INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

RTI INFRASTRUCTURE, INC.
MANCHESTER SUBSEA CABLES PROJECT

April 2019

CEQA Lead Agency:
California State Lands Commission
100 Howe Avenue, Suite 100 South
Sacramento, California 95825

Applicant:
RTI Infrastructure, Inc.
268 Bush Street, #77
San Francisco, CA 94104

MISSION STATEMENT

The California State Lands Commission provides the people of California with effective stewardship of the lands, waterways, and resources entrusted to its care through preservation, restoration, enhancement, responsible economic development, and the promotion of public access.

CEQA DOCUMENT WEBSITE

www.slc.ca.gov/ceqa/

Geographic Location (Point at Mean High Water Line)

Latitude: 39º 03.0’ N
Longitude: 123º 48.05’ W
NAD83 Datum

Cover Photo: Steve Pappas
(Photo courtesy of ICF)

TABLE OF CONTENTS

APPENDICES

In bound copies, appendices are provided on CD.

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS AND ACRONYMS

	°F	Fahrenheit
A	AC	alternating current
	ACS	American Community Survey
	APE	area of potential effects
	APM	Applicant Proposed Measure
	Applicant	RTI Infrastructure, Inc.
	ASBS	Areas of Special Biological Significance
B	BAAQMD	Bay Area Air Quality Management District
	BAU	business as usual
	BLM	Bureau of Land Management
	BMPs	best management practices
	BOEM	Bureau of Ocean Energy Management
	BSA	biological study area
C	CAA	Clean Air Act (federal)
	CAAQS	California ambient air quality standards
	CalEMA	California Emergency Management Agency
	CAL FIRE	California Department of Forestry and Fire Protection
	Caltrans	California Department of Transportation
	CARB	California Air Resources Board
	CBSC	California Building Standards Code
	CCC	California Coastal Commission
	CCR	California Code of Regulations
	CDFG	California Department of Fish and Game
	CDFW	California Department of Fish and Wildlife
	CDPR	California Department of Parks and Recreation
	CEQ	U.S. Council on Environmental Quality
	CEQA	California Environmental Quality Act
	CESA	California Endangered Species Act
	CH_4	methane
	CHIRP	Compressed High-Intensity Radiated Pulse
	CLP	cable landing parcel
	CLS	cable landing station
	CNDDB	California Natural Diversity Database
	CNPPA	California Native Plant Protection Act
	CO	carbon monoxide
	CO_2	carbon dioxide
	CO_2e	CO_2 equivalent
	CRHR	California Register of Historic Resources

	CRPR	California Rare Plant Rank
	CSLC	California State Lands Commission
	CWA	Clean Water Act
	CWHR	California Wildlife Habitat Relationship System
D	dB	decibel
	DC	direct current
	DEPM	Division of Environmental Planning and Management
	District	Mendocino County Air Quality Management District
	DPM	diesel particulate matter
E	EFH	essential fish habitat
	EIR	Environmental Impact Report
	EPA	U.S. Environmental Protection Agency
	ESHAs	Environmentally Sensitive Habitat Areas
	ESU	environmentally significant unit
F	FEMA	Federal Emergency Management Agency
	FESA	federal Endangered Species Act
	FR	Federal Register
G	G-CA	Guam to California
	GDP	gross domestic product
	GHG	greenhouse gas
	GPS	geographic positioning system
	GWP	global warming potential
H	HDD	horizontal directional drilling
	HFCs	hydrofluorocarbons
	HK-CA	Hong Kong to California
I	IPCC	Intergovernmental Panel on Climate Change
	IS	Initial Study
	IS/MND	Initial Study/Mitigated Negative Declaration
K	kW	kilowatt(s)
L	LCP	Local Coastal Plan
	LMD	Land Management Division
	LMH	landing manhole
	LOS	level of service
M	MCAQMD	Mendocino County Air Quality Management District
	MCV2	*Manual of California Vegetation*, Second Edition
	MM	mitigation measure

	MMP	Mitigation Monitoring Program
	MMPA	Marine Mammal Protection Act
	MND	Mitigated Negative Declaration
	MPA	California Marine Protected Area
	MRMD	Mineral Resources Management Division
	MSA	marine study area
	M/V	motor vessel
	MWMCP	Marine Wildlife Monitoring and Contingency Plan
N	N_2O	nitrous oxide
	NAAQS	national ambient air quality standards
	NAHC	Native American Heritage Commission
	NCAB	North Coast Air Basin
	NF_3	nitrogen trifluoride
	nm	nautical mile(s)
	NMFS	National Marine Fisheries Service
	NO	nitric oxide
	NO_2	nitrogen dioxide
	NOAA	National Oceanic and Atmospheric Administration
	NO_X	nitrogen oxides
	NPDES	National Pollutant Discharge Elimination System
	NPS	National Park Service
	NRHP	National Register of Historic Places
O	OEHHA	Office of Environmental Health Hazard Assessment
	OGB	ocean ground bed
	OHP	California Office of Historic Preservation
	OSHA	Occupational Safety and Health Administration
P	PFCs	perfluorocarbons
	PFMC	Pacific Fishery Management Council
	PG&E	Pacific Gas and Electric Company
	PM_{10}	particulate matter with diameters of 10 microns
	$PM_{2.5}$	particulate matter with diameters of 2.5 microns
	ppm	parts per million
R	ROC	reactive organic compound
	ROG	reactive organic gases
	ROV	remotely operated vehicle
	ROW	right-of-way
	RTI	RTI Infrastructure, Inc.

S	SEA	Significant Ecological Area
	SEL	sound exposure level
	SF_6	sulfur hexafluoride
	SMCA	State Marine Conservation Area
	SMPs	State Marine Parks
	SMR	State Marine Reserve
	SO_2	sulfur dioxide
	SR	State Route
	SRA	State Responsibility Area
	SVP	Society of Vertebrate Paleontology
	SWPPP	Stormwater Pollution Prevention Plan
	SWRCB	State Water Resources Control Board
T	TAC	toxic air contaminant
U	USACE	U.S. Army Corps of Engineers
	USCG	U.S. Coast Guard

PAGE INTENTIONALLY LEFT BLANK

This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared by the California State Lands Commission (Commission or CSLC), as lead agency under the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.), to analyze and disclose the environmental effects associated with the proposed RTI Infrastructure, Inc. Manchester Subsea Cables Project (Project). The Project would authorize RTI Infrastructure, Inc. (Applicant or RTI) to build the infrastructure in terrestrial and marine areas to be able to connect up to four fiber optic cables coming from Asia and Australia (Figure ES-1).

The CSLC prepared an MND because it determined that, while the IS identifies potentially significant impacts related to the Project, mitigation measures (MMs) incorporated into the Project proposal and agreed to by the Applicant will avoid or mitigate those impacts to a point where no significant impacts occur.

PROPOSED PROJECT

As the world relies on faster digital media and telecommunication systems (cell phones, Internet, voice, streaming videos, banking transactions, shopping online, etc.), the data transferring systems need to be updated to keep up with the technical advancements to transmit uninterrupted telecommunication data. The proposed Project is going to help transmit telecommunication data at a much faster speed with more connections between the United States and Asia and the United States and Australia (Figure ES-1).

The Project would be located both on land (terrestrial) and in ocean (marine) areas just north of the unincorporated town of Manchester, Mendocino County. The terrestrial components of the telecommunication cable systems would be located above submerged lands, or above the ordinary high-water mark to the onshore cable landing parcel (CLP) (Figure ES-2). The initial support facilities, including the horizontal directional drilling of four marine steel bore pipes offshore (5 or 6 inches in diameter), would be constructed in 2019 and 2020 for all of the cables coming to Manchester from 2020 until 2025. The four different routes in the ocean stabilize and diversify telecommunications connections in case of disasters interrupting data exchange.

Each cable would arrive offshore, it would be pulled through a marine steel bore pipe, and then brought on land to the CLP. Each cable would then be routed through an underground conduit system on both sides of State Route 1 (SR 1) and public roads to connect with one of the three existing cable landing stations in Manchester that would transmit signals to the technical hubs in Silicon Valley (south of San Francisco) (Figure ES-2).

The marine cables coming from Asia or Australia (Figure ES-1) would cross the Pacific Ocean, cross the continental shelf, would be pulled through the newly installed marine steel bore pipes under the beach and bluff, and exit on land in the CLP (Figure ES-2). Each cable would be laid directly on the seafloor where the water is deeper than 5,904 feet. If the water is less than approximately 5,904 feet deep, then each cable would be buried. Depending on seafloor substrate, the cable would be plowed or post-lay buried under the seafloor.

ENVIRONMENTAL IMPACTS AND PROPOSED MITIGATION MEASURES

The environmental issues checked below in Table ES-1 would be potentially affected by this Project; a checked box indicates that at least one impact would be a "potentially significant impact." The Applicant has agreed to Project revisions, including the implementation of MMs and Applicant Proposed Measures (APMs) that would reduce the potential impacts to "less than significant with mitigation," as detailed in Section 3.0, *Environmental Checklist and Analysis,* of this MND. Table ES-2 lists the proposed MMs and APMs designed to reduce or avoid potentially significant impacts. With implementation of the proposed MMs and APMs, all Project-related impacts would be reduced to less than significant levels.

Table ES-1. Environmental Issues and Potentially Significant Impacts

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

Table ES-2. Summary of Mitigation Measures and Applicant Proposed Measures

Biological Resources
MM BIO-1: Provide Environmental Awareness Training
MM BIO-2: Conduct Biological Surveying and Monitoring
MM BIO-3: Delineate Work Limits and Install Temporary Construction Barrier Fencing to Protect Sensitive Biological Resources
MM BIO-4: Identify and Avoid Sensitive Biological Resources through Use of Directional Boring
MM BIO-5: Implement Best Management Practices for Horizontal Directional Drilling and Directional Boring Activities
MM BIO-6: Prepare and Implement an Inadvertent Return Contingency Plan

Table ES-2. Summary of Mitigation Measures and Applicant Proposed Measures

MM BIO-7: Prepare and Implement a Site Restoration Plan
MM BIO-8: Install Escape Ramps in Open Trenches
MM BIO-9: Conduct Surveys for Point Arena Mountain Beaver
MM BIO-10: Limit Construction Period to Minimize Impacts on Point Arena Mountain Beaver
MM BIO-11: Avoid Point Arena Mountain Beaver Populations and Burrows
MM BIO-12: Survey for and Avoid Behren's Silverspot Butterfly and Lotis Blue Butterfly Habitat
MM BIO-13: Conduct Pre-Construction Nesting Bird Surveys and Implement Avoidance Measures
MM BIO-14: Conduct Appropriately Timed Floristic Surveys of Remaining Areas
MM BIO-15: Inspection and Burial of Cable
MM BIO-16: Cable Entanglements and Gear Retrieval
MM BIO-17: Prepare and Implement a Marine Wildlife Monitoring and Contingency Plan
MM BIO-18: Boring Beneath Environmentally Sensitive Habitat Areas
MM BIO-19: Locate Work and Staging Areas for the CLP and Associated Facilities outside Wet Meadow Habitat
MM BIO-20: Minimize Crossing of Hard Bottom Substrate
MM BIO-21: Contribute Compensation to Hard Substrate Mitigation Fund
MM BIO-22: Control of Marine Invasive Species
MM HAZ-1: Hazardous Materials Management and Contingency Plan
MM HYDRO-1: Prepare and Implement a Stormwater Pollution Prevention Plan
Cultural Resources
MM CUL-1: Discovery of Previously Unknown Cultural Resources
MM CUL-2: Conduct a Pre-Construction Offshore Archaeological Resources Survey
MM CUL-3: Conduct a Pre-Construction Offshore Historic Shipwreck Survey
MM CUL-4: Prepare and Implement an Avoidance Plan
MM CUL-5: Unanticipated Discovery of Human Remains
Cultural Resources – Tribal
MM TCR-1: Discovery of Previously Unknown Tribal Cultural Resources MM TCR-2: Tribal Cultural Resources Treatment Plan
Geology, Soils, and Paleontological Resources
MM HYDRO-1: Prepare and Implement a Stormwater Pollution Prevention Plan
Greenhouse Gas Emissions
MM GHG-1: Purchase GHG Carbon Offsets for Construction Emissions
Hazards and Hazardous Materials
MM HAZ-1: Hazardous Materials Management and Contingency Plan
MM HAZ 2: Contaminated Materials Management Plan
MM HYDRO-1: Prepare and Implement a Stormwater Pollution Prevention Plan
MM BIO-5: Implement Best Management Practices for Horizontal Directional Drilling and Directional Boring Activities
MM BIO-6: Prepare and Implement an Inadvertent Return Contingency Plan

Table ES-2. Summary of Mitigation Measures and Applicant Proposed Measures

Hydrology and Water Quality
MM HYDRO-1: Prepare and Implement a Stormwater Pollution Prevention Plan
MM HAZ-1: Hazardous Materials Management and Contingency Plan
MM HAZ-2: Contaminated Materials Management Plan
MM BIO-5: Implement Best Management Practices for Horizontal Directional Drilling and Directional Boring Activities
MM BIO-6: Prepare and Implement an Inadvertent Return Contingency Plan
MM BIO-7: Prepare and Implement a Site Restoration Plan
Noise
MM N-1: Restrict Terrestrial Construction Work on Sundays
Recreation
MM T-1: Publication of U.S. Coast Guard Local Notice to Mariners
Transportation
MM N-1: Restrict Terrestrial Construction Work on Sundays
MM T-1: Publication of U.S. Coast Guard Local Notice to Mariners
Commercial Fisheries
APM-1: Fishing Agreement
APM-2: Marine Anchor Plan

Figure ES-1. Proposed Cable System Alignments

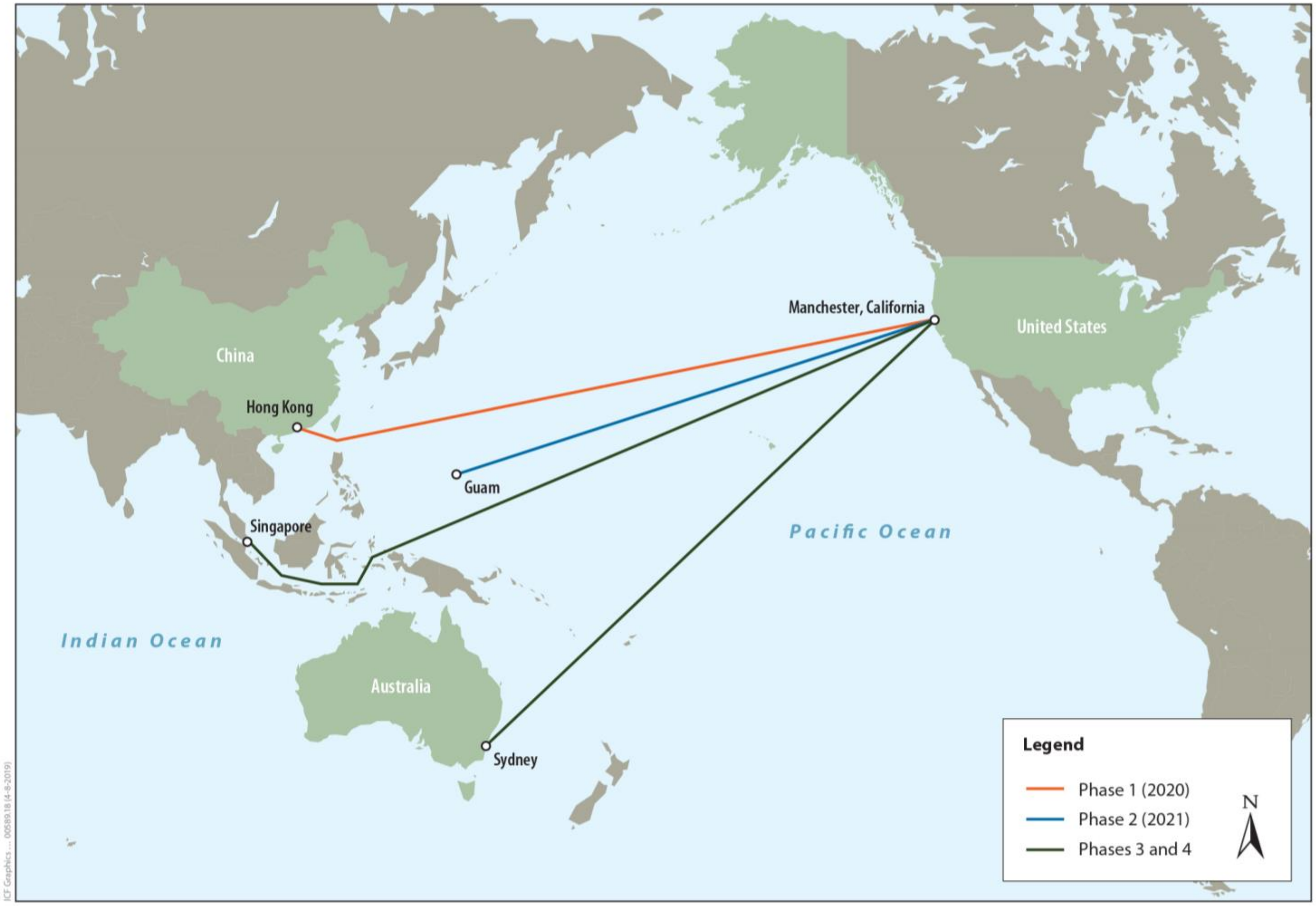
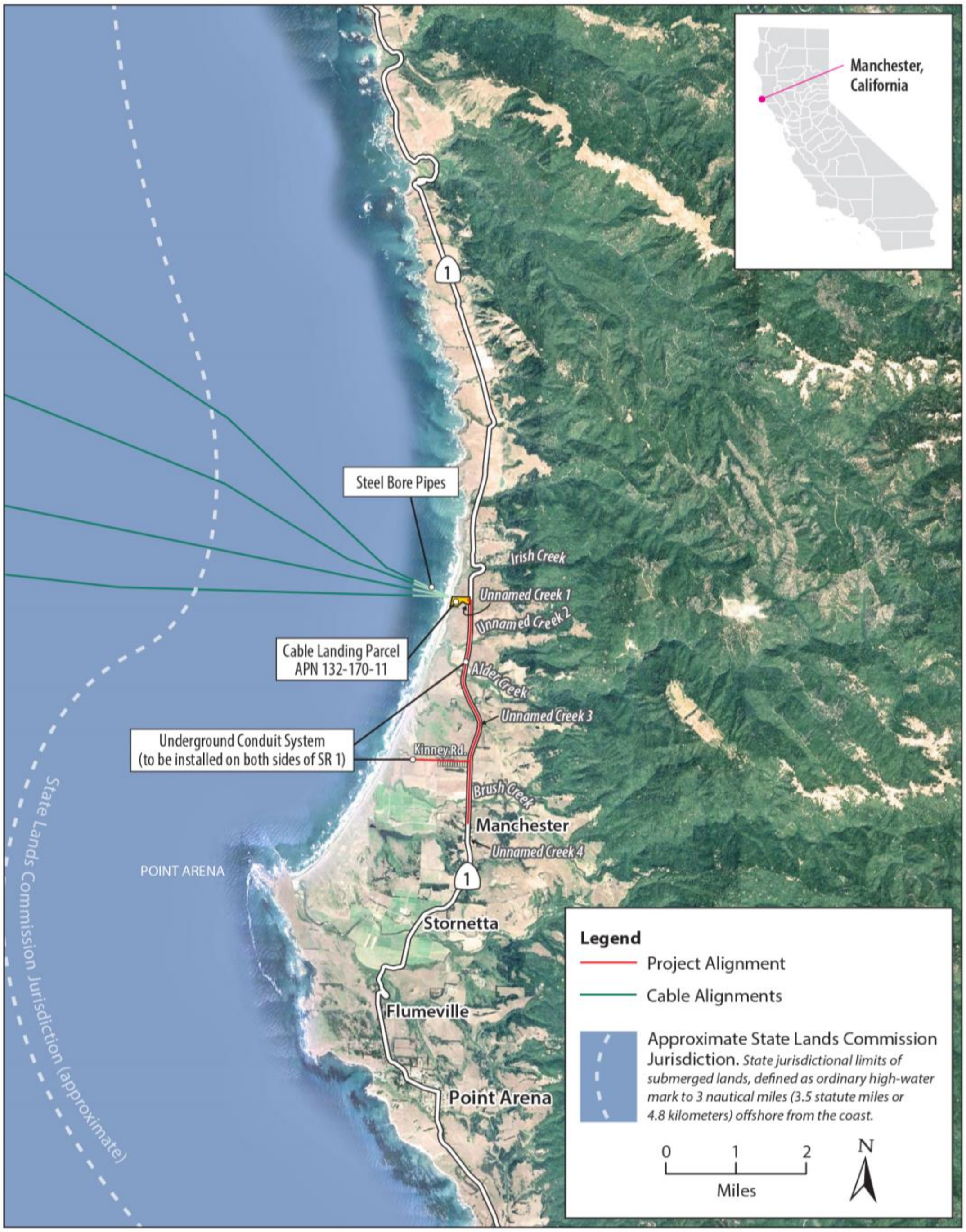


Figure ES-2. Project Location



1.0 PROJECT AND AGENCY INFORMATION

1.1 PROJECT TITLE

RTI Infrastructure, Inc. Manchester Subsea Cables Project (Project)

1.2 LEAD AGENCY AND PROJECT SPONSOR

Lead Agency California State Lands Commission 100 Howe Avenue, Suite 100-South Sacramento, CA 95825	Contact Person Afifa Awan, Senior Environmental Scientist Environmental Planning and Management Division Afifa.Awan@slc.ca.gov (916) 574-1891
Applicant RTI Infrastructure, Inc. 268 Bush Street, #77 San Francisco, CA 94104	Contact Person Chris Brungardt, Senior Vice President Chris.Brungardt@rticable.com (916) 949-9141

1.3 PROJECT LOCATION

The Project would be located both on land (terrestrial) and in ocean (marine) areas just north of the unincorporated town of Manchester, Mendocino County. The on-land Project components include the cable landing parcel, and the general routes of the terrestrial underground conduit systems leading to a final cable landing station (Figure 1-1).

The initial support facilities needed to bring up to four subsea fiber optic cables (cables) would be installed in 2019 and 2020. Once the support facilities would be installed, up to four cables would be brought to Manchester from Hong Kong (Phase 1 in 2020), Guam (Phase 2 in 2021), and Singapore or Sydney (Phases 3 or 4 in 2023 and 2025). Since Phases 3 and 4 are not yet finalized, the origin of the cables during these phases could be either Singapore or Sydney. Figure 1-2 provides the approximate marine routes of the proposed cables coming to Manchester from Hong Kong, Guam, Singapore, and Sydney. These four cables (coming from Asia or Australia) would be directly laid (not buried) on the deep seafloor and the continental shelf[1] when they are in water deeper than 5,904 feet and buried in sand when in water shallower than 5,904 feet. The cables would then be pulled through 5- to 6-inch-diameter steel marine bore pipes (installed by horizontal directional drilling [HDD]) from approximately 0.6 mile offshore under the beach and into the onshore landing manhole (LMH) at the cable landing parcel (CLP) (Assessor's Parcel Number 132-170-11). Once in the LMH, these cables would be carried up to 5 miles through an underground conduit system on both sides of SR 1 and public roads (a total

[1] The continental shelf is the western edge of the North American continent that lies under the ocean. It extends from the coastline to a drop-off point, where deep ocean starts. The water at the edge of the continental shelf at this location is approximately 5,904 feet deep.

Figure 1-1. Project Location

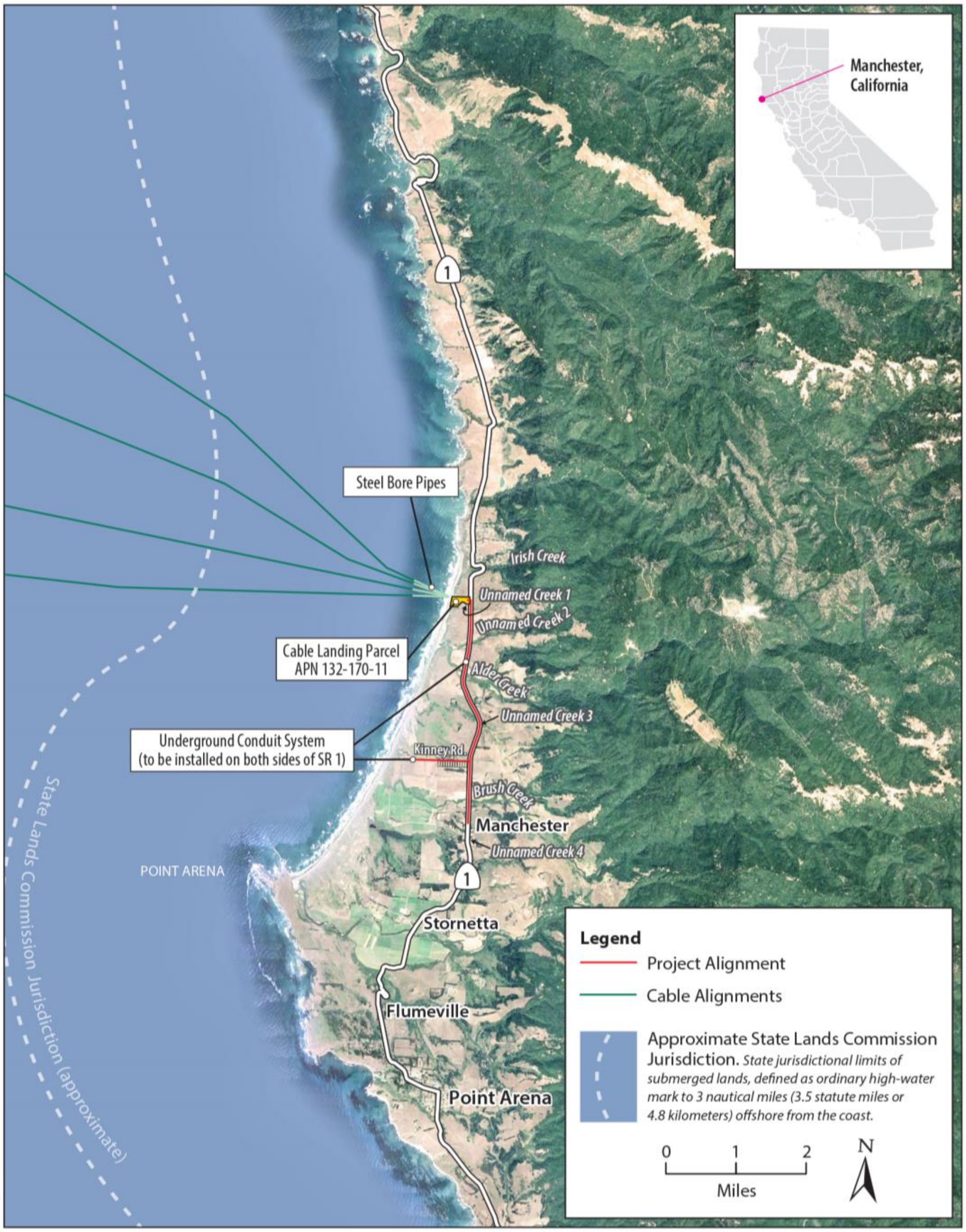
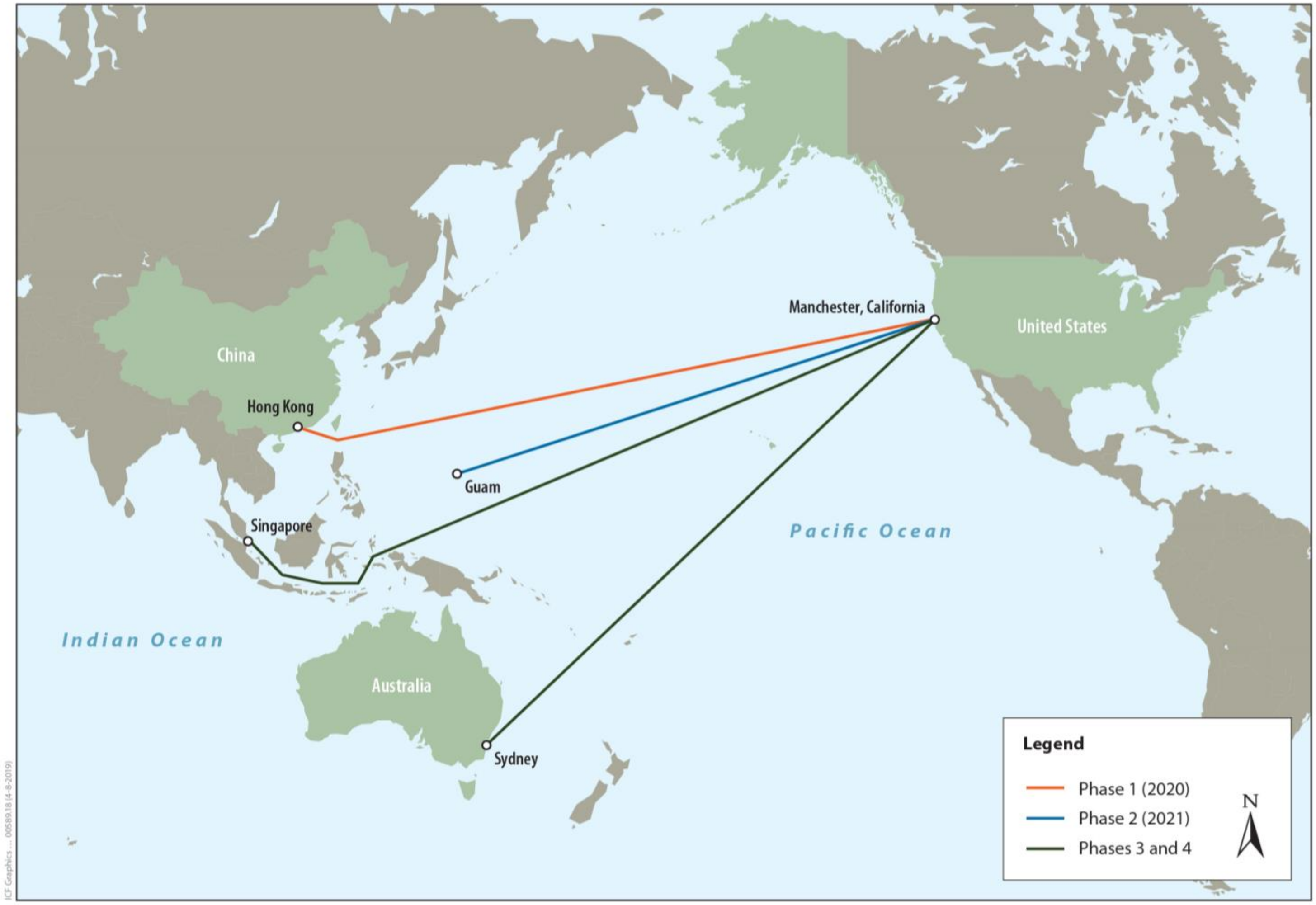


Figure 1-2. Proposed Cable Systems



of approximately 10 miles of conduits) to one of three existing cable landing stations (CLS) in Manchester.

1.4 ORGANIZATION OF THE MITIGATED NEGATIVE DECLARATION

This Initial Study/Mitigated Negative Declaration (IS/MND) is intended to provide the California State Lands Commission (Commission or CSLC), as lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.), and other responsible agencies with the information required to exercise their discretionary responsibilities for the proposed Project. The MND is organized as follows:

- **Section 1** presents the Project background and Project location, agency and Applicant information, Project objectives, anticipated agency approvals, and a summary of the public review and comment process.
- **Section 2** describes the proposed Project—its layout, equipment, and facilities—and provides an overview of the Project's operations and schedule.
- **Section 3**, the IS, presents the environmental setting, identification and analysis of potential impacts, and discussion of Project changes and other measures that, if incorporated into the Project, would mitigate or avoid those impacts, such that no significant effect on the environment would occur. The CSLC prepared this IS pursuant to State CEQA Guidelines section 15063.[2]
- **Section 4** presents the Mitigation Monitoring Program.
- **Section 5** discusses other Commission considerations relevant to the Project, such as climate change and sea-level rise, commercial fishing, and environmental justice that are in addition to the environmental review required pursuant to CEQA.
- **Section 6** presents information on report preparation and references.
- **Appendices** include specifications, technical data, and other information supporting the analysis presented in this MND:
    - Appendix A: Abridged List of Major Federal and State Laws, Regulations, and Policies Potentially Applicable to the Project
    - Appendix B: Air Quality Analysis Methodology and Results
    - Appendix C1: Habitat Types in the Biological Study Area
    - Appendix C2: Terrestrial Biological Resources Technical Report
    - Appendix C3: Aquatic Resources Delineation Report
    - Appendix C4: Environmentally Sensitive Habitat Areas Memorandum to Mendocino County, Planning and Building Services
    - Appendix C5: Marine Aquatic Habitats and Associated Biological Communities and Resources near Manchester Beach Technical Report
    - Appendix C6: Offshore Map

[2] The State CEQA Guidelines are found in California Code of Regulations, title 14, section 15000 et seq.

- o Appendix D: Marine Cultural Resources Report
- o Appendix E: Draft Engineering Geotechnical Report
- o Appendix F: Fire Hazards Severity Zone Map

1.5 PROJECT BACKGROUND AND OBJECTIVES

1.5.1 Project Need

The Project is needed to keep up with the increasing demand for telecommunication services between Silicon Valley (south of San Francisco) and both Asia and Australia (Figure 1-2).

1.5.2 Existing Technology and Infrastructure

Existing cable systems that were installed 15 to 20 years ago are operating only at about 25 percent of their theoretical operating capacity. At present, 10 operating transpacific cable systems link the West Coast of the United States to Asia (Japan, mainland Asia, and southeast Asia) and Australia.[3] The cables connecting the United States to Japan carry 82 percent of existing transpacific telecommunication capacity. The older cable technology limits the amount of telecommunication data that can be transferred between the United States and Asia and Australia. The older cable technology could transmit signals only up to approximately 5,500 miles and requires multiple cables to connect the United States to places such as Hong Kong, Guam, Singapore, and Sydney.

1.5.3 Proposed Technology and Infrastructure

As the use of digital media and communication systems increase globally, there is a need to upgrade and increase the number of fiber optic cables that carry this digital information. Virtually all communications and data transmissions are converted to digital data and transmitted across these lines. For example, telephone conversations, emails, social media, Internet transmissions, photo and video sharing, etc. are transported as digital data along these lines. As the world relies on faster and more bandwidth-intensive data transmission and 4G and 5G[4] networks, the proposed fiber optic cables are needed to keep up with the technical advancements to transmit uninterrupted data. Worldwide connectivity is essential to the global economy, and data transfer interruption needs to be minimized. While other technologies, such as radio and satellite, can transmit data long distances, only subsea fiber optic cables can supply the volume, speed, reliability, and cost efficiency to meet current and future data demands.

The proposed Project cables would:

[3] The 10 cable systems are: Pacific Crossing-1 (PC-1); Tata TGN-Pacific; New Cross Pacific (NCP); FASTER; Japan-U.S.; Unity/EAC-Pacific; Southern Cross Cable Network (SCCN); Hawaii; SEA-US; and Asia-America Gateway (AAG).

[4] This refers to the data bandwidth, meaning the amount of data that can be moved (uploaded or downloaded) through a network over a certain time.

- Use newer cable technology since the current technology only uses 25 percent of capacity
- Allow direct transmission of telecommunication data across the entire distance from the United States to Hong Kong, Guam, Singapore, and Australia
- Provide a more resilient transmission system to be able to carry uninterrupted telecommunication data signals
- Provide multiple routes to transmit telecommunication data for near-instantaneous data rerouting during a mechanical failure caused by seismic events, extreme weather, or cable damage

1.5.4 Project Objectives

The proposed Project would help achieve the following objectives:

- Respond to the increasing need for connectivity between Asia, Australia, and the United States by installing modern cables with higher telecommunications data transmission capacity and direct connections between termini
- Increase telecommunications data transmission speeds
- Avoid identified seismically unstable zones
- Provide the first direct telecommunications link between Hong Kong and the United States
- Create diverse telecommunication pathways between the United States and Pacific Rim cities and countries

1.6 PUBLIC REVIEW AND COMMENT

Pursuant to State CEQA Guidelines sections 15072 and 15073, a lead agency must issue a proposed MND for a minimum 30-day public review period. Agencies and the public will have the opportunity to review and comment on the document. Responses to written comments received by CSLC during the 30-day public review period will be incorporated into the MND, if necessary, and provided in the Commission’s staff report. In accordance with State CEQA Guidelines section 15074, subdivision (b), the Commission will review and consider the MND, together with any comments received during the public review process, prior to taking action on the MND and Project at a noticed public hearing.

1.7 APPROVALS AND REGULATORY REQUIREMENTS

1.7.1 California State Lands Commission

All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the common law Public Trust. The State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the United States in 1850. The State holds these lands for the benefit of all people of the State for statewide Public Trust purposes, which include but are not limited to, waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space.

On tidal waterways, the State's sovereign fee ownership extends landward to the ordinary high-water mark, which is generally reflected by the mean high-tide line, except for areas of fill or artificial accretion. For this Project, the State's sovereign fee ownership extends from the ordinary high-water mark to 3 nautical miles (nm) offshore from the coast as seen in Figure 1-1. The CSLC's authority is set forth in Division 6 of the Public Resources Code and California Code of Regulations, title 2, sections 1900–2970. The CSLC has authority to issue leases or permits for the use of sovereign land held in the Public Trust, including all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways, as well as certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 6009, subd. (c); 6009.1; 6301; 6306). The CSLC must comply with CEQA when it undertakes an activity defined by CEQA as a "project" that must receive discretionary approval (i.e., the CSLC has the authority to approve or deny the requested lease, permit, or other approval) and that may cause either a direct physical change or a reasonably foreseeable indirect change in the environment. CEQA requires the CSLC to identify the significant environmental impacts of its actions and to avoid or mitigate those impacts, if feasible.

The Applicant submitted an application to CSLC to use the area under CSLC's jurisdiction from the ordinary high-water mark to 3 nm (3.5 statute miles) offshore from the coast (Figure 1-1). Therefore, the CSLC would be issuing a new General Lease – Right-of-Way Use for the Project.

1.7.2 Other Agencies

In addition to CSLC, the Project is subject to the review and approval of other local, State, and federal entities with statutory or regulatory jurisdiction over various aspects of the Project as provided in Table 1-1. The applicant has commenced coordination with some of the relevant regulatory permitting agencies, including the U.S. Fish and Wildlife Service (USFWS), Mendocino County, and Caltrans. In nearly all cases, the analysis of impacts and mitigation identified in this document are based on experience working with the relevant regulatory permitting agencies on prior fiber optic cable projects. As part of the Project, all permits required for construction would be obtained before starting construction.

