupported portion of the bluff above the seawall would continue to experience raveling and erosion/bluff retreat until ultimately achieving equilibrium at a relatively stable static inclination of approximately 40 to 50 degrees.

   The Geotechnical Report (Cotton Shires 2019, Appendix B) also concluded that the bluffs would be relatively stable under static conditions if graded at 45 to 50 degrees as proposed under the Grading of the Bluff Alternative. However, due to the highly erodible nature of the bluff materials at both the face and toe of the bluff, erosion would result from direct rainfall and wave run-up. Face and toe erosion would cause retreat of the bluff crest and ultimately result in undermining of the street and loss of infrastructure under this Alternative. Furthermore, a 45-degree slope projected up from the toe of the bluff on the beach would place the top of the graded slope within 10 to 20 feet laterally from the edge of the street at some locations. This approach would reduce failure of blocks/slabs of bluff material onto the beach below but would not provide needed protection of the public roadway and utility infrastructure. Due to surrounding private property, bluff retreat and the loss of the public road would likely result in no public access to the bluff overlook. Additionally, habitat restoration goals of the bluff may not be achievable due to unstable geomorphological conditions. The Grading of the Bluff Alternative would therefore have greater Geology and Soils impacts compared to the Project.

g. *Greenhouse Gas Emissions.* The DEIR analysis found that the Project's impacts to Greenhouse Gas Emissions would be less than significant. Under the Grading of the Bluff Alternative there would be fewer sources of greenhouse gas emissions, as the amount of diesel-powered grading equipment required would likely be less than the amount of diesel-powered equipment required for the Project, in addition to fewer truck trips. The Grading of the Bluff Alternative would therefore result in reduced Greenhouse Gas Emission impacts compared to the proposed Project.

h. *Hazards and Hazardous Materials.* The DEIR analysis found that the Project's impacts to Hazards and Hazardous Materials would be less than significant. Construction of the Project would involve the use of hazardous materials (fuels, oils and other vehicle-related products), which would be used in relatively small quantities, and in compliance with local and state safety requirements. Under the Grading of the Bluff Alternative there would be a

reduced number of construction activities, therefore the use or transport of hazardous materials would be less than it would be under the Project. For this reason, the Grading of the Bluff Alternative would have a reduced impact compared to the Project.

i. *Hydrology and Water Quality.* The DEIR analysis concluded the Project's hydrology and water quality impacts would be less than significant. The Project would not violate any water quality standards or waste discharge requirements, degrade surface or ground water quality, decrease groundwater supplies or recharge capabilities, or alter drainage patterns of the site or area. In addition, the Project was found not to risk the release of pollutants due to project inundation or conflict with the implementation of water quality or groundwater management plans. Under the Grading of the Bluff Alternative, the amount of construction activities would be limited to grading on top of the bluff. The analysis of potential erosion impacts contained in the Geology and Soils section of the Draft EIR found that following final grading on the top of the bluff resulting in uniformly graded lots that drain towards Esplanade Avenue, the potential for runoff from the lots to adversely impact the bluff face would be low. The Grading of the Bluff Alternative would therefore have a reduced impact compared to the proposed Project.

j. *Land Use and Planning.* The DEIR analysis found that the Project's impacts to Land Use would be less than significant. The Project would not physically divide an established community or 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. As with the Project, the Grading of the Bluff Alternative would not physically divide an established community. It would have fewer potential land use conflicts than the Project because it would result in no construction activities on the beach and less construction activities overall. The Grading of the Bluff Alternative would therefore have a lesser Land Use impact compared to the Project.

k. *Noise.* The Project would generate noise and vibration during construction. The DEIR found that the Project's impacts related to noise would be short term and less than significant with the implementation of noise control mitigation measures as noted in Mitigation Measures NOI-1a through NOI-1d. Vibration impacts were found to be less than significant. Because the Grading of the Bluff Alternative would presumably be subject to the same noise mitigation requirements and would result in less construction activity, including no pile driving, and would therefore generate less construction noise, it would have a reduced noise impact compared to the proposed Project.

l. *Public Services and Recreation.* The DEIR found that the Project would have less than significant impacts to Public Services and Recreation. By protecting the existing bluff face from further erosion, the proposed seawall would help to preserve recreational uses of the beach below. In addition, the Project would provide opportunities for passive recreation on the blufftop by restoring this area and installing a pedestrian path and benches. For the reasons explained in *Subsection f. Geology and Soils*, above, the Grading of the Bluff

Alternative would likely result in no public access to the bluff overlook. For this reason, the Grading of the Bluff Alternative would have a greater Public Services and Recreation impact compared to the proposed Project.

m. *Transportation.* The DEIR found that the Project would have less than significant impacts to Transportation. The Project would not generate traffic over the long term or cause any changes to the circulation system during construction. Flaggers and/or other traffic control measures such as signage would be utilized during construction to ensure the safe transport of construction equipment and materials to and from the project site. The Grading of the Bluff Alternative would similarly not result in long term traffic or impacts to the circulation system during the proposed grading activities, and traffic controls would be implemented to ensure safety. The number of truck trips would likely increase under this Alternative, as the proposed grading would result in off-haul trips not required under the project scenario, however, the temporary nature of these increased trips would result in a less than significant impact. The Transportation impacts under the Grading of the Bluff Alternative would be similar or slightly greater compared to the Project.

n. *Utilities Systems.* The DEIR found that no utility connections are required to operate the proposed seawall and would not connect to utility infrastructure such as water, sewer, stormwater, electrical, natural gas or telecommunications utilities. Therefore, the Project would have no impact on utilities or require relocation of existing utilities. Because it is considered a short-term construction project, it would not generate a significant demand for water or wastewater treatment, and construction waste would be expected to be minimal and not exceed the capacity of the landfill that serves the area. The Project would therefore have no impact on utilities, require relocation of existing utilities, generate a significant demand for water or wastewater treatment, generate solid waste in excess of State or local standards or the capacity of local infrastructure, and would not conflict with any federal, state or local statutes and regulations related to solid waste. Similarly, the Grading of the Bluff Alternative which proposes less construction than the Project, would result in no impact to Utilities Systems.

Attainment of Project Objectives

The Grading of the Bluff Alternative would meet two of the three primary project objectives identified in Chapter 3.2 Project Objectives. It would be consistent with Objectives #2 and #3, which seek to minimize impacts to sensitive resources and provide public access to ocean views from Esplanade Avenue (except where public access would endanger public safety or fragile coastal resources), respectively. This Alternative would not, however, be completely consistent with Objective #1 because it would do nothing to halt erosion at the toe of the bluff. As described in *Subsection f. Geology and Soils*, above, this Alternative would not provide needed protection of the public roadway and utility infrastructure, and due to surrounding private property, bluff retreat and the loss of the public road would likely result in no public access to the bluff overlook.

5.4.3 Alternative 3: Sand Replenishment

Principal Characteristics

Sand Replenishment (also known as beach nourishment) is a process by which sediment, usually sand, lost through longshore drift or erosion is replaced from other sources. A wider beach can reduce storm damage to coastal structures by dissipating energy across the surf zone, protecting upland structures and infrastructure from storm surges, tsunamis and unusually high tides. It is typically a repetitive and limitless process since it does not remove the physical forces that cause erosion but simply mitigates their effects.[18] It is characterized as a soft protection strategy that relies on a sandy beach of sufficient width to provide a buffer against seasonal and storm related erosion and flooding. This alternative would require repeated application of sand to the beach to protect the bluff from wave action. It would require regular beach access for heavy equipment (trucks carrying sand). This alternative does not include any of the other components of the proposed Project such as the seawall, staging areas, or restoration of the blufftop.

Replenishing sand at the base of the bluff could potentially prevent continued wave erosion of the toe of the bluff. However, sand is rapidly removed from the beach under winter storm conditions at the project location and maintenance of an adequate beach to prevent wave run-up from reaching the toe of bluff under high tide and high swell conditions (combined with future sea level rise) would likely not be sustainable. Sand replenishment will also not provide similar lateral support to the bluff that would result from using a structural approach. Furthermore, sufficient understanding about the local sand transport directions and rates are not currently available to estimate the volume of sand required. The probable long term economic commitment may not be sustainable for the City and regular access by construction equipment would potentially result in long-term impacts to bluff and beach habitats. Furthermore finding a constant and lasting source of sand suitable for this area would very challenging. The bluffs would likely continue to retreat and would pose a threat to the public roadway and utility infrastructure, as well as pose a safety hazard for the public due to bluff material falling on the beach. Additionally, habitat restoration goals for the bluff may not be achievable due to unstable geomorphological conditions.

Analysis of the Sand Replenishment Alternative

The impacts of the San Replenishment Alternative are examined qualitatively to allow comparison with the Project. The City does not contain agricultural, forestry, or mineral resources, and is not located in a Very High Fire Hazard Severity zone and does not represent features that would substantially alter the wildfire risk in the area. The Project also does not involve Population and Housing-related issues. Therefore, these topics are not discussed below. They are discussed in Chapter 6 CEQA Mandated Section of this EIR.

[18] Wikipedia. Beach Nourishment. Accessed on January 20, 2023 at https://en.wikipedia.org/wiki/Beach_nourishment.

a. *Aesthetics.* The DEIR analysis found the aesthetic impacts of the infrastructure preservation Project to be less than significant. The proposed Project would not impact a scenic vista, damage scenic resources within a state designated highway, conflict with applicable zoning or other city regulations governing scenic quality, or create a new source of light and glare. Although no significant impact would result, the analysis notes that temporary nighttime lighting during the construction period could occur on the blufftop areas where construction equipment is staged.