Table 1-1. Anticipated Agencies with Review/Approval over Project Activities

Permitting Agency		Anticipated Approvals/Regulatory Requirements
Local	County of Mendocino	Coastal Development Permit, Conditional Use Permit, Encroachment Permit
State	California State Lands Commission	General Lease – Right-of-Way Use
	California Coastal Commission	Coastal Zone Management Act Consistency Certification for the USACE Section 404 Authorization, Coastal Development Permit
	North Coast Regional Water Quality Control Board	Clean Water Act (CWA) Section 401 Water Quality Certification
	State Water Resources Control Board	CWA Section 402/NPDES Permit
	State Historic Preservation Office	Section 106 Compliance
	California Department of Fish and Wildlife	Section 1602 Lake or Streambed Alteration Agreement
	Mendocino County Air Quality Management District	Authority to Construct and Permit to Operate
	California Department of Transportation	Encroachment Permit
Federal	U.S. Army Corps of Engineers	CWA Section 404 and Section 10 Permit (under Nationwide Permit No. 12)
	U.S. Fish and Wildlife Service	Federal Endangered Species Act (FESA) Section 7 consultation, if required
	National Marine Fisheries Service	FESA Section 7 consultation, if required; consultation on marine mammal/sea turtle protection
	U.S. Coast Guard	Notice to Mariners

2.1 PROJECT WORK AREAS

The proposed RTI Infrastructure, Inc. Manchester Subsea Cables Project (Project) would require work in both terrestrial (land) and marine (ocean) areas to connect the United States with Asia (Hong Kong, Guam, and Singapore) and Australia (Sydney) with telecommunication services (Figure 1-2).

2.1.1 Summary of Terrestrial Project Components

The following terrestrial Project components (see detailed discussion in Section 2.3) would be on land above ordinary high water (Figure 2-1).

- **Cable Landing Parcel (CLP).** The CLP is a private parcel (Assessor's Parcel Number 132-170-11) on a coastal bluff, where cable landing activities will occur in an approximate 100 by 150 feet area and would include the following components:
    - **Staging Area.** A temporary staging area would be used to park vehicles and store other construction equipment for both terrestrial and marine Project components.
    - **Landing Manhole (LMH).** The four cables would be pulled into an LMH through four marine steel bore pipes that would be installed using horizontal directional drilling (HDD) under the bluff, private beach, and near-shore areas in the ocean.[5] The LMH also would provide access to the marine steel bore pipes.
    - **Ocean Ground Bed (OGB).** Each cable would carry electricity and would need to be grounded through an OGB system that would provide cathodic protection to control corrosion.
- **Underground Conduit System.** An underground conduit system would connect the LMH with the cable landing station (CLS). Separation of the cable systems is necessary to facilitate reliability and security of the independent systems. Depending on the final location of the CLS, a total of approximately 10 miles of underground conduit is expected to be needed for the two parallel alignments on both sides of SR 1, and, if selected, along Kinney Road to the AT&T CLS. The underground conduit system would be buried at least 3 feet deep, with periodic manholes for maintenance access.[6]
- **Cable Landing Station (CLS).** Telecommunications and power equipment for all four cables would be located at one of three existing CLSs (Figure 2-1). Three potential CLS sites are analyzed in this MND. If the Private CLS site is selected

[5] Each marine steel bore pipe would be approximately 4,000 feet long. The total bored length for all four bores would be approximately 16,000 feet.
[6] These manholes would be spaced every 1,200 to 2,500 feet along the underground conduit system.

(Figure 2-1), the cables would still need to be taken from there to either the AT&T CLS or Level3 CLS because only those two CLSs have existing connections to transmit data to the Bay Area.

- **Staging Area in Manchester.** An additional staging area would be located somewhere in Manchester (location not yet determined) to hold most of the Project-related equipment before it would be brought to the staging area in the CLP.

2.1.2 Summary of Marine Project Components

The marine Project components (detailed discussion in Section 2.4) would be constructed from the shoreline to the outer limit of the continental shelf approximately 36 miles offshore (Figure 2-2). The continental shelf at this location is approximately 5,904 feet[7] deep.

- **Steel Marine Bore Pipes.** Four steel marine bore pipes (5 to 6 inches in diameter) would be directionally bored by HDD from the CLP to approximately 3,280 feet offshore. These steel marine bores would be buried at least 35 feet deep (Figure 2-2). The steel marine bores would exit offshore at an ocean depth of approximately 30 to 40 feet.
- **Marine Cables.** The four cables would be coming from Hong Kong, Guam, Singapore, and Sydney from 2020 until 2025. Where the water is deeper than 5,904 feet, these cables would be placed directly on the seafloor. Where the water is less than 5,904 feet deep, the cables would be installed by plowing or by post-lay burial method (depending on seafloor characteristics). The cable lay ship (with the help of a work boat and divers) would bring the cables to the end of the steel marine bore pipes out at about 3,280 feet offshore. Then, these cables would be pulled through their own individual steel marine bore (constructed in Phase 1) to the LMH.

2.2 PROJECT WORK PHASES AND WORK SCHEDULE

2.2.1 Work Phases

Up to four independent cable systems would connect the United States to Hong Kong, Guam, Singapore, and Sydney (Figure 1-2). The first two phases of the cable systems would connect to Hong Kong and Guam. In either Phase 3 or 4, the Singapore or Sydney connections would be installed. Regardless of the cable systems' ultimate destination, all four would have similar environmental impacts in the Project area.

[7] U.S. federal jurisdiction extends to the edge of the continental shelf under the Outer Continental Shelf Lands Act.

Figure 2-1. Terrestrial Project Components

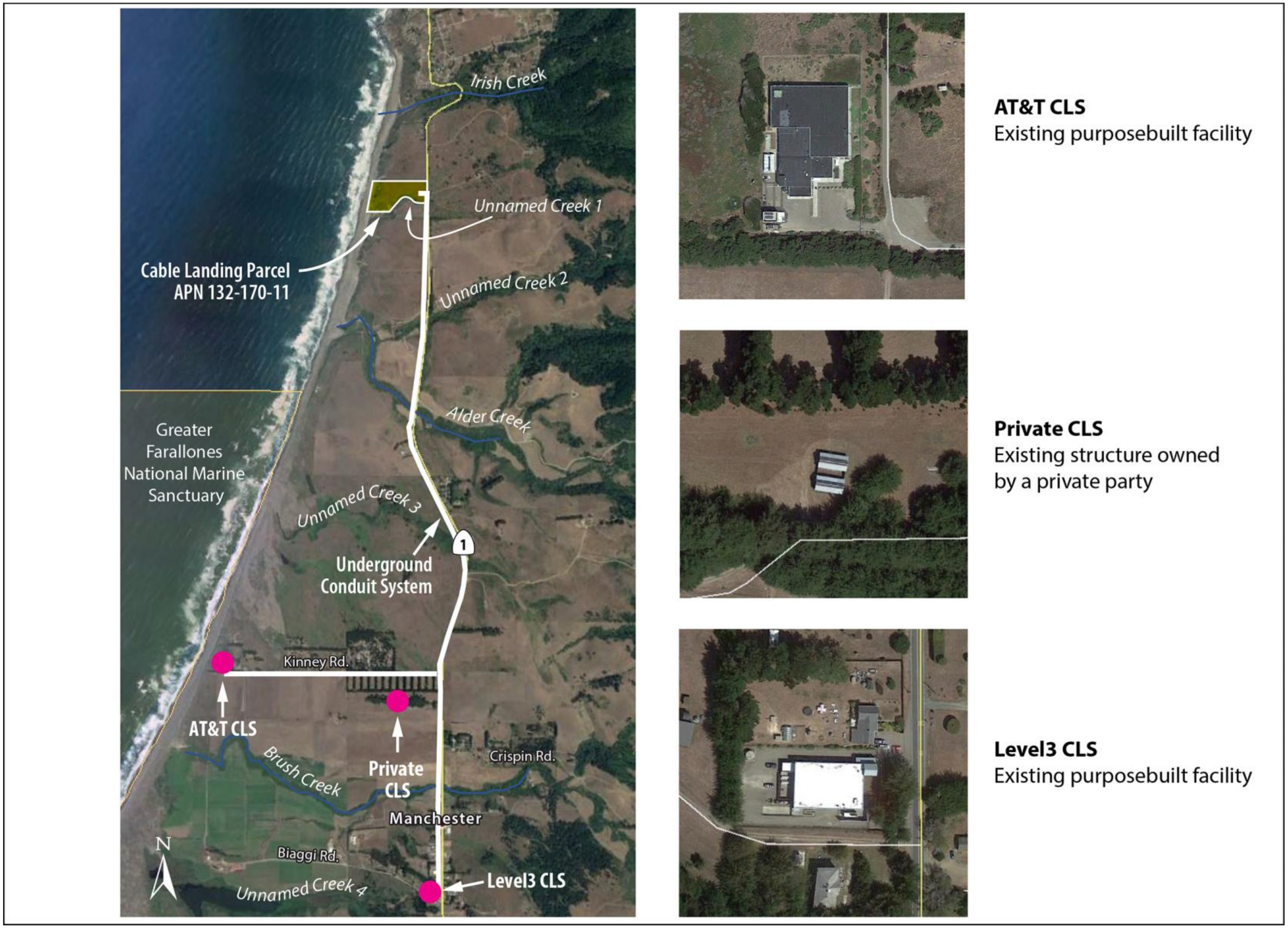
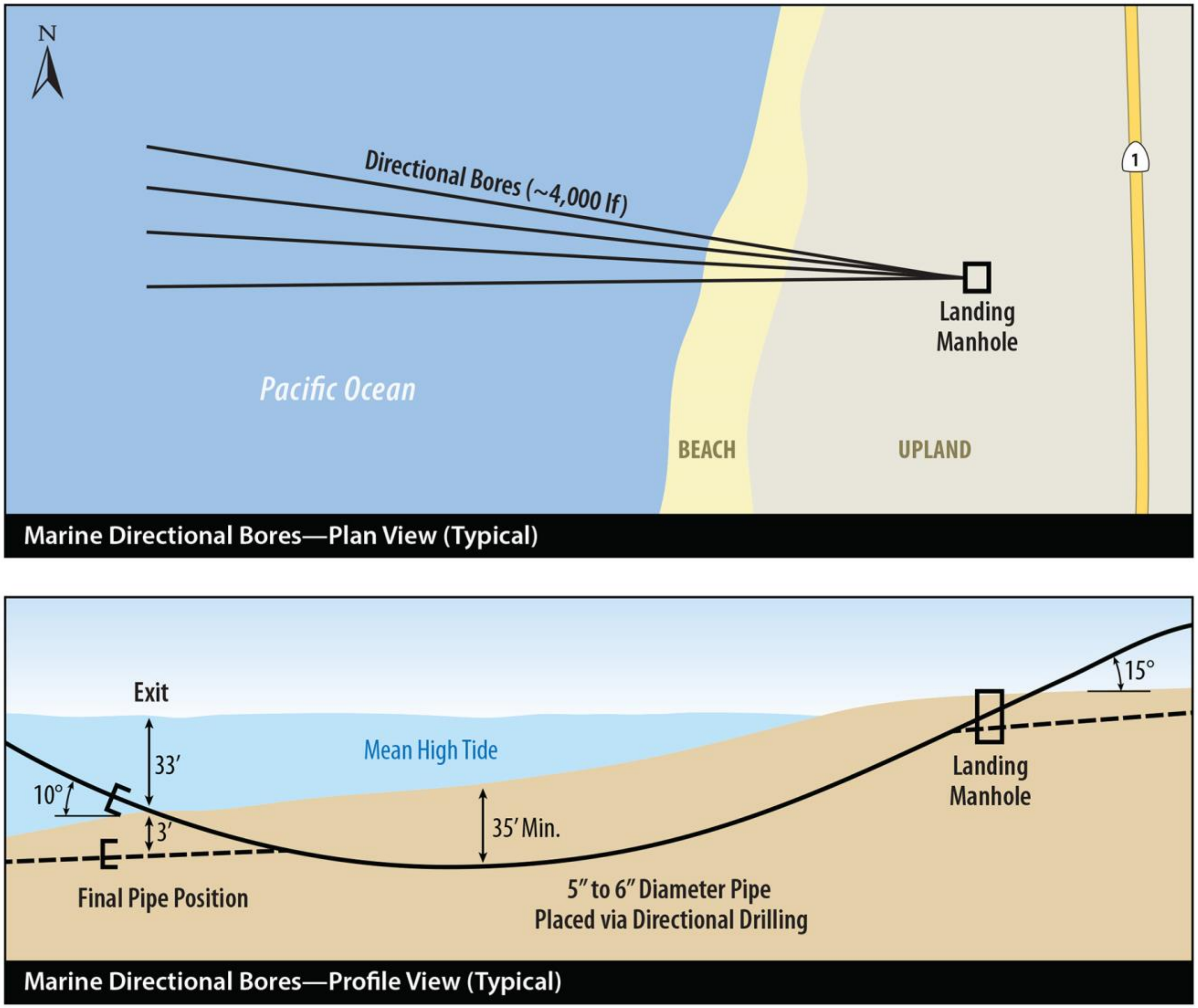


Figure 2-2. Marine Project Components



The initial support facilities and the four phases are summarized below:

- **Initial Support Facilities Constructed in 2019 and 2020:** Before the first cable can be brought from Hong Kong to California, all of the initial support facilities would need to be constructed. These facilities also are required before the second, third, or fourth cables can be brought to the United States:
  - Set up CLP (including staging area and LMH)
  - HDD four marine steel bore pipes for the proposed four cables
  - Upgrade one of the CLS facilities from the inside and test it, so it would be ready to receive additional facilities once a cable is brought to CLS
  - Install two terrestrial underground conduit systems, one on each side of SR 1 and public roads that would carry all four cables from the LMH to the final CLS facility in Manchester that is already connected to the local telecommunication carrier (Figure 2-1).
- **Phase 1: Hong Kong to California (HK-CA) Expected in 2020.** The first phase would connect Hong Kong to California with the following major being installed as Phase 1:
  - Install the HK-CA cable system, including the marine fiber optic cable, the terrestrial fiber optic cable, and associated ground and power cables
  - Install additional facilities for the HK-CA cable system in the CLS
  - Install one OGB for the HK-CA cable system at the CLP.
- **Phase 2: Guam to California (G-CA) Expected in 2021.** The second phase would connect Guam to California with the following major facilities being installed as Phase 2:
  - Install the G-CA cable system, including the marine fiber optic cable, the terrestrial fiber optic cable, and associated ground and power cables
  - Install additional facilities for the G-CA cable system in the CLS
  - Install one OGB for the G-CA cable system at the CLP.
- **Phase 3: Singapore or Sydney to California Expected in 2023.** The third phase would connect Singapore or Sydney (not yet determined which would be installed first) to California with the following major facilities being installed as Phase 3:
  - Install the third cable system, including the marine fiber optic cable, the terrestrial fiber optic cable, and associated ground and power cables
  - Install additional facilities for this cable in the existing CLS
  - Install one OGB for the third cable system at the CLP.
- **Phase 4: Singapore or Sydney to California Expected in 2025.** The fourth phase would connect either Singapore or Sydney not yet determined which would be installed first) to California with the following major facilities being installed as Phase 4:

  - o Install the fourth cable system, including the marine fiber optic cable, terrestrial fiber optic cable, and associated ground and power cables
  - o Install additional facilities for the fourth cable in the existing CLS
  - o One OGB for the fourth system at the CLP.

2.2.2 Work Schedule

Table 2-1 below provides the anticipated work schedules for the Project's different phases. The Applicant proposes to conduct terrestrial and nearshore activities during daylight hours 7 days per week. The conduit installation and cable pulling work would require up to 48 hours of continuous effort. Terrestrial construction would take approximately 4 months for Phase 1 and only 1 to 2 weeks each for Phases 2, 3, and 4. CLS equipment installation and testing would take approximately 5 months for each cable phase. Offshore construction activities such as the cable laying would happen on a continuous 24-hour basis.

Table 2-1. Proposed Initial Support Facilities and Phases with Construction Schedule

Phase and Component	Proposed Start Date	Proposed Hours	Duration
Initial Support Facilities and Phase 1			
Terrestrial conduit installation	Fall 2019/ Winter 2020	Daylight, 7 days/week	12 weeks
Directional bores—marine	Fall 2019/ Winter 2020	24 hours/day, 7 days/week	3–4 weeks
OGB and LMH	Fall 2019/ Winter 2020	Daylight, 7 days/week	2 weeks
Terrestrial cable pulling	Fall 2019/ Winter 2020	Daylight, 7 days/week	1 week
CLS facility (construction and testing)	Fall 2019/ Winter 2020	Daylight, 7 days/week	5 months
Pre-lay grapnel run	Fall 2019/ Winter 2020	24 hours/day, 7 days/week	1 week
Marine cable landing	Spring 2020	24 hours/day, 7 days/week	2 days
Marine cable lay	Spring 2020	24 hours/day, 7 days/week	4 weeks
Marine cable burial (diver-assisted)	Spring 2020	Daylight, 7 days/week	1 week
Marine cable burial (ROV-assisted)	Spring 2020	24 hours/day, 7 days/week	2 weeks
Phase 2			
OGB installation	Fall 2021	Daylight, 7 days/week	2 weeks
Terrestrial cable pulling	Fall 2021	Daylight, 7 days/week	1 week
CLS facility (construction and testing)	Fall 2021	Daylight, 7 days/week	5 months
Pre-lay grapnel run	Fall 2021	24 hours/day, 7 days/week	1 week
Marine cable landing	Fall 2021	24 hours/day, 7 days/week	2 days

Table 2-1. Proposed Initial Support Facilities and Phases with Construction Schedule

Phase and Component	Proposed Start Date	Proposed Hours	Duration
Marine cable lay	Fall 2021	24 hours/day, 7 days/week	4 weeks
Marine cable burial (diver-assisted)	Fall 2021	Daylight, 7 days/week	1 week
Marine cable burial (ROV-assisted)	Fall 2021	24 hours/day, 7 days/week	2 weeks
Phase 3			
OGB installation	Fall 2023	Daylight, 7 days/week	2 weeks
Terrestrial cable pulling	Fall 2023	Daylight, 7 days/week	1 week
CLS facility (construction and testing)	Fall 2023	Daylight, 7 days/week	5 months
Pre-lay grapnel run	Fall 2023	24 hours/day, 7 days/week	1 week
Marine cable landing	Fall 2023	24 hours/day, 7 days/week	2 days
Marine cable lay	Fall 2023	24 hours/day, 7 days/week	4 weeks
Marine cable burial (diver-assisted)	Fall 2023	Daylight, 7 days/week	1 week
Marine cable burial (ROV-assisted)	Fall 2023	24 hours/day, 7 days/week	2 weeks
Phase 4			
OGB installation	Fall 2025	Daylight, 7 days/week	2 weeks
Terrestrial cable pulling	Fall 2025	Daylight, 7 days/week	1 week
CLS facility (construction and testing)	Fall 2025	Daylight, 7 days/week	5 months
Pre-lay grapnel run	Fall 2025	24 hours/day, 7 days/week	1 week
Marine cable landing	Fall 2025	24 hours/day, 7 days/week	2 days
Marine cable lay	Fall 2025	24 hours/day, 7 days/week	4 weeks
Marine cable burial (diver-assisted)	Fall 2025	Daylight, 7 days/week	1 week
Marine cable burial (ROV-assisted)	Fall 2025	24 hours/day, 7 days/week	2 weeks

Terms:
CLS = cable landing station
LMH = landing manhole
OGB = ocean ground bed
ROV = remotely operated vehicle

2.3 DETAILED TERRESTRIAL PROJECT COMPONENTS

Terrestrial construction activities would be above the ordinary high-water mark and would include delivering staging materials and equipment, clearing and grading, trenching, conduit placement, backfilling, trenchless installation, directional boring (trenchless method), conventional boring (typically used for roads), manhole installation, conduit and cable pulling, and surface restoration.

2.3.1 Cable Landing Parcel (CLP)

As seen in Figure 2-1, the CLP would be used to receive the marine cables. There would be no permanent aboveground structures at the CLP. The CLP would be used for staging areas, marine steel directional bores, LMH, surface access vault, OGB, and other components like boring equipment, bore entry, generator, water tank, and dumpster sites (Figure 2-3).

The following components would be in the CLP.

- **Staging Areas:** The following two staging areas are expected to be required:
  - At the CLP — Figure 2-3 provides a conceptual layout of the staging area at the CLP.
  - Near Manchester — the specific location of a staging area near Manchester has not been finalized.

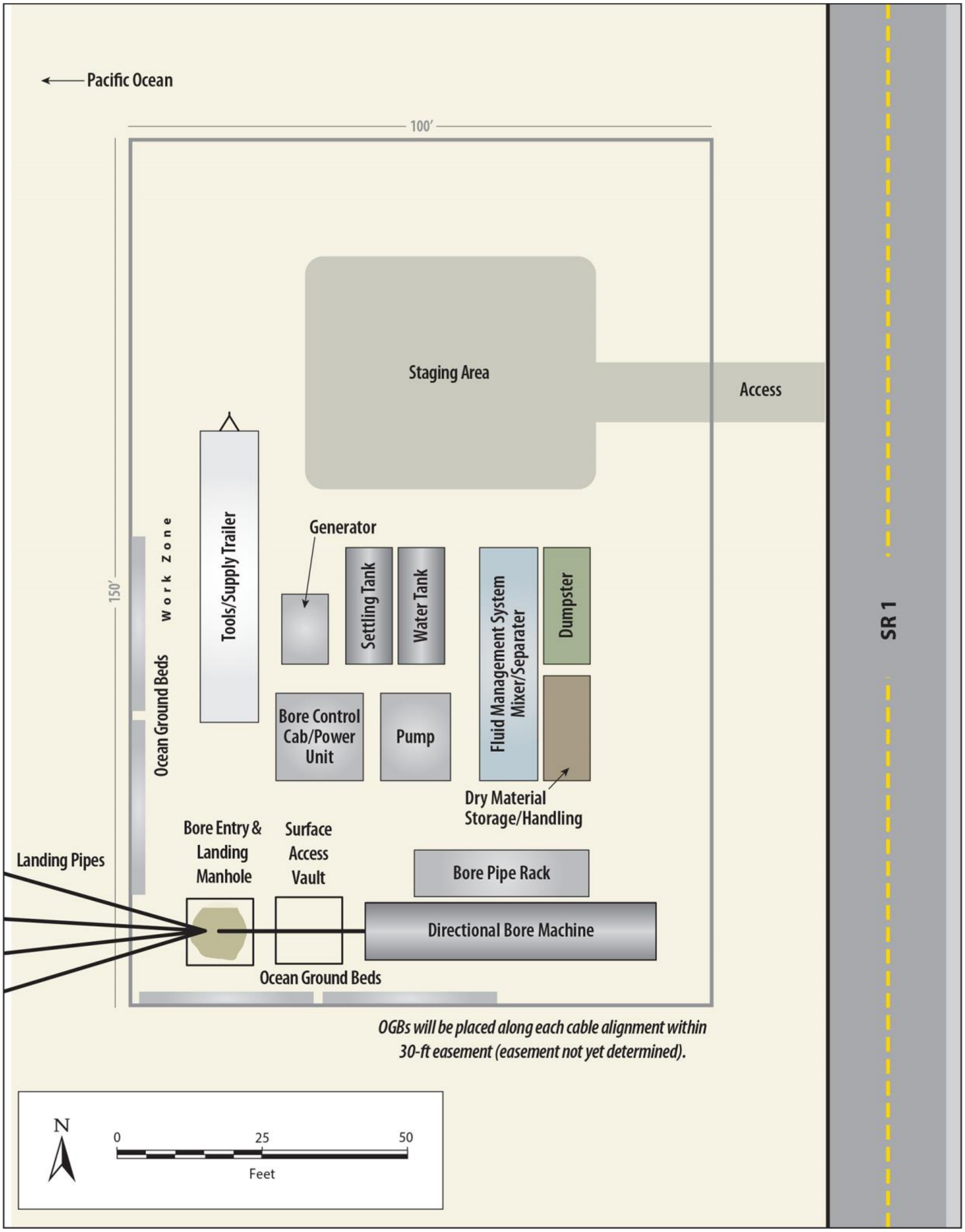
  Equipment and materials (e.g., backhoes, pipe, conduit, and cable) needed to install the terrestrial components of the work would be brought to the staging areas and then distributed to the job site during each day's work. Trucks would access the Project site using existing highways and roads. The two staging areas would be occupied from approximately 2 weeks prior to the beginning of construction until approximately 2 weeks following the end.

- **Marine Steel Directional Bores:** All boring equipment for the marine steel directional bores would be placed at the CLP site (Figure 2-3). The CLP site would be the place where the bore entry to HDD all four marine steel bore pipes (5 to 6 inches in diameter) would occur. The marine cable also would be pulled through the LMH as provided in Figure 2-3.

- **Landing Manhole (LMH):** The LMH would house the splice where the terrestrial cables and the marine cables connect. The LMH would be connected to the CLS through the underground conduit system (Figure 2-1). The LMH would be approximately 8 feet wide by 12 feet long by 9 feet deep and would be buried with a cast-iron manhole cover 36 inches in diameter at grade level. The manhole cover would be marked with appropriate identification and would be secured (i.e., locked and bolted). The LMH would be installed in 2 days by excavating with a rubber-tired backhoe or excavator, placing the manhole in the excavation, and backfilling around the manhole. Operators then compact the material using a hand-operated vibratory compactor.

- **Surface Access Vault:** In addition to the LMH, a separate access vault would be placed on the land side of the manhole. The surface access vault would be a 4-foot-wide by 5-foot-long by 2.5-foot-deep concrete box with a steel traffic lid (Figure 2-3). The surface access vault would allow for installation of the marine cables without additional surface disturbance.

Figure 2-3. Cable Landing Parcel



- **Ocean Ground Bed (OGB):** OGB would be installed after each cable is pulled onshore to ground that cable (Figure 2-3). As seen in Figure 2-4, the OGB is needed for cathodic protection to control corrosion and to provide a ground for the electricity that powers the marine cable amplifiers. Each OGB would consist of four to six anodes installed into holes drilled down to the seawater level. A copper ground cable (direct current [DC]) would connect the tops of the anodes to one another and back to the ground cable in the LMH.

2.3.2 Underground Conduit System

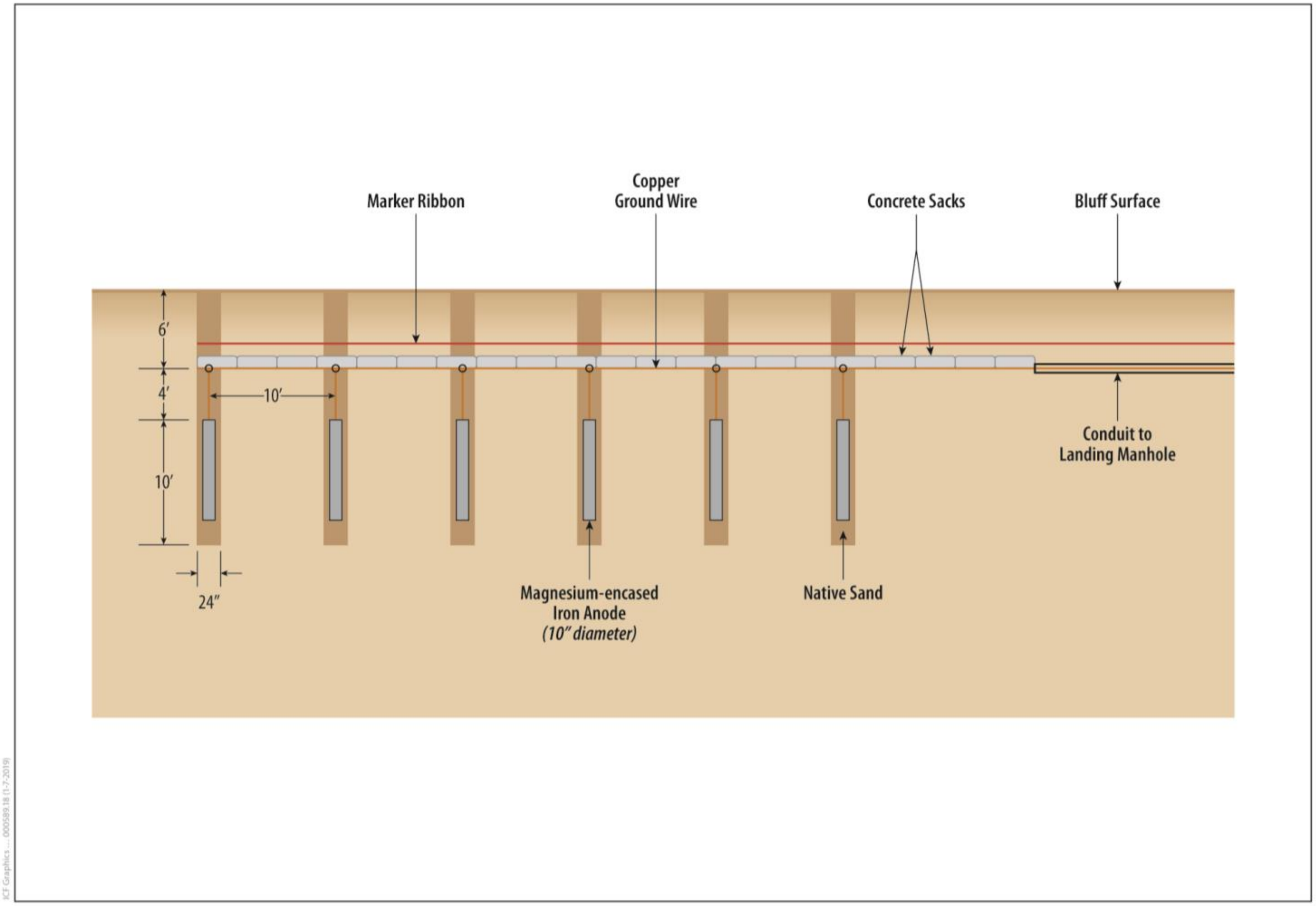
An underground conduit system would connect the LMH with the CLS (Figure 2-1). Separation of the cable systems is necessary to facilitate reliability and security of the independent systems. The alignment of these underground conduits would follow the Caltrans right-of-way (ROW) on both sides of SR 1 and on public roads (depending on the final CLS location selected) from the LMH location to the CLS. The Applicant is coordinating with Caltrans and the County. Depending on the final location of the CLS, a total of approximately 10 miles of underground conduit is expected to be needed for the two parallel alignments on both sides of SR 1, and, if selected, along Kinney Road to the AT&T CLS. Construction techniques are discussed in Section 2.3.4. Each terrestrial cable system would consist of three cables:

1. Fiber optic cable—the fiber optic cable transmits telecommunications data.
2. Power cable—the insulated copper power cable transmits power from the CLS facility to the marine cable.
3. Ground cable—the insulated copper ground cable is part of the electrical equipment ground system and connects the CLS to the OGB at the CLP.

Each cable would be contained in a 1- to 2-inch-diameter high-density polyethylene conduit. Each underground conduit system on either side of SR 1 and other public roads would contain seven conduits including one maintenance conduit.

Because the completed Project would include four cable systems, the two underground conduit systems on both sides of SR 1 and other public roads would include a total of 12 conduits for cable systems and two maintenance conduits, for a total of 14 installed conduits. As stated in Section 2.2.1, the preferred method to install all the underground conduit system would be by directional boring under waterways and roadways (Table 2-2) when the infrastructure would be constructed. Only after consultations with the appropriate agencies, it would be decided that the cables along SR 1 would be bored under any water streams or would be hung on the bridges crossing those water streams. After the infrastructure is in place, the first cable would be pulled through the underground conduit system in Phase 1. In subsequent phases, the additional cables would be pulled through the terrestrial conduit system.

Figure 2-4. Cross Section of Ocean Ground Bed



The trenchless boring or trench boring for the underground conduit system would include the following components.

- **Marker Ribbon:** During installation of the underground conduit system, a marker ribbon consisting of an orange warning tape would be buried approximately 1 foot deep to alert individuals digging above the cable.[8]
- **Surface Cable Markers:** Cable markers would be located along the terrestrial route at intervals of 500 to 1,000 feet to mark the location of the cable in open areas. The markers would consist of wood poles measuring 4 to 6 inches square by 4 feet tall. They would be placed at the edge of the ROW along all terrestrial cable alignments (i.e., on both sides of SR 1). Signs would be placed on the posts to indicate the presence of a buried cable.
- **Intermediate Manholes:** Precast concrete manholes would be placed at intervals of approximately 1,200 to 2,500 feet along the routes between the CLS and the LMH. The manholes are necessary to allow access to the underground conduit system for cable installation and maintenance. Typically, the manholes would be approximately 4 feet square and 6 feet deep, with a cast-iron manhole cover 36 inches in diameter at grade level (i.e., flush with the ground). All manhole covers would be marked with appropriate identification and would be secured (i.e., locked and bolted). Depending on the final alignments, approximately 40 intermediate manholes are anticipated.

  Activities around each manhole pit, such as the laydown of equipment and material, would encompass approximately 1,000 square feet. A typical manhole placement crew can install one to two intermediate manholes per day.

2.3.3 Cable Landing Station (CLS)

All four cables coming to Manchester would end at one of the three CLS locations (Figure 2-1) with its own dedicated equipment space. The three suitable CLS sites identified are analyzed in the MND. The equipment installed at the CLS site would be housed in an already existing structure at one of the three potential CLS sites. If the Private CLS site is selected, then the cables would still need to go from there to either the AT&T CLS or Level3 CLS because these are the only sites with existing connections that would transmit data to the Bay Area.

[8] The location of the fiber optic line also is entered into the databases used to support the utility location services that can be accessed by calling 811 before digging.

As seen in Figure 2-5, the CLS equipment would require a total structural space of approximately 1,240 square feet:

- 1,000 square feet to house the equipment
- 240 square feet on an enclosed pad to support two backup generators

The following equipment would be housed in the CLS (Figure 2-5):

- Submarine line termination equipment also referred to as "switching equipment"—connects the marine cable to the terrestrial cable
- Batteries
- Diesel generators—two 150-kilowatt (kW) (200 horsepower) diesel generators for backup power
- Fuel (diesel) tank—one 1,000-gallon diesel fuel tank for the diesel generators
- Air conditioning units—four 6 kW air conditioning units for cooling the equipment
- Pad-mounted transformer—one 150 kW pad-mounted transformer for transforming current from AC to DC
- Fire suppression—equipment for suppressing a fire
- Other electrical equipment—other equipment to handle electrical connections and power, including power feed equipment and batteries
- Signal amplification equipment for the fiber optic cable

2.3.3.1 Electrical Signal in the Fiber Optic Cable

The cables contain a copper electrical conductor necessary to regenerate the light signal being transmitted through the fiber optic cable as it crosses the ocean. Standard commercial electrical power sources on the terrestrial end of the cable would supply the electrical power. Normal operations at the CLS would require approximately 80 kW of 480-volt AC service, or approximately 170 amps. The commercial power is converted to DC, and the voltage and amperage are converted to match the needs of the signal regenerating technology. The marine fiber optic cable carries the converted DC electrical current.

2.3.3.2 Cable Landing Station Operating Staff

The CLS would not be permanently staffed. A technician would make periodic service calls to each facility as needed and during weekly routine system testing. The facilities typically would be accessed during normal working hours (i.e., Monday through Friday, 8 a.m. to 5 p.m.) except in emergencies.

Figure 2-5. Cable Landing Station Components

2.3.4 Terrestrial Features and Construction Techniques

2.3.4.1 Permanent Easement at the Cable Landing Parcel

Preliminary design calls for a permanent easement of approximately 0.9 acre on the CLP from above the ordinary high-water mark under the beach up to the bluff, where cables would land at the LMH area. This easement area would encompass the footprint of the cables from the beach to the LMH, the LMH, the OGBs, and the terrestrial cable route to SR 1 and surface roads.

2.3.4.2 Traffic Control

Because the terrestrial alignment (Figures 2-1 and 2-3) would be mainly within public road ROWs (SR 1 and possibly Kinney Road), traffic would be controlled and coordinated with the California Department of Transportation (Caltrans) and Mendocino County. Traffic control would conform to the specifications of those jurisdictions.

Materials needed for the Project would be delivered to the staging area in Manchester at the beginning of construction. Initially, approximately 30 tractor-trailer loads of construction equipment and materials would be delivered. In addition, one fuel truck would make a daily delivery of fuel, and there would be about three deliveries of materials and supplies weekly.

Each load would take approximately 10 to 20 minutes to unload. Standard traffic and pedestrian control measures would be implemented to ensure that vehicle and pedestrian access is not unduly disrupted.

2.3.4.3 Terrestrial Equipment and Personnel

Table 2-2 provides the equipment and personnel likely to be required for terrestrial construction activities, such as clearing the construction areas of vegetation, grading, and constructing trenches. Each of the construction activities are described in detailed below.

Table 2-2. Equipment and Personnel for Terrestrial Work

Equipment	Personnel
Marine Directional Bores	
1 HDD powerplant	1 foreperson
1 excavator or front-end loader	3 operators
1 pickup truck	6 laborers
1 welder	
1 generator	
1 tractor trailer	
1 fluid management system	
1 directional bore machine	
1 control shack (10 feet X 10 feet)	
1 equipment and supply trailer	
Manhole Installation	
1 excavator	1 foreperson
1 delivery truck with boom	2 operators
1 dump truck	1 laborer
1 equipment and supply trailer	1 inspector
1 handheld vibratory compactor	
Terrestrial Trenchless Conduit Installation (by directional bore)	
1 bore machine with self-contained water mixing tank	1 foreperson
1 one-ton truck	1 operator
1 pickup truck	3 laborers
1 supply and equipment trailer	1 inspector
1 handheld vibratory compactor	
Conventional Boring	
1 bore machine	1 foreperson
1 backhoe or excavator	1 operator
1 supply and equipment trailer	3 laborers
1 pickup truck	1 inspector
1 saw cutter	
1 handheld vibratory compactor	
Trench Construction	
1 concrete/asphalt saw	1 foreperson
1 backhoe, trencher, or excavator	2 operators
1 pickup truck	3 laborers
1 dump truck	1 inspector
1 asphalt truck	
1 pavement roller	
1 equipment and supply trailer	
2 handheld vibratory compactors	
1 concrete/asphalt saw	1 foreperson

Table 2-2. Equipment and Personnel for Terrestrial Work

Equipment	Personnel
Cable Landing Station Power Feed Equipment Construction	
1 crane	1 foreman
1 backhoe	2 operators
1 equipment truck	3 laborers
1 pickup truck	1 inspector
Marine Cable Pulling	
1 backhoe	3 forepersons
1 pickup truck	2 operators
1 hydraulic winch	2 laborers
1 crane or boom truck	3 inspectors
1 generator	
1 equipment and supply trailer	
Ocean Ground Bed Installation	
1 backhoe	1 foreperson
1 well-drilling machine	2 operators
1 one-ton truck	
1 pickup truck	2 laborers
1 equipment and supply trailer	
Conduit and Terrestrial Cable Pulling	
1 cable-pulling truck	1 foreperson
1 pickup truck with cable reel trailer	3 laborers
1 supply and equipment truck	1 inspector

Term:
HDD = horizontal directional drilling

2.3.4.4 Marine Steel Bores and Horizontal Directional Drilling (HDD) Methods

The four steel marine bore pipes (5 to 6 inches in diameter) would be installed from the CLP to offshore approximately 3,280 feet using the HDD technique, which would avoid impacts on the surface area of the private beach, surf zone, and sea floor. The HDD would install these marine steel bore pipes approximately between 35 to 50 feet below the beach and the seafloor (Figure 2-2).

Prior to HDD operations, engineers would produce a detailed engineering plan and profile drawing. The drawing would depict the horizontal and vertical alignment that would best fit the site conditions based on previous surveys of the land and sea floor (Appendix E: Draft Engineering Geotechnical Report). In addition, the engineering team would take soil boring samples to determine the subsurface geology; this information is necessary to select the correct boring depths, mud mixes, and drilling head types. Soil samples would be taken deep enough to cover the potential subsurface stratum where the HDD route would possibly pass through.

The bore site for the marine steel bore pipes would measure approximately 100 by 150 feet, or 15,000 square feet of work space (Figure 2-3). The bore site would be large enough to accommodate materials storage needs.

The entry pit for the marine bore pipes would measure approximately 10 feet wide by 12 feet long by 4 feet deep. The entry pit also would serve as the fluid return pit that would collect the drilling fluid that returns to the bore site. Once the directional bore is complete, the bore pit would be expanded to allow for installation of the LMH.

The underground conduit system would be installed under the streams[9] using boring technique (Figure 2-1).

Horizontal Directional Drilling (HDD) Technique

The HDD would be guided by a drill head fitted with a steering tool using magnetometers and inertial devices to track the direction of advance (horizontal and vertical) and the absolute location. Two types of drill heads could be used, depending on geologic conditions: a spud jet or an in-hole mud motor. Spud jets force the drilling fluid through the jet bit to erode the earth material and create the bore hole into which the conduit is inserted. This type of drill head is used in soft soils such as sands, silts, and clays—the expected composition of material to be encountered during marine steel bore pipe installation. An in-hole mud motor uses drilling fluids to rotate a drill head though hard rock such as limestone, sandstone, and granite; this type of head would be used if such conditions were encountered.

The marine steel bore pipe would be advanced in 30-foot sections through the boreholes as they are created. Surveys would be conducted in 15- and 30-foot increments to verify the drill position and path. The directional bore machine would occupy the bore entry site, drilling steel casing into the ground at an angle. Once the bore pipe reaches the desired depth, the direction would level out as the drilling continues to push the pipe horizontally through the ground. Once the marine bore reaches the appropriate distance offshore, the drill head would be guided to the surface. This operation would be undertaken four times for installation of the marine steel bore pipes—once for each cable system. These drill heads would stay at the exit point offshore until the divers take them off and cap the marine steel bore pipes so that ocean water does not enter into them. Once the cables come from Asia or Australia at the bore exit point, the caps would be taken off and feeder tubes would be installed so that the cables could be pulled through these marine steel bore pipes and brought onshore at the LMH in the CLP.

[9] Conduit would be installed at the six streams along the terrestrial conduit routes either by boring under the stream or attaching to existing bridges. No streams would be trenched.

Horizontal Directional Drilling (HDD) Fluids

HDD drilling fluid (a non-toxic, inert material, typically a solution of bentonite clay and water) would be circulated into the bore hole to prevent it from caving in; the fluid would coat the wall of the bore hole to minimize fluid losses to permeable rock and soil types. Drilling fluid also serves as a lubricant for the drill head and carries the cuttings (pieces of drilled rock) back to the entry pit, where the cuttings (rock, sand, and other materials) are removed so the drilling fluid can be recirculated into the bore hole. The drilling fluid would be used for drilling all but the final approximately 30 feet of the bore hole. To minimize the potential for release of silty material into the marine environment, the last section of the bore hole would be drilled using potable water as a drilling fluid. Spent drilling fluids (except for those lost to the surrounding subsurface material) and cuttings would be collected and disposed of at a permitted landfill.

Given the variety of geologic conditions that may be encountered, it is possible that some of the drilling fluids would be absorbed into fractures in the surrounding subsurface material. In cases where the fracture is lateral and subterranean, lost fluids would not rise to the surface. In other cases, drilling fluids may reach the surface (e.g., if the fracture comes close enough to the surface that the pressure causes the release of drilling fluid above the ground surface in a terrestrial location or above the ocean bottom in the marine environment).

The potential for substantial releases of drilling fluids into the environment would be minimized through several measures. Prior to drilling, the geologic characteristics of the substrate would be evaluated to determine the most appropriate route for the conduit installation. During drilling, the potential for losing drilling fluids to the substrate would be assessed by monitoring the volume of the drilling fluid that is returning to the bore entry point and monitoring for changes in the drilling fluid's pressure. If a loss of fluid volume or pressure is detected, drilling may be stopped or slowed to allow close observation for a surface release in the ocean. If a release is discovered, the driller would take feasible measures to reduce the quantity of fluid released by lowering drilling fluid pressures, thickening the drilling fluid, or both, depending on geologic conditions. Any surface releases above the high-tide line would be contained with sand bags and collected for reuse or disposal. Containment and collection are impractical for releases below the mean higher high water; consequently, some drilling fluids might dissipate in the sea water. These measures are included in the Inadvertent Returns Contingency Plan (**MM BIO-6**).

2.3.4.5 Manhole Installation

The intermediate manholes along the terrestrial underground conduit system would be installed by excavating with a rubber-tired backhoe or excavator, placing the manhole in the excavation, and backfilling around the manhole. A rubber-tired backhoe/loader places backfill material; operators then compact the material using a hand-operated vibratory compactor.

2.3.4.6 Trenchless Underground Conduit Installation (by directional bore)

Approximately 50 percent (or about 5 miles) of underground conduit installation is expected to involve trenchless construction rather than trenching. Directional boring would be used to cross under streams along the terrestrial underground conduit system routes or at other locations. Trenchless technology uses small guided bores that can be steered. This approach allows the bore machine to sit at normal ground level and bore down under an obstruction or along an alignment. The machine can then steer the bore back to the surface at a distance. Once the bore reaches the opposite side of the resource or obstruction being avoided, the conduit is attached to the bore pipe and pulled back through the bore opening. The bore machines would drill approximately 600 linear feet per day.

Trenchless construction disturbs only the ground surface at the bore entry and exit pits, which would be spaced approximately 300 feet apart.[10] Entry and exit pits, excavated at each end of the bore, would measure approximately 4 feet wide by 8 feet long by 5 feet deep, encompassing 32 square feet. Activities around each pit, such as the laydown of equipment and material, would occupy approximately 500 square feet.

Similar to HDD, directional drilling installation technique uses a drilling fluid (i.e., bentonite and water) as described above.

Backfilling of the entry and exit pits would use the same procedures as when trenching. Backfill material and compaction would meet the specifications of the permitting authority (such as Caltrans) but nominally would be native material compacted to a relative compaction of at least 95 percent unless otherwise required.

2.3.4.7 Conventional Boring

It is not expected that conventional boring would be widely used on this Project; however, because it is a possibility, the technique is described here.[11] Conventional boring entails simultaneously boring a horizontal hole and pushing a casing under an obstruction (e.g., a road). A push pit approximately 6 feet wide and 25 feet long is excavated to the bore depth, which can vary depending on what is being bored beneath. The pit accommodates the drilling and jacking equipment and the equipment operators. The actual boring process involves driving (or pushing) a rotating auger in a casing from the push pit under the obstruction. As the auger and casing are advanced, excavated material is carried out

[10] Assuming 5 miles of trenchless installation, there would be approximately 88 pits.

[11] Conventional boring, might be used if the conditions called for boring but there were constraints concerning directional drilling such as incompetent or unstable material in which directional drilling might be infeasible or unadvisable.

of the excavation through the casing. The process continues until the bore is completed into the receiving pit, an excavation that permits access to the auger and casing. In the final step, the auger is extracted, and the conduit is installed within the casing.

Conventional boring disturbs the ground surface at entry and exit pits. Each pit would encompass approximately 150 square feet. Activities around each pit, such as the laydown of equipment and material, would occupy approximately 500 square feet.

2.3.4.8 Trench Construction

Approximately 50 percent of the terrestrial underground conduit systems (or about 5 miles) are expected to be installed using conventional trenching methods (Figure 2-6). The trenches would typically be from 12 to 18 inches wide and from 36 to 48 inches deep. These trenches would be excavated with a rubber-tired backhoe or similar excavating equipment. Once excavated, the crew would start placing the conduit right away. If there are existing utilities in the trench path, a minimum clearance of 12 inches would be maintained between the utility and the conduit. Generally, where existing utilities are encountered, the new facilities would be placed below the existing utilities to avoid interfering with the future maintenance of the utilities.

Bridge Attachment over Streams

The preferred method to install the underground conduit system under streams would be using a trenchless boring. If trenchless boing is not possible, then conduit system may be installed by attaching to the existing bridges (over streams such as Alder Creek and Brush Creek) instead of boring beneath the stream. A conduit would be placed on the side of or underneath the bridge and secured to steel brackets. The approach to the bridge would depend on the type and style of bridge being crossed and would be installed in compliance with Caltrans standards for utilities on bridge structures. In some cases, the buried conduit system would approach the bridge from the roadway, the bridge abutment would be core drilled, and the conduit would be installed. In other cases, the underground system would approach the side of the bridge from the road shoulder and the conduit would transition to the side of the bridge. Once the conduits are placed, the cable would be installed into the conduits. No equipment would be set in the streams while installing the conduits and no concrete debris would fall into the streams.

Trench Construction in Wetlands and Drainages

While the six drainages (Figure 2-1) along the terrestrial conduit route would be avoided by boring under them or using bridge attachments (if boring under is not possible), drainage ditches along SR 1 may be trenched to install the underground conduit system. If water is present, these drainages would be dewatered to facilitate cable installation and minimize effects on water quality. Dewatering would involve the use of trucks equipped with vacuum/construction pumps.

In wetland areas and areas with shallow groundwater, the trench would be dewatered using temporary sumps in the trench bottom, and water would be pumped out into vacuum trucks.

Double Trenching Technique

When trenching is required in wetland areas, the *double trenching* technique would be used. Double trenching, frequently used in utility projects, is the process of removing a layer of topsoil over the trench and then trenching the subsoil. Once the pipeline is installed in the trench, the subsoil is placed back in the trench and compacted, and the topsoil is spread over the top. The width and depth of topsoil removal would vary along the route depending on vegetation sensitivity, soil characteristics, slope, land use, potential safety hazards, and construction techniques. The topsoil would be removed to the appropriate depth to preserve the soil and seed bank. The locations and depths of topsoil to be removed and replaced would be specified in the contract documents. Generally, a minimum of 6 inches and a maximum of 12 inches of topsoil would be removed and stockpiled.

Topsoil would be stockpiled separately from excavated subsoil and subsequently replaced with a minimum of handling. Topsoil would not be piled in a manner that increases its water content, although this is not expected to be an issue. No drains or ditches would be blocked by topsoil or subsoil stockpiles. The following additional measures would be implemented to protect the topsoil:

- Gaps would be left in topsoil piles where drainages, drains, ditches, and livestock and vehicle crossings are located.
- Topsoil would not be used as padding in the trench or for any other use as a construction material.
- Topsoil would be stored on the uphill side of the disturbance away from the subsoil pile.

Backfilling Trenches and Bore Pits

Trench and bore pit backfilling would begin immediately after installing the conduits and would involve using a rubber-tired backhoe or similar equipment. The backfill material would then be compacted to eliminate erosion and soil settlement.

The backfill material would consist of native soil, imported aggregate base, or sand-cement slurry, and would conform to the specifications of the local jurisdiction. Material removed during trenching that would not be used to backfill would be disposed of at locations approved to receive clean fill.

The backfill would be compacted with a pneumatic drum roller, backhoe-mounted vibratory compactor, or hand-operated vibratory compactor. Water would be added to the material, as necessary, to obtain the relative density required by State or county specifications. Unless otherwise specified, compaction would be at least 95 percent relative compaction.

The excavation crew typically conducts backfilling activities. The equipment and labor needed to carry out the work are included in the allocations for bores, trenches, and manholes (Table 2-2).

Restoration of Terrestrial Surfaces

Surface restoration is the final step in the construction process. Generally, restoration involves returning the Project site to its pre-construction condition or better.

In unpaved areas, restoration would entail grading to restore original contours, installing erosion control devices at locations susceptible to erosion, and finally seeding, mulching, and fertilizing to return the site to pre-construction conditions.

In paved surfaces, restoration would entail pavement repair, curb and gutter reconstruction, and pavement re-striping, if needed. Typical pavement repair involves cutting and removing a strip of asphalt wider than the trench along its entire length. This is then replaced with new asphalt after backfilling and compaction are completed.

Figure 2-6 provides techniques for trenching underground and trenching under asphalt, conduit placement, and backfilling.

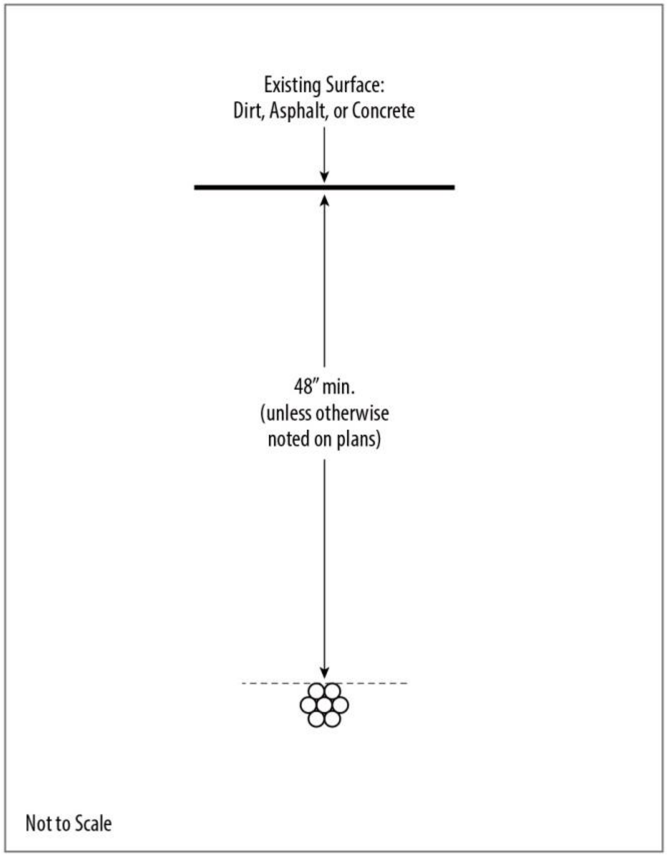
2.3.4.9 Construction of Cable Landing Station’s Power Feed Equipment

As noted above, power feed equipment would be installed within and adjacent to an existing structure at one of the three possible CLS locations. Equipment required for installation will include a crane (for placing large/heavy equipment), a backhoe (for any minor grading or excavation), and a pickup truck for delivery of equipment and materials.

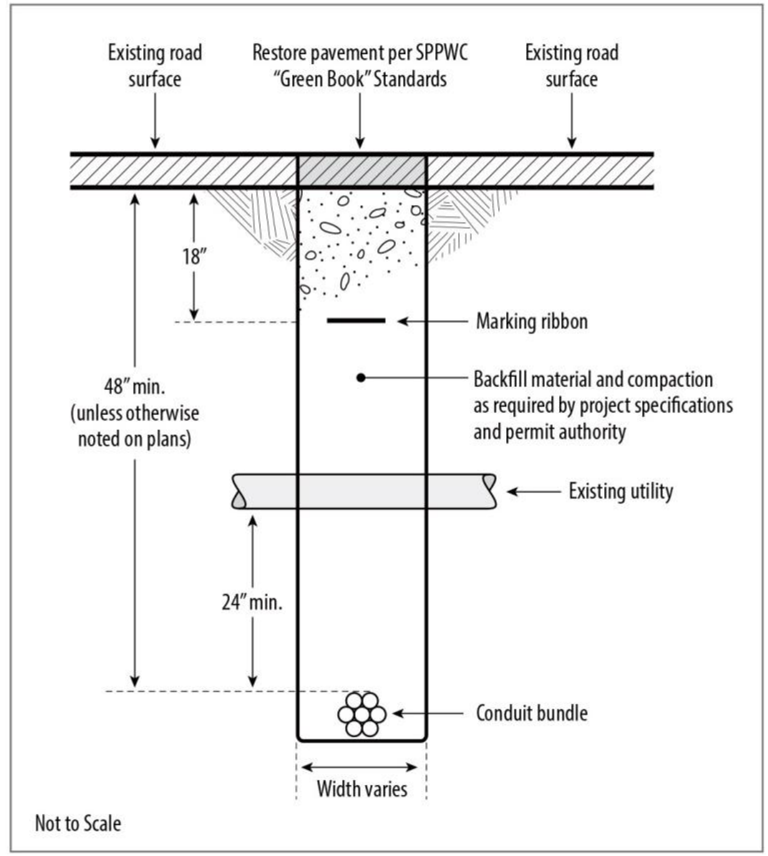
2.3.4.10 Marine Cable Pulling

Installing the marine cable through the marine steel bore pipes and into the LMH would require operations at both the marine exit point of the marine steel bore pipe and the LMH (Figure 2-7).

Figure 2-6. Typical Bore and Trench Details



Typical Bore Detail



Typical Trench Detail

The marine cables would be installed in the following steps:

1. Marine steel bore pipes (5- to 6-inch-diameter) would be installed using HDD from the LMH under the bluff, beach, and seafloor to the marine exit point.
2. A dive support boat would be anchored at the bore point exit using four-point mooring as provided in the Marine Anchor Plan (**APM-2**). Divers from this boat would temporarily remove the seafloor sediment using jetting to expose the bore pipe end.
3. A winch would be set up onshore just east of the LMH to pull the marine cable. A wire rope (installed during bore pipe installation) would be attached to the winch and to the end of the marine cable on the cable lay ship. The winch would pull the marine cable from the cable lay ship through feeder tubes into the marine steel bore pipes and then into the LMH, where the cable would be anchored in place.

2.3.4.11 Ocean Ground Bed Installation

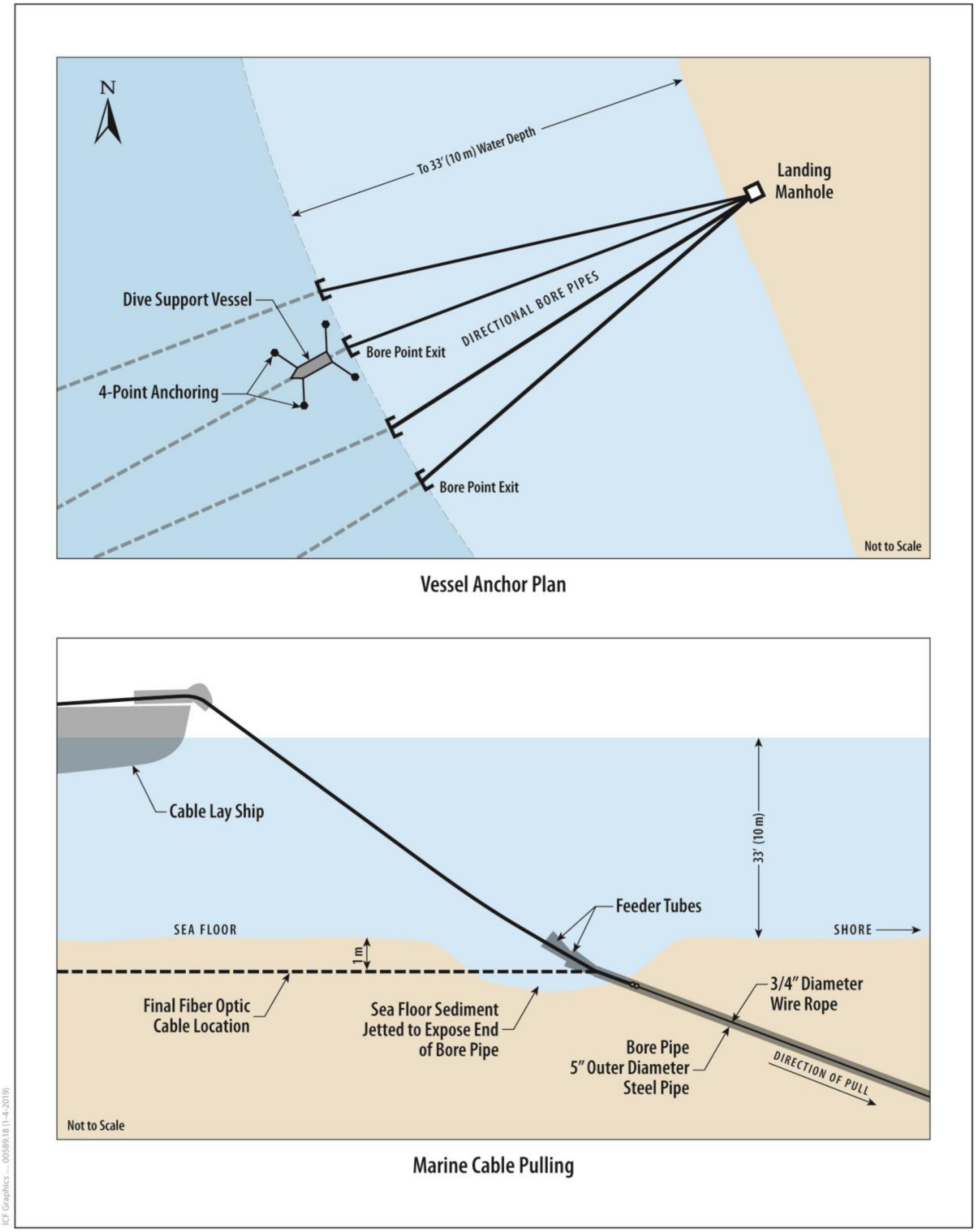
The OGB for each cable once it is onshore would be installed by drilling holes from the LMH down to the seawater level with a well-drilling machine, and then installing the iron anodes in the drilled holes (Figure 2-4). The copper ground cable would be installed by excavation between the tops of the iron anodes to connect the tops of the anodes to one another and back to the ground cable in the LMH. Trucks and trailers would be used to deliver equipment and supplies.

2.3.4.12 Underground Conduit System and Terrestrial Cable Pulling

Once the underground conduit system is constructed (Figure 2-1), the cables would be installed by pulling them from one intermediate manhole to the next. Equipment required for this operation include trailers to transport the cable and truck-mounted mechanical pulling equipment. Although cable pulling does not physically disturb the ground surface, traffic control may be required for manholes located in traffic lanes.

To reduce friction while pulling the cable into the conduit, a pulling lubricant (e.g., Polywater Lubricant, manufactured by American Polywater Corporation) would be used. The lubricant would be introduced without pressure directly into the inner cell of the underground conduit systems, typically at a rate of less than 1 gallon per 1,000 feet. The lubricant dries to a nontoxic powder that remains in the underground conduit systems and their spaced-out terrestrial manhole systems.

Figure 2-7. Marine Cable Pulling from Offshore



Cable pulling would not involve subsurface excavation. Pulling activities for the underground conduit system would occupy approximately 40 linear feet of one roadway lane. Cable pulling activities around each manhole would require approximately 500 square feet. Cable pulling into the underground conduit systems would take approximately 1 week per cable.

2.4 DETAILED MARINE COMPONENTS

The proposed marine routes would cross coastal submerged lands under the California State Lands Commission's jurisdiction (the ordinary high-water mark to 3 nautical miles [nm] offshore [Figure 1-1]). The federal jurisdictional limit includes offshore waters and the continental shelf from 3 nm offshore to a distance where the seawater depth is approximately 5,904 feet, which is approximately 36 miles offshore.

The marine components of the cable systems are those segments between the ordinary high-water mark and the outer limit of the continental shelf—that is, where seawater depth is approximately 5,904 feet. The cable would be installed in this area in both soft and hard bottom substrates. The soft bottom substrate predominates, consisting of sand, silt, and clay, with silt and clay components increasing with greater water depth. Some low- to high-relief hard substrates could be present, but they would be avoided, where feasible, using data from the ocean-bottom surveys being conducted by the Applicant prior to construction.

2.4.1 Marine Steel Bore Pipes

The four marine steel bore pipes (5 to 6 inches in diameter) would extend west from the LMH into the ocean, as provided in Figures 2-2 and 2-7. The marine steel bore pipes would be installed by HDD boring. Once a cable (marine fiber optic) arrives from Asia or Australia, it would be pulled onshore in the LMH.

2.4.2 Marine Cables

Two marine cable armoring designs (double armor and single armor) would be used to provide an appropriate degree of protection from geologic and sedimentary conditions encountered during installation and from potential interactions with fishing gear. Figure 2-8 compares the proposed cable designs with non-armored marine fiber optic cable and terrestrial fiber optic cable. Both cable designs surround the core of optical fibers with rings of wires, copper sheathing, and polyethylene insulation and are explained further below:

- **Double Armor:** This cable design (less than 2 inches in diameter) offers the greatest degree of protection. It is recommended for uses in areas of rocky or coarse substrate and where protection from fishing gear may be warranted. The double-armored cable incorporates two surrounding layers of galvanized wires that are coated with tar to reduce corrosion, two layers of polypropylene sheathing, and an outer layer of tar-soaked nylon yarn.

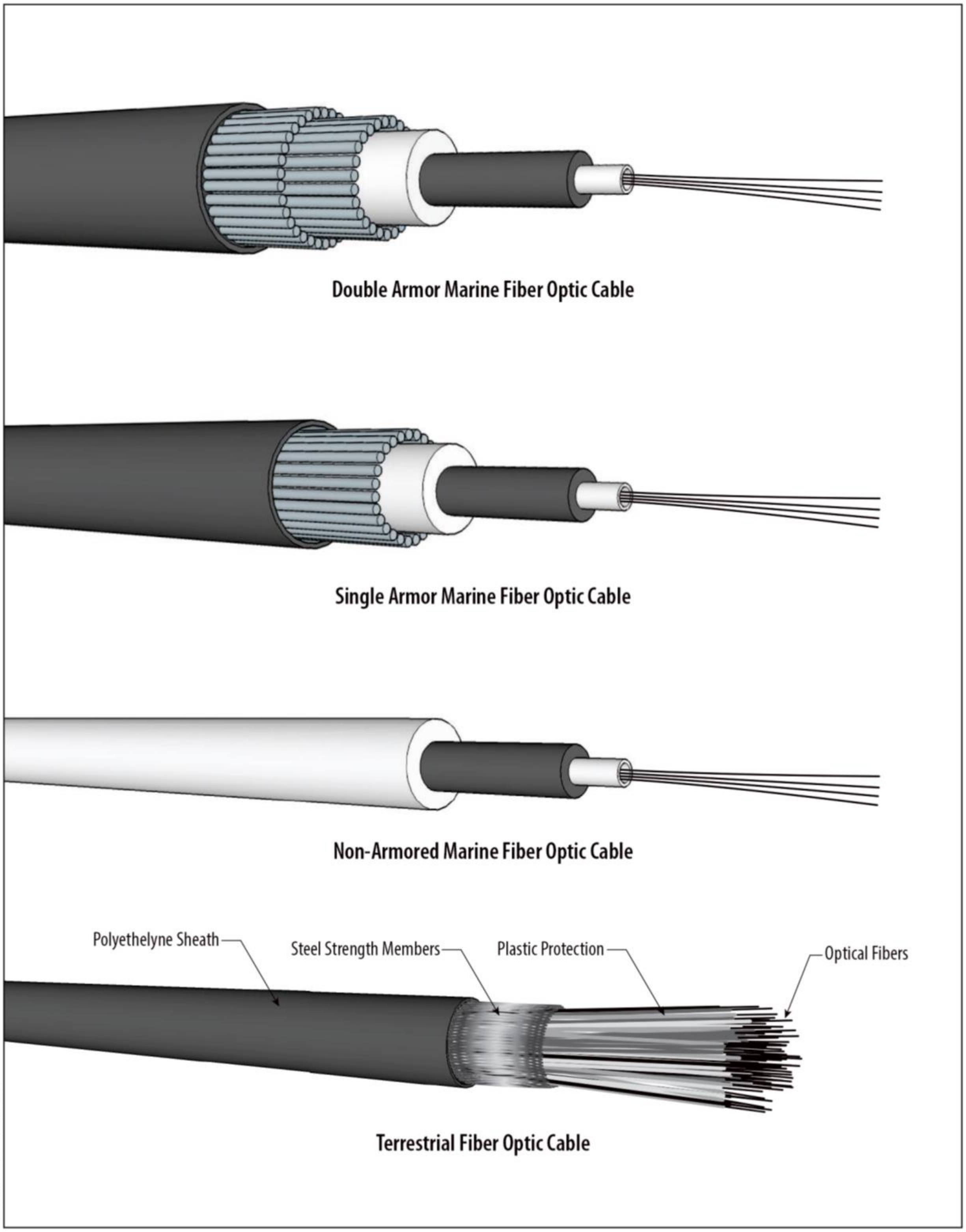
- **Single Armor:** This cable design (less than 2 inches in diameter) is similar to double-armored cable but with only a single surrounding polypropylene sheath and ring of galvanized wires. The single-armored cable would be used where the risk of damage caused by substrate conditions or fishing is reduced by burying the cables in soft bottom sediments using a sea plow or remotely operated vehicle (ROV).

2.4.3 Signal Regenerators in the Marine Cables

Light pulses can be transmitted only approximately 35 miles along the marine cable before they must be regenerated. This regeneration would be done by regenerator equipment attached to the cable at appropriate intervals. The regeneration equipment would operate from 48 volts of DC electricity. The marine cable would contain a copper conductor to transmit the DC electrical power to the regenerators. The DC power feed equipment for the regenerators would be housed at the CLS (Figure 2-5). This system includes protective equipment that can detect a sharp decrease or a sharp increase in electrical current flow in the cables. Upon detecting an abnormal current flow, the DC power system would be shut down. The DC power generates a magnetic field on the order of 5 milligauss at a distance of 3.28 feet from the cable. The magnetic field diminishes with distance from the cable (such that at 33 feet, it would be approximately 0.5 milligauss).[12]

[12] This magnetic field strength would not adversely affect marine life. The field strength level at 3.3 feet (5 milligauss) is far below the most protective field strength for human health (833 milligauss from the International Commission on Non-Ionizing Radiation Protection [ICNIRP]) and is the equivalent to the field strength from a personal computer at 3.3 feet.

Figure 2-8. Marine and Terrestrial Fiber Optic Cables



2.4.4 Marine Features and Techniques

2.4.4.1 Marine Construction Methods

Table 2-3 provides the construction method associated with various ranges of water depth.

Table 2-3. Summary of Proposed Marine Construction Methods

Water Depth Range	Approximate Distance Offshore	Installation Method
LMH to 40 feet deep	Up to 0.6 mile	HDD marine steel bore pipes
Between 40 and 98 feet deep	0.6 to 1.3 miles	Diver-assisted post-lay burial
Between 98 and 5,904 feet deep	1.3 to 36 miles	Cable plow, diver- or ROV-assisted post-lay burial
Greater than 5,904 feet deep	Beyond 36 miles	Direct-surface lay

Terms:
HDD = horizontal directional drilling
LMH = landing manhole
ROV = remotely operated vehicle

2.4.4.2 HDD Marine Steel Bore Pipes (LMH to 40 feet deep, up to approximately 0.6 mile offshore)

The first marine task would be to support directional bore operations using the HDD technique. Then, the cable lay ship arrives offshore from Asia or Australia laying cable in the deep ocean and then coming offshore near Manchester.

Work Boat

The primary work boat, which would serve as a dive platform, would arrive and set up on station within about 50 feet of the bore exit point (Figure 2-7). This boat would be a 100- to 200-foot construction work boat similar to the motor vessel (M/V) *American Patriot*. The work boat would use a four-point mooring with an anchor spread of approximately 328 feet, as shown schematically in Figure 2-7. This boat would be accompanied by a smaller, secondary work boat, similar to the M/V *American Endeavor*, which would set and retrieve anchors, as well as shuttle crew between the work boat and the shore. All anchors would be set and retrieved vertically to avoid dragging them across the sea floor. All anchoring would be conducted as described in the applicant proposed Marine Anchor Plan (**APM-2**).

Jetting Seafloor Sediment to Expose Marine Steel Bore Pipe Exit

Where the marine steel bore pipe exits approximately 3,280 feet offshore (Figure 2-7), divers would jet approximately 10 to 15 cubic yards of sea floor sediment to expose the end of the marine steel bore pipes offshore. The divers would remove the drill head from the marine steel bore pipe and install a valve on the end of the marine steel bore pipe to keep seawater from entering in it until the cable is installed. This process would be repeated for each of the four marine steel bore pipes.

Cable Lay Ship

The cable lay ship would be brining cables from Asia and Australia to offshore the marine steel bore pipe location. Once a cable lay shop arrives offshore, the cable lay ship would position itself above the bore exit where the sediment was jetted and a valve installed at the end of the marine steel bore pipe (Figure 2-7). The cable lay ship would position itself approximately 328 feet seaward of the end of the marine steel bore pipe. Divers would install cable chutes (also known as *feeder tubes*) into the end of the pipe and attach floats to the cables to prepare the cables to be pulled through the marine steel bore pipe to the LMH onshore. The end of the cable would be attached to a 0.75-inch wire rope that would be placed during the final stage of the directional bore process and attached to a hydraulic winch. A work boat would assist with feeding the wire rope from the end of the marine conduit to the cable ship. The cable would be pulled into the LMH by the winch and anchored behind the LMH. Once the cable is secured in the LMH, the cable ship would move away from that location.

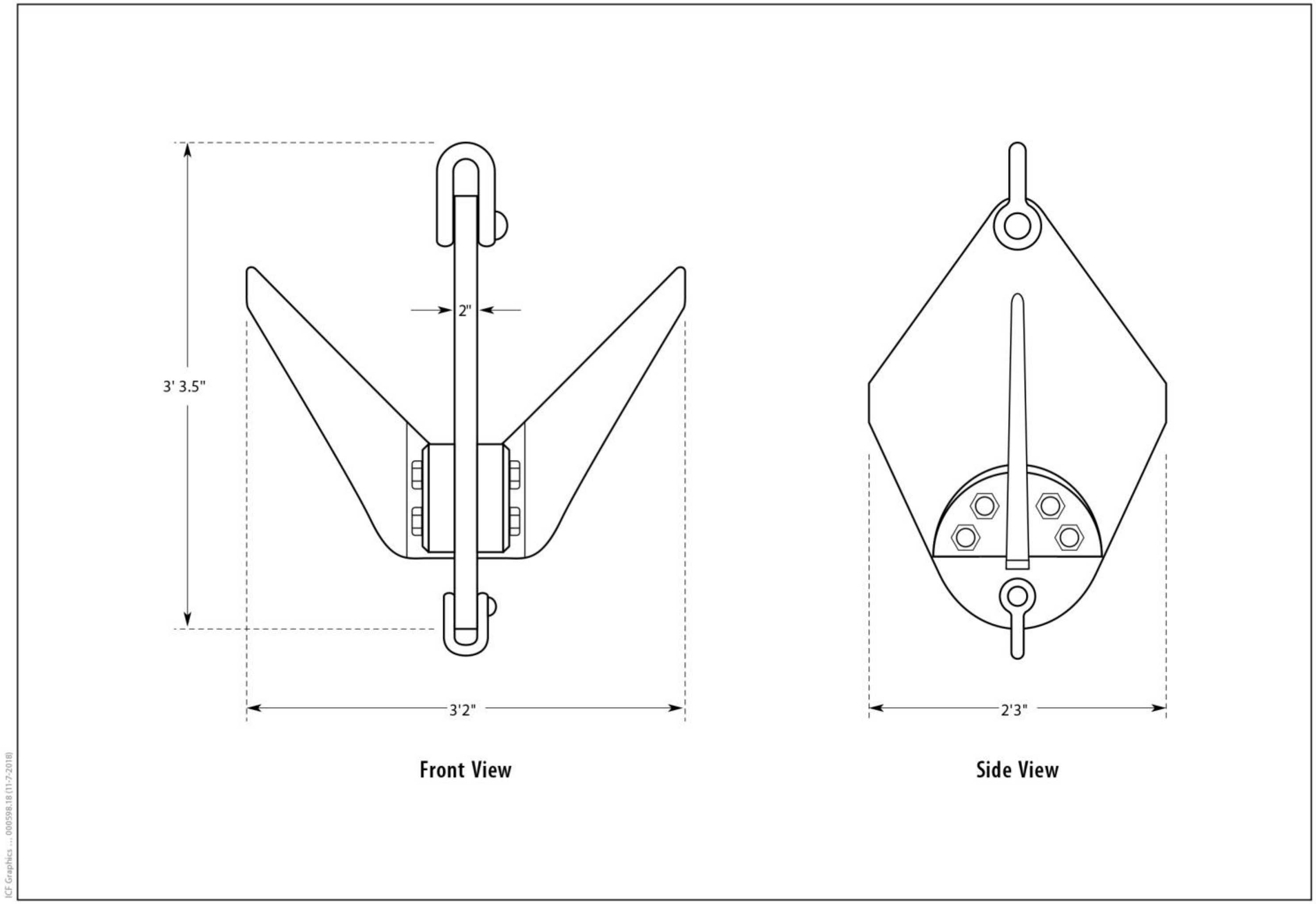
Divers would manage and monitor the pulling process from the work boat.

2.4.4.3 Pre-Lay Grapnel Run (water depths of 40 to 5,904 feet; between 0.6 and 36 miles offshore)

The purpose of a pre-lay grapnel run (Figure 2-9) would be to clear debris on the bottom of the seafloor, such as discarded fishing gear, along the cable routes where the cables would be buried on the seafloor. A grapnel, typically of the *flat fish* type, would be dragged along the cable routes before cable installation to clear out the path for burying cables. The grapnel would be attached to a length of chain to ensure that it touches the bottom of the seafloor.

The cable lay ship or a work boat, similar to the *Dock Express 20,* would tow the grapnel at approximately 1.2 miles per hour (approximately 1 knot per hour). The arms of the grapnel are designed to hook debris lying on the seafloor or shallowly buried to approximately 1.3 feet. If debris is hooked and towing tension increases, then towing would stop and the grapnel would be retrieved by winch. Any debris recovered during the operation would be stowed on the vessel for subsequent disposal in port.