   The Sand Replenishment Alternative could potentially result in scenic impacts because it would require that heavy equipment (haul trucks) repeatedly be used to bring sand to the beach, interrupting views of the coastline from the surrounding beaches and from areas above the beach. These construction impacts would be temporary, similar to the Project, however, sand replenishment requires an indefinite number of repeated deliveries and application of sand and would likely result in longer lasting visual impacts than construction of the Project. This alternative would have a greater aesthetic impact than the Project, but still less than significant.

b. *Air Quality.* The DEIR analysis found the impacts of the infrastructure preservation Project to be less than significant. Potential impacts were related to short-term construction vehicle emissions of criteria pollutants and fugitive dust emissions. The Sand Replenishment Alternative would also result in construction vehicle emissions of criteria pollutants and fugitive dust emissions, however using different types of construction equipment. No pile driving equipment or equipment for shotcrete application would be used for the sand replenishment operations, for example. Vehicles used for the delivery and application of the sand on the beach such as haul trucks and bulldozers would be used for sand replenishment. The duration of the sand replenishment operations is unknown, therefore the overall quantity of emissions of criteria pollutants or fugitive dust compared to the Project cannot be determined. This alternative could potentially have a greater air quality impact than the Project.

c. *Biological Resources.* The DEIR analysis found the impacts of the infrastructure preservation Project on biological resources to be potentially significant under Impact BIO-1. However, implementation of Mitigation Measures BIO-1 and BIO-2 would reduce the Project's potentially significant impacts to less than significant. As described in Section 4.3 Biological Resources, the intertidal habitat zone includes the sandy beach and riprap (rocky) habitats that are subject to periodic tidal inundation. There are numerous species of shorebirds that may forage in the intertidal zone, and variety of invertebrate species live in the sand and in the decaying seaweed and other detritus on the sand surface. The Sand Replenishment Alternative would extend the width of the beach towards the water, which could have the effect of shorebirds, invertebrates and other wildlife species moving away from their established habitats. That disruption may continue with ongoing wave pattern changes or other changing shore life patterns which occur. In addition, regular access by

construction equipment would potentially result in long-term impacts to bluff and beach habitats. The Sand Replenishment Alternative also proposes no revegetation/habitat restoration on the blufftop. For these reasons, the Sand Replenishment Alternative could potentially have a greater Biological Resource impacts compared to the Project.

d. *Cultural Resources and Tribal Cultural Resources.* The DEIR analysis concluded the Project would have a less than significant impact related to Cultural Resources and Tribal Cultural Resources. Although it is not likely that there are archaeological remains or artifacts within the project site due to its location on the beach and prior ground disturbing activities that occurred during construction of the existing buildings on the top of the bluff, the possibility exists that buried archaeological and historical resources, including tribal cultural resources could be discovered during construction of the Project. The Project therefore includes Best Management Practices that construction contractors would be required to follow that would ensure the protection and proper treatment of such resources. Under the Sand Replenishment Alternative, there would be no construction activities that could potentially impact buried archaeological and historical resources, including tribal cultural resources. Thus, the Sand Replenishment Alternative is considered to have a reduced level of impact compared to the Project.

e. *Energy.* The DEIR analysis concluded that the Project would not result in operational uses that would increase energy consumption and therefore would not result in a potentially significant environmental effect due to wasteful, inefficient, or unnecessary consumption of energy resources. In addition, as the proposed Project involves the construction of a seawall for coastal bluff fortification and would not increase energy consumption over the long term and would not conflict with nor obstruct a state or local plan adopted for the purposes of increasing the amount of renewable energy or energy efficiency. The Sand Replenishment Alternative could potentially result in more energy consumption than the Project due to an unforeseen number of additional future truck trips to continuously supply sand to the beach. However, because the number of truck trips is unknown, it would not be considered to be a significant environmental effect due to wasteful, inefficient, or unnecessary consumption of energy resources or conflict with or obstruct a state or local plan adopted for the purposes of increasing the amount of renewable energy or energy efficiency. The impact would be less than significant.

f. *Geology and Soils.* The DEIR analysis found that the Project's Geology and Soils impacts would be less than significant. Under the Sand Replenishment Alternative there would be no construction of structures, and therefore impacts related to seismic conditions (faults, liquefaction, ground failure), soil erosion, landslides and expansive soils would be irrelevant. The Sand Replenishment Alternative would result in lesser Geology and Soils impacts than the Project.

g. *Greenhouse Gas Emissions.* The DEIR analysis found that the Project's impacts to Greenhouse Gas Emissions would be less than significant. Under the Sand Replenishment Alternative there would be an undetermined number of truck trips that would generate gas-

generating emissions. This would likely result in greater emissions impacts than the Project, which would only generate greenhouse gas emissions during the short-term of the construction period. The Sand replenishment Alternative would therefore result in greater Greenhouse Gas Emission impacts compared to the proposed Project.

h. *Hazards and Hazardous Materials*. The DEIR analysis found that the Project's impacts to Hazards and Hazardous Materials would be less than significant. Construction of the Project would involve the use of hazardous materials (fuels, oils and other vehicle-related products), which would be used in relatively small quantities, and in compliance with local and state safety requirements. No construction activities would occur under the Sand Replenishment Alternative, therefore no use or transport of hazardous materials would occur. For these reasons, the Sand Replenishment Alternative would have a reduced impact compared to the proposed Project. Assuming that the bluff would continue to retreat under the Sand Replenishment Alternative, this would represent a public safety hazard due to bluff material falling on the beach, as it currently does. The impacts of this Alternative with respect to safety hazards would therefore be greater compared to the proposed Project.

i. *Hydrology and Water Quality.* The DEIR analysis concluded the Project's hydrology and water quality impacts would be less than significant. The Project would not violate any water quality standards or waste discharge requirements, degrade surface or ground water quality, decrease groundwater supplies or recharge capabilities, or alter drainage patterns of the site or area. In addition, the Project was found not to risk the release of pollutants due to project inundation or conflict with the implementation of water quality or groundwater management plans. Under the Sand Replenishment Alternative, no construction activities would occur, therefore it would have a reduced construction impact compared to the proposed Project. However, there would also be no grading or recontouring of the blufftop to direct stormwater runoff to the street. Therefore, this Alternative could result in greater impacts than the proposed project related to on-site or off-site erosion, siltation or flooding. Overall, when considering the reduced construction -related impacts and the potentially greater runoff impacts, the Sand Replenishment Alternative would have a similar impacts to Hydrology and Water Quality compared to the proposed Project.

j. *Land Use and Planning.* The DEIR analysis found that the Project's impacts to Land Use would be less than significant. The Project would not physically divide an established community or 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. As with the Project, the Sand Replenishment Alternative would not physically divide an established community, however it could potentially impact the use of the beach as a recreational site for the community through the presence of haul trucks and maintenance activities on an ongoing basis. Construction activities associated with the proposed Project would be temporary. The Sand Replenishment Alternative would therefore have a greater Land Use impact than the proposed Project.

k. *Noise.* The Project would generate noise and vibration during construction. The DEIR found that the Project's impacts related to noise would be short term and less than significant with the implementation of noise control mitigation measures as noted in Mitigation Measures NOI-1a through NOI-1d. Vibration impacts were found to be less than significant. Because the Sand Replenishment Alternative would not result in any construction, and noise generated would be limited to haul truck traffic, it would have a reduced noise impact compared to the proposed Project.

l. *Public Services and Recreation.* The DEIR analysis found that the Project would have less than significant impacts to Public Services and Recreation. By protecting the existing bluff face from further erosion, the proposed seawall would help to preserve recreational uses of the beach below. In addition, the Project would provide opportunities for passive recreation on the blufftop by restoring this area and installing a pedestrian path and benches. Under the Sand Replenishment Alternative, erosion of the bluff would likely be reduced, and the increased width of the beach created by the additional regular sand deposition would retain and possibly enhance the existing recreational uses of the beach below. Under this Alternative the blufftop would not be restored, however, providing no additional recreational opportunities for the community in this area. For these reasons, the Sand Replenishment Alternative would have a similar less than significant Recreation impact compared to the proposed Project.

m. *Transportation.* The DEIR analysis found that the Project would have less than significant impacts to Transportation. The Project would not generate traffic over the long term or cause any changes to the circulation system during construction. Flaggers and/or other traffic control measures such as signage would be utilized during construction to ensure the safe transport of construction equipment and materials to and from the Project site. Traffic controls would also likely be used under the Sand Replenishment Alternative, however, unlike the proposed Project, the Sand Replenishment Alternative could potentially result in long term traffic or impacts to the circulation system due to an indefinite number of haul truck trips accessing the beach. The Transportation impacts under the Sand Replenishment Alternative would therefore be greater compared to the Project.

n. *Utilities Systems.* The DEIR found that no utility connections are required to operate the proposed seawall and would not connect to utility infrastructure such as water, sewer, stormwater, electrical, natural gas or telecommunications utilities. Therefore, the Project would have no impact on utilities or require relocation of existing utilities. Because it is considered a short-term construction project, it would not generate a significant demand for water or wastewater treatment, and construction waste would be expected to be minimal and not exceed the capacity of the landfill that serves the area. The Project would therefore have no impact on utilities, require relocation of existing utilities, generate a significant demand for water or wastewater treatment, generate solid waste in excess of State or local standards or the capacity of local infrastructure, and would not conflict with any federal,

state or local statutes and regulations related to solid waste. Similarly, the Sand Replenishment Alternative which proposes the importation of sand to the beach, would result in no impact to Utilities Systems.