Figure 2-9. Flat Fish Grapnel to Clear Ocean Bottom Debris



2.4.4.4 Diver-Assisted Post-Lay Burial (water depths of 40 to 98 feet; between 0.6 and 1.3 miles offshore)

Once the cable has been securely anchored at the LMH, the cable lay ship would begin to move west (farther offshore) along the predetermined course, rolling out (paying out) the marine cable as it goes. The ship would travel at approximately 2.3 miles per hour (2 knots per hour).

Diver-assisted burial would be used from the end of the marine steel bore pipes to a water depth of approximately 98 feet, which is located approximately 1.3 miles offshore. Divers would use hand jets to open a narrow furrow beneath the cable, allowing the heavy cable to drop into the furrow as it would open. The disturbed sediments would then settle back over the cable, filling the furrow and restoring the surface to original grade. Depending on bottom conditions, the cable would be buried to a depth of 3.3 feet.

Starting from the end of the marine steel bore pipe, the cable would temporarily be laid directly on the seafloor to a water depth of approximately 328 feet until it can be post-lay buried by divers or ROV, as described below. For the remainder of the buried section of cable, burial would be achieved by cable plowing or by ROV-assisted post-lay burial.

2.4.4.5 Cable Plow, Diver- or ROV-Assisted Post-Lay Burial (water depths of 98 to 5,904 feet; between 1.3 and 36 miles offshore)

Plow burial would be used beyond water depths of 98 feet to a depth of 5,904 feet. In some locations where plow burial is not possible, the cable would be buried using post-lay burial methods (diver-assisted jet burial and ROV burial), as explained below.

Sea Plow to Help Bury Cables on the Seafloor

The cables can be plowed at water depths of 328 to 5,904 feet, from approximately 8 to 36 miles offshore. A sea plow is a sled-like burial tool that would be deployed by the cable lay ship after the shore-end landing operations are complete (Figure 2-10). Once the sea plow, supported by two sled outriggers to a total width of approximately 20 feet, is deployed to the bottom, divers would assist with loading the cable into the sea plow’s articulated feed chute and burial shank (Figure 2-10). These mechanical movements are controlled by an operator watching the divers through a video camera mounted on the plow. When the ready signal is given, the ship moves away with the plow in tow. As the sea plow is towed, the sea plow mechanically buries the cable to its desired depths by slicing through the seafloor sediments while feeding the cable through the sea plow shank and into the bottom of the furrow in a single operation (Figure 2-10). The sea plow furrow, approximately 3.3 feet wide, would naturally close under the weight of the sediments and the plow sleds, which would transmit the weight of the sea plow to either side of the furrow, effectively add compacting force to the sediment. The combination of the two forces—the weight of the soil and the weight of the sled—is sufficient to fully close and compact the furrow; therefore, no further compacting would be required.

The plow is expected to operate at the rate of approximately 0.6 mile per hour (approximately 0.5 knot per hour).

Diver-Assisted Post-Lay Marine Cable Burial

Diver-assisted marine cable burial may be used at water depths of approximately 98 to 328 feet from approximately 1.3 to 8 miles offshore, where the sea plow cannot achieve the targeted burial depth. Methods are as described above in Section 2.4.4.4.

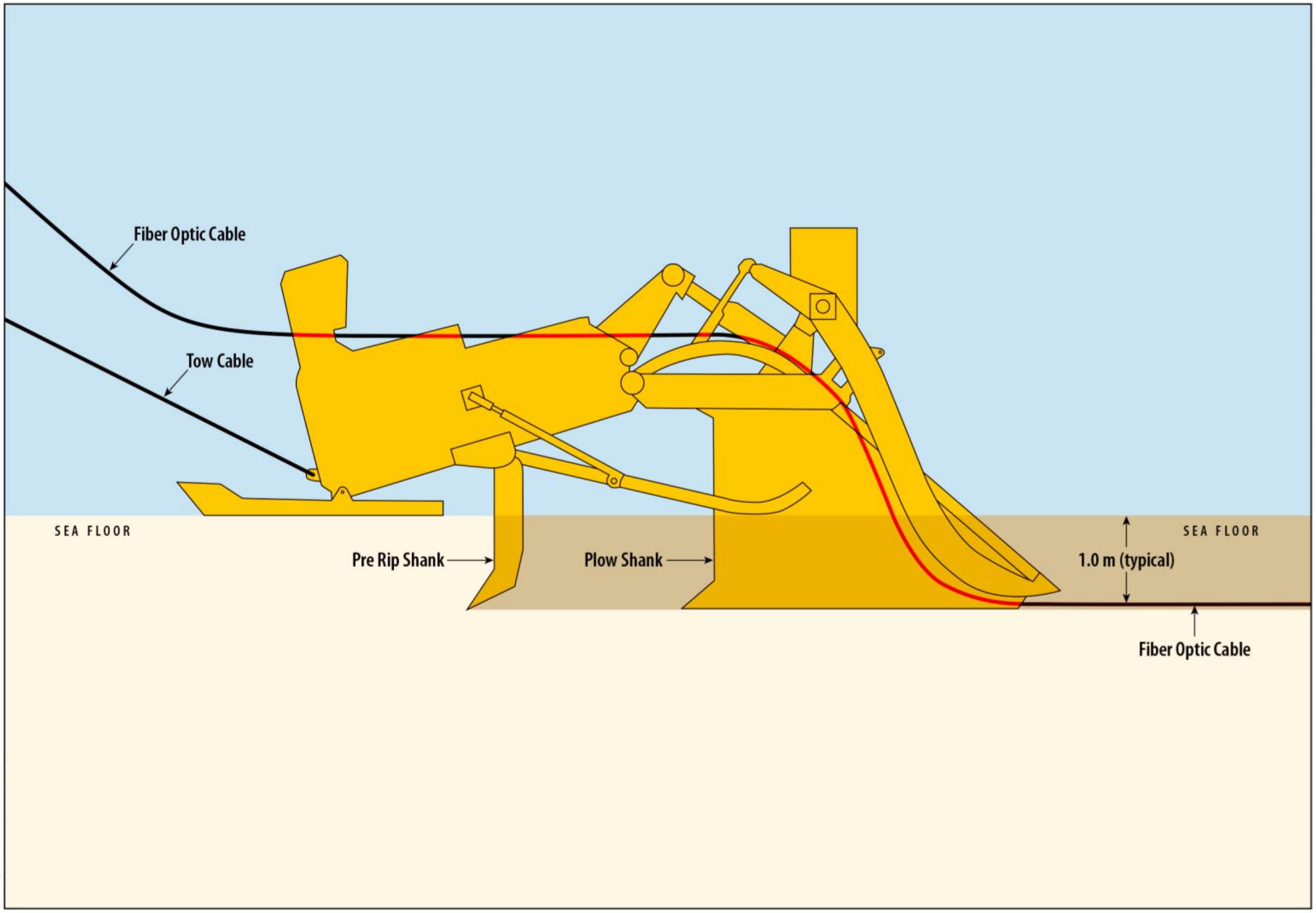
Remotely Operated Vehicle (ROV) Post-Lay Burial

At water depths of approximately 98 to 328 feet from approximately 1.3 to 8 miles offshore, or where the sea plow cannot achieve the targeted burial depth because of bottom conditions, an ROV would be used to attempt to bury the cable. The cable lay ship would lay these sections of cable temporarily on the seafloor until the post-lay burial is attempted at a later date.

An ROV is a robotic device operated from the vessel. The ROV would be deployed and operated from the cable lay ship or a similar vessel. The ROV moves under its own power and is tethered to and guided from the cable lay ship. In a manner similar to diver-assisted burial, ROV jets would loosen the seafloor sediments beneath the cable, allowing it to settle to the desired depth. The disturbed sediments would settle back over the area to their original grade, leaving the cable buried. The cable would typically be left at a depth of 3 to 4 feet. The ROV operate at a nominal speed of 0.35 mile per hour (0.3 knot/hour) when jetting. However, the overall rate of forward progress would depend on the number of passes needed to attain target burial depths, a variable that is in turn a function of sediment stiffness. Up to three passes may be required; consequently, the overall rate of burial using an ROV is estimated at 0.1 mile per hour (0.1 knot/hour). Post-lay burial of the cable by ROV would take place between 1 day and 3 weeks after the cable is first laid on the seafloor.

The post-lay burial of cable by ROV would disturb the seafloor (Figure 2-10). The typical width of disturbance associated with this activity would be 15 feet. This metric pertains only to the seafloor and not disturbance to the water column.

Figure 2-10. Sea Plow for Burying Cables on the Seafloor



2.4.4.6 Direct-Surface Lay (more than 5,904 feet; 36 miles offshore)

Beyond water depths of 5,904 feet, which nominally occur approximately 36 miles offshore, the cable lay ship would lay the cable directly on the seafloor without burial, while maintaining slack control to ensure a straight lay of the cable and ensuring contact with the seafloor to avoid suspensions.

2.5 CABLE OPERATIONS, MAINTENANCE, AND REPAIR

2.5.1 Cable Identification

Applicant's personnel would navigate using differential geographic positioning system (GPS) during installation of the cable systems. Extensive records would be maintained to track the exact locations of the cable lay ship, sea plows, and ROVs during the installation process. After installation, the data would be compiled into a standard-format cable record. The record would be distributed to all cable maintenance zone ships, government charting agencies, CSLC, and other data users. Records can then be used to locate the cables on the seabed when a cable repair is needed. These records would be maintained throughout the system's life and after the system is retired.

2.5.2 Cable Operations and Maintenance

Other than ensuring that the power feed and transmission equipment in the CLS are in proper working order, no routine maintenance is planned for the submerged segments of the cable network. These cables typically operate for 25 years. Because of the stability of the ocean-bottom environment, regular maintenance is unnecessary.

2.5.3 Emergency Cable Repair (Marine)

The cable could be damaged by saltwater intrusion into the conduit or by anchors or fishing gear that could snag the cable and cause a fault. For a typical shallow-water repair, the location of the *fault* (the point at which transmission is interrupted) can usually be pinpointed through the use of low-frequency electroding, and little if any extra cable must be added during the repair because of the shallow depth.

2.5.3.1 Buried Repair

If the fault location is buried, the grapnel (Figure 2-9) used by the repair vessel would be sized to match the burial depth attained during installation. Typically, a standard flatfish grapnel can be rigged to penetrate and recover cable from burial depths up to 20 inches. If deeper burial is involved, a de-trenching grapnel, divers, or an ROV can remove the cable from the burial trench and bring it to the surface. The cable can then be repaired and reburied in its original position to the extent practicable.

2.5.3.2 Unburied Repair

If the fault location is not buried, it may be possible to engage it and bring it to the surface without cutting. Otherwise, a cutting blade can be fitted to a flatfish grapnel (Figure 2-9), and the cable would be cut close to the fault location before recovery. Gifford grapnels can then be used for holding runs to recover each cut end.

The recovered end would be sealed and temporarily buoyed off for easy recovery later. The other end would be recovered and tested to locate the fault more precisely. The repair vessel would recover the cable until the cable's fault site was on the ship. After the fault site was removed from the system, repaired cable would be joined to the fault-free cable end and then the cable would be rolled out (paid out) as the vessel returns to the buoyed end. When the buoy is recovered, the two cable ends would be joined, and the repaired cable would be put back into the ocean.

2.6 RETIREMENT, ABANDONMENT, OR REMOVAL OF THE CABLE SYSTEMS

The Project would have a life of approximately 25 years. Within 90 days of taking the cable out of service, the cable owner would advise the County and the California Coastal Commission of the status and proposed disposition of the inactive cable and submit an application for the removal of all cable system facilities from sovereign state land to CSLC.

The Applicant proposes that all terrestrial facilities, including the underground conduit system and manhole system, would be left in place and available for use by other cables in the future. The directional bores installed to facilitate the marine cable landings also would likely be left in place for possible future use. If any non-buried segments of cable are present within State waters, the cable owner would work with the relevant agencies to determine whether removal is appropriate. If non-buried segments are present and it is determined that removal is required, the cable owner would conduct the removal.

Removal activities, if necessary, are likely to result in impacts similar to those associated with Project installation activities. Whether the removal impacts would be significant would depend on the existing setting and significance criteria at the time. At the end of the cable's life, subsequent environmental documentation is likely to be required. If significant impacts are identified at that time, the types of measures proposed to mitigate installation impacts likely would be feasible to mitigate removal impacts to a less than significant level.

PAGE INTENTIONALLY LEFT BLANK

3.0 ENVIRONMENTAL CHECKLIST AND ANALYSIS

This section presents the Initial Study (IS) for the proposed RTI Infrastructure Inc. Manchester Subsea Cables Project (Project) in accordance with the requirements of the California Environmental Quality Act (CEQA). The IS identifies site-specific conditions and impacts, evaluates their potential significance, and discusses ways to avoid or lessen impacts that are potentially significant. The information, analysis, and conclusions included in the IS provide the basis for determining the appropriate document needed to comply with CEQA. Based on the analysis and information contained herein, California State Lands Commission (Commission or CSLC) staff has found evidence that the Project may have a significant effect on the environment, but that revisions to the Project would avoid the effects or mitigate them to a point where clearly no significant effect on the environment would occur. As a result, CSLC has concluded that a Mitigated Negative Declaration (MND) is the appropriate CEQA document for the Project.

The evaluation of environmental impacts provided in this document is based in part on the impact questions contained in updated 2019 Appendix G of the State CEQA Guidelines. These questions, which are included in an impact assessment matrix for each environmental category (e.g., Aesthetics, Air Quality, and Biological Resources), are "intended to encourage thoughtful assessment of impacts." Each question is followed by a check-marked box with column headings that are defined below:

- **Potentially Significant Impact.** This column is checked if there is substantial evidence that a Project-related environmental effect may be significant. If there are one or more "potentially significant impacts," a Project Environmental Impact Report (EIR) would be prepared.
- **Less than Significant with Mitigation.** This column is checked when the Project may result in a significant environmental impact, but the incorporation of identified Project revisions or mitigation measures would reduce the identified effect(s) to a less than significant level.
- **Less than Significant Impact.** This column is checked when the Project would not result in any significant effects in the category. The Project's impact is less than significant for the category without the incorporation of Project-specific mitigation measures.
- **No Impact.** This column is checked when the Project would not result in any impact in the category or the category does not apply.

The environmental factors checked below (Table 3-1) would be potentially affected by this Project; a checked box indicates that at least one impact would be a "potentially significant impact" except that the Applicant has agreed to Project revisions, including the implementation of mitigation measures that reduce the impact to "less than significant with mitigation."

Table 3-1. Environmental Issues and Potentially Significant Impacts

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

Detailed descriptions and analyses of impacts from Project activities and the basis for their significance determinations are provided for each environmental factor on the following pages, beginning with Section 3.1, *Aesthetics*. Relevant laws, regulations, and policies potentially applicable to the Project are listed in the Regulatory Setting for each environmental factor analyzed in this IS/MND (also see Appendix A). Impacts are analyzed for the entire Project.

AGENCY DETERMINATION

Based on the environmental impact analysis provided by this Initial Study:

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

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

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

Signature ____________________ Date ____________

Afifa Awan, Senior Environmental Scientist
Division of Environmental Planning and Management
California State Lands Commission

3.1 AESTHETICS

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

3.1.1 Environmental Setting

The proposed Project consists of work on land (terrestrial) and in the ocean (marine) areas.

3.1.1.1 Terrestrial Areas

Cable Landing Parcel, Underground Conduit System, and Cable Landing Station Areas

The Project's terrestrial areas encompass the cable landing parcel (CLP) underground conduit system, and one of the three cable landing stations (CLSs) (Figures 1-1, 2-1, and 3.1-2). These areas are between State Route (SR) 1 and the coastline. Elevations range from sea level to approximately 190 feet above mean sea level. These areas are surrounded by small coastal towns, agricultural land, and open space supporting natural habitats. The types of natural habitats in the northern California coast include the coastal prairies, coastal marshes, and a blend of hardwood and coniferous forests (Baldwin et al. 2012). The marine environment above water is characterized by a private (not open to the public), open coast sandy beach.

Figure 3.1-1. Photographs of Project Site Views

AT&T Cable Landing Station

Private Cable Landing Station

Level3 CLS

View from SR 1 toward the Cable Landing Parcel

Alder Creek Bridge, conduit will either be attached to bridge or drilled below the creek, facing north

Brush Creek Bridge, conduit will either be attached to bridge or drilled below the creek, facing north

Kinney Road, potential Underground Conduit Installation, facing west

Ocean and Beach

The ocean is mostly visible along SR 1 when not obstructed by vegetation and topography. The private beach is generally not visible from SR 1 within the Project area due to berms and dense vegetation, including shrubs and trees. Residences near the Project site consist primarily of rural residential homes along SR 1 and residences along Pacific View Drive (Figure 3.1-2).

Manchester State Park

Manchester State Park is adjacent to the Project area (Figure 3.1-2) along the west side of two segments of SR 1 north of Kinney Road and along the north side of Kinney Road, which would be part of the Project area if the AT&T CLS is selected (Figure 2-1). Manchester State Park consists of 1,500 acres on shore, with a 3,782-acre adjacent underwater lease. Manchester State Park extends along the west side of Manchester, and the beach entrance is 0.5 mile north of town on SR 1 (CDPR 2018).

State Scenic Highway

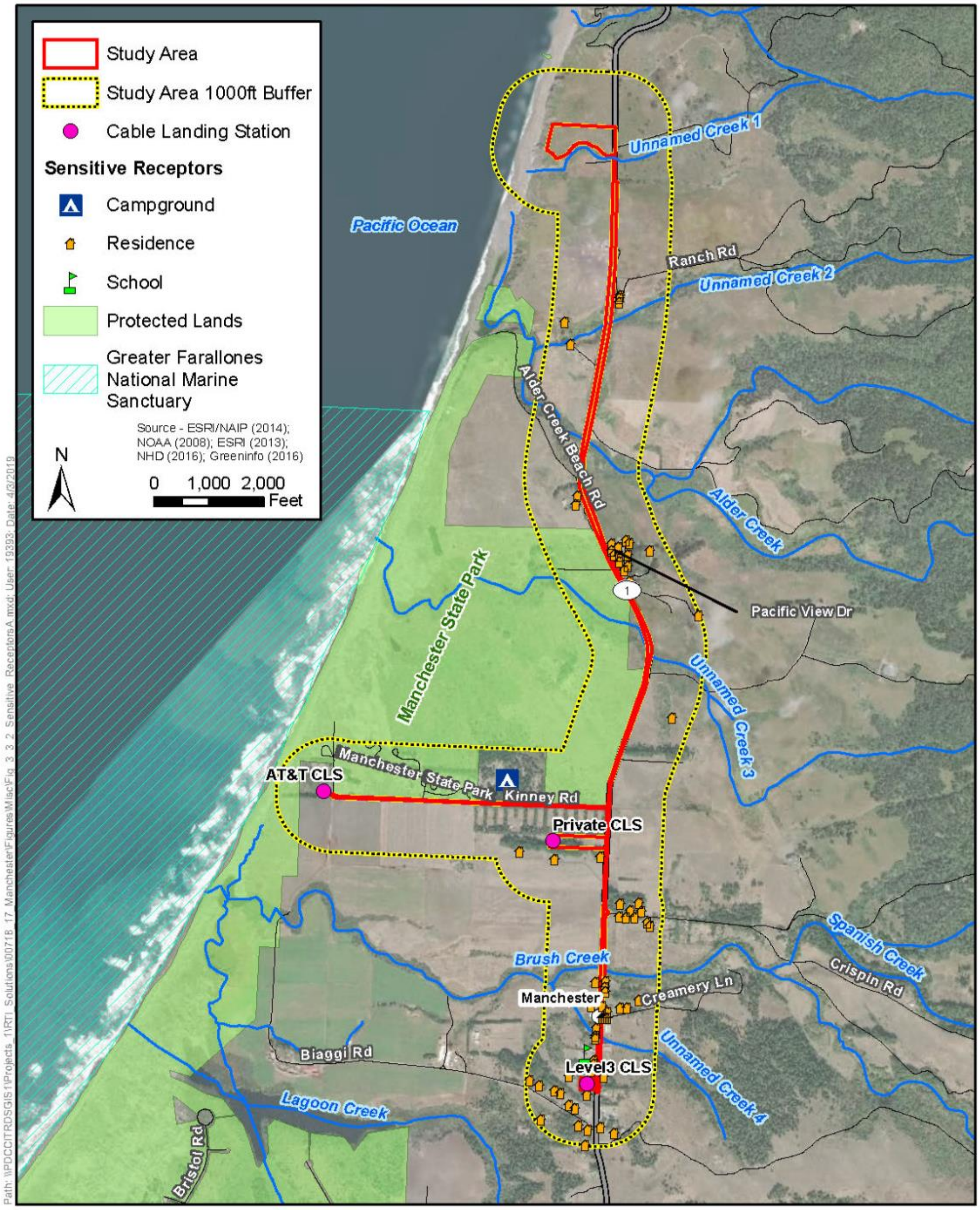
The Project area is on a coastal plain along SR 1 north of Manchester, with views of the Pacific Ocean to the west and coastal mountains to the east. According to the County's General Plan Resource Management Element, the coast is considered a scenic resource, and policies in the County's Coastal Element are designed to protect its scenic value.

The County's Scenic Highways Element (Mendocino County 2009) recommends designation of SR-1 through the County as an official State Scenic Highway. According to the California Department of Transportation (Caltrans) California Scenic Highway Mapping System website, SR 1 is not officially designated as a State Scenic Highway but is an Eligible State Scenic Highway throughout the County (Caltrans 2011).

3.1.1.2 Marine Areas

Marine areas present unobstructed views of the open ocean. Offshore, incidental fishing boats or freighters periodically pass by. At night, they are lit in accordance with applicable safety regulations for marine vessels.

Figure 3.1-2. Sensitive Receptors within 1,000 Feet of the Study Area



3.1.2 Regulatory Setting

Federal and state laws and regulations pertaining to aesthetics and relevant to the Project are identified in Appendix A. At the local level, the following policies and programs included in Mendocino County's General Plan (2009) and Coastal Element (1991a) are applicable to the Project.

- **General Plan Resource Management Element Policy RM-132:** Maintain and enhance scenic values through development design principles and guidelines, including the following:
  - Development scale and design should be subordinate to and compatible with the setting
  - Reduce the visual impacts of improvements and infrastructure
  - Minimize disturbance to natural features and vegetation, but allow selective clearing to maintain or reveal significant views
- **Mendocino County Coastal Element Policy 3.5-5:** Providing that trees will not block coastal views from public areas such as roads, parks and trails, tree planting to screen buildings shall be encouraged. In specific areas, identified and adopted on the land use plan maps, trees currently blocking views to and along the coast shall be required to be removed or thinned as a condition of new development in those specific areas. New development shall not allow trees to block ocean views. In circumstances in which concentrations of trees unreasonably obstruct views of the ocean, tree thinning or removal shall be made a condition of permit approval. In the enforcement of this requirement, it shall be recognized that trees often enhance views of the ocean area, commonly serve a valuable purpose in screening structures, and in the control of erosion and the undesirable growth of underbrush.
- **Mendocino County Coastal Element Policy 3.5-9:** The location of all new access roads and driveways in rural areas shall be reviewed prior to any grading work to ensure safe location and minimum visual disturbance. Direct access to SR 1 shall not be permitted where it is feasible to connect to an existing or proposed public road or to combine access points for two or more parcels.

3.1.3 Impact Analysis

Under the proposed Project, up to four cables would be routed across the ocean from Asia and Australia to the Project area. Cable would be laid on the seafloor, buried in sand across the continental shelf, and placed in marine steel bores (horizontal directionally drilled) under the private beach and bluff. Once the cables arrive offshore, each cable would be pulled through a marine steel bore onshore on the bluff in the CLP in Manchester, California. The CLP currently is being used for grazing and would serve as a staging area (Figure 2-3). From the CLP, the cables would be routed on both sides of SR 1 and public roads to connect with one of the three existing CLS locations in

Manchester (Figure 3.1-2). The final CLS location would be selected after this environmental review.

a) Have a substantial adverse effect on a scenic vista?

Less Than Significant Impact

3.1.3.1 Terrestrial Areas

Permanent Visual Impacts from the Cable Landing Station and Underground Conduit System

No permanent aesthetics impact would result from the new facilities in the existing CLS and underground conduit system (Figures 2-1, 2-2, and 2-3) because they would be constructed at ground level. The CLS site outside structures already exist (Figure 2-1) and would just need to be modified from the inside to add new equipment for the cables. If the final destination is the Private CLS, then additional underground conduits would be installed to bring the cables to either the Level3 CLS or AT&T CLS because they are the only ones linked to the existing network system. Therefore, there would be no permanent impacts on visual resources or aesthetics. The marine steel bores also would be installed by horizontal directional drilling (HDD) from the CLS to under the bluff and the private beach.

Temporary Visual Impacts from Underground Conduit System along State Route 1 and Manchester State Park

There would be temporary aesthetics impacts during construction for people traveling along SR 1 near the CLP and underground conduit system from the presence of large construction equipment (e.g., excavator, loader). This temporary effect also would involve local travel and tourists visiting Manchester State Park. The potential number of persons affected by this temporary change in coastline views would be minimal, and Project construction would last for only several weeks (Table 2-1), this would be a temporary aesthetic impact.

Residents

Temporary impacts on aesthetics might occur during construction for the rural residences scattered along SR 1 (Figure 3.1-2) because they might have lines of sight of the construction activities. The residences along SR 1 south of Kinney Road and in Manchester would see the underground conduit system installation if the Level3 CLS (Figure 2-1) is chosen. If one of the other two CLS is selected, then these residents will not see the underground conduit work.

3.1.3.2 Marine Areas

The offshore work—including the primary and secondary work boats—would be visible from the beach and along SR 1 in the CLP area. Offshore work would be temporary and last several weeks (Table 2-1). Boats would be approximately 3,280 feet offshore west of the CLP (Figure 1-2). Consequently, Project activities in the offshore environment would cause a minimal obstruction of the ocean view from surrounding areas and SR 1. Boats in the area would have an obstructed view of the shoreline because of the offshore Project equipment. Therefore, short-term impairment to scenic vistas would result in a less than significant impact.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Less Than Significant Impact. There would be less than significant impact on aesthetics because SR 1 is not designated as a State Scenic Highway in Mendocino County. The County's Scenic Highways Element (Mendocino County 2009) recommends designation of SR 1 through the County as an official State Scenic Highway. According to Caltrans' California Scenic Highway Mapping System website, SR 1 is not officially designated as a State Scenic Highway but is an Eligible State Scenic Highway throughout the County (Caltrans 2011). Because SR 1 is not designated as a scenic highway, the Project would not damage scenic resources. Since work would be within an existing road right-of-way, Project work would not damage trees, rock outcroppings, and historic buildings.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

No Impact. There would be no permanent impact on aesthetics because the Project would require short-term construction in terrestrial and marine areas. Table 2-1 lists the anticipated construction durations. Temporary visual impacts would result from the presence of construction equipment on the site that would be needed during Project construction and operation at the CLP, along the terrestrial underground conduit systems, and at the final CLS. The primary and secondary work boats would have a short-term visual impact on the nearshore coastal area. Because the viewshed change would occur only during the short Project construction period (Table 2-1), it is not considered a substantial visual impact. No natural land forms would be changed, and no permanent structures would be built.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less than Significant Impact. The aesthetics impact in the terrestrial areas would be less than significant because Project-related work would happen during daytime hours and the Project would not introduce glare to the area. Therefore, no impacts would occur from lighting or glare.

The aesthetics impact of offshore construction would be less than significant because work offshore would be temporary, and night-time lighting would meet all applicable U.S. Coast Guard (USCG) navigational standards. The primary and secondary work boats would remain offshore at night, with some limited lighting on the boats and anchor crown buoys to avoid a navigational hazard to existing marine traffic. Offshore work for each cable would be temporary (Table 2-1) and continuous for 24 hours; it would be within the USCG's requirements.

3.1.4 Mitigation Summary

The Project would have less than significant impacts on aesthetics; therefore, no mitigation is required.

3.2 AGRICULTURE AND FORESTRY RESOURCES

AGRICULTURE AND FORESTRY RESOURCES[13] - Would the Project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Natural Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Pub. Resources Code, § 12220, subd. (g)), timberland (as defined by Pub. Resources Code, § 4526), or timberland zoned Timberland Production (as defined by Gov. Code, § 51104, subd. (g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

3.2.1 Environmental Setting

There are no forest lands in the Project area. However, there are some agricultural lands around the terrestrial Project components. The CLP and much of the land along SR 1 in the Project area is currently being used for grazing, but it is not considered agricultural land according to the CEQA checklist questions a) through e) above. Rural residences and open space support natural habitats around the terrestrial underground conduit systems. Zoning in the Project vicinity comprises of Agricultural Lands (AG 60) and Rural Residential (RR5) The onshore cable routes, SR 1 and public roads, CLP, and all three possible CLS locations are not under Williamson Act contract (Mendocino County Assessor's Office 2014).

[13] In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts on forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

3.2.2 Regulatory Setting

Federal and state laws and regulations pertaining to agriculture and forestry resources and relevant to the Project are identified in Appendix A. At the local level, there are no goals, policies, or regulations applicable to the Project.

3.2.3 Impact Analysis

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 Natural Resources Agency, to non-agricultural use?*

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

c) *Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Pub. Resources Code, § 12220, subd. (g)), timberland (as defined by Pub. Resources Code, § 4526), or timberland zoned Timberland Production (as defined by Gov. Code, § 51104, subd. (g))?*

d) Result in the loss of forest land or conversion of forest land to non-forest use?

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

(a to e) No Impact. There would be no impacts because there are no farmland or forest lands at the CLP (even though this site is currently being used as a grazing site) or potential CLS sites. The underground conduit systems would not negatively affect agricultural or grazing lands because cables would run adjacent to SR 1 and other public roads before taken to one of the three final CLS locations (Figure 3.1-2). Therefore, the Project would not have any permanent impacts on agriculture or forest lands and would not conflict with a Williamson Act contract.

3.2.4 Mitigation Summary

The Project would have no impact on agricultural and forestry resources; therefore, no mitigation is required.

3.3 AIR QUALITY

AIR QUALITY - Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the Project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

3.3.1 Environmental Setting

3.3.1.1 Local Climate and Meteorology

The Project would occur in the North Coast Air Basin (NCAB), which includes Mendocino, Del Norte, Humboldt, Trinity, and northern Sonoma Counties. Therefore, the NCAB climate transitions between coast and interior California. Coastal Mendocino County, which includes the CLP, underground conduit system, and the final CLS location, has a mild Mediterranean climate. In general, the prevailing winds are from the northwest and are moderate in strength. The average yearly temperature range is 53°F to 57°F. Precipitation is greatest in the winter months, with October through April receiving 35 to 80 inches of rainfall, depending on location.

3.3.1.2 Pollutants of Concern

Concentrations of ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead, and particulate matter with diameters of 10 microns (PM_{10}) and 2.5 ($PM_{2.5}$) microns or less are commonly used as indicators of ambient air quality conditions. These pollutants are known as *criteria pollutants* and are regulated by the U.S. Environmental Protection Agency (EPA) and California Air Resources Board (CARB) through national and California ambient air quality standards (NAAQS and CAAQS, respectively). The NAAQS and CAAQS limit criteria pollutant concentrations to protect human health and prevent environmental and property damage. Other pollutants of concern in the study area are nitrogen oxides (NO_X) and reactive organic gases (ROG), which are precursors to ozone, and diesel particulate matter (DPM), which is a toxic air contaminant (TAC). These pollutants that can cause cancer and other human health illnesses are summarized below. Note that ozone is considered a regional pollutant because its precursors affect air quality on a regional scale. Pollutants such as CO, NO_2, SO_2, and Pb are considered local pollutants that tend to accumulate in the air locally. PM is both a local and a regional pollutant. The primary criteria pollutants of concern generated by the Project are ozone precursors (ROG and NO_X), CO, and PM.[14, 15]

- **Ozone:** O_3 is formed in the atmosphere through a series of complex photochemical reactions involving NO_X, ROG (also known as ROCs or reactive organic compounds), and sunlight occurring over several hours. Since O_3 is not emitted directly into the atmosphere, but is formed by photochemical reactions, it is classified as a secondary or regional pollutant. Because these O_3-forming reactions take time, peak O_3 levels are often found downwind of major source areas. O_3 is considered a respiratory irritant and prolonged exposure can reduce lung function, aggravate asthma, and increase susceptibility to respiratory infections. Children and those with existing respiratory diseases are at greatest risk from exposure to O_3 (U.S. EPA 2015).
- **Carbon Monoxide:** CO is primarily formed through the incomplete combustion of organic fuels. Higher CO values are generally measured during winter when dispersion is limited by morning surface inversions. Seasonal and diurnal variations in meteorological conditions lead to lower values in summer and in the afternoon. CO is an odorless, colorless gas that affects red blood cells in the body by binding to hemoglobin and reducing the amount of oxygen that can be carried to the body's organs and tissues. CO can cause health effects, especially to those with cardiovascular disease, and can affect mental alertness and vision (EPA 2015).
- **Nitric Oxide:** Nitric oxide is a colorless gas formed during combustion processes that rapidly oxidize to form NO_2, a brownish gas. The highest NO_2 values are generally measured in urbanized areas with heavy traffic. Exposure to NO_2 may increase the potential for respiratory infections in children and cause difficulty in breathing—even among healthy persons and especially among asthmatics (EPA 2015).
- **Sulfur Dioxide:** SO_2 is a colorless, reactive gas that is produced by burning sulfur-containing fuels, such as coal and oil, and by other industrial processes. Generally, the highest concentrations of SO_2 are found near large industrial sources. SO_2 is a respiratory irritant that can cause narrowing of the airways, leading to wheezing

[14] There are also ambient air quality standards for SO_2, Pb, sulfates, hydrogen sulfide, vinyl chloride, and visibility particulates. However, these pollutants are typically associated with industrial sources, which are not included as part of the project. Accordingly, they are not evaluated further.

[15] Most emission of NOx are in the form of NO (Reşitoğlu 2018). Conversion to NO_2 occurs in the atmosphere as pollutants disperse downwind. Accordingly, NO_2 is not considered a local pollutant of concern for the proposed project and is not evaluated further.

and shortness of breath. Long-term exposure to SO_2 can cause respiratory illness and aggravate existing cardiovascular disease (EPA 2015).

- **Particulate Matter:** Ambient air quality standards are set for PM_{10} and $PM_{2.5}$. Both consist of different types of particles suspended in the air, such as metal, soot, smoke, dust, and fine mineral particles. Depending on the source of particulates, toxicity and chemical activity can vary. Particulate matter is a health concern, because when inhaled, it can cause permanent damage to the lungs. The primary sources of PM_{10} emissions appear to be soil via roads, construction, agriculture, and natural windblown dust. Other sources of PM_{10} include sea salt, particulate matter released during combustion processes (such as those in gasoline or diesel vehicles), and wood burning. Fugitive emissions from construction sites, wood stoves, fireplaces, and diesel truck exhaust are primary sources of $PM_{2.5}$. Both sizes of particulates can be dangerous when inhaled; however, $PM_{2.5}$ tends to be more damaging because it remains in the lungs once inhaled (EPA 2015). DPM is a TAC that is released during the conduction of diesel fuels. According to CARB, 70 percent of the cancer risk in California caused by TAC is related to DPM. There is currently no identified threshold for exposure to DPM. Aside from being toxic, DPM exposure also is known to exacerbate asthma and allergy symptoms (CARB 2018a).

3.3.1.3 Criteria Air Pollutant Concentration Stations

Several monitoring stations measure criteria pollutant concentrations in Mendocino County and the NCAB. The Ukiah-E Gobbi Street and Ukiah-County Library stations (approximately 30 miles to the east) are the nearest stations to the proposed CLP, underground conduit system, and CLS. Pollutant concentrations monitored at these stations are considered representative of ambient air quality in the Project area. Available monitoring data collected at the Ukiah stations in the past 3 years (2015–2017) are presented in Table 3.3-1. As provided in Table 3.3-1, the stations have not experienced any violations of the ozone ambient air quality standards, but have exceeded the $PM_{2.5}$ NAAQS in 2 of the 3 monitoring years (CARB 2018a).

Table 3.3-1. Available Ambient Criteria Air Pollutant Monitoring Data (2015–2017)

Pollutant Standards	2015	2016	2017
Ozone (O_3) (E Gobbi Street)			
Maximum 1-hour concentration (ppm)	0.076	0.065	0.085
Maximum 8-hour concentration (ppm)	0.061	0.051	0.064
Number of days standard exceeded[1]			
CAAQS 1-hour standard (> 0.09 ppm)	0	0	0
CAAQS 8-hour standard (> 0.070 ppm)	0	0	0
NAAQS 8-hour standard (> 0.070 ppm)	0	0	0
Particulate Matter (PM2.5) (County Library)			
National[2] maximum 24-hour concentration ($\mu g/m^3$)	64.9	17.9	127.3
National[2] second-highest 24-hour concentration ($\mu g/m^3$)	59.2	17.9	48.3
State[3] maximum 24-hour concentration ($\mu g/m^3$)	64.9	17.9	127.3
State[3] second-highest 24-hour concentration ($\mu g/m^3$)	59.2	17.9	48.3
National annual average concentration ($\mu g/m^3$)	8.5	6.4	9.4
State annual average concentration ($\mu g/m^3$)[4]	*	6.4	9.4
Number of days standard exceeded[5]			
NAAQS 24-hour standard (> 35 $\mu g/m^3$)	3	0	6

Terms:
$\mu g/m^3$ = micrograms per cubic meter
* = data not available
CAAQS = California Ambient Air Quality Standards
NAAQS = National Ambient Air Quality Standards
ppm = parts per million

Notes:
[1] An exceedance is not necessarily a violation.
[2] National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.
[3] State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, state statistics are based on California-approved samplers.
[4] State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.
[5] Mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored. Values have been rounded.