Attainment of Project Objectives

The Sand Replenishment Alternative would meet the first primary project objective as it would, if properly implemented, halt bluff toe erosion toward Esplanade Avenue and prevent the collapse of its critical infrastructure for some period of time. However, whether or not it would be effective for at least 30 years would depend upon the availability of the supply of the proper type of beach sand over that period of time and the City's ability to continuously implement its delivery and application. In addition, as stated previously, this Alternative would not provide similar lateral support to the bluff that would result from using a structural approach. This Alternative would also not necessarily meet the second objective, as the regular ongoing delivery of sand to the beach would involve the use of large trucks, whose presence on the beach could potentially negatively impact sensitive resources such as bluff and beach habitats and shoreline aesthetics. This Alternative would meet the third objective, which is to provide public access to ocean views from Esplanade Avenue, except where public access would endanger public safety or fragile coastal resources.

For the reasons described above, the Sand Replenishment Alternative would not be consistent with Objectives #1 and #2 which seek a design solution that protects Esplanade Avenue from further bluff erosion and risk to critical infrastructure, and to protect sensitive resources including beach and bluff habitats and shoreline aesthetics.

5.4.4 Alternative 4: Rock Revetment

Principal Characteristics

The Rock Revetment Alternative would consist of placing buried and exposed sloping layers of large rock against the toe of the bluff at the back of the beach for the purpose of preventing bluff erosion. The rock materials used would be durable large armor stone that is similar to but bigger than the existing riprap currently located along the base of the bluff. The size of the stones would be variable but would be selected to create a stable armor layer above and below the beach to absorb and dissipate the energy of waves in order to reduce erosion of the bluff and limit scour and undermining of the revetment.

Analysis of the Rock Revetment Alternative

The impacts of the Rock Revetment Alternative are examined qualitatively to allow comparison with the Project. The City does not contain agricultural, forestry, or mineral resources, and is not located in a Very High Fire Hazard Severity zone and does not represent features that would substantially alter the wildfire risk in the area. The Project also does not involve Population and

Housing-related issues. Therefore, these topics are not discussed below. They are discussed in Chapter 6 - CEQA Mandated Section of this EIR.

a. *Aesthetics.* The DEIR analysis found the aesthetic impacts of the infrastructure preservation Project to be less than significant. The Project would not impact a scenic vista, damage scenic resources within a state designated highway, conflict with applicable zoning or other city regulations governing scenic quality or create a new source of light and glare. Although no significant impact would result, the analysis notes that temporary nighttime lighting during the construction period could occur on the blufftop areas where construction equipment is staged. As with the Project, the Rock Revetment Alternative would not impact a scenic vista, damage scenic resources within a state designated highway, conflict with applicable zoning or other city regulations governing scenic quality or create a new source of light and glare. However, the placement of a large amount of additional rock at the toe of the bluff would negatively impact the scenic resources of the beach and coastline; more so than the proposed seawall, which would visually blend into the bluff. The Rock Revetment Alternative would result in greater Aesthetic impacts compared to the proposed Project.

b. *Air Quality.* The DEIR analysis found the impacts of the infrastructure preservation Project to be less than significant. Potential impacts were related to short-term construction vehicle emissions of criteria pollutants and fugitive dust emissions. The Rock Revetment Alterative would involve the use of heavy equipment to move and place a substantial amount of riprap on the beach, requiring more truck trips (to haul the rock) than would be expected under the project conditions, and would therefore result in more short-term emissions of criteria pollutants than would be expected for the Project. Fugitive dust emissions would likely be greater than for the Project, as well. The Rock Revetment Alternative would result in greater Air Quality impacts compared to the proposed Project.

c. *Biological Resources.* The DEIR analysis found the impacts of the infrastructure preservation Project on biological resources to be potentially significant under Impact BIO-1. However, implementation of Mitigation Measure BIO-1a though BIO-1c would reduce the Project's potentially significant impacts to less than significant. Under the Rock Revetment Alternative, the proposed construction on the beach could potentially impact nesting birds and allow the introduction of invasive species, just as with the proposed Project, and would be required to implement the same mitigation measures as the Project to reduce impacts to a less than significant level. However, because it proposes no revegetation/habitat restoration on the blufftop, the Rock Revetment Alternative would have a greater Biological Resources impact compared to the proposed Project.

d. *Cultural Resources and Tribal Cultural Resources.* The DEIR analysis concluded the Project would have a less than significant impact related to Cultural Resources and Tribal Cultural Resources. Although it is not likely that there are archaeological remains or artifacts within the project site due to its location on the beach and prior ground disturbing activities that occurred during construction of the existing buildings on the top of the bluff,

the possibility exists that buried archaeological and historical resources, including tribal cultural resources could be discovered during construction of the Project. The Project therefore includes Best Management Practices that construction contractors would be required to follow that would ensure the protection and proper treatment of such resources. Under the Rock Revetment Alternative, there would be construction activities that could potentially impact buried archaeological and historical resources at the beach, including tribal cultural resources. Thus, the Rock Revetment Alternative would have a similar level of impact to Cultural Resources and tribal Cultural Resources compared to the Project.

e. *Energy.* The Project would not result in operational uses that would significantly increase energy consumption. Project construction would require the use of construction equipment and construction-related vehicle trips that would combust fuel, primarily diesel and gasoline. Because the amounts of energy consumed would be relatively minor, the DEIR concluded that the Project would have a less than significant impact to Energy, as it would not generate energy usage that may have a significant impact on the environment, would not conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing the emissions of greenhouse gases, and would not cause substantial adverse cumulative impacts with respect to energy usage. The Rock Revetment Alternative would involve the use of construction equipment and construction-related vehicle trips similar to the proposed Project and would therefore result in similar Energy impacts compared to the proposed Project.

f. *Geology and Soils*. The DEIR analysis found that the Project's Geology and Soils impacts would be less than significant. Under the Rock Revetment Alternative there would also be construction activities on the beach, but those activities under this alternative would occupy a larger area than the proposed project. It would therefore result in similar or slightly greater Geology and Soils impacts compared to the proposed Project.

g. *Greenhouse Gas Emissions.* The DEIR analysis found that the Project's impacts to Greenhouse Gas Emissions would be less than significant. Under the Rock Revetment Alternative there would also be construction activities involving the use of greenhouse gas-generating emissions. The Rock Revetment Alternative would therefore result in similar Greenhouse Gas Emission impacts compared to the proposed Project.

h. *Hazards and Hazardous Materials.* The DEIR analysis found that the Project's impacts to Hazards and Hazardous Materials would be less than significant. Construction of the Project would involve the use of hazardous materials (fuels, oils and other vehicle-related products), which would be used in relatively small quantities, and in compliance with local and state safety requirements. Waste management and materials pollution control BMPs would also be implemented as required at the construction site. The Rock Revetment Alternative would also involve the use of construction vehicles, and waste management and materials pollution control

BMPs would also be implemented. Therefore, the Rock Revetment Alternative would result in similar Hazards and Hazardous Materials impacts compared to the proposed Project.

i. *Hydrology and Water Quality.* The DEIR analysis concluded the Project's hydrology and water quality impacts would be less than significant. The Project would not violate any water quality standards or waste discharge requirements, degrade surface or ground water quality, decrease groundwater supplies or recharge capabilities, or alter drainage patterns of the site or area. In addition, the Project was found not to risk the release of pollutants due to project inundation or conflict with the implementation of water quality or groundwater management plans. The Project includes BMPs to minimize erosion, impacts to water quality, and impacts to special-status species. Under the Rock Revetment Alternative, construction activities would occur on the beach, similar to the proposed Project, and construction would be subject to the same BMPs as the proposed Project. However, under the Rock Revetment Alternative there would be no grading or recontouring of the blufftop to direct stormwater runoff to the street. Therefore, this Alternative could result in greater impacts than the proposed Project related to on-site or off-site erosion, siltation or flooding. The Rock Revetment Alternative would have a greater impact to Hydrology and Water Quality compared to the proposed Project.

j. *Land Use and Planning.* The DEIR analysis found that the Project's impacts to Land Use would be less than significant. The Project would not physically divide an established community or 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. As with the Project, the Rock Revetment Alternative would not physically divide an established community. It would temporarily impact the use of the beach as a recreational site for the community, as the beach would have to be closed during construction of the revetment. As with the proposed Project, the construction activities would be temporary. The Rock Revetment Alternative would therefore have a similar Land Use impact compared to the proposed Project.

k. *Noise.* The Project would generate noise and vibration during construction. The DEIR found that the Project's impacts related to noise would be short term and less than significant with the implementation of noise control mitigation measures as noted in Mitigation Measures NOI-1A through NOI-1G and Mitigation Measures NOI-2A and NOI-2B. Vibration impacts were found to be less than significant. Construction of the Rock Revetment Alternative would involve very noise-intensive activities such as mechanical picking, placing and driving rocks down to the beach with trucks. These activities would also be expected to be short term in nature and therefore result in less than significant noise impacts. The Rock Revetment Alternative would have similar Noise impacts compared to the proposed Project.

l. *Public Services and Recreation.* The DEIR found that the Project would have less than significant impacts to Public Services and Recreation. By protecting the existing bluff face

from further erosion, the proposed seawall would help to preserve recreational uses of the beach below. However, the Rock Revetment Alternative would take up more lateral beach space than the proposed Project and thus would allow less beach recreational space than the Project. In addition, the Project would provide opportunities for passive recreation on the blufftop by restoring this area and installing a pedestrian path and benches. This restoration could occur similarly under this alternative. Because the Rock Revetment Alternative would have a greater impact to existing recreational uses of the beach, it would be considered to have a greater Recreation impact compared to the proposed Project.

m. *Transportation.* The DEIR found that the Project would have less than significant impacts to Transportation. The Project would not generate traffic over the long term or cause any changes to the circulation system during construction. Flaggers and/or other traffic control measures such as signage would be utilized during construction to ensure the safe transport of construction equipment and materials to and from the project site. The Rock Revetment Alternative would require transporting a great amount of rock using large trucks, which could result in impacts on the neighborhood streets from truck stacking and queuing. Although this impact would be less than significant because it would be temporary, it would represent a greater impact than the proposed Project.

n. *Utilities Systems.* The DEIR found that no utility connections are required to operate the proposed seawall and would not connect to utility infrastructure such as water, sewer, stormwater, electrical, natural gas or telecommunications utilities. Therefore, the Project would have no impact on utilities or require relocation of existing utilities. Because it is considered a short-term construction project, it would not generate a significant demand for water or wastewater treatment, and construction waste would be expected to be minimal and not exceed the capacity of the landfill that serves the area. The Project would therefore have no impact on utilities, require relocation of existing utilities, generate a significant demand for water or wastewater treatment, generate solid waste in excess of State or local standards or the capacity of local infrastructure, and would not conflict with any federal, state or local statutes and regulations related to solid waste. Similarly, the Rock Revetment Alternative which proposes the construction of a rock revetment, would result in no impact to Utilities Systems.

Attainment of Project Objectives

The Rock Revetment Alternative would only meet one of the three primary project objectives. Although it would be a bluff protective structure designed to halt bluff erosion toward Esplanade Avenue and its critical infrastructure to prevent collapse due to bluff erosion (Objective #1), the rock revetment would not include near-surface keyway material that is resistant to erosion and undermining, such as bedrock, and would therefore be susceptible to undermining, and rock migration, both of which would leave the bluff unprotected and open to wave scour. It would result

in potential impacts to shoreline aesthetics, given the amount of additional rock riprap that would be placed on the beach (Objective #2). The Rock Revetment Alternative would not restrict or impair public access to ocean views from Esplanade Avenue (Objective #3).

5.4.5 Environmentally Superior Alternative

If an alternative is considered clearly superior to the Project relative to identified impacts, Section 15126.6 of the CEQA Guidelines requires that alternative to be identified as the environmentally superior alternative. By statute, if the environmentally superior alternative is the No Project Alternative, an EIR must also identify an environmentally superior alternative among the other alternatives.

Table 5-1 summarizes the potential impacts of the alternatives compared to the impacts associated with implementation of the Project. The alternatives' potential impacts are evaluated in Section 5.3.

Table 5-1: Alternatives Impacts Compared to Project Impacts

Impact/Resource	Proposed Project	Alternative 1: No Project	Alternative 2: Grading of the Bluff	Alternative 3: Sand Replenishment	Alternative 4: Rock Revetment
Aesthetics	LTS	Reduced LTS	Similar LTS	Greater LTS	Greater LTS
Air Quality	LTS	Reduced LTS	Greater LTS	Greater LTS	Greater LTS
Biological Resources	LTSWM	Greater LTS	Greater LTS	Greater LTSWM	Greater LTS
Cultural Resources and Tribal Cultural Resources	LTS	Reduced LTS	Reduced LTS	Reduced LTS	SimilarLTS
Energy	LTS	Similar LTS	Similar LTS	Greater LTS	Similar LTS
Geology and Soils	LTS	Reduced LTS	Greater LTS	Reduced LTS	Greater LTS
Greenhouse Gas Emissions	LTS	Reduced LTS	Reduced LTS	Greater LTS	Similar LTS
Hazards and Hazardous Materials	LTS	Reduced LTS	Reduced LTS	Greater LTS	Similar LTS
Hydrology and Water Quality	LTS	Reduced LTS	Reduced LTS	Similar LTS	Greater LTS
Land Use and Planning	LTS	Reduced LTS	Reduced LTS	Greater LTS	Similar LTS
Noise	LTS	Reduced LTS	Reduced LTS	Reduced LTS	Similar LTS
Public Services and Recreation	LTS	Greater LTS	Greater LTS	Similar LTS	Greater LTS
Transportation	LTS	Similar LTS	Similar LTS	Greater LTS	Greater LTS
Utilities Systems	No Impact	No Impact	No Impact	No Impact	No Impact

Source: MIG, 2021
NI = No Impact. LTS = Less than Significant Impacts, LTSWM = Less than Significant Impacts with Mitigation Incorporated

Alternative 1: No Project. While the No Project Alternative would result in mostly reduced impacts compared to the Project due to the lack of any construction, the No Project Alternative

would not provide any habitat enhancement or any additional public recreation opportunities and would not meet any of the project objectives. Furthermore, doing no project is not a reasonable alternative here as something needs to be done for the infrastructure at risk or it will begin to fail and eventually get undermined by bluff erosion. The No Project Alternative would meet none of the three project objectives.

Alternative 2: Grading of the Bluff. The Grading of the Bluff Alternative would result in reduced impacts compared the Project for all areas except Aesthetics, Air Quality, Biological Resources, Energy, and Geology and Soils. It would result in similar impacts to Aesthetics, Energy and Transportation, and greater impacts to Air Quality, Biological Resources, Geology and Soils, and Public Services and Recreation. The Grading of the Bluff Alternative would meet two of the three project objectives.

Alternative 3: Sand Replenishment. The Sand Replenishment Alternative would result in similar or greater impacts than the Project for the majority of the environmental issue areas. It would only have reduced impacts for the areas of Cultural Resources and Tribal Cultural Resources, Geology and Soils, and Noise. The Sand Replenishment Alternative would only meet one of the three project objectives.

Alternative 4: Rock Revetment. Compared to the Project, the Rock Revetment Alternative would not result in reduced impacts for any of the environmental issue areas. This Alternative would result in greater impacts than the Project in seven environmental issue areas – Aesthetics, Air Quality, Biological Resources, Geology and Soils, Hydrology and Water Quality, Public Services and Recreation, and Transportation. The Rock Revetment Alternative would only meet one of the three project objectives.

The No Project Alternative would result in reduced impacts in the most environmental issue areas compared to the proposed Project, making it the environmentally superior alternative. However, it would not meet any of the Project objectives. None of the three Alternatives other than the No Project Alternative meets all of the project objectives. However, the Grading of the Bluff Alternative (Alternative 2) would meet two of the three objectives (versus one each for Alternatives 3 and 4) and would result in similar or reduced impacts compared to the proposed Project in more environmental issue categories than Alternative 3, as shown in Table 5-1 (nine, versus five for Alternative 3). Alternative 4 would also result in similar or reduced impacts in six categories, however it would only meet one of the project objectives. Therefore, in accordance with Section 15126.6 of the CEQA Guidelines, Alternative 2 would be considered the environmentally superior alternative among the other three alternatives.

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6 CEQA MANDATED SECTIONS

6.1 IMPACTS FOUND LESS THAN SIGNIFICANT

6.1.1 Agriculture and Forestry Resources

Environmental Setting

The Project is located in the City Pacifica on land designated as 'Other Land' which is defined as land that is not included in any other mapping category by the California Department of Conservation Farmland Mapping and Monitoring Program. Common examples include low density rural developments, brush, timber, wetland, and riparian areas not suitable for livestock grazing, confined livestock, poultry, or aquaculture facilities, strip mines, borrow pits, and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is also mapped as 'Other Land'.

Thresholds of Significance

The Project would have a significant impact on agriculture and forestry resources if it would:

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 conflict with a Williamson Act contract,

c) Result in the loss of forest land or conversion of forest land to non-forest use, or

d) Involve other changes in the existing environment that, 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.

Impacts

Impact AGFOR-1: The Project would not 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. (No Impact)

Impact AGFOR-2: The Project would not conflict with existing zoning for agricultural use or conflict with a Williamson Act contract. (No Impact)

Impact AGFOR-3: The Project would not 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)). (No Impact)

Impact AGFOR-3: The Project would not result in the loss of forest land or conversion of forest land to non-forest use. (No Impact)

Impact AGFOR-4: The Project would not involve other changes in the existing environment that, 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. (No Impact)

There are no forest or timberland trees, forest lands, or agricultural lands on or near the proposed project site, which is on a coastal bluff and beach at the shoreline. As such, the Project would not convert or cause the conversion of any farmland or forest land to non-agricultural/non-forest use. The proposed Project would not impact Prime Farmland, Unique Farmland, Farmland of Statewide Importance, forest land, or land under a Williamson Act contract. Thus, the Project would not result in impacts to any agricultural or forestry resources.

References

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6.1.2 Energy

Environmental Setting

Energy consumption is closely tied to the issues of air quality and GHG emissions, as the burning of fossil fuels and natural gas for energy has a negative impact on both, and petroleum and natural gas currently supply most of the energy consumed in California.

Energy is primarily categorized into three areas: electricity, natural gas, and fuels used for transportation. According to the U.S. Energy Information Administration (USEIA), California is the most populous state in the U.S., representing 12 percent of the total national population, has the largest economy, and is second only to Texas in total energy consumption. However, California has one of the lowest per capita energy consumption levels in the U.S. This is a result of California's mild climate, extensive efforts to increase energy efficiency, and implementation of alternative technologies. California leads the nation in electricity generation from solar, geothermal, and biomass resources (USEIA, 2022a).

In 2020, the California electric system generated 272,576 gigawatt-hours (GWh) of electricity. Approximately 70% of this generation occurred in-state (190,913 GWh), while approximately 30% was imported to the California system but generated outside the state (81,663 GWh). Approximately one-third of California's total power mix was from renewable sources (CEC, 2021). In 2020, San Mateo County used approximately 4,168 million kilowatt hours (kWh) of electricity, accounting for approximately 1.5 percent of statewide consumption (CEC 2022a). In 2020, California consumed about 12,332 million therms of natural gas. Approximately 39 percent of this natural gas was consumed by the residential sector. San Mateo County consumed about 200 million therms in 2020, including 82 million therms from non-residential uses. Natural gas use from San Mateo County accounted for approximately 1.6% of statewide consumption (CEC, 2022b).