Source: CARB 2019

3.3.1.4 Sensitive Receptors

Sensitive land uses are locations where human populations, especially children, seniors, and sick persons, are found and where there is reasonable expectation of continuous human exposure according to the averaging period for the air quality standards (i.e., 24-hour, 8-hour). Typical *sensitive receptors* are residences, hospitals, schools, and parks. Based on the Project footprint and National Agriculture Imagery Program (NAIP) imagery from the United States Department of Agriculture, there are no sensitive receptors within

1,000 feet of the CLP boundary (Figure 3.1-2). There are scattered residential land uses (approximately 68 homes) within 1,000 feet along the underground conduit system and near the CLS (Figure 3.1-2). Based on the project footprint and NAIP imagery, the closest residence to the Project site is approximately 50 feet from the underground conduit system along SR 1 and public roads leading to one of the three final CLS locations. Manchester State Park is west of the underground conduit system from Ranch Road to the CLS. Manchester Elementary School is approximately 175 feet west of the underground conduit system. The closest sensitive receptors to the CLS locations are as follows (Figure 3.1-2):

- AT&T CLS is approximately 3,700 feet west of a residence
- Private CLS is approximately 200 feet north of a residence
- Level3 CLS is approximately 35 feet south of a residence

3.3.2 Regulatory Setting

The federal Clean Air Act (CAA) of 1969 and its subsequent amendments form the basis for the nation's air pollution control effort. The EPA is responsible for implementing most aspects of the CAA. A key element of the CAA is the NAAQS for criteria pollutants. The CAA delegates enforcement of the NAAQS to the states. In California, CARB is responsible for enforcing air pollution regulations and implementing the California Clean Air Act, which requires attainment of the CAAQS by the earliest practical date. Refer to Appendix A for additional detail on relevant federal and state air quality laws and regulations.

The EPA and CARB use ambient air quality monitoring data to determine whether geographic areas achieve the NAAQS and CAAQS, which are listed in Appendix A. Areas with pollutant concentrations within the standard are designated as attainment areas, whereas areas that do not meet the standard are designated as nonattainment or maintenance areas. For regions that do not attain the NAAQS, the CAA requires preparation of a State Implementation Plan. Mendocino County is currently designated as attainment (pollutant concentrations are below the ambient air quality standards) for all criteria pollutants under the NAAQS and all pollutants except PM_{10} under the CAAQS (EPA 2018a; CARB 2017). The County is designated as nonattainment (pollutant concentrations are above the ambient air quality standards) for the State PM_{10} standard.

CARB delegates to local air agencies the responsibility of overseeing stationary-source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality–related sections of environmental documents required by CEQA.

The Mendocino County Air Quality Management District (District or MCAQMD) has air quality jurisdiction within Mendocino County. The District adopted the *Particulate Matter Attainment Plan* in January 2005 to outline recommended control measures to reduce future PM levels (MCAQMD 2005). The District also has established local air quality rules and regulations that address the requirements of federal and state air quality laws to ensure that NAAQS and CAAQS are met. The Project would be subject to District rules and regulations. Construction activities would require an Authority to Construct pursuant to Rule 1-200 prior to groundbreaking (or any disturbances to the vegetation).

The District (2010, 2013) recommends that the construction significance thresholds adopted by the Bay Area Air Quality Management District (BAAQMD) be used in CEQA documents. The District also has adopted separate thresholds to evaluate operational emissions. Table 3.3-2 presents the recommended construction and operational thresholds. These thresholds consider existing air quality concentrations and attainment or nonattainment designations under the NAAQS and CAAQS. The NAAQS and CAAQS are informed by a wide range of scientific evidence that demonstrates there are known safe concentrations of criteria pollutants. While recognizing that air quality is cumulative problem, the District considers projects that generate criteria pollutant and ozone precursor emissions below these thresholds to be minor in nature and would not adversely affect air quality such that the NAAQS or CAAQS would be exceeded.

Table 3.3-2. Mendocino County Air Quality Management District Thresholds of Significance

Phase	ROG	NO_X	CO	PM_{10}			$PM_{2.5}$			SO_2
				Exhaust	Dust	Total	Exhaust	Dust	Total	
Construction (pounds per day)	54	54	–	82	–	–	54	–	–	–
Operations										–
Non-stationary (e.g., vehicle trips) (pounds per day except for CO)	180	42	125[1]	–	–	82	–	–	54	–
Stationary (e.g., generators) (tons per year)	40	40	125	–	–	15	–	–	10	–

Terms:
CO = carbon monoxide
NO_X = nitrogen oxides
PM_{10} = particulate matter with a diameter of 10 microns or less
$PM_{2.5}$ = particulate matter with a diameter of 2.5 microns or less; SO_2 = sulfur dioxide
ROG = reactive organic gases
Note:
[1] Threshold is listed in tons per year instead of being pounds per day like the rest of the values in that column
Sources: MCAQMD 2010, 2013

Construction of the proposed Project would require both terrestrial (e.g., conduit installation) and marine activities. This analysis evaluates emissions within State waters (i.e., up to 3 nm from shore) consistent with the regulatory authority of CSLC under CEQA and the jurisdiction of the District. For informational purposes, Appendix B presents the methodology used for the air quality evaluation and its results. It also presents criteria pollutant emissions within 24 nautical miles (nm). This expanded analysis has been prepared to support the analysis of greenhouse gas (GHG) emissions (Section 3.9), within 24 nm for consistency with the State's GHG emissions inventory and reduction planning goals.

3.3.3 Impact Analysis

a) Conflict with or obstruct implementation of the applicable air quality plan?

Less than Significant Impact. The proposed Project would generate criteria pollutants primarily from diesel-powered marine vessels, off-road equipment, and on-road vehicles during construction. Because Mendocino County is in attainment (pollutant concentrations are below the ambient air quality standards) for all NAAQS, there is no applicable State Implementation Plan. As described above, the District has adopted a PM attainment plan that outlines recommended control measures to reduce future PM levels and attain the state PM_{10} standard (MCAQMD 2005).

A project may be inconsistent with air quality plans if it would result in population or employment growth that exceeds estimates used to develop the emissions inventories for the plans. As discussed in Section 3.12, *Land Use and Planning*, and Section 3.15, *Population and Housing*, the proposed Project would not change current land use or zoning designations and would not induce growth or significantly increase employment in the area. Therefore, the Project would be consistent with regional growth and labor projections. While construction and operations activities would generate PM_{10} emissions (discussed below), those emissions would not exceed the District's significance threshold. The Project also would require contractors to comply with District Rule 1-430, which mandates fugitive dust control measures during grading activities, consistent with the *Particulate Matter Attainment Plan* (MCAQMD 2005). Therefore, neither construction nor operation of the proposed Project would conflict with or obstruct implementation of the current District air quality plan. This impact would be less than significant. This impact would be less than significant.

3.3.3.1 Construction

Less than Significant Impact. Terrestrial activities would generate criteria pollutant emissions from off-road equipment (e.g., backhoes) and vehicles used for employee commuting and hauling. Earthmoving (e.g., grading) and paving also would generate fugitive dust and ROG, respectively, and marine vessels operating within 3 nm offshore would generate emissions.

The criteria pollutant emissions were estimated for each of the four construction phases (Figure 1-2 and Table 2-1).[16] Construction-related criteria pollutant impacts are based on the proposed Project's average daily emissions compared to the District's adopted emission thresholds. Table 3.3-3 summarizes the results of the analysis. Phase 1 would result in the highest average daily emissions of all four phases because it would involve all terrestrial conduit installation. There would be no overlap among the phases (i.e., construction of the four phases would occur sequentially). Refer to Appendix B for detailed information on the modeling methods. Tables 1 through 19 in Appendix B present the schedule and equipment inventories assumed in the modeling.

As provided in Table 3.3-2, construction-generated emissions would not exceed the District's thresholds of significance. Accordingly, these emissions would not be expected to contribute a significant level of air pollution such that regional air quality within the NCAB would be degraded. Therefore, this impact would be less than significant.

Table 3.3-3. Estimated Average Daily Construction Emissions (pounds per day)

Phase	ROG	NO_X	CO	PM_{10}			$PM_{2.5}$			SO_2
				Exhaust	Dust	Total	Exhaust	Dust	Total	
Phase 1	3	33	14	1	2	3	1	<1	1	1
Phase 2	1	16	3	<1	<1	1	<1	<1	<1	1
Phase 3	1	15	2	<1	<1	1	<1	<1	<1	1
Phase 4	1	15	2	<1	<1	1	<1	<1	<1	1
Threshold	*54*	*54*	–	*82*	–	–	*54*	–	–	–

Terms:
CO = carbon monoxide
NO_X = nitrogen oxides
PM_{10} = particulate matter with a diameter of 10 microns or less
$PM_{2.5}$ = particulate matter with a diameter of 2.5 microns or less
ROG = reactive organic gases
SO_2 = sulfur dioxide
Note:
Emissions are averaged over calendar days, consistent with District guidance for multi-year construction projects.

[16] Construction is likely to begin in 2020, however the emissions analysis assumed a 2019 start date. Emission factors for offroad equipment and onroad vehicles decline over time due to implementation of increasingly stringent emissions standards and retirement of older, more emissions intensive engines. Accordingly, the emissions presented in Table 3.3-2, which assume a 2019 construction start are conservative for the proposed project.

3.3.3.2 Operations

Less than Significant Impact. The Project's normal operation would consist of monthly inspections, requiring one vehicle trip, and testing of two standby diesel-fueled emergency generators. If a marine cable requires repair, marine vessels may be used within State waters. Such an event is not expected and relates to an emergency condition. Therefore, it is not considered as part of normal operations and emissions for the District's thresholds. Average daily criteria pollutant emissions from monthly inspections and generator testing were quantified using the methods described in Appendix B. Table 3.3-4 summarizes the results of the analysis and compares operational emissions to the District's operational thresholds.

Operational emissions would be well below the District's thresholds. Accordingly, these emissions would not be expected to contribute a significant level of air pollution such that regional air quality within the NCAB would be degraded. This impact would be less than significant.

Table 3.3-4. Estimated Operational Emissions

Source[1]	ROG	NOx	CO	PM_{10}			$PM_{2.5}$			SO_2
				Exhaust	Dust	Total	Exhaust	Dust	Total	
Vehicle trips (pounds per day)[2]	<0.1	<0.1	<0.1[3]	<0.1	0.2	0.2	<0.1	<0.1	<0.1	<0.1
Threshold	*180*	*42*	*125*	–	–	*82*	–	–	*54*	–
Generators (tons per year)	0.1	0.6	0.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Threshold	*40*	*40*	*125*	–	–	*15*	–	–	*10*	–

Terms:
CO = carbon monoxide
NO_X = nitrogen oxides
PM_{10} = particulate matter with a diameter of 10 microns or less
$PM_{2.5}$ = particulate matter with a diameter of 2.5 microns or less
ROG = reactive organic gases
SO_2 = sulfur dioxide
Notes:
[1] The District (2010) recommends different allowable emissions thresholds for indirect (e.g., mobile vehicle trips) and stationary sources (e.g., generators). Therefore, emissions from the vehicle trips and generator are presented separately for comparison to the applicable District thresholds.
[2] Emissions are averaged over 12 working days per year.
[3] Emissions are reported in tons per year for comparison to the District's threshold of 125 tons per year.

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?

Less than Significant Impact. No single project is sufficient in size to result in regional nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. The BAAQMD's (2017) air quality guidelines, which are recommended by the District (MCAQMD 2010, 2013), acknowledge that, if a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts on the region's existing air quality conditions.

As mentioned under Impact b), neither construction-related nor operational emissions would exceed the District's thresholds. Therefore, Project emissions would not be cumulatively considerable.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact. All criteria pollutants are associated with some form of health risk (e.g., asthma, asphyxiation). The NAAQS and CAAQS are health-protective standards that define the maximum amount of ambient pollution that can be present without harming public health. The District has adopted thresholds for construction and operational criteria pollutant emissions to determine whether increased emissions from a proposed project will cause or contribute to a violation of the NAAQS or CAAQS. The District thresholds for criteria pollutants are provided in Table 3.3-2. Projects with emissions below the thresholds are not anticipated to contribute to violations of the NAAQS or CAAQS, and thus meet the EPA and CARB health-protective standards.

As provided in Tables 3.3-3 and 3.3-4, respectively, neither construction nor operation of the Project would exceed the District's criteria pollutant thresholds for violations of the health-protective CAAQS and NAAQS, and impacts would be less than significant.

Note that negative health effects associated with criteria pollutant emissions are highly dependent on a multitude of interconnected variables (e.g., cumulative concentrations, local meteorology and atmospheric conditions, and the number and character of exposed individuals [e.g., age, gender]). In particular, ozone can be formed through complex chemical reactions over long distances. In addition, directly-emitted PM does not always equate to a specific localized impact because emissions can be transported and dispersed. Given the factors that influence the formation and transportation of pollution, quantifying the specific health consequences from the Project's emissions is not feasible because the models designed to evaluate future ozone and PM levels and resulting health effects are based on regional or national conditions. In other words, the minor increases in regional air pollution from construction and operation of the Project would not result in material changes to regional ambient air quality or human health. Consequently, an analysis correlating the relatively minor regional emissions generated by the Project with specific levels of health impacts would not yield reliable or accurate results and therefore was not conducted. The following analysis focuses on localized concentrations of DPM and CO that would be generated by the proposed Project, consistent with District guidance (MCAQMD 2010, 2013).

3.3.3.3 Diesel Particulate Matter

Terrestrial construction would generate short-term diesel exhaust emissions from use of heavy-duty equipment and vehicles. Monthly testing of the emergency generators during routine operation also would generate DPM. In 1998, CARB identified particulate exhaust emissions from diesel-fueled engines (DPM) containment. As noted above, the District recommends use of the BAAQMD thresholds for CEQA analyses (MCAQMD 2010, 20130. The BAAQMD (2017) typically recommends CEQA analyses to consider exposure to toxic air contaminants if the source and receptor are close to each other (i.e., 1,000 feet or less). Although no receptors are within 1,000 feet of the CLP, single-family homes (approximately 68 homes) are within 1,000 feet of the underground conduit system and near the potential CLSs (Figures 2-1 and 3.1-2). As noted above, the closest residence to the Project underground conduit system is approximately 50 feet.

Emissions generated during terrestrial construction installation would be temporary (approximately 84 working days) and spread along the underground conduit system. Most activity would occur during Phase 1 because that is when the initial support facilities would be built (Section 2.2) (refer to Table 1 in Appendix B, Phase 1-5). Emergency generator testing during operation would occur for approximately 12 hours per year at one of the three CLSs (Figure 2-1) analyzed in this MND. Consequently, individual receptors would not be exposed to elevated levels of DPM for an extended period. Even though the daily exposure levels from construction would be below the thresholds for this area, the health risks associated with DPM generally are associated with chronic exposure and are assessed over a 30-year exposure period. Therefore, the DPM emissions from construction and operation would have a limited potential to affect sensitive receptors, and the Project would result in a less than significant impact on nearby sensitive receptors.

3.3.3.4 Carbon Monoxide Hot-Spots

Carbon monoxide is a public health concern because it can cause health problems such as fatigue, headache, confusion, dizziness, and even death. Elevated levels of CO concentrations are typically found at heavily congested intersections where a substantial number of gasoline-powered vehicles idle for prolonged durations throughout the day. Construction sites are less likely to result in localized CO hot-spots due to the nature of construction activities, which normally use diesel-powered equipment for intermittent or short durations. Moreover, construction sites must comply with the Occupational Safety and Health Administration's CO exposure standards for onsite workers.

The BAAQMD's (2017) current CEQA guidelines outline a set of preliminary screening criteria that can be used to determine whether a project's vehicle traffic would cause or contribute to CO concentrations that exceed the CAAQS (e.g., 24,000 vehicles per hour). As discussed in Section 3.18, *Transportation*, the Project would generate minimal traffic during construction and negligible traffic (12 inspection trips per year) during operations. Therefore, the Project would not violate the BAAQMD's CO screening criteria, which are currently recommended by that District (2010, 2013). Therefore, implementation of Project would not result in CO concentrations in excess of the health protective CAAQS or NAAQS, and as such, would not expose sensitive receptors significant pollutant concentrations or health effects. This impact would be less than significant.

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

Less than Significant Impact. Odors can be unpleasant, leading to citizen complaints to local governments and air districts. Diesel-powered equipment used during terrestrial construction would generate odors that are evident in the immediate surrounding area (Figure 3.1-2). However, these odors would be intermittent and temporary because they would happen for approximately 5 to 7 days for each phase during terrestrial cable pulling (see Table 1 in Appendix B). Therefore, these activities would not result in nuisance odors. The Project does not meet any of the facility types identified by the CARB (2005) meeting these criteria. Consequently, the proposed Project would not create objectionable odors affecting a substantial number of people. This impact would be less than significant.

3.3.4 Mitigation Summary

The Project would not have significant impacts on air quality; therefore, no mitigation is required.

3.4 BIOLOGICAL RESOURCES

BIOLOGICAL RESOURCES - Would the Project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service, or that is a species of interest to the State Lands Commission or the California Coastal Commission; or cause a marine wildlife population to drop below self-sustaining levels?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, State Lands Commission, or California Coastal Commission?	☐	☒	☐	☐
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 (including essential fish habitat)?	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

3.4.1 Environmental Setting

This section describes the ecological conditions in the terrestrial and marine biological study areas (BSAs). The terrestrial BSA extends along approximately 3 miles of the SR 1 ROW; encompasses a private parcel where the CLP, LMH, and access road would be constructed; and extends along Kinney Road, where one possible location for the CLS is located, and to two other possible locations for the CLS (Figure 1-1). The BSA encompasses the areas to be disturbed to construct the onshore (terrestrial) Project components and some additional areas that were surveyed and assessed for potential indirect Project impacts.

The marine study area (MSA) extends to the 5,904-foot depth contour from the mean high tide mark and comprises coastal water, intertidal, and subtidal habitats occurring immediately offshore of the proposed CLP. It also extends approximately 1,650 feet upcoast and downcoast of the four proposed fiber optic cable routes.

The BSA is illustrated in Figure 3.4-1, and the MSA is illustrated in Figure 3.4-2. Habitat types found within the BSA are mapped in Appendix C1.

3.4.1.1 Terrestrial Biological Resources

This section describes the terrestrial and onshore regional ecological conditions, habitats, and biological resources of the BSA. The *Terrestrial Biological Resources Technical Report* (Appendix C2) provides detailed information on the terrestrial BSA, surveys conducted within the terrestrial BSA, and sensitive terrestrial biological resources. Additionally, an *Aquatic Resources Delineation Report* (Appendix C3) was prepared, summarizing the methods and results of the delineation of aquatic resources. Together, these technical reports provide the basis for the summary of biological resources presented here.

Terrestrial Regional Setting

The Project is in Manchester, California, approximately 35 miles south of Fort Bragg and 5 miles north of Point Arena in the southern portion of Mendocino County. The Project parallels SR 1 for approximately 5 miles, approximately 1,600 to 7,200 feet east of the shoreline. Annual average temperatures range from 44 to 60 degrees Fahrenheit (°F), with the coolest temperatures occurring in December and January, and the warmest in July and August. Average annual rainfall in the Project vicinity is 40 inches, most of which falls between December and March.

Figure 3.4-1. Terrestrial Biological Study Area

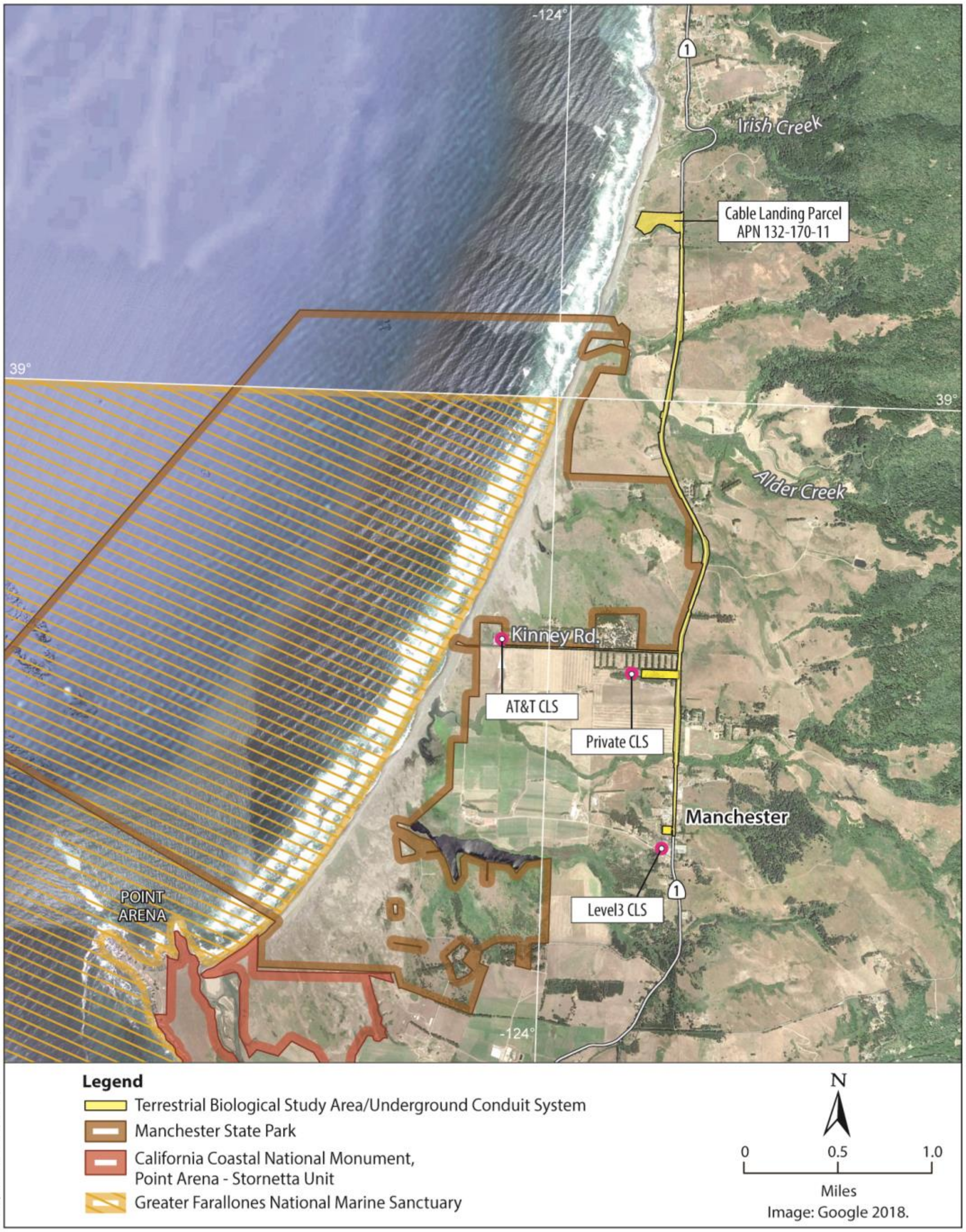
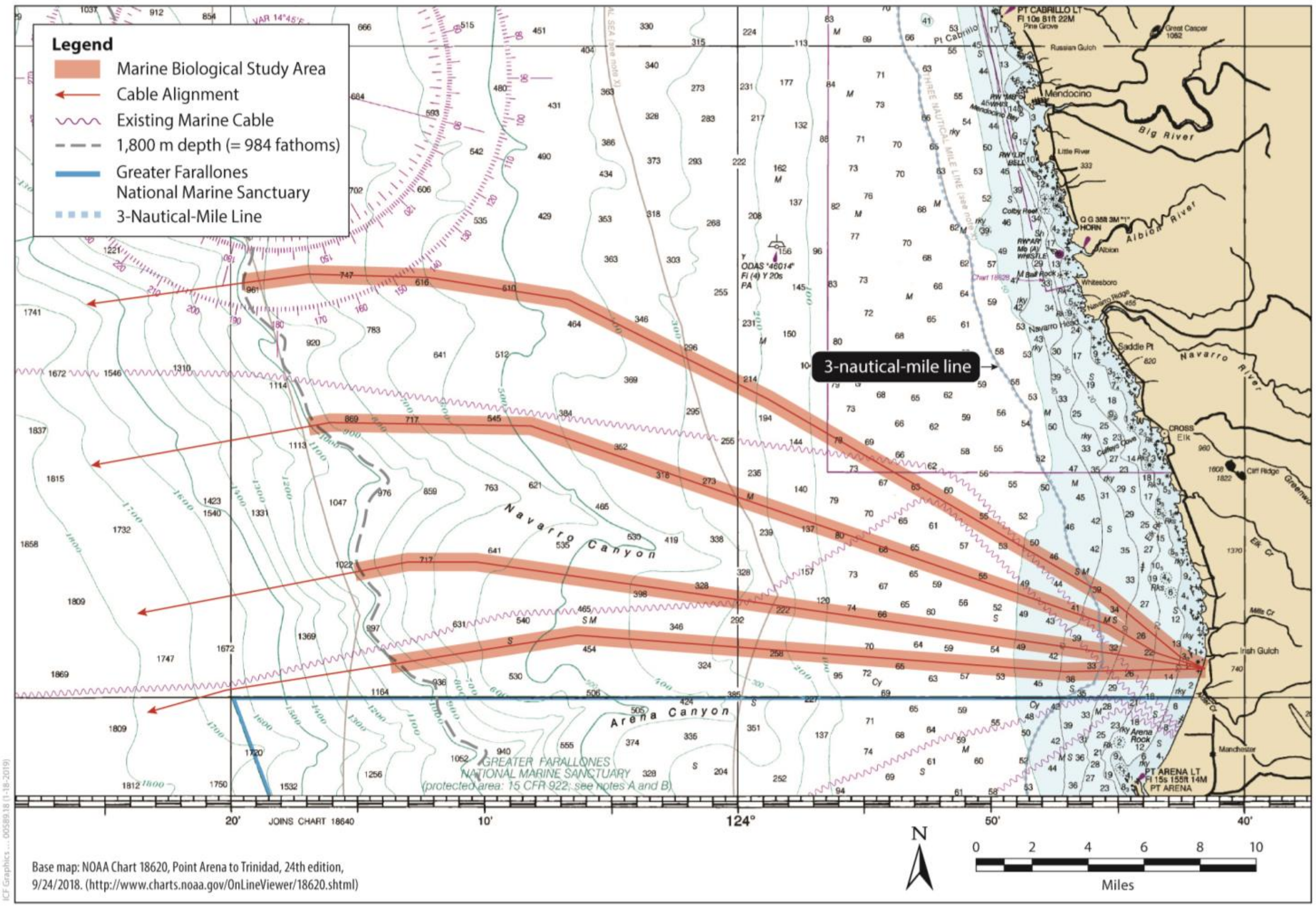


Figure 3.4-2. Marine Biological Study Area



The Project area is within the North Coast Geographic Subdivision of the California Floristic Province (Baldwin et al. 2012). The area's climate is characterized by cool, wet winters and dry, foggy summers. Land cover in the region includes small coastal towns, agricultural land, and open space supporting natural habitats. Natural habitats representative of the North Coast include coastal prairies, coastal marshes, and a blend of hardwood and coniferous forests (Baldwin et al. 2012).

The Project area crosses six creeks that support riparian habitat (Appendix C1). Two creeks, Alder Creek and Brush Creek, are in the northern and southern portions of the BSA, respectively; both support mature riparian habitat. The other four creeks are unnamed and are either tributaries of the two named creeks or flow directly to the Pacific Ocean.

Land Cover and Habitat Types

With cool, wet winters and mild, foggy summers, the BSA's dominant vegetation communities are grasslands, coastal scrub, and riparian forest (Appendix C1). These communities support diverse plant assemblages of herbaceous species, woody shrubs, and trees. The BSA includes six stream crossings, and seasonal wetlands are distributed along the alignment of the terrestrial underground conduit system (i.e., SR 1). Wildlife species that occur in the BSA include birds, amphibians, fish, invertebrates, and small- and medium-sized mammals.

The land cover types in the BSA can broadly be divided into three categories: woody vegetation, herbaceous vegetation, and types that lack vegetation. These categories have been further defined by dominant vegetation as described by the California Wildlife Habitat Relationship System (CWHR) (Mayer and Laudenslayer 1988). CWHR habitat types present in the BSA are closed-cone pine-cypress, valley foothill riparian, coastal scrub, wet meadow, and nonnative and perennial grasslands (Table 3.4-1 and Appendix C1).

The land cover types also are defined as vegetation alliances (CNPS 2019), which similarly reflect dominant plant species present as well as their sensitivity; rarity; and the level of threat posed by development, grazing, mining, or other variables (CDFW 2018a).

Table 3.4-1. Habitat Types/Vegetation Alliances in the Biological Study Area

CWHR Habitat Types[1]	Habitat Type Acreage/ Linear Feet	Vegetation Alliances[2]	CDFW Sensitive Alliance[3]
Woody Vegetation			
Closed-cone pine-cypress	3.60 acres	Monterey cypress stands (*Hesperocyparis macrocarpa)*	No[4]
		Monterey pine forest (*Pinus radiata*)	No[4]
Valley foothill riparian	5.78 acres	Red alder forest (*Alnus rubra* alliance)	No
		Coastal dune willow thickets (*Salix hookeriana*)	Yes
		Sitka willow thickets (*Salix sitchensis*)	Yes
		Shining willow grove (*Salix [lucida] lasiandra* var. *lasiandra*)	Yes
		Scouler willow thicket proposed[5] alliance (*Salix scouleriana*)	Not an alliance
		Arroyo willow thicket (*Salix lasiolepis)*	Yes[6]
Coastal scrub	15.33 acres	Coyote brush scrub (*Baccharis pilularis*)	No
		Coastal brambles (*Rubus ursinus*)	Yes[7]
		Poison-oak scrub (*Toxicodendron diversilobum*)	No
		Himalayan blackberry scrub (*Rubus armeniacus*)	No
Herbaceous			
Wet meadow	0.66 acre	Slough sedge swards (*Carex obnupta*)	Yes
		Water-parsley marsh (*Oenanthe sarmentosa*)	Yes
		Soft rush marsh (*Juncus effusus*)	No
		Pacific reed grass meadow (*Calamagrostis nutkaensis*)	Yes
		Common monkey flower seep (*Erythranthe guttata*)	No[8]
		Small-fruited bulrush marsh (*Scirpus microcarpus*)	No[8]
Perennial grasslands	8.48 acres	Common velvet grass—sweet vernal grass meadows (*Holcus lanatus—Anthoxanthum odoratum*)	No
Nonnative annual grasslands	9.60 acres	N/A	No

Table 3.4-1. Habitat Types/Vegetation Alliances in the Biological Study Area

CWHR Habitat Types[1]	Habitat Type Acreage/ Linear Feet	Vegetation Alliances[2]	CDFW Sensitive Alliance[3]
Other Land Cover Types			
Riverine	0.46 acre[9]	N/A	N/A
Urban	16.41 acres	N/A	N/A

Terms:
CDFW = California Department of Fish and Wildlife
CWHR = California Wildlife Habitat Relationship System
Notes:
[1] California Wildlife Habitat Relationships System (Mayer and Laudenslayer 1988).
[2] CNPS 2019.
[3] California Sensitive Natural Communities (CDFW 2018a).
[4] While Monterey cypress stands and Monterey pine forests are both sensitive natural communities (CDFW 2018a), the Monterey cypresses and Monterey pines in the biological study area (BSA) were planted outside their native range (Baldwin et al. 2012), and the communities are not considered sensitive.
[5] *Salix scouleriana* is not classified as an alliance (CNPS 2019) but functions as one in the BSA.
[6] While arroyo willow thickets are a sensitive natural community (CDFW 2018a), one patch in the town of Manchester is not considered sensitive because it is discontinuous with natural habitat and degraded from urban sprawl.
[7] While coastal brambles are as a sensitive natural community (CDFW 2018a), some of the patches were not considered sensitive because of the annual disturbance experienced from vegetation maintenance activities conducted by the California Department of Transportation.
[8] While the vegetation alliance is technically a sensitive natural community (CDFW 2018a), it was not considered sensitive because of its small size and the annual disturbance experienced from vegetation maintenance activities conducted by the California Department of Transportation.
[9] Reported acreages include culverted waters.

Closed-Cone Pine-Cypress

Closed-cone pine-cypress occurs in small patches and linear strips along the SR 1 ROW, private driveways adjacent to the ROW, and Kinney Road. Closed-cone pine-cypress stands are dominated by Monterey cypress (*Hesperocyparis macrocarpa*) and support the following species: Monterey pine (*Pinus radiata*), blue gum eucalyptus (*Eucalyptus globulus*), and Douglas-fir (*Pseudotsuga menziesii*). Monterey cypress and Monterey pine have been widely planted outside their native range of the Monterey Peninsula (Baldwin et al. 2012). The understory of closed-cone pine-cypress stands contains minimal herbaceous understory with scattered woody shrubs, primarily blackberry species (*Rubus armeniacus* and *R. ursinus*) and twinberry honeysuckle (*Lonicera involucrata* var. *ledebourii*).

Closed-cone cypress stands provide both nesting and foraging habitat for a variety of bird species that include great horned owl (*Bubo virginianus*), barn owl (*Tyto alba*), red-tailed hawk (*Buteo jamaicensis*), and band-tailed pigeon (*Patagioenas fascianta*) (Mayer and Laudenslayer 1988). Mammals that may occur include deer mouse (*Peromyscus* *maniculatus*), dusky-footed woodrat (*Neotoma fuscipes*), western gray squirrel (*Sciurus griseus)*, long-tailed weasel (*Mustela frenata*), and raccoon (*Procyon lotor*).

Valley Foothill Riparian

Riparian communities in the BSA are most closely associated with the valley foothill riparian habitat type described in the CWHR (Mayer and Laudenslayer 1988). This habitat type is found along the six streams that cross the BSA (Appendix C1). This habitat type is dominated by willow (*Salix* sp.) and alder (*Alnus* sp.). With a closed canopy, the understory is limited to herbs, ferns and, in some areas, dense patches of blackberry (*Rubus* spp.).

Valley foothill riparian habitat is a diverse assemblage of plant species that provides foraging, nesting, and travel corridors for a variety of wildlife species, such as striped skunk (*Mephitis mephitis*), ringtail (*Bassariscus astutu*s), raccoon, gray fox (*Urocyon cinereoargenteus*), neotropical migrant and resident bird species, and a suite of amphibian and reptile species (Mayer and Laudenslayer 1988).

Coastal Scrub

Coastal scrub is common throughout the Project area, growing along the coastal bluffs and in small patches in the BSA. Coastal bluff scrub is composed of dense patches or stands of coyote brush (*Baccharis pilularis*), poison-oak (*Toxicodendron diversilobum),* and Pacific blackberry (*Rubus ursinus*). Other common woody shrubs include coffeeberry (*Rhamnus californica* ssp*. californica*) and Carmel ceanothus (*Ceanothus thyrsiflorus* var*. griseus*). Common herbaceous species include bracken fern (*Pteridium aquilinum*), sword fern (*Polystichum munitum*), coastal gumweed (*Grindelia stricta* var. *stricta*), and long-beaked filaree (*Erodium botrys*).

Coastal scrub provides habitat for a variety of fossorial mammals (e.g., Botta's pocket gopher [*Thomomys bottae*], coyote [*Canus latrans*], and black-tailed jackrabbit [*Lepus californicus*]). Bird species include California quail (*Callipepla californica*), western scrub-jay (*Aphelocoma californica*), common raven (*Corvus corax*), California gnatcatcher (*Polioptila californica*), song sparrow (*Melospiza melodia*), wrentit (*Chamaea fasciata*), and white-crowned sparrow (*Zonotrichia leucophyrys*). Reptiles common to this habitat type are western fence lizard (*Sceloporus occidentalis*) and gopher snake (*Pituophis catenifer*).

Wet Meadow

Wet meadows are seasonally inundated habitats that are present at the CLP and in roadside drainage ditches along SR 1. Species common to wet meadow habitat in the BSA are slough sedge (*Carex obnupta*)*,* common velvet grass, (*Holcus lanatus),* sweet vernal grass *(Anthoxanthum odoratum*), water-parsley (*Oenanthe sarmentosa*), small-fruit bulrush marsh (*Scirpus microcarpus*), common rush (*Juncus patens*), and dogtail grass (*Cynosurus echinatus*).

This is a diverse habitat type that supports various mammal, reptile, and amphibian species. Bird species that commonly nest and forage in wet meadows with sufficient cover are waterfowl, shorebirds, red-winged blackbird (*Agelaius phoeniceus*), great blue heron (*Ardea herodias*), song sparrow, great egret (*Ardea alba*), and northern harrier (*Circus cyaneus*).

Grasslands

Perennial and nonnative annual grasslands are present in the BSA. Perennial grasslands are the dominant vegetation type on the CLP. Nonnative annual grasslands are the dominant herbaceous vegetation type along the SR 1 ROW, infrequently intergrading into small patches of perennial grassland; the grassland in the ROW functions—and was accordingly mapped—as nonnative annual grassland. Perennial grasslands in the BSA reflect the common velvet grass–sweet vernal grass meadows vegetation alliance (CNPS 2019), which is dominated by velvet grass and sweet vernal grass. Common in road shoulders and disturbed areas, nonnative annual grasslands are dominated by rattlesnake grass (*Briza maxima*), soft chess (*Bromus hordeaceus*), slender wild oats (*Avena barbata*), and ripgut brome (*Bromus diandrus*).

Reptiles common to annual and perennial grasslands include western fence lizard, common garter snake (*Thamnophis sirtalis*), terrestrial garter snake (*Thamnophis elegans*), and western rattlesnake (*Crotalus oreganus*) Mayer and Laudenslayer 1988). Mammals associated with annual and perennial grasslands include black-tailed jackrabbit, California ground squirrel (*Ostospermophilus beecheyi*), Botta's pocket gopher, western harvest mouse (*Reithrodontomys megalotis*), California vole (*Microtus californicus*), coyote, black-tailed deer (*Odocoileus hemionus*), and red fox (*Vulpes vulpes*) (Mayer and Laudenslayer 1988). Birds common to grassland habitat are horned lark (*Eremophila alpestris*), mourning dove (*Zenaida macroura*), western kingbird (*Tyrannus verticalis*), western bluebird (*Sialia mexicana*), western meadowlark (*Sturnella neglecta*), turkey vulture (*Cathartes aura*), northern harrier, red-tailed hawk, American kestrel (*Falco sparverius*), and white-tailed kite (*Elanus leucurus*) (Mayer and Laudenslayer 1988).

Riverine

The riverine habitat type consists of perennial streams, intermittent streams, ephemeral streams, roadside ditches, and culverts. Six primary waterbodies that intersect the BSA consist of Alder Creek, Brush Creek and Unnamed Streams 1 through 4 (Figure 3.4.1). Alder and Brush Creeks are perennial streams that intersect the BSA and flow directly to the Pacific Ocean. The four unnamed creeks are either tributaries of the perennial creeks or flow directly to the Pacific Ocean. The extent of riverine habitat is contained between the ordinary high-water marks on both sides of each stream. These creeks are primarily low gradient and composed of gravel, small cobble, and fine material. Alder Creek is a third-order stream that drains a watershed of approximately 29 square miles. Elevation ranges from 2,600 feet to sea level. The watershed is dominated by mixed coniferous forest and is managed for timber production. Alder Creek at SR 1 is a low-gradient stream that meanders with point-bar, riffle-pool alluvial channels and has a broad well-defined floodplain. Its substrates are dominated by gravel and small cobble. Riparian density in the Project area is roughly 36 percent, consisting mostly of deciduous trees that include Pacific/shining willow, Sitka willow, and alder; conifers make up about 5 percent of the canopy.