Statewide taxable sales figures indicate a total of 13,060 million gallons of gasoline and 3,105 million gallons of diesel fuel were sold in the 2021 fiscal year (CDFTA 2022). The CEC estimates that in 2020 San Mateo County sold 238 million gallons of gasoline, accounting for 1.9% of statewide gasoline sales, and 19 million gallons of diesel, accounting for 1.1% of statewide diesel sales (CEC 2022c).

Regulatory Setting

Since increased energy efficiency is closely tied to the State's efforts to reduce GHG emissions and address global climate change, the regulations, policies, and action plans aimed at reducing GHG emissions also promote increased energy efficiency and the transition to renewable energy sources. The U.S. EPA and the State address climate change through numerous pieces of legislation, regulations, planning, policy-making, education, and implementation programs aimed at reducing energy consumption and the production of GHG. The proposed Project would not involve the development of facilities that include energy intensive equipment or operations. While there are numerous regulations that govern GHG emissions reductions through increased energy efficiency, the following regulatory setting description focuses only on regulations that: 1) provide the appropriate context for the proposed Project's potential energy usage; and 2) may directly or indirectly govern or influence the amount of energy used to develop and operate the proposed improvements.

State

CARB Low Carbon Fuel Standard Regulation (LCFS). CARB initially approved the LCFS regulation in 2009, identifying it as one of the nine discrete early action measures in the 2008 Scoping Plan to reduce California's GHG emissions. The LCFS regulation defines a Carbon Intensity, or "CI," reduction target (or standard) for each year, which the rule refers to as the "compliance schedule." The LCFS regulation requires a reduction of at least ten percent in the CI of California's transportation fuels by 2020 and maintains that target for all subsequent years. In 2018, CARB approved amendments to the LCFS regulation, which included strengthening and smoothing the carbon intensity benchmarks through 2030 in-line with California's 2030 GHG emission reduction target enacted through SB 32, adding new crediting opportunities to promote

zero emission vehicle adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector. Under the 2018 amendment, the LCFS regulation now requires a reduction of at least 20 percent in CI by 2030 and beyond.

Energy Use in a Wasteful, Inefficient, or Unnecessary Manner

The CEQA Guidelines Appendix F (Energy Conservation) describes how energy conservation should be addressed in EIRs and states, "[CEQA] requires that EIRs include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy." The CEQA Guidelines Appendix F also states that:

> "The goal of conserving energy implies the wise and efficient use of energy. The means of achieving this goal include:
>
> 1) Decreasing overall per capita energy consumption
>
> 2) Decreasing reliance on fossil fuels, such as coal, natural gas and oil, and
>
> 3) Increasing reliance on renewable energy sources."

Specifically, Section II(C) of the CEQA Guidelines Appendix F provides that environmental impacts associated with energy resources may include:

1. The Project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the Project including construction, operation, maintenance, and/or removal. If appropriate, the energy intensiveness of materials may be discussed.

2. The effects of the Project on local and regional energy supplies and the requirements for additional capacity.

3. The effects of the Project on peak and base period demands for electricity and other forms of energy.

4. The degree to which the Project complies with existing energy standards.

5. The effects of the Project on energy resources.

6. The Project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

Local

The City adopted the Local Coastal Land Use Plan in 1980, which was intended to meet the goals of the California Coastal Act of 1976. The Local Coastal Land Use Plan includes policies from the Coastal Act. Coastal Act Policy 26(d) requires new developments to minimize energy consumption and vehicle miles traveled.

Thresholds of Significance

In compliance with Appendix G of the State CEQA Guidelines, the Project would result in a significant energy impact if it would:

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency;

Impacts

Impact Energy-1 – The Project would not generate energy usage, either directly or indirectly, that may have a significant impact on the environment. (Less Than Significant Impact) and

Impact Energy2 – The Project would not conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing the emissions of greenhouse gases. (Less Than Significant Impact)

The proposed Project would construct a seawall for the fortification of a bluff. The Project would not result in operational uses that would increase energy consumption. Project construction would require the use of construction equipment and construction-related vehicle trips that would combust fuel, primarily diesel and gasoline. Heavy-duty construction equipment would be required to comply with CARB's airborne toxic control measures, which restrict heavy-duty diesel vehicle idling to five minutes. Construction activities would consume approximately 45,262 gallons of diesel fuel to power on-site, off-road heavy-duty construction equipment. Worker, vendor, and haul truck trips during construction activities are anticipated to consume 12,395 gallons of gasoline, 286,213 gallons of diesel, and 3,952 kWh of mobile source electricity (see Appendix C for fuel consumption calculations, which are based on a fuel consumption factor contained in the CARB Carl Moyer Program Guidelines (2017 Revisions) and fuel consumption rates for on-road vehicles derived from EMFAC2021 V1.0.2 data). The proposed Project involves structures to preserve and protect coastal infrastructure residential structures along the western side of Esplanade Avenue from erosion. Since fuel use during construction would be temporary and needed to prevent the retreat of the coastal bluff, it would not be wasteful or unnecessary. In terms of construction equipment selection, as part of Mitigation Measure NOI-1C the proposed Project would use the smallest size equipment capable of safely completing work activities, which would support the efficient use of fuel resources. Therefore, the proposed Project would not result in a

potentially significant environmental effect due to wasteful, inefficient, or unnecessary consumption of energy resources. In addition, as the proposed Project involves the construction of a seawall for coastal bluff fortification and would not increase energy consumption over the long term, it would not conflict with nor obstruct a state or local plan adopted for the purposes of increasing the amount of renewable energy or energy efficiency.

References

California Energy Commission (CEC) 2021. 2020 Total System Electric Generation in Gigawatt Hours. June. Accessed May 12, 2021. Available at https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2020-total-system-electric-generation.

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6.1.3 Greenhouse Gas Emissions

Environmental Setting

Gases that absorb and emit infrared thermal radiation (heat) in the atmosphere and affect regulation of the Earth's temperature are known as greenhouse gases (GHGs). There are many compounds present in the Earth's atmosphere which are GHGs, including but not limited to water vapor (H_2O), carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). GHGs allow solar radiation (sunlight) to enter the atmosphere freely. When solar radiation strikes the earth's surface, it is either absorbed by the atmosphere, land, and ocean surface, or reflected back toward space. The land and ocean surface that has absorbed solar radiation warms up and emits infrared radiation toward space. GHGs absorb some of this infrared radiation and "trap" the energy in the earth's atmosphere. Entrapment of too much infrared radiation produces an effect commonly referred to as the "Greenhouse effect." Human activities since the beginning of the Industrial Revolution (approximately 1750) have increased atmospheric GHG concentrations. Average global surface temperatures have risen as a result of GHG emissions. This increase in globally averaged surface

temperatures is commonly referred to as "Global Warming," although the term "Global Climate Change" is preferred because effects associated with increased GHG concentrations are not just limited to higher global temperatures (NOAA, 2023).

GHGs that contribute to climate regulation are a different type of pollutant than criteria or hazardous air pollutants because climate regulation is global in scale, both in terms of causes and effects. Some GHGs are emitted to the atmosphere naturally by biological and geological processes such as evaporation (water vapor), aerobic respiration (carbon dioxide), and off-gassing from low oxygen environments such as swamps or exposed permafrost (methane); however, GHG emissions from human activities such as fuel combustion (e.g., carbon dioxide) and refrigerant use (e.g., hydrofluorocarbons) significantly contribute to overall GHG concentrations in the atmosphere, climate regulation, and global climate change.

Human production of GHG has increased steadily since pre-industrial times (approximately pre-1880) and atmospheric carbon dioxide concentrations have increased from a pre-industrial value of 280 parts per million (ppm) in the early 1800's to 420 ppm in April 2022 (NOAA 2022). The effects of increased GHG concentrations in the atmosphere include climate change (increasing temperature and shifts in precipitation patterns and amounts), reduced ice and snow cover, sea level rise, and acidification of oceans. These effects in turn will impact food and water supplies, infrastructure, ecosystems, and overall public health and welfare.

The 1997 United Nations' Kyoto Protocol international treaty set targets for reductions in emissions of four specific GHGs – carbon dioxide, methane, nitrous oxide, and sulfur hexafluoride – and two groups of gases – hydrofluorocarbons and perfluorocarbons. These GHGs are the primary GHGs emitted into the atmosphere by human activities. The six common GHGs are described below.

Carbon Dioxide (CO_2). CO_2 is released to the atmosphere when fossil fuels (oil, gasoline, diesel, natural gas, and coal), solid waste, and wood or wood products are burned.

Methane (CH_4). CH_4 is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from the decomposition of organic waste in municipal solid waste landfills and the raising of livestock.

Nitrous oxide (N_2O). N_2O is emitted during agricultural and industrial activities, as well as during combustion of solid waste and fossil fuels.

Sulfur hexafluoride (SF_6). SF_6 is commonly used as an electrical insulator in high voltage electrical transmission and distribution equipment such as circuit breakers, substations, and transmission switchgear. Releases of SF_6 occur during maintenance and servicing as well as from leaks of electrical equipment.

Hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs). HFCs and PFCs are generated in a variety of industrial processes.

GHG emissions from human activities contribute to overall GHG concentrations in the atmosphere and the corresponding effects of global climate change (e.g., rising temperatures, increased severe weather events such as drought and flooding). GHGs can remain in the atmosphere long after they are emitted. The potential for a GHG to absorb and trap heat in the atmosphere is considered its global warming potential (GWP). The reference gas for measuring GWP is CO_2, which has a GWP of one. By comparison, CH_4 has a GWP of 25, which means that one molecule of CH_4 has 25 times the effect on global warming as one molecule of CO_2. Multiplying the estimated emissions for non-CO_2 GHGs by their GWP determines their carbon dioxide equivalent (CO_2e), which enables a project's combined global warming potential to be expressed in terms of mass CO_2 emissions. GHG emissions are often discussed in terms of Metric Tons of CO_2e, or $MTCO_2e$.

Regulatory Setting

State

California Global Warming Solutions Act (AB 32) and Related Legislation

The California Air Resources Board (CARB) is the lead state agency for implementing Assembly Bill (AB) 32, the California Global Warming Solutions Act adopted by the Legislature in 2006. AB 32 requires the CARB to prepare a Scoping Plan containing the main strategies that will be used to achieve reductions in GHG emissions in California.

Executive Order B-30-15, 2030 Carbon Target and Adaptation, issued by Governor Brown in April 2015, sets a target of reducing GHG emissions by 40 percent below 1990 levels in 2030. By directing state agencies to take measures consistent with their existing authority to reduce GHG emissions, this order establishes coherence between the 2020 and 2050 GHG reduction goals set by AB 32 and seeks to align California with the scientifically established GHG emissions levels needed to limit global warming below two degrees Celsius.

To reinforce the goals established through Executive Order B-30-15, Governor Brown went on to sign SB 32 and AB197 on September 8, 2016. SB 32 made the GHG reduction target to reduce GHG emissions by 40 percent below 1990 levels by 2030 a requirement as opposed to a goal. AB 197 gives the Legislature additional authority over CARB to ensure the most successful strategies for lowering emissions are implemented, and requires CARB to, "protect the state's most impacted and disadvantaged communities …[and] consider the social costs of the emissions of greenhouse gases."

CARB Scoping Plan

AB 32 requires the CARB to prepare a Scoping Plan containing the main strategies that will be used to achieve reductions in GHG emissions in California. In 2007, CARB approved a statewide 1990 emissions level and corresponding 2020 GHG emissions limit of 427 million metric tons of carbon dioxide equivalents (MTCO2e) (CARB, 2007). In 2008, CARB adopted its Climate Change Scoping Plan, which projects, absent regulation or under a "business as usual" (BAU) scenario, 2020 statewide GHG emissions levels of 596 million MTCO2e and identifies the

numerous measures (i.e., mandatory rules and regulations and voluntary measures) that will achieve at least 174 million MTCO2e of reductions and reduce statewide GHG emissions to 1990 levels by 2020 (CARB, 2009). In 2011, CARB released a supplement to the 2008 Scoping Plan Functional Equivalent Document that included an updated 2020 BAU statewide GHG emissions level projection of 507 million MTCO2e (CARB, 2011), and in 2014 CARB adopted its First Update to the Climate Change Scoping Plan (CARB, 2014). On December 14, 2017, CARB adopted the second update to the Scoping Plan, the 2017 Climate Change Scoping Plan Update (2017 Scoping Plan Update). The primary objective of the 2017 Scoping Plan Update is to identify the measures needed to achieve the mid-term GHG reduction target for 2030 (i.e., reduce emissions by 40 percent below 1990 levels by 2030), as established under Executive Order B-30-15 and SB 32. To achieve these goals, the 2017 Scoping Plan Update includes a recommended plan-level efficiency threshold of six metric tons or less per capita by 2030 and no more than two metric tons by 2050.

In December 2022, CARB adopted the 2022 Scoping Plan, which outlines the State's strategy for achieving carbon neutrality by 2045. The 2022 Scoping Plan identifies a technologically feasible, cost-effective, and equity-focused path for achieving the State's climate targets for 2030 (under SB 32) and 2045 (under AB 1279). The continued implementation of existing plans, policies, and regulations adopted for the purposes of reducing GHG emissions remain critical for achieving the State's 2030 and 2045 GHG reduction goals. For example, the 2022 Scoping Plan identifies a goal of achieving a per capita VMT reduction of at least 25 percent below 2019 levels by 2030 and 30 percent below 2019 levels by 2045, which is related to the implementation of SB 375. The 2022 Scoping Plan also puts a strong emphasis on measures that will decarbonize activities and emissions from existing and proposed land uses, and capture and store carbon in the atmosphere though man-made (e.g., machinery) and natural (e.g., sequestration) processes.

BAAQMD 2017 Clean Air Plan

As discussed in Section 3.3, Air Quality, the BAAQMD's 2017 Clean Air Plan is a multi-pollutant plan focused on protecting public health and the climate. The 2017 Clean Air Plan lays the groundwork for a long-term effort to reduce Bay Area GHG emissions 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050, consistent with GHG reduction targets adopted by the state of California.

BAAQMD 2022 CEQA Guidelines

The BAAQMD revised the 2022 CEQA Guidelines on April 25, 2023, which include climate impact thresholds of significance for land use projects (BAAQMD, 2023). The proposed Project is not considered a land use project, and so these climate impact significance thresholds are not included in this report.

City of Pacifica Climate Action Plan

The Pacifica City County adopted the Climate Action Plan (CAP) in July 2014. The CAP aimed to reduce community-wide emissions by 35 percent below 2005 levels by 2020, and 80 percent below 1990 levels by 2050. The CAP included 15 GHG reduction measures across the Energy, Transportation, Solid Waste, and Water sectors. However, implementing measures focus on lowering operational GHG emissions, such as reducing energy consumption in buildings or improving transit, and do not apply to the Project.

Thresholds of Significance

The Project would have a significant impact on the environment if it would:

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, or

b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Impacts

Global climate change is the result of GHG emissions worldwide; individual projects do not generate enough GHG emissions to influence global climate change. Thus, the analysis of GHG emissions is by nature a cumulative analysis focused on whether an individual project's contribution to global climate change is cumulatively considerable.

Impact GHG-1: The Project would not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. (Less than Significant Impact)

Impact GHG-2: The Project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing emissions of greenhouse gases. (Less than Significant Impact)

The proposed Project would generate GHG emissions from short-term construction activities. Construction activities would generate GHG emissions from equipment fuel combustion and worker, vendor, and haul trips to and from the Project. Construction activities would last approximately six months and would cease to emit GHGs upon completion. The Project would not generate any long-term, operational GHG emissions because it does not involve active operations or energy use following bluff stabilization. The BAAQMD has not adopted a threshold of significance for construction-related GHG emissions (BAAQMD 2022). Nonetheless, construction-related emissions were quantified and amortized over the lifetime of the proposed Project (presumed to be 30 years). This normalizes construction emissions so that they can be grouped with operational emissions and compared to appropriate thresholds, plans, etc. The Project's amortized GHG emissions are estimated to be 11.0 $MTCO_2e$ per year (see Appendix C),

which would not have a significant impact on the environment because the proposed Project's GHG emissions of 11 $MTCO_2e$ are less than 0.04 percent of the City's CAP 2050 reduction target emissions level of 31,125 $MTCO_2e$ (City of Pacifica, 2014). The Project also would not conflict with any plan or policy adopted for the purposes of reducing GHG emissions, including the CARB Scoping Plan, the BAAQMD Clean Air Plan, and the Pacifica Climate Action Plan. Most of the policies and control measures contained in these plans would be implemented at the state or regional level and would not directly apply to the Project. In addition, the Project will incorporate Mitigation Measure NOI-1C (items a and f), which would limit GHG emissions from construction equipment because this mitigation measure would incorporate the smallest size equipment capable of safely completing work activities and connecting to existing electrical service (to avoid the use of stationary power generators, if feasible). Therefore, these impacts would be less than significant.

References

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6.1.4 Mineral Resources

Environmental Setting

Mineral resources are defined as any naturally occurring chemical elements or compounds, formed from inorganic processes and organic substances. Minable minerals are minerals having a value materially in excess of the cost of developing, mining, and processing the mineral and reclaiming the Project area. Mineral resource areas are locations that have been classified by the State Department of Conservation's Division of Mines and Geology or designated by the State Mining and Geology Board, as well as existing surface mining operations.

The Project site is within Mineral Land Classification MRZ-3: Areas containing mineral deposits the significance of which cannot be evaluated from available data (Division of Mines and Geology 1983). The only designated locations of mineral resources within the City are the Pacifica Quarry and Mori Point which are construction aggregate resource areas of regional significance as designated by the State Mining and Geology Board (Pacifica 2022).

Regulatory Setting

State

Surface Mining and Reclamation Act

The Surface Mining and Reclamation Act of 1975 (SMARA), as codified in the California Public Resources Code (Section 2710 et seq.), provides a comprehensive surface mining and reclamation policy to minimize adverse environmental impacts and allow mined lands to be restored to a usable condition. SMARA also encourages the production, conservation, and protection of the State's mineral resources. Section 2207 of the California Public Resources Code provides annual reporting requirements for all mines in the State, and the State Mining and Geology Board is granted authority and obligations under this section. SMARA also mandates the classification of lands with valuable mineral resources so that land use decisions that may affect mineral-bearing lands can be made with the knowledge of these resources.

SMARA requires the State Geologist to classify areas with potential for significant mineral resources. It states that: "The primary objective of the mineral land classifications is to assure that

mineral potential and its significance is recognized and considered before land use decisions that could preclude mining are made. The availability of mineral resources is vital to our society. Yet for most types of minerals, economic deposits are rare, isolated occurrences. Access to terrain for purposes of mineral exploration and mine development has become increasingly difficult because California is also faced with growing land use competition." The SMBG has classified land in California based on the availability of mineral resources. Four mineral resources zone (MRZ) designations established for classifying sand, gravel, and crushed rock resources are defined below:

- MRZ-1: Adequate information indicates that no significant mineral deposits are present or likely to be present.

- MRZ-2: Adequate information indicates that significant mineral deposits are present or there is a high likelihood for their presence, and development should be controlled.

- MRZ-3: The significance of mineral deposits cannot be determined from the available data.