Alder Creek has an average width of 27 feet and is on average 2 feet deep. Baseline flow in summer is about 5 cubic feet per second. Water temperature at baseline flow ranges from 54 to 66°F. Stream banks are composed primarily of sand/silt/clay, bedrock, and cobble/gravel. Both right and left banks are about 70 percent vegetated. The unnamed tributary of Alder Creek (Unnamed Stream 2) that SR 1 crosses north of Alder Creek has heavier riparian cover and is steeper. The creek has not been surveyed, but it was assumed that conditions are similar to those in Alder Creek.

Brush Creek is a third-order stream that drains a watershed of approximately 15 square miles. Elevation ranges from 2,300 feet to sea level. The watershed is dominated by mixed coniferous forest and is managed for timber production and rangeland. Brush Creek at SR 1 is a low-gradient, entrenched, meandering stream with a gravel-dominated substrate interspersed with small cobbles. Riparian density in the Project area is roughly 86 percent, consisting mostly of deciduous trees—Pacific/shining willow, Sitka willow, and red alder. Conifers make up about 16 percent of the canopy. Brush Creek has an average width of 19 feet and an average depth of 2 feet. Baseline flow in summer is about 4 cubic feet per second. Water temperature at baseline flow ranges from 52 to 62°F. Stream banks are composed primarily of and cobble and gravel. Both right and left banks are about 81 percent vegetated.

Riverine habitat supports a variety of fish species. CDFG (2003, 2005) found three-spined stickleback (*Gasterosteus aculeatus*), Coast Range sculpin (*Cottus aleuticus*), Pacific lamprey (*Entosphenus tridentatus*), and northern California coastal steelhead (*Oncorhynchus mykiss*) in both Brush and Alder Creeks. This habitat type also provides foraging habitat for a suite of bird species, such as belted kingfisher (*Megaceryle alcyon*), great blue heron, flycatchers (*Empidonax* spp.), tree swallow (*Tachycineta bicolor*), cliff swallow (*Petrochelidon pyrrhonata*), waterfowl, and shorebirds. Mammals that use riverine habitat are river otter (*Lontra canadensis*) and mink (*Mustela vison*).

Urban

The urban habitat type is composed of artificial structures (e.g., buildings and roads) and primarily supports ruderal and ornamental vegetation. Species common to this habitat type are house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), scrub-jay, mockingbird (*Mimus polyglottos*), raccoon, house mouse (*Mus musculus*), and black rat (*Rattus rattus*).

<u>Terrestrial Special-Status Species</u>

ICF's biological team consisted of wildlife and fisheries biologists, wetland ecologists, and botanists. Biological surveys consisted of visually scanning the BSA for suitable habitat where special-status species could occur. Meandering transects were conducted in suitable habitat where access allowed. The BSA consisted of the CLP, the SR 1 ROW, the shoulder of Kinney Road, the AT&T CLS, and the Level3 CLS (including the private driveway accessing it) (Figure 1-1).

Special-status species are plants and animals that are legally protected under the federal Endangered Species Act (FESA), California Endangered Species Act (CESA), or other regulations and species that are considered sufficiently rare by the scientific community to qualify for such listing. Special-status species are defined as follows:

- Species that are listed or proposed for listing as threatened or endangered under FESA (50 Code of Federal Regulations [CFR] 17.11 [listed animals], 50 CFR 17.12 [listed plants]. and various notices in the Federal Register [FR])
- Species that are candidates for possible future listing as threatened or endangered under FESA (81 FR 87246 87272, December 2, 2016)
- Species that are listed or proposed for listing by the State of California as threatened or endangered under CESA (14 California Code of Regulations [CCR] 670.5)
- Animals listed as California species of special-concern on CDFW's Special Animals List (CDFW 2018b)
- Plants listed as rare under the California Native Plant Protection Act (CNPPA) (Fish and Game Code 1900 et seq.)
- Plants with a California Rare Plant Rank (CRPR) of 1A, 1B, 2A, and 2B (CDFW 2018c), and that are considered threatened or endangered in California by the scientific community
- Plants designated as CRPR 3 and 4 and that may warrant legal consideration if the population is locally significant and meets the criteria under State CEQA Guidelines section 15380(d)

Biologists reviewed existing natural resource information to evaluate which special-status species or other sensitive biological resources could occur in the BSA. The query assessed all special-status species known to occur within 3 miles of the BSA. The 3-mile buffer was selected in preference of a nine-quad or 5-mile search radius because of the extensive biological diversity of the region not reflected in the BSA. The sources listed below were reviewed:

- California Natural Diversity Database (CNDDB) records search of a 3-mile area around the Project limits (CDFW 2018d)
- USFWS's list of endangered and threatened species that could occur in or be affected by the proposed Project (USFWS 2018)
- Critical habitat as defined in the FESA Section 3 and protected by USFWS or the National Marine Fisheries Service (NMFS)
- A Biotic Resource Assessment conducted of the landing parcel by BioConsultants, LLC (2011a)
- The *Point Arena Mountain Beaver Survey* conducted by BioConsultants, LLC (2011b) on the proposed CLP and immediately north of it
- The IS/MND prepared by the California Department of Parks and Recreation (CDPR) (2005) that addressed the Manchester State Park Campground Point Arena mountain beaver restoration project

Wildlife

To assess the potential for wildlife species to occur, an ICF wildlife biologist conducted reconnaissance-level surveys on April 4 and on October 10 and 11, 2018. Where access was permitted, meandering transects were used to assess habitat suitability and species presence. The wildlife biologist also drove the length of the BSA, assessing and documenting potential suitable habitat where it was identified. Suitable habitat was determined by the presence of diagnostic habitat elements. If habitat was identified as low quality, it was assumed to be marginally suitable.

Based on the review of literature, existing conditions, species habitat requirements, and distribution, 17 special-status fish and wildlife species were identified as having the potential to occur in or adjacent to the BSA (Table 3.4-2). These species are discussed below.

Table 3.4-2. Special-Status Fish and Wildlife Species with Potential to Occur in the Biological Study Area

Common Name ***Scientific Name***	**Status[1] Federal/ State**	**Habitat Requirements**	**Potential for Occurrence**
Mammals			
Point Arena mountain beaver *Aplodontia rufa nigra*	FE/SSC	Coastal scrub, coastal strand, conifer forest, and riparian habitat types with well-drained soils that provide sufficient amounts of herbaceous food plants.	High—Known to occur in Manchester State Park and on private property near the north end of the Project area and in riparian habitat along Alder and Brush Creeks. Suitable habitat occurs throughout much of the BSA.
American badger *Taxidea taxus*	–/SSC	Woodland, shrub, and grassland habitat types with friable soils for burrowing; preys on small mammals, reptiles, insects, and birds; scavenges for carrion.	Moderate—Marginal foraging and denning habitat occurs in the BSA.
Amphibians			
Foothill yellow-legged frog *Rana boylii*	–/C	North and South Coast Ranges, south to the Transverse Range, across northern California to the west slope of the Cascade Range, and south through the Sierra Nevada foothills; occurs up to 6,000 feet in the northern Sierra Nevada; found in both perennial and intermittent forest streams and rivers with sunny, sandy, and rocky banks, deep pools, and shallow riffles.	High—Known to occur in Manchester State Park; may occur in Alder and Brush Creeks.
California red-legged frog *Rana draytonii*	FT/ SSC	Found in still waters in ponds, marshes, and stream pools near woodlands, coastal scrub, and streams with dense vegetative cover; most common in lowlands and foothills from sea level to 5,000 feet.	High—Known to occur in Manchester State Park and may occur in perennial creeks that bisect the Project alignment. The BSA is in critical habitat unit MEN #1.

Table 3.4-2. Special-Status Fish and Wildlife Species with Potential to Occur in the Biological Study Area

Common Name *Scientific Name*	Status[1] Federal/ State	Habitat Requirements	Potential for Occurrence
Northern red-legged frog *Rana aurora*	–/SSC	Occurs in low-gradient streams with pools, marshes, and ponds with dense vegetation for cover.	High—Known from the Project vicinity; may occur in Alder and Brush Creeks.
Invertebrates			
Behren's silverspot butterfly *Speyeria zerene behrensii*	FE/–	Occurs in coastal terrace prairie and grasslands on stabilized dunes where host plant (early blue violet or western dog violet) and nectar plants are found.	Low—Known from Manchester Beach State Park. Most of the BSA is in ruderal habitat along the edge of State Route 1.
Lotis blue butterfly *Lycaeides argyrognomon lotis*	FE/–	Historically known to occur between Fort Bragg and Point Arena; wet meadow and sphagnum willow bog habitat types; the larval host plant is believed to be harlequin lotus (*Hosackia gracilis*). Other larval host plants may include *Lotus* spp., *Lupinus* spp., *Astragalus* spp., and *Lathyrus* spp.	Low—Not observed since 1983. Harlequin lotus was identified in the cable landing parcel.
Birds			
Marbled murrelet *Brachyramphus marmoratus*	FT/SE	Nests and roosts in coastal coniferous forest; forages in the open ocean.	Low—No suitable nesting or roosting habitat occurs in the BSA; the Pacific Ocean provides suitable foraging habitat.
Northern harrier *Circus cyaneus*	–/SSC	Nests in grassland, scrub, and wetlands; nests and roosts on the ground in dense cover.	High—Grassland and coastal scrub in the BSA provide suitable nesting and foraging habitat.
Western snowy plover *Charadrius nivosus*	FT/SSC	Nests above high tide line on coastal beaches and dunes, near river mouths, and along edges of lagoons and estuaries.	High—Known to nest in the dune habitat of Manchester State Park.

Table 3.4-2. Special-Status Fish and Wildlife Species with Potential to Occur in the Biological Study Area

Common Name *Scientific Name*	Status[1] Federal/ State	Habitat Requirements	Potential for Occurrence
Yellow warbler *Dendroica petechia*	–/SSC	Nests and forages in early successional riparian habitats; found in coastal and northern California and the Sierra Nevada below approximately 7,000 feet; mostly extirpated from the southern Sacramento and San Joaquin Valleys.	Moderate—Riparian habitat associated with Alder and Brush Creeks and three unnamed creeks (unnamed creeks #1, #2, and #3) crossing the BSA provides suitable nesting and foraging habitat.
Yellow-breasted chat *Icteria virens*	–/SSC	Nests and forages in riparian thickets of willow and other brushy tangles near water and in thick understory in riparian woodland; breeding range includes northern Sacramento Valley, Cascade Range, Sierra Nevada foothills, northwestern California, most of the Coast Ranges, Colorado River, and other scattered sites; migrates south of California in fall/winter.	Moderate—Riparian habitat associated with Alder Creek, Brush Creek, and three unnamed creeks (unnamed creeks # 1, #2, and #3) crossing the BSA provides suitable nesting and foraging habitat.
Peregrine falcon *Falco peregrinus*	–/SFP	Found in a variety of habitat types; typically nests on cliff ledges	Low—Observed hunting in Manchester State Park; the BSA lacks suitable nesting habitat.
Fish			
Northern California coast steelhead *Oncorhynchus mykiss*	FT/–	Requires cold, clean water and gravel for spawning and rearing, with cover for velocity and predator refuge.	High—Known to occur in Alder and Brush Creeks (CDFG 2003, 2005).
California coastal Chinook salmon *Oncorhynchus tshawytscha*	FT/–	Occurs in the Garcia River; requires cold, clean water and gravel for spawning and rearing, with cover for velocity and predator refuge.	Low—the Project area is within the known range; however, the access and hydrology of streams in the BSA are not expected to support this species.

Table 3.4-2. Special-Status Fish and Wildlife Species with Potential to Occur in the Biological Study Area

Common Name *Scientific Name*	Status[1] Federal/ State	Habitat Requirements	Potential for Occurrence
Central California coast coho salmon *Oncorhynchus kisutch*	FE/ST	Occurs in the Garcia River; requires cold, clean water and gravel for spawning and rearing, with cover for velocity and predator refuge.	Low—The BSA is within the known range, and the fish previously was observed in Brush Creek but species is not found in abundance in area.
Pacific lamprey *Entosphenus tridentatus*	–/SSC	Requires cold, clean water and gravel for spawning and soft substrate for ammocoetes to burrow into, with slower water velocity areas such as backwaters.	High—Known to occur in Alder and Brush Creeks (CDFG 2003, 2005)

Term:
BSA = biological study area
Notes:
[1] Status:
C = Candidate for listing under CESA
FE = Listed as endangered under Federal Endangered Species Act (FESA)
FT = Listed as threatened under FESA
SE = Listed as endangered under California Endangered Species Act (CESA)
SFP = State fully protected
SSC = State species of special concern
ST = Listed as threatened under CESA

MAMMALS

Point Arena mountain beaver—federally listed as endangered and a state species of special concern—occurs in coastal scrub, conifer forest, riparian scrub, north coast riparian, coastal prairie, coastal dune, freshwater seep, and some ruderal plant communities (USFWS 1998). The species is well documented as occurring in the immediate Project vicinity. The CNDDB lists 30 occurrences within 3 miles of the BSA, and mountain beavers have been documented in the northern riparian habitat of Brush and Alder Creeks and two of the unnamed creeks that cross the Project alignment (CDFW 2018d). They are also known to occur in Manchester State Park; in 2005, CDPR conducted a habitat restoration project at Manchester State Park Campground. The campground was reconfigured and closed in some areas to improve habitat, to protect mountain beavers from disturbance, and to encourage recolonization (CDPR 2005).

The coastal scrub habitat near the north end of the BSA and immediately south of the proposed CLP is also known to support Point Arena mountain beaver. Bio Consultants, LLC (2011b) identified three burrow complexes in this area. The three complexes occupied approximately 1.83 acres. A total of 54 burrows were mapped, although additional burrows were most likely present in dense scrub habitat that could not be adequately surveyed.

American badger—a state species of special concern—occurs in grassland and coastal scrub habitat types. Badgers have not been documented in the BSA (CDFW 2018d), but grasslands and coastal scrub habitats on the CLP and adjacent to the BSA provide suitable foraging and denning habitat.

AMPHIBIANS

California red-legged frog—federally listed as threatened and a state species of special concern—is known to occur in the Project vicinity. The CNDDB lists five reported occurrences between 1998 and 2001, with two sightings in Manchester State Park (CDFW 2018d). California red-legged frogs also have been documented in all drainages of Manchester State Park (CDPR 2005). Both Alder and Brush Creeks and the unnamed creeks that cross the BSA provide aquatic habitat for the species. Grassland and coastal scrub habitats adjacent to aquatic habitat provide upland habitat. Designated critical habitat for California red-legged frog was revised in March 2010 (75 FR 12816–12959). Most of the BSA is within critical habitat Unit MEN-1, which is known to support California red-legged frogs. The CNDDB lists three occurrences within 3 miles of the BSA (CDFW 2018d); two of those occurrences (CNDDB occurrences 1263 and 1264) were recorded in Manchester State Park, approximately 3,800 feet west of the Project alignment.

Foothill yellow-legged frog—a candidate for listing under CESA—has been documented in Manchester Beach State Park and a few other locations within 3 miles of the BSA (CDFW 2018d). Yellow-legged frogs are highly aquatic and could occur in Alder and Brush Creeks and the unnamed streams that cross the Project alignment.

Northern red-legged frog—a state species of special concern—is known to occur in the Project vicinity. Like California red-legged frog and foothill yellow-legged frog, this species may occur in Alder and Brush Creeks and the unnamed streams that cross the BSA.

INVERTEBRATES

Behren's silverspot butterfly—federally listed as endangered—has been documented in the Project vicinity. Western dog violet (*Viola adunca*), the larval food plant for Behren's silverspot butterfly, is known to occur in Manchester Beach State Park (CDPR 2005) but has not been documented during plant surveys in the BSA conducted to date. Because plant surveys were not conducted in all areas, the host plant for Behren's silverspot butterfly could be present. Consequently, Behren's silverspot has potential to occur within the BSA.

Lotis blue butterfly—federally listed as endangered—is known from a single location in a bog in pygmy forest habitat north of the town of Mendocino, and the most recent observation was in 1983 (USFWS 1985). There are historical occurrences of lotis blue butterfly near the town of Manchester, but no recent sightings. During plant surveys, harlequin lotus (*Hosackia gracilis*), a potential larval host plant, was observed in the BSA at the CLP. Because this species of butterfly has not been seen since 1983, lotis blue butterfly is highly unlikely to occur in the BSA.

BIRDS

Marbled murrelet—federally listed as threatened and state-listed as endangered—has been documented within 3 miles of the BSA. Murrelets forage in the Pacific Ocean and nest inland in conifer forests with large, overmature conifer trees. The BSA lacks suitable nesting habitat, and the terrestrial portion of the BSA does not support foraging habitat.

Northern harrier—a state species of special concern—has been observed foraging in Manchester State Park (CDPR 2005). The grassland and coastal scrub habitats adjacent to the alignment of the terrestrial underground conduit system and on the proposed CLP provide suitable foraging and nesting habitat.

Western snowy plover—federally listed as threatened and a state species of special concern—has been documented nesting at Manchester State Park (CDPR 2005). Suitable nesting habitat occurs on sandy beach/dune habitat at the western edge of the BSA, but this area would be avoided by directional boring to install the fiber optic cable beneath the beach. USFWS-designated critical habitat for the species was revised in June 2012 (75 FR 36728–36869). Critical habitat unit CA #8 encompasses all of Manchester State Park. The CLP is north of and outside critical habitat unit CA #8. Critical habitat does not extend into the BSA.

Yellow warbler and yellow-breasted chat—state species of special concern—occupy riparian scrub/woodland habitat types. The yellow warbler and yellow-breasted chat have the potential to occur in riparian habitat on Alder and Brush Creeks and three of the unnamed streams that cross the Project alignment (CDFW 2018d; eBird 2018).

Peregrine falcon—state fully protected—has been observed foraging at Manchester State Beach (CDPR 2005). The BSA provides foraging habitat but lacks suitable nesting habitat.

FISH

Northern California coast steelhead—federally listed as threatened—occurs in Alder and Brush Creeks and their tributaries, all of which cross the BSA. Steelhead adults spawn in fresh water and spend a part of their life history at sea. Mature steelhead enter fresh water between November and April; migrate to spawning areas; and then spawn, generally in

April and May. Freshwater rearing generally lasts 2 years but can last up to 4 years. Steelhead usually smolt at about 6 to 8 inches in length before migrating to the ocean. The majority of this smolt migration takes place from March to May. The BSA provides migration pathways as well as spawning and juvenile rearing habitat.

NMFS designated critical habitat on September 2, 2006 (70 FR 52488–52561). Both streams and their tributaries are listed as part of the species' critical habitat. Northern California coast critical habitat Alder Creek Hydrologic Sub-Area 111363 and Brush Creek Hydrologic Sub-Area 111364 both support northern California coast steelhead (CDFG 2003, 2005).

California coastal Chinook salmon—federally listed as threatened—has a known range that encompasses the BSA. The nearest known occurrence is in the Garcia River, 2 miles south of the southern end of the BSA. The California coastal environmentally significant unit (ESU) is a fall-run, ocean-type anadromous fish. Mature Chinook enter fresh water between September and early November following large winter storms, and rapidly move to spawning areas, where they spawn within a few weeks and die a few days later. Fry (recently hatched fish) emerge from the gravel in late winter or spring and initiate outmigration in weeks to months. Juveniles may reside in estuaries and lagoons before entering the ocean. It is highly unlikely that California coastal Chinook salmon would use Alder and Brush Creeks and their tributaries because of the small size of the streams, their lack of suitable flow, and lack of larger spawning gravel.

Central California coast coho salmon—federally listed as endangered and state-listed as threatened—has a known range that encompasses the BSA. Coho salmon spend the first half of their life cycle rearing in streams and small freshwater tributaries. The remainder of their life cycle is spent foraging in estuarine and marine waters of the Pacific Ocean. Spawning migrations begin after heavy late fall or winter rains. Estuaries are highly productive areas that are important rearing habitat for juvenile Coho salmon. Occurrences of coho salmon have been documented in Greenwood Creek to the north and the Garcia River to the south of the BSA. CDFW did not find coho salmon in Alder and Brush Creeks and their tributaries in 2003 and 2005, but coho salmon were present in Brush Creek in 1968 (NMFS 2000). Coho salmon are found in the Garcia River drainage, approximately 4 miles south of the mouth of Alder Creek and 2 miles south of Brush Creek.

NMFS designated critical habitat on May 5, 1999 (64 FR 24049–24060). Critical habitat for the central California coast ESU encompasses accessible reaches of all rivers (including estuarine areas and tributaries) between Punta Gorda and the San Lorenzo River—a description that includes the Big-Navarro-Garcia Hydrologic Unit 18010108 (Mendocino—Manchester/Point Arena Rancheria), which encompasses the BSA.

Pacific lamprey—a state species of special concern—is known to inhabit small and large streams throughout its range from Hokkaido, Japan through Alaska and south to Baja California. Pacific lamprey spawning migrations usually occur between early March and late June, but they also have been observed in January and February. Pacific lamprey have been documented in Alder and Brush Creeks in the BSA during habitat surveys (CDFG 2003, 2005).

Plants

Prior to conducting floristic surveys, ICF biologists queried the CNDDB for special status plant occurrences within a 3-mile radius of the BSA and reviewed the USFWS list of threatened and endangered plant species (USFWS 2018). Based on this initial assessment, 21 special-status plant species were identified as having the potential to occur within the BSA (Table 3.4-3).

Surveys based on CDFW's *Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Sensitive Natural Communities* (CDFW 2018e) were conducted in April, June, and September 2018. The surveys were floristic, with every species encountered identified to the lowest taxonomic level necessary to determine whether it is a special-status species. Botanists traversed the BSA on foot, using meandering parallel transects spaced at a distance that enabled visibility of all plant species present. Hand-held GPS units were used to record the locations of special-status plant species and habitat types observed. Botanical surveys were conducted in the early season (April 4, 2018), mid-season (June 26–28, 2018), and late season (September 29–31, 2018). As the BSA was expanded in 2018, some areas were not surveyed at the correct time of year to detect all special-status plants (see **MM BIO-14** regarding conducting floristic surveys for remaining areas). The full methods and results of the surveys, including areas surveyed, are reported in the *Terrestrial Biological Resources Technical Report* (Appendix C2).

Sixteen special-status plant species were identified as potentially occurring in the BSA on the basis of range, habitat characteristics, or known nearby occurrences (Table 3.4.3). However, two late-blooming special-status species, Baker's goldfields (CRPR 1B.2) and perennial goldfields (CRPR 1B.2) have suitable habitat in the BSA that was surveyed during the species' identifiable period and neither species was observed. While appropriately timed surveys for special-status plants have not been completed for all areas of the BSA, Mendocino Coast paintbrush (CRPR 1B.2) was observed immediately west of the CLP BSA (Table 3.4.3; harlequin lotus (*Hosackia gracilis*) (CRPR 4.2) was mapped in the in the CLP of the BSA. The locations where individual plants or groups of plants have been documented are indicated in Sheets 1 and 2 in Appendix C1. Table 3.4-3 provides a summary of the status, habitat requirements, blooming period, and potential for occurrence in the BSA for each species.

Table 3.4-3. Special-Status Plant Species Known to Occur within 3 Miles of the Biological Study Area

Scientific Name **Common Name**	**Status[1] Federal/ State/CRPR**	**Habitat Requirements**	**Blooming Period**	**Potential for Occurrence in the BSA[2]**
Abronia umbellata var. *breviflora* Pink sand verbena	–/–/1B.1	Coastal dunes and bluffs; < 328 feet.	June–Oct	High—Full assessment of suitable habitat on the coastal bluffs was prevented due to lack of safe access to steep slopes.
Agrostis blasdalei Blasedale's bent grass	–/–/1B.2	Coastal dunes and bluffs; < 328 feet.	May–July	High—Suitable habitat present in the BSA; appropriately timed surveys did not cover all suitable habitat in the BSA; previous occurrences documented in the vicinity of the CLP (BioConsultants LLC 2011a).
Calystegia purpurata ssp. *saxicola* Coastal bluff morning glory	–/–/1B.2	Rocky coastal scrub; < 328 feet.	May–Sept	High—Suitable habitat present in the BSA; due to safety concerns, portions of coastal cliffs on the CLP could not be surveyed.
Campanula californica Swamp harebell	–/–/1B.2	Microhabitat of freshwater marshes and bogs/fens within coastal prairie, closed-cone pine forest, North Coast coniferous forest, and riparian habitat; ± 16–1,312 feet.	June–Oct	None—BSA lacks suitable microhabitat.
Carex lyngbyei Lyngbye's sedge	–/–/2B.2	Marshes and swamps; ± 0 feet.	April–Aug	None—BSA lacks suitable habitat.
Carex saliniformis Deceiving sedge	–/–/1B.2	Mesic areas in coastal prairies and coastal scrub, including marshes, swamps, seeps, and meadows; < 820 feet.	June	High—Suitable habitat present in the BSA; appropriately timed surveys did not cover all suitable habitat in the BSA.
Castilleja ambigua ssp. *humboldtiensis* Humboldt Bay owl's-clover	–/–/1B.2	Marshes and swamps (coastal salt); 0–2,591 feet.	April–Aug	None—BSA lacks suitable habitat.

Table 3.4-3. Special-Status Plant Species Known to Occur within 3 Miles of the Biological Study Area

Scientific Name **Common Name**	**Status[1] Federal/ State/CRPR**	**Habitat Requirements**	**Blooming Period**	**Potential for Occurrence in the BSA[2]**
Castilleja mendocinensis Mendocino Coast paintbrush	–/–/1B.2	Coastal strand, coastal prairie, northern coastal scrub, closed-cone pine forest, coastal dunes; < 328 feet.	April–Aug	Present—10 individual plants observed along western edge of the CLP during October surveys.
Cuscuta pacifica var. *papillata* Mendocino dodder	–/–/1B.2	Coastal dunes (interdune depressions); 0–164 feet.	(June) July–Oct	None—BSA lacks suitable habitat.
Erigeron supplex Supple daisy	–/–/1B.2	Coastal bluff scrub, coastal prairie; 0–164 feet.	May–July	High—Suitable habitat present in the BSA; appropriately timed surveys did not cover all suitable habitat in the BSA.
Fritillaria roderickii Roderick's fritillary	–/SE/1B.1	Coastal prairie, valley grassland, northern coastal scrub; < 4,265 feet.	March–May	High—Suitable habitat present in the BSA; appropriately timed surveys did not cover all suitable habitat in the BSA.
Gilia capitata ssp. *pacifica* Pacific gilia	–/–/1B.2	Steep slopes, ravines, and open flats of coastal bluffs, grassland, and dunes; generally below 1,312 feet.	April–Aug	High—Suitable habitat present in the BSA; appropriately timed surveys did not cover all suitable habitat in the BSA.
Glyceria grandis American manna grass	–/–/2B.3	Bogs and fens, meadows and seeps, marshes, swamps, and margins of streambanks and lakes; 49–6,496 feet.	June–Aug	High—Suitable habitat present in the BSA; appropriately timed surveys did not cover all suitable habitat in the BSA.
Hesperevax sparsiflora var. *brevifolia* Short-leaved evax	–/–/1B.2	Coastal California from Del Norte to Santa Cruz Counties; sandy, grassy, or wooded coastal bluffs, terraces, and dunes; < 705 feet.	March–June	High—Suitable habitat present in the BSA; appropriately timed surveys did not cover all suitable habitat in the BSA; previous occurrences documented in the vicinity of the CLP (BioConsultants LLC 2011a).

Table 3.4-3. Special-Status Plant Species Known to Occur within 3 Miles of the Biological Study Area

Scientific Name **Common Name**	**Status[1] Federal/ State/CRPR**	**Habitat Requirements**	**Blooming Period**	**Potential for Occurrence in the BSA[2]**
Lasthenia californica ssp. *bakeri* Baker's goldfields	–/–/1B.2	Northern coastal scrub, coastal sage scrub, coastal prairie, northern oak woodland, valley grassland, foothill woodland; < 1,640 feet.	April–Oct	None—Suitable habitat present in the BSA but appropriately timed surveys did not detect species.
Lasthenia californica ssp. *macrantha* Perennial goldfields	–/–/1B.2	Coastal grassland, dunes, and scrub; < 1,640 feet.	Jan–Nov	None—Suitable habitat present in the BSA but appropriately timed surveys did not detect species.
Lasthenia conjugens Contra Costa goldfields	FE/–/1B.1	Vernal pool in grassland habitat; < 328 feet.	March–June	Moderate— Designated critical habitat overlaps with the BSA. Suitable vernal pool habitat occurs immediately adjacent to the BSA, and the margin of the vernal pool occurs inside the BSA. Contra Costa goldfields were not observed during the mid-season survey (June 26-28, 2018), but the species is very rarely observed that late during the blooming period (California Consortium of Herbaria 2019). Therefore, the species may not have been identifiable during the mid-season survey and could still occur in the BSA.
Lilium maritimum Coast lily	–/–/1B.1	Usually in wetland-riparian habitat; coastal prairie, mixed evergreen forest, northern coastal scrub, closed-cone pine forest, North Coast coniferous forest; < 492 feet.	May–Aug	High—Suitable habitat present in the BSA; appropriately timed surveys did not cover all suitable habitat in the BSA.

Table 3.4-3. Special-Status Plant Species Known to Occur within 3 Miles of the Biological Study Area

Scientific Name **Common Name**	**Status[1] Federal/ State/CRPR**	**Habitat Requirements**	**Blooming Period**	**Potential for Occurrence in the BSA[2]**
Microseris paludosa Marsh microseris	–/–/1B.2	Moist grassland, open woodland; < 984 feet.	April–June	High—Suitable habitat present in the BSA; appropriately timed surveys did not cover all suitable habitat in the BSA.
Potamogeton epihydrus Nuttall's ribbon-leaved pondweed	–/–/2B.2	Freshwater marsh; 1,210–7,175 feet.	July–Sept	None—BSA lacks suitable habitat.
Sidalcea malviflora ssp. *purpurea* Purple-stemmed checkerbloom	–/–/1B.2	Meadows, open coastal forest, prairie; < 98 feet.	May–June	High—Suitable habitat present in the BSA; appropriately timed surveys did not cover all suitable habitat in the BSA.

Terms: BSA = biological study area; CLP = cable landing parcel

[1] Status explanations:

Federal
FE = Listed as endangered under the federal Endangered Species Act
– = No listing status

State
SE = Listed as endangered under the California Endangered Species Act
– = No listing status

California Rare Plant Rank (CRPR)
1B = List 1B species: rare, threatened, or endangered in California and elsewhere
2B = List 2B species: rare, threatened, or endangered in California but more common elsewhere
.1 = Seriously endangered in California (more than 80% of occurrences threatened—high degree and immediacy of threat)
.2 = Moderately threatened in California (20–80% occurrences threatened—moderate degree and immediacy of threat)
.3 = Not very threatened in California (less than 20% of occurrences threatened—low degree and immediacy of threat or no current threats known)

[2] Potential for Occurrences explanations:
Present: Species was observed in the BSA during appropriately timed surveys.
High: Known occurrence of plant within 3 miles of the BSA, suitable habitat and microhabitat are present and of good quality.
Moderate: Known occurrence of species is within 3 miles of the BSA; the margin of suitable habitat is present in the BSA but is of medium to low quality from roadside vegetation maintenance.
None: Plant not known to occur in the region or in the Project vicinity from CNDDB or other documents; or suitable habitat is not present in any condition.

Source: CDFW 2018d

The BSA is within designated critical habitat for Contra Costa goldfields (Unit MEN-1 [71 FR 7118–7316]). The federally listed species has a CNDDB occurrence (No. 16) in the immediate vicinity of the BSA, but the exact location of the occurrence is unknown (CDFW 2018d); the occurrence was sourced from a 1937 collection lacking precise location coordinates. Also described in CNDDB occurrence No. 16, vernal pools around Manchester were surveyed in 1987, Contra Costa goldfields were not detected, and grazing was listed as a threat to the species (CDFW 2018b). Contra Costa goldfield critical habitat primary constituent elements include topographic lows with an adequate vernal pool hydroperiod, underlying restrictive soil layers, and a vegetation predominance of native wetland annuals.

Private property adjacent to the BSA along SR 1 appears to support suitable Contra Costa goldfield habitat; the margin of the feature crosses the fence-line and into the BSA (Sheet 14 in Appendix C1). Documented during the protocol-level aquatic resources delineation, the feature was co-dominated by vernal pool native, coast allocarya (*Plagiobothrys undulatus*) and upland, exotic slender lotus (*Lotus angustissimus*), lacked hydric soils, and demonstrated evidence of wetland hydrology (Appendix C3)**.** Wetlands are known to be colonized by upland plants during the drier portions of the season after wetland plants have completed the life cycle (Environmental Laboratory 1987)**.** The absence of hydric soils suggests an adequate vernal pool hydroperiod does not occur in the portion of the feature in the BSA; the ROW vegetation is periodically disturbed by vegetation maintenance performed by Caltrans. The presence of native vernal pool species and the absence of hydric soils suggests Contra Costa goldfields could occur in the BSA, but more suitable vernal pool habitat occurs outside of the BSA.

Contra Costa goldfields bloom from March to June (Jepson eFlora 2018). This feature was surveyed during the June 26-28, 2018 mid-season survey, which is at the end of the reported blooming period. However, consultation of the Consortium of California Herbaria (2019) demonstrates only 4 of the 114 Contra Costa goldfields records report an observation after June 2; these 4 records are from Fort Ord in Monterey, California. Without visiting a Contra Costa goldfields reference population in late June to confirm that the species is still identifiable, the absence of the species in the BSA cannot be confirmed.

<u>Sensitive Natural Communities</u>

Based on a query of the CNDDB, several natural communities in the region are afforded protection by a state or local authority and may support special-status plants and wildlife. For the purpose of this analysis, sensitive communities are communities that meet the following criteria:

- Special-status natural communities defined by CESA and protected by CDFW or local agencies

- Sensitive habitats protected by the County of Mendocino and the California Coastal Commission (CCC)
- Rare habitats protected by local professional organizations or the scientific community

Sensitive natural communities are habitats that have been assessed for their range, distribution, trends, and threats. Vegetation communities observed in the BSA were identified using the *Manual of California Vegetation*, Online Edition (MCV) (CNPS 2019), and their sensitive status was informed by review of CDFW's (2018a) *California Sensitive Natural Communities* descriptions.

Eight sensitive natural communities were mapped in the BSA: Coastal dune willow thickets, Sitka willow thickets, shining willow groves, arroyo willow groves, coastal brambles, slough sedge swards, water parsley marshes, and a Pacific reed grass meadow.

Potentially sensitive natural communities identified in the ROW, consisting of several degraded coastal bramble patches, one arroyo willow thicket, one common monkey flower seep, and one small-fruited bulrush marsh, were not considered sensitive because of their small size and the level of disturbance they experience annually from vegetation maintenance activities conducted by Caltrans.

<u>Wetlands and Non-Wetland Waters</u>

ICF botanists and wetland ecologists conducted an aquatic resources delineation of the BSA. Evaluations of jurisdictional waters of the United States, as described in the Clean Water Act (CWA), were based on the routine onsite determination methods described in the *Corps of Engineers Wetlands Delineation Manual* (1987 Manual) (Environmental Laboratory 1987) and on the supplemental procedures and wetland indicators provided in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (USACE 2010), *A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States* (Mersel and Lichvar 2014), and *2016 National Wetland Plant List* (Lichvar et al. 2016).

The U.S. Army Corps of Engineers (USACE) defines jurisdictional wetlands under CWA Section 404 as areas that exhibit positive field indicators for all three wetland parameters: (1) hydrophytic vegetation; (2) hydric soils; and (3) wetland hydrology.

The CCC and associated Mendocino County Coastal Development Permit Regulations (Chapter 20.532) require coastal zone wetlands to have evidence of wetland hydrology in addition to one other wetland parameter regulated by the USACE (County of Mendocino Planning & Building Services 2006, CCC 2011). Not all of the vegetation alliances listed under wet meadow satisfy the USACE or CCC criteria to be classified under their jurisdiction.

In total, 0.56 acre of potential waters of the United States was identified and mapped in the survey area, comprising 0.10 acre of wetlands and 0.46 acre of non-wetland waters; these features consist of nine emergent wetlands, five perennial streams, four intermittent streams, two ephemeral streams, seven roadside ditches, and 12 culverts.

In total, 0.58 acre of CCC jurisdictional features were delineated in the BSA. Potential CCC jurisdictional features included 0.10 acre of emergent wetlands, 0.04 acre of seasonal wetlands, and 0.44 acre of riverine wetlands (consisting of 5 perennial streams, 4 intermittent streams, 2 ephemeral streams, 5 roadside ditches, and 12 culverts). Riverine wetlands occur below the OWHM of the non-wetland waters. Two roadside ditches delineated as non-wetland waters under potential jurisdiction of the USACE were not classified as CCC-jurisdictional features because the features were excavated from upland areas and carry only stormwater runoff (County of Mendocino Planning & Building Services 2006).

The mapped potential features are discussed in greater detail and by jurisdiction in the *Aquatic Resources Delineation Report* (Appendix C3), which summarizes the methods and results of the delineation of aquatic resources. The protocol-level delineation did not survey the property containing the Private CLS; a protocol-level delineation will be conducted in 2019 and a memo summarizing the survey results will be composed. The delineation report was submitted to the USACE.

<u>Environmentally Sensitive Habitat Areas</u>

Per the Mendocino County General Plan (Mendocino County 1991a), environmentally sensitive habitat areas (ESHAs) delineated in the BSA consist of streams for anadromous fishes, wetlands, riparian areas, occupied special wildlife habitat, special plant habitat, and sensitive natural communities as defined by CDFW (2018a). A memorandum describing the results of the ESHA delineation is provided in Appendix C4.

3.4.1.2 Marine Biological Resources

This section describes the regional ecological conditions of the marine environment in the Project vicinity and the local conditions of the marine portion of the biological resources study area (the MSA).

The marine biota occupying or using the coastal waters of the MSA include invertebrate infauna[17] and mobile epifauna[18] that inhabit seafloor sediments, sessile[19] and encrusting invertebrates, and marine vegetation attached to either natural or artificial hard substrate. The marine biota also includes planktonic organisms, fish, marine mammals, and marine birds that inhabit or use the open waters. These habitats and their associated biological communities are briefly discussed below and described in more detail in *Marine Habitats and Associated Biological Communities and Resources near Manchester Beach, California* (AMS 2018a [Appendix C5]).