- MRZ-4: There is insufficient data to assign any other MRZ designation. Under SMARA, aggregate materials are classified as reserves or resources. Reserves are defined as aggregate materials believed to be acceptable for commercial use that exist within property boundaries owned or leased by an aggregate-producing company, and for which permission allowing extraction and processing has been granted by the proper authorities."

Thresholds of Significance

The Project would have a significant impact to mineral resources if it would:

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.

Impacts

Impact MIN-1: The Project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, nor would it 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)

As noted above, the Project site is within an area designated as MRZ-3 which is the classification for areas containing mineral deposits the significance of which cannot be evaluated from available data (Division of Mines and Geology 1983). The Project is to prevent the coastal bluff from further retreat and to protect the City's infrastructure by constructing a seawall at the toe of the bluff slope.

The Project would not result in the loss of known minerals nor result in the loss of availability of locally important mineral resource recovery site as it is not near the Pacifica Quarry or Mori Point, which are the only two areas identified as areas of regional significance for aggregate.

References

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City of Pacifica. 2022. General Plan Update and Sharp Park Specific Plan Environmental Impact Report. SCH: 2012022046. January 6.

6.1.5 Population and Housing

Thresholds of Significance

Per the CEQA Guidelines, implementation of the Project would have a significant impact related to population and housing if it would:

a. Induce substantial population 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); or

b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

Impacts

Impact POP-1: The Project would not induce unplanned population growth in an area, either directly or indirectly (No Impact).

The Project proposes to construct a seawall to protect the City's infrastructure from further coastal bluff erosion. The Project does not provide housing or facilities that would induce any let alone substantial unplanned population growth in the area, and therefore there would be no direct or indirect impact related to unplanned population growth.

Impact POP-2: The Project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere. (No Impact)

No people or housing are being displaced as a result of the Project. People were displaced previously as a result of hazardous conditions due to coastal erosion. The Project prevents further erosion from occurring at the site. As stated in the response to Impact POP-1, above, the proposed Project would not induce population growth, either directly or indirectly. No impact would occur.

6.1.6 Transportation

6.1.7 Environmental Setting

The Project is located within City of Pacifica along Esplanade Avenue. Regional access to the site is provided by State Route 1 (SR-1), just east of the site via Palmetto Avenue and West Avalon Drive and Manor Drive. As shown on Figure 3-3, equipment staging areas are proposed for the vacant blufftop areas at 310 – 330 Esplanade Avenue and adjacent to the temporary construction access at the south end of the Project. The staging areas will be fully contained on sites off of the street and thus will not impair vehicle, bicycle or pedestrian movements along the street and do not require any street closures or encroachment permits.

6.1.8 Regulatory Setting

State

California Department of Transportation (Caltrans)

Access points to and from SR-1 for construction related traffic (i.e., construction equipment trucks, haul trucks, etc.) have not been determined at this time, however, it should be noted that temporary traffic controls that encroach onto Caltrans' ROW requires a Caltrans-issued encroachment permit, and in addition, work requiring the movement of oversized or excessive load vehicles on State roadways requires a transportation permit that is issued by Caltrans.

Local

Pacifica 2040 General Plan

Pacifica updated the General Plan in 2022. The following policies are contained in the Circulation Element:

CI-I-2 Complete Streets Design Approach. Update the City's engineering design standards to implement Complete Streets concepts, and include Complete Streets design principles in the planning of all circulation improvement projects. These principles include, but are not limited to:

- Maximizing connections with the existing circulation network;
- Minimizing ingress and egress points and consolidating entries;
- Providing public transit facilities and improvements;
- Providing bicycle and pedestrian facilities (bike lanes and sidewalks);
- Minimizing pedestrian crossing distances by providing curb extensions; medians with safety refuges, and other treatments;

- Improving safety by providing lighting and traffic calming devices for residential streets;
- Including landscaping (trees, medians, key intersections and gateways);
- Providing appropriate signage, including street signs, entry signs, and directional signs;
- Providing street furniture; and
- Maintaining on-street parking.

CI-I-16: LOS for Pedestrians, Cyclists and Transit Users. Strive to maintain LOS C or better for pedestrians, cyclists, and transit users on all roadways, and impose mitigation measures as needed to achieve multi-modal service objectives.

CI-I-23: Design for Safety. Incorporate safety measures in improvement designs for intersections, roadways, pedestrians, transit, and bicycle facilities.

CI-I-25: Emergency Access. Require all developers to incorporate emergency access needs consistent with Title 10 of the Municipal Code.

Pacifica Municipal Code

The following are contained within the Pacifica Municipal Code:

Title 7. Chapter 2. Sec. 7-2.205. - Performance of work. All work shall be performed in a neat and workmanship-like manner in accordance with the standards of the City and the requirements of the Community and Economic Development Director. Such work shall be so programmed as to cause a minimum of interference with traffic and inconvenience to the public. Free and unobstructed access shall be provided to all mailboxes, fire hydrants, water gates, valves, manholes, drainage structures, and/or other public service structures and property as may be required for emergency use. Such public service structures or property shall not be removed or relocated without proper coordination with the properly constituted authorities charged with the control and maintenance of such structures and property. The working area shall be confined so as not to obstruct roadways and walks unnecessarily. Temporary roadways, driveways, and walks for vehicles and pedestrians shall be constructed where required. Upon a written application, streets, driveways, or areas may be closed for limited periods where, in the opinion of the Community and Economic Development Director, the public interests can best be served thereby. When required by the Community and Economic Development Director, the permittee shall give notice to the owners or occupants of all property where access will be impaired. The work shall be coordinated with other agencies or concerns working in the area to the satisfaction of the Community and Economic Development Director. The permittee shall inform himself or herself of the existence and location of all underground facilities and shall protect them against damages.

Title 7. Chapter 2. Sec. 7-2.206. - Performance of work: Barricades, warning signs, and watchmen. During the performance of the work, the permittee shall provide and maintain fences, barricades, warning and directional signs, flares, red lights, watchmen, and flagmen as may be required by existing laws and regulations and as deemed necessary, in the opinion of the Community and Economic Development Director or his designated representative, to insure full and complete safety to the general public.

Thresholds of Significance

Per the CEQA guidelines, the proposed Project would have a significant impact related to transportation if it would:

a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities;

b. Conflict or be inconsistent with CEQA Guidelines § 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); or

d. Result in inadequate emergency access.

Impacts

Impact TRANS-1: The Project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. (No Impact)

The proposed Project does not propose any changes along the site frontage along Esplanade Avenue and therefore would not conflict with a program, plan, ordinance or policy addressing the circulation system. The Project is the construction of a seawall to prevent coastal bluff erosion and would not generate traffic over the long term or cause any changes to the circulation system during construction. Consistent with Pacifica Municipal Code Title 7, Chapter 2, Sec. 7-2.206, flaggers, barricades, fencing, and/or other traffic control measures such as warning or directional signage would be utilized during construction to ensure the safe transport of construction equipment and materials to and from the Project site.

Impact TRANS-2: The Project would not conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b). (No Impact)

The proposed Project is an infrastructure improvement and does not involve any new land uses, employees or residents at the site that have the potential to generate vehicle miles traveled (VMT). The proposed Project would have no impacts whatsoever on vehicle miles traveled in and around the proposed Project site since there would not be any change to the operational and maintenance activity from existing conditions. The proposed seawall would require no maintenance once it is

operational, and construction traffic (equipment and materials transport and daily worker traffic) would slightly increase traffic on local roads during the temporary construction phase of the Project. Given the temporary nature of construction-related travel, impacts related to VMT would be less than significant. Therefore, the Project will not conflict with CEQA Guidelines section 15064.3(b).

Impact TRANS-3: The Project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). (No Impact)

The proposed Project is intended to minimize existing coastal bluff erosion hazards at the site and would not include new roads or intersections or change the land use of the Project site or area. The seawall would be secured with tie backs and secured to footings as designed by the site-specific geotechnical report. Project construction equipment would not impact public rights-of-way by extending beyond the limits of the proposed designated staging areas. Therefore, the Project would not increase hazards due to a geometric design feature or incompatible uses.

Impact TRANS-4: The Project would not result in inadequate emergency access. (No Impact)

The proposed Project is the installation of a seawall along the toe of a coastal bluff and would not include new buildings or above-ground habitable structures. Construction vehicles would use designated access routes and emergency access would be maintained during construction. Therefore, the Project would not impact emergency access.

6.1.9 Utilities and Service Systems

Thresholds of Significance

Per the CEQA Guidelines, implementation of the Project would have a significant impact related to utilities and service systems if it would:

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 telecommunication

b. Have insufficient 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 inadequate capacity to serve the 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; or

e. Not comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

Impacts

Impact UTS-1 – The Project would not 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. (No Impact)

The Project would construct a seawall to prevent further coastal bluff retreat. No utility connections are required to operate the seawall therefore it will not connect to utility infrastructure such as water, sewer, stormwater, electrical, natural gas or telecommunications utilities. Existing City water service to the site will be available during the construction phase for use in mixing the shotcrete, as necessary (David Harvey, Pacifica Engineering Division). Therefore, the Project would have no impact on utilities or require relocation of existing utilities.

Impact UTS-2 – The proposed Project would not have insufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry year. (No Impact)

Impact UTS-3 – The Project would not result in a determination by the wastewater treatment provider which serves or may serve the Project that it has inadequate capacity to serve the projected demand in addition to the provider's existing commitments. (No Impact)

Impact UTS -2 and Impact UTS-3: The Project, which is primarily a short-term construction project, would not generate a significant demand for water or wastewater treatment. Portable toilet facilities will be provided for workers during construction of the Project.