Regional Setting

The proposed CLP is north of Manchester Beach State Park on a coastal bluff overlooking a sandy beach and open coastal waters. The terrestrial BSA extends from just north of Alder Creek along SR 1 through the town of Manchester. The MSA in its entirety is north of Point Arena, west of Manchester State Park, and north of the Point Arena State Marine Reserve (SMR) and the Point Arena State Marine Conservation Area (SMCA). These latter two adjoining marine protected areas encompass Arena Rock and adjoin the Sea Lion Cove SMCA (Figure 3.4-2). Ecologically, the MSA is more representative of the north central California coastline habitats and biota than of the northern California region.

Marine Habitats and Communities

Marine habitat extends from the base of the coastal bluff out into the ocean.

<u>Intertidal and Nearshore Habitats</u>

Sandy Beach

The beach habitat below the bluff is primarily unvegetated, consisting of sand and drift debris. Wildlife species commonly using the marine habitat are shorebirds, gulls, terns, pelagic birds, raptors, crustaceans, and invertebrates.

Sandy beach ecosystems comprise 188 miles of shoreline in the north central California region and 152 miles in the northern California region (ICF 2009; Horizon Water and Environment 2012; Dugan et al. 2015).[20] Sandy beaches are among the most intensely used coastal ecosystems for human recreation and are important to coastal economies, as well as to foraging shorebirds and surf zone fishes. Numerous species of shorebirds, such as sanderlings, marbled godwits, and willets, feed along beaches at the water's

[17] Organisms living in the sediments of the beach or ocean seafloor.
[18] Organisms living on the surface of the seafloor or attached to submerged objects.
[19] Organisms that are permanently attached or established on hard substrate habitat and are typically not free to move about.
[20] The *northern California region* is defined as the coastline between Alder Creek in Mendocino County and the California-Oregon border.

edge. Western snowy plovers and California least terns are known to nest on some sandy beaches and coastal dunes. Pinnipeds haul out on isolated beaches and sands spits, including gravel and fine- to medium-grained beaches to medium-grained beaches (ICF 2009).

Generally, beaches are highly dynamic environments subject to intense wave-related energy, exposure to air and sun during low tides, constant reworking, and large-scale seasonal substrate variations (Thompson et al. 1993). In addition, the distribution of organisms within the sand is subject to daily fluctuations in the temperature, salinity, and moisture content of the sand (Dugan et al. 2015). Individual animals that live in the sand are mobile and frequently shift position in the sand in response to environmental fluctuations.

A variety of invertebrates live in the sand and in wracks of decaying seaweed and other detritus on the beach surface. The diversity of beach invertebrates, including insects, is considered high in most north central and northern California sandy beaches, with more than 70 species being reported in a recent scientific assessment (Nielsen et al. 2017). Sand crabs (*Emerita analoga*) and beach hoppers (*Megalorchesis* spp.) are typically the dominant invertebrate taxa present, accounting for up to 78 percent of total intertidal biomass. Other common taxa include polychaete worms and clams. Kelp wrack and other washed-up organic debris are the predominant energy and food source for beach ecosystems (Nielsen et al. 2013, 2017).

Subtidal Benthic

Subtidal habitats are generally broken into two broad categories: soft substrate and hard substrate. Soft substrate is the predominant habitat on the continental shelf (Horizon Water and Environment 2012). Seafloor sediment composition is dependent on physical factors such as wave energy, water depth, and currents. Soft substrate typically ranges from coarse sands to finer silts and clays with depth. Hard substrates can be composed of naturally occurring features (e.g., rocky outcrops) or artificial structures (e.g., concrete, pilings, debris, and trash).

Benthic (bottom-dwelling) biological communities change with both the type of substrate and water depth. Mobile scavengers and predators and organisms that can burrow are common on soft substrates, while hard substrates typically support abundant sessile organisms that anchor to the surfaces or species that prefer physical features that provide hiding spaces. Many subtidal benthic species are not strictly restricted to substrate type, as many organisms (e.g., crabs, sea stars, brittle stars, and many fish species) can inhabit both soft and hard substrate habitats. Depth also influences benthic community composition because sediments change with depth as a result of the influence of wave energy. Naturally occurring hard substrates are scarcer offshore in deeper water columns.

Specific invertebrate organisms found at various depths and substrate types within the study area are discussed in detail in the Marine Technical Report (AMS 2018a [Appendix C5]).

Demersal Fish

Demersal fish are those species that live and feed on or near the seafloor. They are found in coastal waters and over the continental shelf but are not common in the abyssal plain (the deepest part of the ocean). Seamounts and islands also provide suitable habitats for demersal fish. A National Oceanic and Atmospheric Administration (NOAA) Point Arena occurs offshore at a depth near 656 feet (ICF 2009). Examples of demersal fish that inhabit soft substrate seafloor include flounders (Pleuronectoidei), soles (Soleidae), sanddabs (*Citharichthys* spp.), eelpouts (Zoarcidae), hagfish (Myxinae), combfish (*Zaniolepsis*spp.), and skates and rays (Rajidae). Fish that typically associate with hard substrate habitats include multiple species of rockfish (*Sebastes* spp.), lingcod (*Ophiodon elongates*), staghorn sculpin (*Leptocottus armatus*), and wolf eels (*Anarrhichthys ocellatus*).

Details about specific fish species found at various depths and seafloor substrate types in the MSA are provided in the Marine Technical Report (AMS 2018a [Appendix C5]).

<u>Pelagic Open Water Habitat</u>

The pelagic zone supports planktonic organisms (phytoplankton, zooplankton, and ichthyoplankton) that have restricted swimming abilities and float with the currents, as well as nektonic organisms such as fishes, sharks, and marine mammals that move freely against local and oceanic currents.

Plankton

Phytoplankton, the primary producers at the base of the pelagic food web, are consumed by many species of zooplankton. In turn, zooplankton support a variety of species including small schooling fish (e.g., sardines, herring) and baleen whales (*Mysticeti*). In the marine environment, phytoplankton typically occur at higher densities near coastlines where nutrient inputs from terrestrial point and nonpoint sources help promote their growth (Fischer et al. 2014). The abundance and composition of phytoplankton along the west coast of California are influenced by the upwelling system and tends to be dominated by diatoms year-round (Du X and O'Higgins 2015). Winds blowing from the north create a current running north to south along the shore that promotes upwelling as well as mixing of plankton over large spatial scales. Relaxation of upwelling and stratification of the water column promotes the growth of phytoplankton, such as dinoflagellates and various *Pseudonitzschia* species, that may be considered harmful (Du X et al. 2016).

Organisms that complete their entire lifecycle as planktonic forms are called holoplankton; these include phytoplankton such as diatoms and zooplankton such as *Acartia tonsa*. Plankton that spend only part of their life cycle in the plankton form (as eggs or larvae) are called meroplankton. Holoplankton have short generation times (hours to weeks), have the capability to reproduce continually (i.e., are not dependent on a certain season), and are not restricted to specific geographic zones. In contrast, meroplankton make up a small fraction of the total number of planktonic organisms in seawater, have shorter spawning seasons, are restricted to a narrow region of the coast, and have a much greater likelihood of impacts on their populations from mortality due to entrainment. Consequently, studies in California typically assess effects on meroplanktonic species as proposed by EPA (1977). Important meroplankton include fish larvae and eggs (ichthyoplankton) as well as larvae of invertebrates such as lobsters, crabs, octopus, and squid.

Fish

Pelagic fish communities tend to be similar throughout the coastal waters of north central and northern California. They are characterized by small schooling species such as Pacific sardine (*Sardinops sagax*); schooling predators such as bluefin tuna (*Thunnus thynnus*), thresher shark (*Alopias vulpinus*), and swordfish (*Xiphias gladius*); and large solitary predators such as mako (*Isurus oxyrinchu*) and leopard (*Triakis semifasciata*) sharks (CDFW 2018f). Other common fish species that inhabit the open water environment include Chinook salmon (*Oncorhynchus tshawytscha*), market squid (*Doryteuthis opalescens*), smelt (*Spirinchus starksi*), jack and Pacific mackerel (*Trachurus symmetricus and T. symmetricus*), and opah (*Lampris* spp.). More information on fish species inhabiting the open waters in the Project vicinity is provided in Section 5.2, *Commercial and Recreational Fisheries*.

Marine Mammals and Sea Turtles

Another key component of the open ocean habitat are marine mammals and sea turtles. All marine mammals and sea turtles occurring along the California coast are identified as special-status species and are discussed below (*Special-Status Marine Species*).

Special-Status Marine Species

The central and northern Californian coast supports numerous special-status marine mammals, birds, turtles, and fish. Special-status species include those species that are state- or federally listed as endangered or threatened, species proposed for such listing, and candidate species—as well as state or local species of concern. For the purposes of this analysis, special-status marine species are those species that meet any of the following criteria:

- Marine species that are listed or proposed or are candidate species for listing as threatened or endangered by USFWS pursuant to FESA
- Marine species listed as rare, threatened, or endangered by CDFW pursuant to CESA
- Marine species managed and regulated under the Magnuson-Stevens Fishery Conservation and Management Act (or Magnuson-Stevens Act [MSA])
- Marine species protected under the Marine Mammal Protection Act (MMPA)
- Marine species managed and regulated by CDFW under the Nearshore Fisheries Management Plan and the Market Squid Fisheries Management Plan
- Marine species designated by CDFW as California Species of Concern
- Marine species designated by NOAA as Species of Concern
- Marine species not currently protected by statute or regulation but considered rare, threatened, or endangered under CEQA (Guidelines section 15380)

Table 3.4-4 lists the special-status species considered for evaluation and their likelihood to occur in the MSA.

Table 3.4-4. Special-Status Marine Species and Their Potential to Occur in the Marine Study Area

Common Name ***Scientific Name***	**Status**[1]	**Habitat**	**Potential to Occur in Marine Study Area**[2]
Marine Mammals			
Baird's beaked whale *Berardius bairdii*	FD	Deep offshore waters in the north Pacific; common along steep underwater geologic structures (e.g., submarine canyons, seamounts, and continental slopes).	Low—Sightings in deeper waters than the MSA, mainly along continental shelf edges or in deep submarine canyons where they forage. NMFS records indicate that fewer than a dozen individuals have been washed up along the West Coast.
Blainville's beaked whale *Mesoplodon densirostris*	P	Mainly over the continental shelf and into open ocean waters; tropical to temperate waters worldwide; groups have been regularly observed off Oahu, Hawaii, and in the Bahamas in 1,640–3,280-feet waters.	Not expected—Unlikely to occur in the MSA.
Blue whale *Balaenoptera musculus*	FE, FD	Worldwide, often near the edges of physical features where krill tend to concentrate.	Low—Relatively common farther offshore (56–230 miles from shore) but less common in the MSA.
Bottlenose dolphin *Tursiops truncatus*	FD	Worldwide in temperate and tropical waters; both coastal and offshore populations; most common dolphins in the Southern California Bight.	Moderate—Since 2010m species has been reoccurring in San Francisco Bay; could occur in the MSA when waters are warmer than usual.
Bryde's whale *Balaenoptera edeni*	P	Highly productive tropical, subtropical, and warm temperate waters worldwide; more commonly farther from shore.	Not expected—Unlikely to be observed in the MSA.
California sea lion *Zalophus californianus*	P	Eastern north Pacific in coastal waters; commonly observed throughout the California coast.	High—Commonly observed.
Common dolphin–long-beaked *Delphinus capensis*	P	Shallow, warmer temperate waters relatively close to shore; most abundant cetacean from Baja California northward to central California; maximum northward extent is Point Arena.	Moderate—Numbers begin to decrease northward from the central coast.

Table 3.4-4. Special-Status Marine Species and Their Potential to Occur in the Marine Study Area

Common Name ***Scientific Name***	**Status[1]**	**Habitat**	**Potential to Occur in Marine Study Area[2]**
Common dolphin–short-beaked *Delphinus delphis*	P	More pelagic than the long-beaked common dolphin, can be found up to 300 nm from shore; majority of populations are observed off California coast, especially in warm water months.	Moderate—Generally found offshore of the MSA.
Cuvier's beaked whale *Ziphius cavirostris*	P	Temperate, tropical, and subtropical waters; associated with deep pelagic waters (usually deeper than 3,280 feet) of the continental shelf and slope, and near underwater geologic features; seasonality and migration patterns unknown.	Moderate—Generally occur in the deeper waters west of the MSA.
Dall's porpoise *Phocoenoides dalli*	P	Throughout north Pacific, mainly in pelagic waters deeper than 590 feet, but can be found both offshore and inshore.	Moderate—Most frequently observed offshore, but have been documented around San Francisco Bay.
Dwarf sperm whale *Kogia simus*	P	Continental slope and open ocean; prefer warm tropical, subtropical, and temperate waters worldwide.	Not expected—Records are rare and it is unknown whether low numbers are a consequence of cryptic behavior or if they are not regular inhabitants of offshore California waters.
False killer whale *Pseudorca crassidens*	P	Continental slope and into open ocean waters of tropical and warm temperate waters worldwide.	Not expected—Prefer warmer waters than those found in northern California.
Fin whale *Balaenoptera physalus*	FE, FD	Deep, offshore waters of all major oceans; less common in the tropics.	Low—Relatively common in California waters March–October, but prefer deep water farther offshore.
Ginkgo-toothed whale *Mesoplodon ginkgodens*	P	Mainly over the continental shelf and into open ocean warm waters of the Pacific and Indian Oceans.	Not expected—Not found in the MSA.
Gray whale *Eschrichtus robustus*	FDL, P	Predominantly in nearshore coastal waters of the north Pacific from Gulf of Alaska to Baja Peninsula; can be as close as a few hundred yards offshore, but more common 3–12 miles offshore.	High—Pass the MSA during late fall–winter in southward migration and during late winter–early summer in northward migration.

Table 3.4-4. Special-Status Marine Species and Their Potential to Occur in the Marine Study Area

Common Name *Scientific Name*	Status[1]	Habitat	Potential to Occur in Marine Study Area[2]
Guadalupe (southern) fur seal *Arctocephalus townsendi*	CT, FT, FD	Tropical waters of southern California and Mexico; breeds in rocky coastal habitats and caves mainly along the eastern coast of Guadalupe Island, approximately 124 miles west of Baja California; small population on San Miguel Island in the Channel Islands.	Low—Unlikely to occur as far north as Point Area.
Harbor porpoise *Phocoena phocoena*	P	Continental slope to oceanic waters, mainly in northern temperate, subarctic coastal, and offshore waters; common in bays, estuaries, harbors, and fjords less than 656 feet deep.	High—Likely to occur at 0–656 feet depth.
Harbor seal *Phoca vitulina*	P	From British Columbia to Baja California, most commonly observed pinniped along California coastline; favors nearshore coastal waters for foraging and beaches, offshore rocks on sand and mudflats in estuaries and bays for resting.	High—Common along the California coast.
Hubb's beaked whale *Mesoplodon carlhubbsi*	P	Endemic to north Pacific; species is not well known but is assumed to occur mainly over the continental shelf and into open ocean waters.	Low—May occur in waters off Point Arena, but species is very rare.
Humpback whale *Megaptera novaeangeliae*	FE, FD	All major oceans; central California population migrates from winter calving and mating areas off Mexico to summer and fall feeding areas off coastal California. Humpback whales occur from late April to early December.	Moderate—Frequently observed migrating along California coast April–November, typically 12–55 miles offshore; more common inshore near the submarine Monterey canyon.
Killer whale *Orcinus orca*	P	All oceans; most abundant in colder waters but also occur in temperate water; presence and occurrence common but unpredictable in coastal California.	Moderate—Most common in April, May, and June as they feed on northbound migrating gray whales; generally observed in deeper waters offshore of MSA.
North Pacific right whale *Eubalaena japonica*	FE, FD	North Pacific Ocean; seasonally migratory; colder waters for feeding, migrating to warmer waters for breeding and calving; may move far out to sea	Not expected—Unlikely to be present in the MSA because they are very rare.

Table 3.4-4. Special-Status Marine Species and Their Potential to Occur in the Marine Study Area

Common Name *Scientific Name*	Status[1]	Habitat	Potential to Occur in Marine Study Area[2]
		during feeding seasons but give birth in coastal areas.	
Northern elephant seal *Mirounga angustirostris*	P	Alaska to Mexico; sighted regularly over shelf, shelf-break, and slope habitats; also present in deep ocean habitats seaward of the 6,561-feet isobaths; rookeries located north of the MSA.	Moderate—Widely distributed in Monterey Bay National Marine Sanctuary and likely found northward in the MSA.
Northern fur seal *Callorhinus ursinus*	FD	Spend 300 or more days per year foraging in open ocean of north Pacific; rocky beaches for reproduction; usually ashore in California only when debilitated—however, few individuals observed on Año Nuevo Island.	Low—Usually 11–17 miles from shore in California; however, have been observed within 3 miles of Point Pinos south of the MSA.
Northern right whale dolphin *Lissodelphis borealis*	P	Endemic to deep, cold temperate waters in north Pacific; occur over continental shelf and slope where waters are less than 66°F (18°C).	Not expected—Very rare in California waters.
Pacific white-sided dolphin *Lagenorhynchus obliquidens*	P	Temperate waters of north Pacific from continental shelf to deep ocean.	High—Likely to occur around Point Arena.
Perrin's beaked whale *Mesoplodon perrini*	P	Believed to occupy continental shelves and open ocean waters, but not well documented.	Not expected—Known from fewer than half a dozen strandings between San Diego and Monterey, but species' complete distribution is unknown.
Pygmy sperm whale *Kogia breviceps*	P	Continental slope and open ocean in tropical, subtropical, and temperate Pacific waters, mostly offshore of Peru; strandings have been documented off Mexico and once each in New Zealand and Monterey Bay.	Not expected—Overall, the species is rare and would occur south of the MSA.
Risso's dolphin *Grampus griseus*	P	All major oceans, generally in waters deeper than 3,280 feet and seaward of the continental shelf and slopes.	Low—Generally occur in deeper waters offshore of the MSA.

Table 3.4-4. Special-Status Marine Species and Their Potential to Occur in the Marine Study Area

Common Name *Scientific Name*	Status[1]	Habitat	Potential to Occur in Marine Study Area[2]
Rough-toothed dolphin *Steno bredanensis*	P	All tropical and subtropical oceans; continental shelf to open ocean waters; prefer depths of tropical and warmer temperate waters.	Not expected—Unlikely to occur in the relatively cold waters of the MSA.
Sei whale *Balaenoptera borealis*	FE, FD	Worldwide cosmopolitan distribution in subtropical, temperate, and subpolar waters; usually observed in deeper waters of oceanic areas far from coastline.	Not expected—Uncommon in California waters, especially in the Project vicinity, because they primarily occupy the open ocean.
Short-finned pilot whale *Globicephala macrorhynchus*	P	Warmer tropical and temperate waters, commonly along the coast close to continental shelf; forage in areas with high densities of squid.	Low—Generally found in deeper and warmer waters than those in the MSA.
Southern sea otter *Enhydra lutris nereis*	FT, P	Top carnivore and keystone species in nearshore waters of California from San Mateo County south to Santa Barbara County; frequent inhabitant in kelp forests.	Low—Unlikely to be found as far north as Point Arena.
Sperm whale *Physeter macrocephalus*	FE, FD	Open ocean far from land and uncommon in waters less than 984 feet deep; live at surface of the ocean but dive deep to catch giant squid.	Low—Present in offshore California year-round, peaking in abundance late spring and late summer, but rarely seen because they occupy deep water far offshore.
Spotted dolphin *Stenella attenuata*	P	Typically far away from coast in tropical and subtropical waters worldwide but can also occupy waters over the continental shelf; spend majority of day in waters 295–984 feet deep, diving to depth at night to search for prey.	Low—Eastern Pacific population is typically observed far from the coast and south of the MSA.
Steller (northern) sea lion *Eumetopias jubatus*	FT, P	Distributed around the coasts along the north Pacific rim; common in coastal waters and onshore for resting; small population breeds on Año Nuevo Island, north of Monterey Bay.	Moderate—Documented as relatively common in the immediate coastal area north of Point Arena.
Striped dolphin *Stenella coeruleoalba*	P	Continental shelf to open ocean waters worldwide, often in areas of upwelling and around convergence	Low—Observations are typically far offshore.

Table 3.4-4. Special-Status Marine Species and Their Potential to Occur in the Marine Study Area

Common Name *Scientific Name*	Status[1]	Habitat	Potential to Occur in Marine Study Area[2]
		zones; prefer highly productive tropical to warm temperate waters.	
Marine Turtles			
Green sea turtle *Chelonia mydas*	FE	Distributed globally; oceanic beaches (for nesting), convergence zones in the open ocean and benthic feeding grounds in coastal areas.	Low—In eastern Pacific, sightings from Baja California to southern Alaska but most commonly from San Diego south.
Leatherback sea turtle *Dermochelys coriacea*	FE	Distributed globally; regularly seen off west coast in pelagic waters, with greatest densities found in central California.	Moderate—Most commonly seen between July and October, when surface water temperature warms to 59–61°F (15–16 °C) and large jellyfish, their primary prey, are seasonally abundant.
Loggerhead sea turtle *Caretta*	FT	Temperate and tropical regions of Atlantic, Pacific, and Indian Oceans; use the terrestrial zone, the oceanic zone, and the neritic or nearshore coastal area.	Low—Most recorded U.S. sightings are of juveniles off the California coast, but occasional sightings have been reported along the Washington and Oregon coasts.
Olive Ridley sea turtle *Lepidochelys olivacea*	FT	Mainly pelagic in tropical/temperate regions of Pacific, South Atlantic, and Indian Oceans but has been known to inhabit coastal areas, including bays and estuaries.	Not expected—In the eastern Pacific, their range extends from southern California to northern Chile.
Sharks and Fish			
Basking shark *Cetorhinus maximus*	CSC	Movements and migrations poorly understood; usually sighted from British Columbia to Baja California in winter and spring.	Low—Populations severely depleted by commercial fisheries of the 1950s, and they have never fully recovered due to slow growth and low fecundity.
Chinook salmon *Oncorhynchus tshawytscha*	CE, FE	From Bering Strait to southern California; occupy freshwater streams up to first 2 years, then they migrate to estuarine areas as smolts and eventually to ocean to mature and feed; prefer deeper and larger streams than those used by other Pacific salmonids; historically ranged as far south as Ventura River, but populations have drastically	High—Potentially present in larger streams and rivers throughout northern California, such as the Garcia River.

Table 3.4-4. Special-Status Marine Species and Their Potential to Occur in the Marine Study Area

Common Name *Scientific Name*	Status[1]	Habitat	Potential to Occur in Marine Study Area[2]
		declined and do not appear to extend far south of San Francisco Bay.	
Coho salmon *Oncorhynchus kisutch*	FT	Spawn in small streams with gravel substrates and spend first half of life cycle in streams and small freshwater tributaries; latter half of life cycle spent foraging in estuarine and marine waters.	High—Spawn in streams and rivers throughout northern California, including the Garcia River near Point Arena; adults may occur in coastal waters near streams and rivers.
Cowcod *Sebastes levis*	CSC	Central Oregon to Baja California; juveniles recruit to fine sediment habitat at depths of 40–328 feet young move to deeper habitat in their first year.	Moderate—Documented catch has declined drastically since the mid-1980s; may be present near the seafloor.
Steelhead *Onchorhynchus mykiss*	FT, CSC	Entire Pacific Coast; anadromous form can spend up to 7 years in fresh water prior to smoltification, then up to 3 years in salt water prior to first spawning.	High—Spawn in streams and rivers throughout northern California, including the Garcia River near Point Arena; adults may occur in coastal waters near streams and rivers.
Tidewater goby *Eucycloglobius newberryi*	FE	Lagoons formed by seasonally blocked streams draining into the ocean; prefers salinities of less than 10 parts per thousand (less than one-third ocean salinity), and thus more often found in upper parts of lagoons near inflow.	Low—Very rare; documented as seasonally present in Elkhorn Slough, Bennet Slough, and Salinas River—all of which are outside the MSA.
Green sturgeon (southern DPS) *Acipenser medirostris*	FT, CSC	Marine and estuarine environments, Sacramento River; San Francisco Bay-Delta, Humboldt Bay, offshore waters to 360 feet from Monterey Bay to the U.S.-Canada border.	Unknown—Designated critical habitat is present in the MSA.
White shark *Carcharodon carcharias*	CSC	Important habitat in vicinity of Monterey Bay and Greater Farallones National Marine Sanctuaries.	Present in coastal waters throughout California.
Gastropods			
Black abalone *Haliotis cracherodii*	FE	Coastal and offshore island intertidal habitats on exposed rocky shores where bedrock provides deep, protective crevices for shelter.	Low—Point Arena is northernmost point of distribution along the California coast; rare north of San Francisco.

Table 3.4-4. Special-Status Marine Species and Their Potential to Occur in the Marine Study Area

Common Name ***Scientific Name***	**Status[1]**	**Habitat**	**Potential to Occur in Marine Study Area[2]**
Green abalone *Haliotis fulgens*	FSC	Coastal and offshore island intertidal habitats on exposed rocky shores where bedrock provides deep, protective crevices for shelter.	Not expected—Mainly distributed from Point Conception to Bahia Magdalena in Baja California.
Pink abalone *Haliotis corrugate*	FSC	Coastal and offshore island intertidal habitats on exposed rocky shores where bedrock provides deep, protective crevices for shelter.	Not expected—Mainly distributed from Point Conception to Bahia Magdalena in Baja California.
White abalone *Haliotis sorenseni*	FE	Coastal and offshore island intertidal habitats on exposed rocky shores where bedrock provides deep, protective crevices for shelter.	Not expected—Mainly distributed from Point Conception to Bahia Magdalena in Baja California.

Terms: MSA = marine study area; nm = nautical miles

[1] Status Codes:

Federal: U.S. Fish and Wildlife Service, National Marine Fisheries Service

- FC = Candidate to become a proposed species
- FDL = Delisted
- FE = Listed as "endangered" (in danger of extinction) under the federal Endangered Species Act (FESA)
- FSC = Former federal species of concern. U.S. Fish and Wildlife Service no longer lists species of concern but recommends that species considered to be at potential risk by a number of organizations and agencies be addressed during project environmental review. National Marine Fisheries Service still lists species of concern.
- FT = Listed as threatened (likely to become endangered within the foreseeable future) under FESA

State: California Department of Fish and Wildlife

- CE = Listed as endangered under the California Endangered Species Act (CESA)
- CSC = Species of special concern
- CT = Listed as threatened under CESA

National Oceanographic and Atmospheric Administration; Marine Mammal Protection Act

- FD = Depleted population
- P = Federally protected

[2] Potential for Occurrence Rankings:

Not expected: Suitable foraging or spawning habitat not known to be present or is rare, and species has not been or is rarely documented.

Low: Suitable foraging or spawning habitat present, but species has not been documented to be present or, if present, is uncommon and infrequent.

Moderate: Suitable foraging or spawning habitat is present and species is somewhat common or common for part of the year.

High: Suitable foraging or spawning habitat is present, and species is common throughout the year /or in substantial numbers.

Source: AMS 2018a (Appendix C5)

Marine Mammals

Of the approximately 40 marine mammals known to occur along the Californian coast, a few have been observed in the MSA near Manchester Beach (Table 3.4-3). Those species with either a moderate or high probability to occur in the MSA (and thus potentially subject to Project effects) are California sea lion (*Zalophus californianus*), harbor seal (*Phoca vitulina*), common long- and short-beaked dolphins (*Delphinus capensis* and *D. delphis*), bottlenose dolphin *(Tursiops truncates*), Pacific white-sided dolphin (*Lagenorhynchus obliquidens*), humpback whale (*Megaptera novaeangeliae*), and gray whale (*Eschrirchtius robustus*).

These species can be expected to be present in the MSA seasonally when migrating along the coast or opportunistically when foraging in the area. There are no established haul-outs, pupping, or birthing sites in the MSA.

Sea Turtles

Four species of sea turtles can occur in the nearshore waters off central and northern California: green *(Chelonia mydas*), loggerhead (C*aretta caretta*), leatherback (*Dermochelys coriacea*), and olive ridley (*Leipidochelys olivacea*) turtles. Of these four species, only the leatherback turtle is occasionally seen around Point Arena and Manchester Beach.

Fish

Chinook salmon (*Oncorhynchus tshawytscha*), Coho salmon (*O. kisutch*), steelhead (*O. mykiss*), and cowcod (*Sebastes levis*) are special-status species with the potential to occur in the coastal waters off Manchester Beach (Table 3.4.3). All four species have experienced significant population declines, and while they may be present in the MSA, their abundance depends on the season and recent fecundity. Coho and Chinook salmon and steelhead have been documented in the nearby Garcia River and are likely present in the adjacent coastal waters of the MSA (ICF 2009).

Significant Ecological Areas

Areas of Special Biological Significance

The State Water Resources Control Board (SWRCB) designates Areas of Special Biological Significance (ASBS) as requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable. The closest ASBS to the marine study area include Jughandle Cove ASBS (approximately 26 miles north) and Saunders Reef ASBS (approximately 11 miles south).

Parks, Sanctuaries, and Significant Ecological Areas

Areas of ecological importance, such as parks, sanctuaries, national monuments, and Significant Ecological Areas (SEAs), may be designated by federal, state, or local agencies with the intent to enhance public awareness and provide a level of protection to local resources. At the federal level, the Bureau of Land Management has designated Point Arena as the Point Arena–Stornetta California Coastal National Monument. Point Arena also is designated as a California Marine Protected Area (MPA), as described in more detail below.

The CDPR includes preservation and protection of natural resources as part of its management responsibilities. At a local level, counties or cities may also assign status to local resources. The state park nearest the MSA is Manchester Beach State Park, south of the proposed CLP. The Marina Rock Marine Natural Preserve is within the Manchester State Park boundaries. The proposed offshore cable route does not traverse any portion of Manchester Beach State Park. The MSA is not designated as a park, sanctuary, or SEA by any county or city agency. Further, the beach inshore of the proposed intake is not a state beach or state seashore.

Marine Protected Areas

The California Marine Life Protection Act was established to protect the natural diversity and abundance of marine life and marine ecosystems in California. Three types of MPAs are designated (or recognized) in California: State Marine Reserves (SMRs), State Marine Parks (SMPs), and State Marine Conservation Areas (SMCAs). The closest SMCAs and SMRs to the MSA are the Point Arena SMR (3 miles south), the Point Area SMCA (3 miles south), the Sea Lion Cove SMCA (6 miles south), the Saunders Reef SMCA (11 miles south), and the Navarro River SMCA (13 miles north). All of these MPAs are outside the MSA.

Environmentally Sensitive Habitat Areas

Under the California Coastal Act, Environmentally Sensitive Habitat Areas (ESHAs) are defined 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.” The only ESHAs near the MSA are the bull kelp (*Nereocystis luetkeana*) forests at Point Arena.

Critical Habitat

Although many state- and federally listed species could occur in the coastal and offshore waters of the MSA (Table 3.4.3), the MSA includes designated critical habitat only for the southern distinct population segment of the North American green sturgeon (*Acipenser transmontanus*).

Essential Fish Habitat

Essential fish habitat (EFH) (see the discussion of the MSA in Appendix C5) is described as a subset of all habitats occupied by a species. The MSA off Manchester Beach is located in an area designated as EFH under four Fishery Management Plans: Pacific Coast Groundfish (PFMC 2016), Coastal Pelagic Species (PFMC 2018a), Pacific Coast Salmon (PFMC 2016), and Highly Migratory Species (PFMC 2018b). An EFH assessment was prepared in support of the Project (AMS 2018a; Table 5 [Appendix C5]).

Nonnative and Invasive Species

The introduction of nonnative and invasive aquatic species is one of the greatest threats to subtidal and intertidal habitats in nearshore coastal waters and estuaries of California. Nonnative and invasive species in the marine environment are animals or algae translocated from their native region to a new area. Pelagic and demersal habitats along the open coast also are vulnerable to invasive species, although the threat is less than in estuaries and intertidal habitats (Zabin et al. 2018). The introduction of nonnative species can result in large-scale changes to aquatic communities. California's estuaries, in particular, have become home to many nonnative and introduced species that have dominated local intertidal and subtidal marine communities. Hundreds of nonnative and invasive species are established in the major bays and harbors of California (CDFW 2018f, Zabin et al. 2018). San Francisco Bay harbors the most nonnative and invasive species and is considered a hub for the spread of invasive species to the rest of the West Coast (CDFG 2008, CDFW 2018f). Twenty-two nonnative and invasive species have been documented along the 840 miles of California's open coast habitats (Zabin et al. 2018).

Nonnative and invasive species are spread through human activities such as international shipping, recreational boating, aquaculture, and aquarium trade. Ocean warming also is causing increases in invasive species (UCD BML 2018). Biofouling is identified as the leading cause of the introduction of foreign species to California, followed by ship ballast water discharge (CDFG 2008). Most species that are introduced to California are from the northwest Atlantic, northwest Pacific, and northeast Atlantic (CDFG 2008). Introduced species typically include snails, shrimp, plankton, crabs, and algae.

Although the effects of introduced species on the habitats they colonize are often unknown, some clearly have had serious negative consequences. Impacts include decreasing abundance and even local extirpation of native species; alteration of habitat structure; and extensive economic costs resulting from heavy organism, including algal, growth on vessel bottoms and buoys. Invasive species also may pose a threat to human health by introducing or transporting new diseases into the region (CDFG 2008).

Legislative and public outreach/volunteer efforts are designed to prevent the spread of invasive species. All shipping operations that involve major marine vessels are subject to the Marine Invasive Species Act of 2003 (Pub. Resources Code, Sections 71200 through 71271), which revised and expanded the California Ballast Water Management for Control of Non-Indigenous Species Act of 1999 (AB 703). The CSLC administers this act, which regulates the handling of ballast water from marine vessels arriving at California ports to prevent or minimize the introduction of invasive species from other regions.

Under the National Invasive Species Act of 1996, the USCG introduced national voluntary ballast water guidelines. The USCG published regulations on June 14, 2004, establishing a national ballast water management program with mandatory requirements for all vessels equipped with ballast water tanks that enter or operate in U.S. waters. The regulations carry reporting requirements to aid in the USCG's responsibility, under the National Invasive Species Act, to determine patterns of ballast water movement. The regulations also require ships to maintain and implement vessel-specific ballast water management plans.

CDFW did not report the presence of any invasive marine species near Point Arena during either of its surveys in 2004 and 2007 (CDFG 2008). Similarly, Reef Check and the Marine Invasives Observation Map (Pacific Rocky Intertidal Monitoring 2018) have not reported the presence of any invasive species at Point Arena or within the MSA.

3.4.2 Regulatory Setting

Federal and state laws and regulations pertaining to biological resources and relevant to the Project are identified in Appendix A.

At the local level, the following policies and programs in the County's General Plan and Mendocino County's Coastal Element are applicable to biological resources in the BSA. There are no regulations in Mendocino's Local Coastal Plan (LCP) that are immediately applicable to the Project.

3.4.2.1 Relevant Resource Measures from the *Mendocino County General Plan* (2009)

> ***General Plan Policy Resource Measure 28*****:** All discretionary public and private projects that identify special-status species in a biological resources evaluation (where natural conditions of the site suggest the potential presence of special-status species) shall avoid impacts to special-status species and their habitat to the maximum extent feasible. Where impacts cannot be avoided, projects shall include the implementation of site-specific or project-specific effective mitigation strategies developed by a qualified professional in consultation with state or federal resource agencies with jurisdiction (if applicable) including, but not limited to, the following strategies:

- Preservation of habitat and connectivity of adequate size, quality, and configuration to support the special-status species. Connectivity shall be determined based on the specifics of the species' needs.
- Provision of supplemental planting and maintenance of grasses, shrubs, and trees of similar quality and quantity to provide adequate vegetation cover to enhance water quality, minimize sedimentation and soil transport, and provide adequate shelter and food for wildlife.
- Provide protection for habitat and the known locations of special-status species through adequate buffering or other means.
- Provide replacement habitat of like quantity and quality on- or off-site for special-status species.
- Enhance existing special-status species habitat values through restoration and replanting of native plant species.
- Provision of temporary or permanent buffers of adequate size (based on the specifics of the special-status species) to avoid nest abandonment by nesting migratory birds and raptors associated with construction and site development activities.
- Incorporation of the provisions or demonstration of compliance with applicable recovery plans for federally listed species.

3.4.2.2 Relevant Policies from the Mendocino County Coastal Element—3.1 Habitat and Natural Resources (1991a)

A buffer area shall be established adjacent to all environmentally sensitive habitat areas. The purpose of this buffer area shall be to provide for a sufficient area to protect the environmentally sensitive habitat from significant degradation resulting from future developments. The width of the buffer area shall be a minimum of 100 feet, unless an applicant can demonstrate, after consultation and agreement with the California Department of Fish and Game, and County Planning Staff, that 100 feet is not necessary to protect the resources of that particular habitat area and the adjacent upland transitional habitat function of the buffer from possible significant disruption caused by the proposed development. The buffer area shall be measured from the outside edge of the environmentally sensitive habitat areas and shall not be less than 50 feet in width. New land division shall not be allowed which will create new parcels entirely within a buffer area. Developments permitted within a buffer area shall generally be the same as those uses permitted in the adjacent environmentally sensitive habitat area and must comply at a minimum with each of the following standards:

1. It shall be sited and designed to prevent impacts which would significantly degrade such areas.

2. It shall be compatible with the continuance of such habitat areas by maintaining their functional capacity and their ability to be self-sustaining and to maintain natural species diversity.
3. Structures will be allowed within the buffer area only if there is no other feasible site available on the parcel. Mitigation measures, such as planting riparian vegetation, shall be required to replace the protective values of the buffer area on the parcel, at a minimum ratio of 1:1, which are lost as a result of development under this solution.

Areas where riparian vegetation exists, such as riparian corridors, are environmentally sensitive habitat areas and development within such areas shall be limited to only those uses which are dependent on the riparian resources. All such areas shall be protected against any significant disruption of habitat values by requiring mitigation for those uses which are permitted. No structure or development, including dredging, filling, vegetation removal and grading, which could degrade the riparian area or diminish its value as a natural resource shall be permitted in the Riparian Corridor except for:

- Channelizations, dams, or other substantial alterations of rivers and streams as permitted in Policy 3.1-9
- Pipelines, utility lines and road crossings, when no less environmentally damaging alternative route is feasible
- Existing agricultural operations
- Removal of trees for disease control, public safety purposes, or for firewood for the personal use of the property owner at his or her residence. Such activities shall be subject to restrictions to protect the habitat values.

3.4.3 Impact Analysis

The impact analysis provided below is based on the State CEQA Guidelines, Appendix G, for biological resources. The standard criteria presented in Appendix G of the State CEQA Guidelines have been slightly modified to include the ecological dynamics of marine habitats and biological communities.