Impact UTS-4 – The proposed Project would not generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. (Less Than Significant Impact)

Some construction waste would be generated by the Project over the short-term. Construction waste is expected to be minimal and would not exceed the capacity of the landfill that serves the area. Per CalRecycle, the Corinda Los Trancos (Ox Mountain) Landfill has 22,180,000 cubic yards of remaining available capacity, or approximately 36.7 percent of the facility's maximum permitted capacity of 60,500,000 cubic yards. The Corinda Los Trancos landfill is planned for closure in 2034. The impact is considered less than significant.

Impact UTS-5 – The proposed Project would comply with federal, state, and local management and reduction statutes and regulations related to solid waste. (No Impact)

The Project would not conflict with any federal, state or local statutes and regulations related to solid waste.

References

CalRecycle. SWIS Facility/Site Activity Details: Corinda Los Trancos Landfill (Ox Mtn) (41-AA-0002). Accessed on March 29, 2023. Available at: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1561?siteID=3223.https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1561?siteID=3223.

6.1.10 Wildfire

Environmental Setting

The Project site is mapped as being within a Local Responsibility Area with the North County Fire Authority responsible for providing firefighting capabilities. In the Hazard Risk Ranking of the San Mateo County 2021 Multijurisdictional Local Hazard Mitigation Plan, the risk of wildfire for the City of Pacifica was determined to be "Medium Risk"[19].The site is not within a Very High Fire Hazard Severity Zone as designated by the California Department of Forestry and Fire Protection (Calfire).[20] The nearest area with a Very High Fire Hazard Severity Zone designation is located in a State Responsibility Area at the City's southern border with unincorporated San Mateo County, approximately four miles south of the Project site.

California Department of Forestry and Fire Protection

The California Department of Forestry and Fire Protection (CAL FIRE) protects life and property through fire prevention engineering programs, law and code enforcement and education. CAL FIRE identifies areas within Local Responsibility Areas and recommends fire hazard severity zones; CAL FIRE also designates fire hazard severity zones for areas within State Responsibility. Areas. Cal FIRE will review and approved the City's wildfire section of the Environmental Safety and Public Services Element.

San Mateo County Multijurisdictional Local Hazard Mitigation Plan

The San Mateo County Department of Emergency Management is responsible for alerting and notifying appropriate agencies within the county's 20 cities (including Pacifica) when disaster strikes; coordinating all agencies that respond, ensuring resources are available and mobilized in times of disaster, developing plans and procedures in response to and recovery from disasters, and developing and providing preparedness materials for residents. In 2021, the San Mateo County Department of Emergency Management published a Multijurisdictional Local Hazard Mitigation Plan, a large regional and cross-jurisdictional effort to plan for the reduction of risk from natural and other disasters.

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[19] San Mateo County. 2021. 2021 Multijurisdictional Local Hazard Mitigation Plan. Volume 2 – Planning Partner Annexes. Accessed April 3, 2023 at https://www.smcgov.org/media/53476/download?inline=

[20] Calfire. 2022. Fire Hazard Severity Zones Maps. Accessed April 15, 2022 at https://egis.fire.ca.gov/FHSZ/

The Local Hazard Mitigation Plan (LHMP) assesses hazard vulnerabilities and identifies mitigation actions that jurisdictions will pursue in order to reduce the level of injury, property damage, and community disruption that might otherwise result from such events. The LHMP addresses natural and human-caused hazards, including flooding, drought, wildfire, landslides, severe weather, terrorism, cyber threats, pandemic, and the impact of climate change on hazards, as well as other hazards.

Pacifica's LHMP is an Annex to the MJ-LHMP. The 2021 Pacifica Annex identifies coastal erosion as the top hazard in Pacifica (under the "Landslide/Mass Movements" category) and has noted at least eight significant coastal erosion events since 1997.[21]

Thresholds of Significance

Based on Appendix G of the State CEQA Guidelines, implementation of the Project would have a significant impact related to wildfire if it would:

For projects located in or near state responsibility areas or lands classified as Very High Fire Hazard Severity Zones, the proposed Project would have an impact related to wildfire if it would:

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; or

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.

[21] General Plan Update and Sharp Park Specific Plan Environmental Impact Report, Public Review Draft. January 2022.

Impacts

Impact WILD-1: The Project would not substantially impair an adopted emergency response plan, or emergency evacuation plan, due to slope, prevailing winds and other factors exacerbate wildland fire risks, require the installation of associated infrastructure, 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. (No Impact)

As discussed in the Environmental Setting provided above, the Project is not located in a Very High Fire Hazard Severity zone. In addition, the Project is the construction of a seawall and restoration plantings which does not represent features that would substantially alter the wildfire risk in the area.

6.2 CUMULATIVE IMPACTS

Under Section 15065(a)(3) of the CEQA Guidelines, a lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the Project has potential environmental effects "that are individually limited, but cumulatively considerable." As defined in Section 15065(a)(3) of the CEQA Guidelines, cumulatively considerable means "that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." Using this definition, a project that has no impact in a given impact category cannot have a cumulatively considerable contribution because its contribution is zero.

The Project evaluated in this Focused EIR is limited to the construction of a seawall and revegetation of the blufftop above the seawall area. There are no operational aspects of the Project following construction and therefore many types of impacts that are frequently associated with development projects (e.g., housing, offices, commercial uses, etc.) would not occur. For example, as described in Section 6.1, construction of the seawall and revegetation of the bluff would have no adverse impacts on agriculture and forestry resources, mineral resources, population and housing, public services, utilities and service systems, and wildfire.

There are no other projects proposed or that would be under construction in the same general area as the proposed Project. According to the final draft of the City's Capital Improvement Program 2022-2027 (June 2022), Therefore, short-term, construction related impacts of the Project (e.g., dust, potential soil contamination, noise and vibration, nesting bird disturbance, and water quality) would not combine with the impacts of other projects and would not be cumulatively considerable Furthermore, Best Management Practices and mitigation measures are included in the Project to reduce construction-related impacts to a less than significant level.

As described in Section 4.3 Biological Resources, the Project could affect sensitive biological resources in the short-term. These impacts, however, would not result in a cumulatively significant loss of such resources, because there are no other proposed projects or projects that would be under construction in the same general area as the proposed Project. In addition, the Project would

implement a number of measures to reduce impacts on both common and special-status species, as described in Section 4.3. Therefore, the Project would not contribute to cumulative impacts on biological resources.

There are no planned or proposed developments in the Project area that could contribute to cumulative aesthetic, air quality, hydrology and water quality, public services or recreation impacts. The Project's biological resources impacts are specific to the Project alignment and would not contribute to cumulative impacts elsewhere.

Based on the discussion above, the Project would not result in cumulatively considerable impacts.

6.3 GROWTH INDUCEMENT

CEQA Guidelines Section 15126.2(d) requires that the EIR discuss "...the ways in which the proposed Project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment."

The Project is an infrastructure preservation project which involves the construction of a seawall at a location that has encountered significant coastal bluff erosion. The purpose of the seawall is to prevent further erosion of the coastal bluff to protect the City's infrastructure including the road and utilities at Esplanade Avenue. The construction of the Project would not result in new jobs related to a new use at the site nor does it involve the construction of new housing or uses that requires housing to support. Therefore, the Project would not foster growth inducement either directly or indirectly.

6.4 SIGNIFICANT UNAVOIDABLE IMPACTS

CEQA Guidelines Section 15126.2(b) requires that the EIR discuss "significant environmental effects which cannot be avoided if the proposed Project is implemented." As described in the environmental analyses contained in Section 4.1 through 4.11 of this EIR, all of the potentially significant impacts would be reduced to a less than significant level with mitigation. These include biological resource impacts (Section 4.3), and noise impacts (Section 4.11). Implementation of the mitigation measures described in these sections would reduce potential impacts to less than significant levels.

6.4.1 Significant Irreversible Changes

Section 15126.2(c) of the CEQA Guidelines requires a discussion of "significant irreversible environmental changes which would be caused by the proposed Project should it be implemented." An example of such an irreversible commitment is the construction of highway improvements that would provide public access to previously inaccessible areas. A project would generally result in a significant irreversible impact if:

- Primary and secondary impacts would commit future generations to similar uses.
- The Project would involve a large commitment of nonrenewable resources.
- The Project would involve uses in which irreversible damage could result from any potential environmental accidents associated with the Project.

6.4.2 Commitment of Future Generations to Similar Uses

The proposed Project would construct a seawall to preserve the existing coastal bluff and prevent further erosion into the sea. This Project would constitute a long term commitment to minimizing coastal bluff erosion and preserving the existing infrastructure along this section of Esplanade Avenue, and retaining the existing passive open space and recreational (beach access) uses. Similar shoreline protection features (seawall) exist adjacent to the proposed Project site. Future generations would be committed to similar uses as long as the existing and proposed shoreline protection features are successful at preventing further erosion.

6.4.3 Commitment of Non-Renewable Resources

CEQA Guidelines Section 15126.2(c) requires that the EIR discuss "significant irreversible environmental changes which would be caused by the proposed Project should it be implemented."

The Project proposes to protect the City's existing infrastructure through the construction of a seawall to prevent further coastal bluff erosion. The Project would preserve existing conditions and prevent further environmental change (i.e., coastal bluff erosion). Seawalls of similar construction as the proposed seawall exist to the north and south of the site

The consumption or destruction of non-renewable or slowly renewable resources would result during construction of the proposed seawall. These resources would include, but would not be limited to, petroleum products (fuels for construction equipment) concrete, sand, gravel, asphalt, masonry, metals, and water. Project implementation would also result the generation of minimal amounts of solid waste. However, construction of the proposed Project would not involve a large commitment of those resources relative to supply, nor would it consume any of those resources wastefully, inefficiently or unnecessarily. The Project has incorporated Best Management Practices, as described in Section 4.2 Air Quality which limit engine idling time. These best management practices support the efficient use of fuel resources.

7 LIST OF PREPARERS

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