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service, or that is a species of interest to the State Lands Commission or the California Coastal Commission; or cause a marine wildlife population to drop below self-sustaining levels?

3.4.3.1 Terrestrial Components

Less than Significant with Mitigation

Point Arena Mountain Beaver

The Point Arena mountain beaver is known to occur in the BSA and surrounding region. Mountain beavers are known to occur in the riparian habitat adjacent to and near Brush Creek and Alder Creek, as well as within riparian or coastal scrub habitat adjacent to three of the four unnamed streams in the BSA. Some populations are known to have burrows near roadways. Mountain beavers are well documented at Manchester State Park and along Kinney Road, where two beaver mortalities have been confirmed from vehicle strikes (USFWS 1998). In the *Point Arena Mountain Beaver (Aplodontia rufa nigra (Rafinesque) Recovery Plan*, USFWS identified drilling (i.e., directional boring) for fiber optics projects as potentially affecting mountain beaver populations through noise, vibration, and some physical impacts on suitable habitat (USFWS 1998). USFWS generally considers that a project would have potential impacts on mountain beaver if project activities would take place within 500 feet of a population (USFWS 2017). Because presence/absence surveys have not been completed, coastal scrub and riparian habitats in and adjacent to the BSA are considered suitable habitat for the Point Arena mountain beaver.

The Applicant coordinated with USFWS as follows:

- On October 19, 2018 Mr. Steve Yonge (ICF, wildlife biologist) conducted a conference call with Mr. Greg Schmidt (USFWS, biologist) from the Arcata Fish and Wildlife Office. The general project design was discussed, with emphasis on potential impacts on the Point Arena mountain beaver (PAMB). Mr. Schmidt stated that the 2017 Draft Guidelines for Project-Related Habitat Assessments and Presence-Absence Surveys for the Point Arena Mountain Beaver should be followed to determine the level of PAMB activity in the action area. Also discussed was the 2017 Draft Point Arena Mountain Beaver Standard Protection Measures for “No-Take” Determinations and the recommended no take buffer distances. Mr. Schmidt explained that the standard protection measures were primarily drafted for private land owners and that USFWS is analyzing its approach to current burrow buffer distance protection. To minimize potential project-related effects on PAMB, Mr. Schmidt stated that the Project should be constructed within the compacted shoulder of SR 1 and that other Caltrans projects should be considered during Project design.

- On November 7, 2018, Mr. Yonge and representatives from RTI (Brian Bergfalk and Chris Brungardt) met with Mr. Schmidt and Ms. Shannon Brinkman (USFWS, Arcata Fish and Wildlife Office) at Manchester Beach State Park near the proposed Project location. Methods and timing of construction were discussed. USFWS expressed the importance of PAMB habitat movement corridors (riparian habitat). Also discussed were potential effects of ground vibration on burrows, the presence/absence survey approach, and how far from the proposed Project alignment surveys should be conducted. Mr. Yonge explained that access outside of the Caltrans ROW would be an issue; access to private property is not authorized. RTI explained their willingness to design the project with the least amount of impacts and that they would work closely with Caltrans to gain approval to work within the managed shoulder of SR 1.

  The group then drove along the proposed alignment and made various stops to discuss potential effects on PAMB and other federally protected species. The group reviewed a set of draft project maps and delineated suitable PAMB habitat.

Work at the CLP and construction of the underground conduit system could affect suitable habitat for Point Arena mountain beaver. Such work could damage burrows or disturb mountain beavers, if they are present. Work to install the underground conduit system would involve a combination of trenching and directional boring. Trenching could affect individuals or their burrows, if present in the road shoulder, through direct removal or disturbance; or individuals could be trapped, if they fall into an open trench and cannot escape. Directional boring could affect individuals or burrows through direct removal, disturbance, or inadvertent release of drilling fluids, which could fill or otherwise make burrows unsuitable. Equipment noise and vibration associated with all construction activities have the potential to disturb mountain beavers. Work at any of the proposed CLS sites is not expected to affect mountain beaver because such work would be undertaken within the existing facilities and therefore would not affect suitable mountain beaver habitat.

Construction of the Project is expected to cause temporary disturbance of approximately 0.42 acre of suitable mountain beaver habitat and areas immediately adjacent to suitable habitat. Project construction also would cause permanent impacts on approximately 0.17 acre of suitable habitat from installation of the LMH and access road at the CLP and from installation of access vaults and intermediate manholes along the underground conduit system route.

Implementation of general protection measures outlined in **MM BIO-1** through **MM BIO-4** would ensure that construction crews are aware of and implement all mitigation measures, that biological resources are identified and protected, that a qualified biological monitor oversees construction activities, and that sensitive resources are avoided through directional boring. **MM BIO-5** through **MM BIO-7** require implementing BMPs (best management practices) related to trenchless construction, controlling drilling mud, and promptly restoring temporarily disturbed areas following construction. These measures would help to reduce impacts on Point Arena mountain beaver.

To further reduce impacts, the Applicant will implement **MM BIO-8** through **MM BIO-11**. Implementation of **MM BIO-8** would avoid entrapment of mountain beavers in exposed trenches or other excavations. **MM BIO-9** requires identifying the occupancy of mountain beavers to facilitate avoidance measures. Implementing **MM BIO-10** requires completing Project construction within the time period (the nonbreeding season) that is least disruptive to mountain beavers. **MM BIO-11** would further reduce impacts by carefully siting the CLP construction area, and by siting trenching and boring activities—to the extent possible, in locations that are the least likely to affect mountain beavers (i.e., areas without burrows or populations).

Implementation of **MM HYDRO-1** (see Section 3.11) and **MM BIO-1** through **MM BIO-11** would reduce impacts on Point Area mountain beaver to a less than significant level.

MM BIO-1: Provide Environmental Awareness Training. The Applicant shall provide environmental awareness training for construction personnel working on the terrestrial and marine components of the Project. The biological monitor(s), approved by CSLC staff prior to the start of construction activities, shall be responsible for conducting an environmental awareness training for all Project personnel and for new personnel as they are added to the Project, to familiarize workers with surrounding common and special-status species and their habitats, applicable regulatory requirements, and mitigation measures that must be implemented to avoid or minimize potential impacts on biological resources.

The training materials shall be developed and submitted to CSLC staff for approval at least 4 weeks prior to the start of Project activities. The Applicant shall identify a representative to serve as the main contact for reporting any special-status species that is observed in or near the Project area by any employee or contractor, and shall provide the contact information for both this representative and the qualified biologist to onsite construction workers, USFWS, CDFW, and CSLC staff before construction commences. The qualified biologist shall maintain a list of contractors who have received training and shall submit a summary of the awareness training to CSLC staff within 30 days after construction begins and after construction is completed.

MM BIO-2: Conduct Biological Surveying and Monitoring. A qualified biological monitor, approved by CSLC staff, shall be present on-site to survey the work area for Point Arena mountain beaver burrows, nesting birds, and plants prior to the commencement of Project activities to minimize the potential for impacts on any sensitive species or other wildlife that may be present during Project implementation. Qualifications for biological monitors typically include a college degree in a field of biology or environmental science and experience with pre-construction and construction monitoring.

In addition, the biological monitor shall be on-site at all times during Project construction. If at any time during Project construction, special-status species are observed in the Project area or within a predetermined radius surrounding the terrestrial Project components (as determined by the on-site biologist), the biologist shall have the authority to stop all work. and the Applicant shall contact the appropriate agency, (i.e., CDFW or USFWS and CSLC staff) to discuss ways to proceed with the Project. Monitoring results shall be summarized in a monthly report and provided to CSLC staff during construction.

MM BIO-3: Delineate Work Limits and Install Temporary Construction Barrier Fencing to Protect Sensitive Biological Resources. Prior to the start of Project construction, the limits of the onshore construction area at the CLP shall be clearly flagged and limited to the minimum area necessary to complete the work. Natural areas outside the construction zone shall not be disturbed. Designated equipment staging and fueling areas shall also be delineated at this time and shall be sited at least 100 feet from wetlands.

Before construction begins, the contractor shall work with a qualified biologist, approved by CSLC staff in consultation with CDFW or USFWS, to identify environmentally sensitive locations to avoid during construction and locations that require barrier fencing. Staging areas and access routes shall be sited to avoid any special-status plants and seasonal wetland habitat present in the Project area. Prior to ground-disturbing activities, the contractor shall install stakes and flagging to identify environmentally sensitive areas that require avoidance. The environmentally sensitive areas shall be clearly identified on the construction specifications. The staking and flagging shall be installed before construction activities are initiated and shall be maintained for the duration of construction. Throughout the course of construction, the biological monitor (**MM BIO-2**) shall inspect the staking and flagging to ensure that it is visible for construction personnel. If fencing is installed, the biological monitor shall inspect it regularly to ensure that it is functioning properly and not inadvertently trapping or snaring wildlife.

MM BIO-4: Identify and Avoid Sensitive Biological Resources through Use of Directional Boring. To avoid substantial adverse effects on sensitive biological resources (e.g., sensitive natural communities, habitat for special-status species, and populations of special-status plants), the Applicant shall use directional boring techniques (or bridge attachments at creeks) to avoid direct impacts on such resources.

MM BIO-5: Implement Best Management Practices for Horizontal Directional Drilling and Directional Boring Activities. The Applicant shall implement the following BMPs related to Horizontal Directional Drilling and directional boring.

- For the large marine Horizontal Directional Drilling (HDD), at least 60 days prior to start of construction, the following shall be submitted to CSLC staff for review:
    - Engineering design drawings as issued for construction certified by a California registered Civil/Structural Engineer.
    - A site-specific geotechnical report certified by a California registered Geotechnical Engineer to confirm fitness of purpose of the proposed drilling program and also include any geotechnical recommendations for safe HDD installation.
    - A set of detailed calculations certified by a California registered Civil/Structural Engineer to ensure safe HDD installation to avoid hydrofracture risk and overstress to the bore pipes.
- In cases where the Horizontal Directional Drilling is under CSLC jurisdiction, a minimum depth of cover of 35 feet is required unless a shallower depth is recommended by a California registered Geotechnical Engineer.
- In cases where the directional boring is under a stream, prevent the conduit from becoming exposed by natural scour of the streambed by boring a minimum of 5 feet below the streambed.
- Locate drill entry and exit points far enough from the banks of streams or waterbodies to minimize impact on those areas.
- Avoid removal of riparian vegetation between bore entry and exit points in preparation of trenchless stream crossing operations.

MM BIO-6: Prepare and Implement an Inadvertent Return Contingency Plan. At least 30 days prior to start of construction, a Final Inadvertent Return Contingency Plan for Horizontal Directional Drilling (HDD) and directional boring shall be submitted to CSLC staff for review. The plan shall include measures to stop work, maintain appropriate control materials on-site, contain drilling mud, prevent further migration into the stream or waterbody, and notify all applicable authorities. Control measures shall include constructing a dugout/ settling basin at the bore exit site to contain drilling mud to prevent sediment and other deleterious substances from entering waterbodies. In addition, workers shall monitor the onshore and offshore to identify signs of an inadvertent release of drilling fluids. The plan shall include a complete list of the agencies (with telephone number) to be notified, including but not limited to California State Lands Commission's 24-hour emergency notification number (562) 590-5201, California Governor's Office of Emergency Services (Cal OES) contact number (800) 852-7550, etc.

MM BIO-7: Prepare and Implement a Site Restoration Plan. Prior to construction, the Applicant shall prepare a Site Restoration Plan to reduce impacts on vegetation and plant communities at the cable landing site and in other areas of the Project as appropriate. The Applicant shall submit the plan to CSLC staff for approval. The plan shall include details for site preparation and revegetation methods, monitoring, performance criteria, and reporting. As detailed in the Site Restoration Plan, the impact area shall be restored to pre-existing contours. The topsoil shall be stored on-site and evenly distributed over the site's restored contours. Species native to the region shall be seeded in the impact area. If impacts on special-status plant species are anticipated, a qualified biologist, approved by CSLC staff in consultation with CDFW or USFWS shall collect seeds of the species and store them in a cool, dry location; the qualified biologist shall disperse the seeds upon completion of site restoration. It is anticipated that natural resource agencies will review and approve the Site Restoration Plan as part of the permitting process.

The Applicant shall be responsible for avoiding and minimizing the introduction of new invasive plants and the spread of invasive plants previously documented in the BSA. The following BMPs shall be written into the construction specifications and implemented during Project construction.

- Retain all excavated soil material on-site or dispose of excess soil in a permitted off-site location to prevent the spread of invasive plants to uninfested areas adjacent to the Project footprint.
- Use a weed-free source for Project materials (e.g., straw wattles for erosion control that are weed-free or contain less than 1 percent weed seed).
- Prevent invasive plant contamination of Project materials during transport and when stockpiling (e.g., by covering soil stockpiles with a heavy-duty, contractor-grade tarpaulin).
- Use sterile grass seed and native plant stock during revegetation.
- Revegetate or mulch disturbed soils within 30 days of completing ground-disturbing activities to reduce the likelihood of invasive plant establishment.

Detailed information about implementing these BMPs can be found in *Preventing the Spread of Invasive Plants: Best Management Practices for Transportation and Utility Corridors* (Cal-IPC 2012).

MM BIO-8: Install Escape Ramps in Open Trenches. To prevent accidental entrapment of wildlife species during construction, all excavated holes and trenches shall have a soil ramp installed, allowing wildlife an opportunity to exit. If a soil ramp cannot be installed, then the hole or excavation shall be covered with plywood or a similar material while unattended. Prior to construction activities each day, a biological monitor or the Project foreman shall inspect excavations to confirm the absence of or remove special-status species under the monitor's collection permit issued by CDFW.

MM BIO-9: Conduct Surveys for Point Arena Mountain Beaver. A qualified biologist, approved by CSLC staff in consultation with USFWS, shall conduct pre-construction surveys for Point Arena mountain beaver consistent with the *Draft Guidelines for Project-Related Habitat Assessments and Presence-Absence Surveys for the Point Arena Mountain Beaver* (USFWS 2017), or using a modified or alternative survey methodology approved by USFWS. The surveys generally require visual inspection for the presence of mountain beaver burrow openings or other signs of activity. Surveys shall be conducted no more than 8 weeks prior to proposed work activities.

MM BIO-10: Limit Construction Period to Minimize Impacts on Point Arena Mountain Beaver. To the extent practicable, construction activities shall not be conducted in occupied Point Arena mountain beaver habitat during the breeding season (December 1 to June 30). Furthermore, nighttime work requiring illumination shall not be undertaken at any time; construction shall occur only during daylight hours.

MM BIO-11: Avoid Point Arena Mountain Beaver Populations and Burrows. The Applicant shall use the results of the Point Arena mountain beaver surveys conducted under **MM BIO-9** to carefully site work areas at the CLP. Avoidance of populations and suitable burrows shall be the priority. The Applicant shall also use the results of the surveys to determine where trenching and boring should occur along the terrestrial underground conduit system routes. Boring shall be used to avoid areas with suitable burrows or adjacent populations. Bore pits shall be sited in areas with zero or the fewest suitable burrows. Manholes shall also be constructed in areas with the fewest suitable burrows. Construction activities shall be stopped immediately and the USFWS notified if Point Arena mountain beavers are injured or killed during construction.

American Badger

Suitable habitat for American badger is present on the CLP. Construction activities and workers at the CLP have the potential to disrupt foraging and denning behavior, if any badgers are present at the time. Construction activities could temporarily displace individuals into adjacent habitat. Because badgers are mobile, construction activities are not anticipated to lead to injury or mortality. In light of the availability of adjacent grasslands and coastal scrub habitat that provide suitable foraging and denning habitat, impacts on American badger are anticipated to be limited. Implementation of **MM BIO-1** through **MM BIO-8** would ensure that construction crews are aware of all resource protection measures, that biological surveys and monitoring are conducted, that sensitive biological resources are protected and avoided to the extent feasible, that animals can escape any open trenches, and that the CLP is restored following construction. Implementation of these measures would reduce this impact to a less than significant level.

Foothill Yellow-Legged Frog

Suitable habitat for foothill yellow-legged frog occurs in the BSA along the route of the underground conduit system. Suitable habitat for foothill yellow-legged frog is present at six streams crossed by the conduit system: two named streams (Brush and Alder Creeks) and four unnamed streams. The underground conduit system would be installed beneath the streams using directional boring techniques or would be attached to bridges.

Directional boring or bridge attachments would avoid direct impacts on aquatic habitat and foothill yellow-legged frogs, if any are present. However, inadvertent releases of drilling fluids into aquatic habitats remain a possibility. Should the drilling fluids reach the surface of the stream channel and mix with water, they would contaminate both the substrate and water quality—potentially affecting foothill yellow-legged frogs and their food sources.

Implementation of **MM BIO-1** would make construction crews aware of all resource protection measures. **MM BIO-2** requires biological surveys and monitoring. Implementation of **MM BIO-3** and **MM BIO-4** would protect and avoid sensitive biological resources to the extent feasible. **MM BIO-5** and **MM BIO-6** require establishing BMPs to design and monitor drilling activities and a plan to control the inadvertent release of drilling fluids during directional boring activities.

Implementation of these measures would reduce impacts on foothill yellow-legged frog to a less than significant level.

California Red-Legged Frog/Northern Red-Legged Frog

The California red-legged frog and northern red-legged frog have similar life histories and habitat requirements; therefore, they are addressed here together.

The Project would entail using either directional boring or bridge attachments at the six waterbodies that provide aquatic habitat for both species. While Project activities could result in a significant impact on suitable habitat, directional boring beneath the creeks or placing a bridge attachment overhead would avoid any potential direct impacts. The cable landing site (100 by 150 feet) required for directional boring and the entry and exit pits (4 by 8 feet) for trenchless construction of the underground conduit system would be set back a minimum of 50 feet from riparian habitat.

While construction techniques would be conducted to avoid aquatic habitat, an inadvertent release of drilling fluids could occur if the drilling mud used to lubricate the bore leaks from the bore hole. Should the lubricant reach the surface of the stream channel and mix with water, it would affect water quality and the aquatic substrate. To minimize the potential for inadvertent releases of drilling fluids, the geological characteristics of the substrate would be evaluated so that the most appropriate route for conduit installation is chosen. Implementation of **MM BIO-6** also would minimize the risk of contamination from inadvertent releases of drilling fluids.

Construction of the cable landing site, access vault, and manholes would permanently affect approximately 0.0.18 acre of suitable upland habitat (habitat within 300 feet of aquatic habitat) for both California and northern red-legged frogs. Staging and work areas, open trenching, and trenchless construction would temporarily affect approximately 0.02 acres of suitable upland habitat. A Biological Opinion will be issued by USFWS prior to construction of the Project.

Implementation of **MM BIO-1** through **MM BIO-8** would minimize or avoid temporary impacts on suitable habitat and avoid injury or mortality of individual frogs. Environmental awareness training, surveys and monitoring, delineation of the work area, and site restoration would reduce potential impacts to a less than significant level.

To further minimize permanent and temporary impacts, the Applicant will implement the conditions and requirements of any state and federal permits obtained for the proposed Project that are designed to protect both species of frog and their habitat.

Most of the BSA is within critical habitat unit MEN-1 for California red-legged frog. Based on Project design, 0.43 acres of critical upland habitat would be temporarily affected, and 0.18 acre of critical upland habitat would be permanently affected. Implementation of **MM BIO-7** would reduce impacts on critical habitat for California red-legged frog to a less than significant level.

Behren's Silverspot Butterfly and Lotis Blue Butterfly

Suitable habitat for Behren's silverspot butterfly (habitats supporting the host plant, western dog violet) has not been documented in the BSA, but some could be present. Three individual larval host plants (*Hosackia gracilis*) for the lotis blue butterfly was reported at the CLP near the SR 1 ROW. Construction activities at the CLP and along the underground conduit system have the potential to remove habitat, if present, and could injure or kill butterflies at various stages of their life cycle. Construction activities could temporarily displace individuals and injure or kill adults that are in flight. Larvae also could be injured or killed if suitable host plants are present. Implementation of **MM BIO-1** through **MM BIO-7** would ensure that construction crews are aware of all resource protection measures, that biological surveys and monitoring are conducted, that sensitive biological resources are protected and avoided to the extent feasible, and that the CLP is restored following construction.

Implementation of **MM BIO-12** would avoid and minimize potential impacts on Behren's silverspot butterfly and lotis blue butterfly to the extent practicable. Implementation of these measures would reduce this impact to a less than significant level.

MM BIO-12: Survey for and Avoid Behren's Silverspot Butterfly and Lotis Blue Butterfly Habitat. Prior to construction, a qualified biologist or botanist, approved by CSLC staff in consultation with USFWS or CDFW, shall conduct a survey of the areas of the BSA that will be permanently or temporarily disturbed for Behren's silverspot butterfly and lotis blue butterfly larval host plants (western dog violet plants and other species of violet; *Hosackia gracilis*, *Lotus* spp., *Lupinus* spp., *Astragalus* spp., and *Lathyrus* spp.). The survey will be conducted during the appropriate blooming period (spring/summer). The numbers and locations of individual larval host plants identified in the BSA shall be mapped and, to the extent feasible, the Applicant shall site Project activities and facilities to avoid the removal of larval host plants.

Birds

Six special-status bird species—marbled murrelet, northern harrier, western snowy plover, yellow warbler, yellow-breasted chat, and peregrine falcon—have potential or are known to occur in the BSA. Suitable nesting habitat for northern harrier, western snowy plover, yellow warbler, and yellow-breasted chat is present in the BSA, which may also provide nesting and foraging habitat for other species that are protected under the federal Migratory Bird Treaty Act.

While interference with foraging behavior likely would not constitute a significant impact in view of the regional availability of habitat, construction activities could disturb nesting birds. Such disturbance could cause nest abandonment, failure of nesting efforts, and death of fledglings. Implementation of **MM BIO-13** would reduce impacts on nesting birds to a less than significant level.

MM BIO-13: Conduct Pre-Construction Nesting Bird Surveys and Implement Avoidance Measures. In the event that construction would occur during the nesting season, the following conditions designed to protect both special-status and non–special-status birds shall be implemented.

No more than 1 week prior to the start of Project construction, a qualified biologist, approved by CSLC staff in consultation with USFWS or CDFW, shall conduct a survey of the Project area to determine the presence of nesting activity (the typical nesting season is from February 1 to September 1). If active nests are found, an appropriate avoidance buffer shall be established by the biologist. If federal and state special-status species are observed nesting, coordination may be warranted with USFWS or CDFW to determine appropriate avoidance buffer distances. No disturbances shall occur within the protective buffer(s) until all young birds have fledged, as confirmed by the biologist.

In accordance with **MM BIO-2**, a qualified biological monitor shall be retained by the Applicant and shall be on-site at all times during Project operations. If at any time during Project operations special-status species (including but not limited to western snowy plovers) are observed within the Project area, all work shall be stopped or redirected to an area within the Project site that would not affect special-status birds.

Fish

Four special-status fish species—northern California coast steelhead, California coastal Chinook salmon, central California coho salmon, and Pacific lamprey—have potential to occur in the six streams that cross the proposed alignment of the underground conduit system. Construction activities could result in temporary impacts on special-status fish habitat. Temporary impacts could result from directional boring under the streams or attaching conduit to bridges overhead. Impacts could include disturbance from noise and vibration associated with boring beneath the stream or noise from bridge attachment work. **MM BIO-6** would reduce the potential for an inadvertent release of drilling fluids into the streams.

Directional boring under the streams would transmit sound and vibration through the substrate into the water, where it could disturb resident or migrating fish. The level of noise and vibration these activities would cause is not currently known; these levels depend on the characteristics of the substrate through which the bore hole is drilled. The impact of boring-related noise on fish species has not been studied, but the level of sound associated with boring is much lower than that associated with pile driving. Bridge attachment above creeks also would result in noise. The duration of noise and vibration would be brief at any given crossing. It was assumed that boring-related noise and vibration may annoy fish, causing them to move away from the immediate area for the duration of the disturbance.

Inadvertent release of drilling fluid (bentonite and water) could cause turbidity impacts. If drilling fluids were to discharge through fractures into the stream channel, they could result in contamination of substrate and water quality, siltation of spawning gravels, and degradation in the abundance and viability of aquatic organisms that make up the fishes' diet. High turbidity is known to cause acute responses in fish—such as difficulty ventilating and suffocation—if the condition persists. Chronic responses can include decline in health and avoidance of the affected area.

The cable landing site (100 by 150 feet) required for directional boring and the entry and exit pits (4 by 8 feet) for trenchless construction of the underground conduit system would be set back a minimum of 50 feet from riparian habitat.

To minimize the potential for an inadvertent release of drilling fluid, the geological characteristics of the substrate would be evaluated to determine the most appropriate route for conduit installation. Development and implementation of **MM BIO-6** would reduce the risk of significant impacts resulting from an inadvertent release of drilling fluid.

Implementation of **MM BIO-1** through **MM BIO-6** would reduce impacts on special-status fish species to a less than significant level.

Plants

Sixteen special-status plant species occur or have the potential to occur in the BSA. Of the 16 special-special status species with potential to occur, Mendocino Coast paintbrush (CRPR 1B.2) was observed outside and immediately west of the CLP. Harlequin lotus (CRPR 4.2) was mapped on the CLP. Suitable habitat is present in the BSA for state-listed Roderick's fritillary, federally endangered Contra Costa Goldfields, and 13 other special-status species ranked as CRPR 1B or 2B. Two late-blooming special-status species, Baker's goldfields (CRPR 1B.2) and perennial goldfields (CRPR 1B.2) have suitable habitat in the BSA that was surveyed during the species' identifiable periods; neither species was observed, and no impacts are anticipated on Baker's goldfields or perennial goldfields.

Mendocino Coast paintbrush was documented along the coastal bluff cliffs outside the BSA; however, this area would not be disturbed because the directional bores would pass under the ocean's bluffs and beach. Harlequin lotus was identified in a potential seasonal wetland on the CLP. Documented in its native range, the presence of Harlequin lotus in the BSA does not warrant legal consideration because the population is not considered locally significant (i.e., it is found within its normal range, elevation, and habitat). In addition, the wetland where Harlequin lotus was observed is likely jurisdictional, and it would therefore be avoided to the extent practical, as described in greater detail below. Should temporary disturbance affect Harlequin lotus and its habitat, **MM BIO-1** through **MM BIO-7** would implement BMPs to minimize impacts and restore the site to preexisting conditions.

As discussed in Section 3.4.1.1, *Environmental Setting*, some of the BSA has not been surveyed during the appropriate identification period to confirm absence or presence of special-status plants. Consequently, Project activities could affect special-status plants that have not yet been documented. The following Project activities could result in damage, destruction, or removal of special-status plants: equipment staging, trenching, excavation of entry/exit pits for trenchless conduit installation, construction of intermediate manholes, directional boring for marine cables, construction of the LMH, and ground bed installation at the CLP. Should special-status plants be documented in the coastal bluffs of the BSA, directional boring toward the ocean would avoid impacts on the habitat. In addition to these direct effects, ground disturbance could render habitat for special-status plants vulnerable to colonization by invasive species. Establishment of invasive species in disturbed areas would decrease the potential for recruitment of special-status plant species.

To determine the presence of special-status plants, the Applicant would implement **MM BIO-14**, which specifies conducting appropriately timed floristic surveys in those portions of the BSA that were not accessible prior to preparation of this IS. Implementation of **MM BIO-1** through **MM BIO-6** would help to avoid and minimize potential impacts on federally protected wetlands through worker training, biological surveying and monitoring, identifying and delineating sensitive resources, avoiding sensitive resources through directional boring and bridge attachments, and implementing BMPs for directional boring activities and an Inadvertent Return Contingency Plan. **MM BIO-7** would reduce potential impacts on habitat that cannot be wholly avoided by requiring appropriate restoration of disturbed areas.

Implementation of these measures would reduce potential impacts on special-status plants to a less than significant level.

MM BIO-14: Conduct Appropriately Timed Floristic Surveys of Remaining Areas. The remaining portions of the BSA that were not surveyed at the appropriate time to account for early- and mid-blooming plant species will be surveyed. The final 2018 botanical survey covered the entire BSA and coincided with the identifiable period of late-blooming species. A qualified biologist, approved by CSLC staff in consultation with CDFW or USFWS, shall conduct early- and mid-season botanical surveys of the natural and naturalized communities in the BSA—excluding developed areas and disturbed vegetation on the property containing the Private CLS—in spring and summer 2019. Botanical surveys shall follow methods described in *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (CDFW 2018e). Should special-status plants be documented in the BSA, directional boring would avoid impacts on the special-status species and the occupied habitat.

3.4.3.2 Marine Components

Less than Significant with Mitigation. Special-status marine taxa with the potential to occur in the MSA include marine mammals, sea turtles, marine birds, and fish. Installation, operation, and repair of the marine components of the Project have the potential to affect marine species or groups of species, either directly or indirectly, through habitat modification and interactions with individuals. However, because of Project design and the methods, duration, and extent of construction activities, these impacts would be less than significant with mitigation.

As discussed in greater detail below, the potential effects on marine habitats in the MSA would be temporary, affecting a small area of habitat. Disturbed habitat is expected to recover rapidly to pre-disturbance conditions. Consequently, none of the potential Project-related effects on marine ecosystems are expected to eliminate a marine plant or wildlife community, or cause a fish or marine wildlife population to drop below self-sustaining levels. This impact would be less than significant, and no mitigation is required.

Contaminant Release

Accidental release of fuel, fuel oil, hydraulic fluids, or drilling mud could affect special-status marine species. These impacts are addressed in detail in Sections 3.10, *Hazards and Hazardous Materials* and 3.11, *Hydrology and Water Quality*. Implementing **MM HAZ-1, MM HYDRO-1, MM BIO-5,** and **MM BIO-6** would reduce this impact to a less than significant level.

Horizontal directional drilling (HDD) of the boreholes poses a small risk of accidental release of bentonite drilling fluid to the marine environment. Bentonite is a marine clay that is used for lubricating the borehead cutting tool and transporting borehole cuttings back to shore. During the HDD process, it is possible that some bentonite drilling fluid could be released to the seafloor and thus into the water column. The greatest potential for substantive effects on marine habitats and associated marine biota from an accidental release of bentonite drilling fluids during HDD boring activities is release of a large volume of drilling fluid. The bentonite contained in the fluid could result in short-term burial and smothering of benthic epifauna and infauna, clog fish gills (Robertson-Bryan 2006), and cause longer-term increased turbidity in the area of the release. **MM BIO-6** details procedures for preventing the accidental release of drilling fluid during HDD work, monitoring for a release, and responding to a release; these measures prevent an inadvertent discharge of large volumes of bentonite drilling fluid to the marine environment or minimize its impact. To monitor for a release, Rhodamine WT dye is added to the drilling fluid to detect its presence in the ocean water above the HDD borehole route during active HDD boring activities. **MM BIO-5** requires implementing BMPs for HDD activities. Implementation of **MM BIO-5** and **MM BIO-6** would reduce this potential impact to a less than significant level.

Cable Entanglement

Modern fiber optic cable installations provide the potential for cable exposures or suspensions that could entangle marine species. Whale entanglements described in a 1957 paper raised concerns about hazards posed to marine species. The paper documented and investigated 14 instances of sperm whale entanglements with submarine cables at depths up to 3,720 feet (Heezen 1957). Replacement of historical telegraphic cables with modern fiber optic cable systems and installation techniques has improved torsional and flexion characteristics in subsea cables (Wood and Carter 2009), virtually eliminating the potential for exposed cable to entangle marine species. Furthermore, the burial of the cable out to a water depth of 5,904 feet, would further reduce any potential for entanglement of marine taxa with the cable. No mammal or wildlife entanglements have been reported in fiber optic cable systems installed in California waters since 2000 (AMS 2018a). Implementation of **MM BIO-15** would reduce the potential for entanglement of any kind with the installed cable to a less than significant level.

MM BIO-15: Inspection and Burial of Cable. The marine fiber-optic cable shall be buried to the extent feasible in accordance with the following.

- Bury the cable to the extent practicable in areas with soft bottom substrate and water depths of 5,904 feet or less.
- The burial report submitted by the Applicant after each phase shall include a detailed description of all buried and unburied sections and justification for any unburied sections.

Fishing gear that has become snagged and abandoned on exposed cable segments is another potential source of entanglement for marine species. The majority of gear that becomes snagged and thereby abandoned by fishers frequently has been caught on marine debris (Laist 1997; Watters et al. 2010) rather than on active and maintained cables. Nevertheless, snagged nets or fishing gear may incidentally entangle marine wildlife until it is removed or recovered.

The proposed Project includes measures to reduce the likelihood of exposed cable and tangled fishing gear by burying the cable. The Project's proposed routing and installation would include state-of-the-art cable route planning and installation techniques designed to increase burial success. The proposed routes were developed based on desktop and seafloor surveys that mapped substrate types along the cable routes. The cables would be buried in soft sediments to a depth of 3.3 feet where feasible in water depths less than 5,904 feet. In areas of hard bottom, the cable would be surface laid with only enough slack to allow the cable to conform to the seabed. Post-lay burial and inspection would be conducted by a remotely operated vehicle (ROV) in accordance with the installation procedures outlined in Section 2.0, *Project Description*. If areas of exposed cable are identified during the post-lay inspection survey, the segments would be reburied to a depth of 3.3 feet, or to the deepest depth feasible for the substrate. Implementation of these practices for cable laying and **MM BIO-16** would reduce the potential for cable entanglement with fishing gear and subsequent effects of abandoned gear to entangle marine wildlife to a less than significant level. In addition, the Applicant would enact a fishing agreement which would establish methods of gear replacement and costs claims in the unlikely event that fishing gear is entangled in cable owned by the applicant. See **APM-1** in Commercial Fishing Section.

MM BIO-16: Cable Entanglements and Gear Retrieval. In the event that fishers snag a cable and lose or cut gear, the Applicant shall use all feasible measures to retrieve the fishing gear or inanimate object. Retrieval shall occur no later than 6 weeks after discovering or receiving notice of the incident. If full removal of gear is not feasible, the Applicant shall remove as much gear as practicable to minimize harm to wildlife (e.g. fishes, birds, and marine mammals). Within 2 weeks of completing the recovery operation, the Applicant shall submit to CSLC staff a report describing (a) the nature and location of the entanglement (with a map); and (b) the method used for removing the entangled gear or object, or the method used for minimizing harm to wildlife if gear retrieval proves infeasible.

Increased Turbidity

During plow and trenching activities, temporary spikes in near-seafloor turbidity may occur. Increased turbidity is typically restricted to the water immediately above and adjacent to the seafloor where the plowing or trenching is occurring. Depending on water depth and natural wave or current energy generated through the water column, any generated turbidity plumes can be expected to dissipate quickly and any resuspended sediments resettled to the seafloor. During ROV surveys of cable routes, seafloor sediments are frequently disturbed by the ROV thrusters and generate similar turbidity plumes (AMS 2008, 2016). These turbidity clouds quickly dissipate and the resuspended sediments resettle within minutes following the disturbance. Similar quick settlement can be expected from cable trenching and ploughing activities.

Similar to increases in turbidity from cable trenching and plowing activities, HDD boring of landfall conduits can accidentally release bentonite drilling fluid to nearshore subtidal habitats, resulting in temporarily altered sediment composition and increased turbidity. Bentonite is a marine clay that is used for lubricating the borehead cutting tool and transporting borehole cuttings back to shore. During the HDD boring process, **MM BIO-6** will be implemented to reduce the potential for bentonite drilling fluid to be released to the seafloor. The HDD boring process typically terminates the landfall conduit installation at water depths between 40 and 55 feet. In general, the offshore termination point along the cable route is selected to occur in soft sediment habitat. Throughout most of California, the seafloor sediments occurring at these water depths are composed of sand with some minor silt and clay components. Coastal seafloor sediments at these water depths are typically exposed to wind and wave surge, as well as regular resuspension of seafloor sediments, resulting in naturally occurring increased turbidity near the seafloor.

The accidental release of small volumes of bentonite drilling fluid into this environment is not expected to result in any detectable effects on marine biota that may be present in the area of release or to result in any permanent changes to soft substrate habitat. Any released bentonite clay would be expected to be quickly resuspended by wind- and wave-generated surge present at these shallow water depths and to be transported with similar-sized sediment particles suspended in coastal waters to natural depositional areas along the coast. In addition, any potential increased turbidity resulting from the accidental release of bentonite drilling fluid would be expected to be non-detectable against existing background turbidity conditions at the release site or to quickly dissipate similar to any increased turbidity caused by cable trenching or ploughing.

Underwater Noise

Fish, marine mammals, and sea turtles could be exposed to temporary and isolated increased underwater noise from cable-laying activities and from work vessels involved in HDD boring and cable installation activities. Studies in the North Sea assessing cable trenching and ploughing projects for offshore wind farms reported underwater noise levels of 178 decibels (dB) (re 1 μp at a distance of 3.3 feet) (Nedwell et al. 2003). Similarly, peak underwater noise levels for cable-laying ships has been reported to range between 170 to180 dB (re 1 μp at a distance of 3.3 feet) (Hale 2018) and 160 to 180 dB at a distance of 3.3 feet for small work boats (Caltrans 2015), depending on the vessel size and design. Peak nearshore background underwater noise levels have been reported averaging between 128 and 138 dB (re 1 μp at a distance of 3.3 feet) (Fabre and Wilson 1997). Therefore, the generation of underwater noise by fiber optic cable installation is below established acute impact levels of 183 dB and 187 dB for fish less than and greater than 2 grams in mass, respectively, and only slightly higher than the 150-dB level established for behavioral disturbance (Caltrans 2015). Additionally, it can be anticipated that Project-generated underwater noise levels would reach sublethal levels for fish in approximately 95–210 feet and background underwater noise levels in 420–840 feet from the source, based on an assumed dB drop of 5–6 dB per doubling of distance from the noise source (McKenna et al. 2012). Given (1) the low magnitude of underwater noise generated by most cable-laying activities relative to established thresholds for acute effects on fish; and (2) the short duration and small distance by which underwater noise generated by cable-laying activities would exceed background conditions, any potential impact from underwater noise on fish taxa, including special-status species, would be less than significant.

Similar to fish, exposure to underwater noise from cable installation activities and work vessels poses some potential for acute and sublethal effects on marine mammals and sea turtles. As discussed above for fish, these Project-related operations can generate underwater noise levels ranging between 160 and 180 dB. NOAA (2018) established cumulative sound exposure levels (SELs) for marine mammals. These cumulative SEL levels are 183 dB for baleen whales; 185 dB for dolphins, toothed whales and true seals; 155 dB for porpoises; and 203 dB for sealions, fur seals, and otters. With the exception of the SELs for porpoises, all of the other NOAA-established underwater thresholds are greater than the underwater noise generated by cable installation equipment and vessels. As discussed above for underwater noise effects on fish, assuming a 5- to 6-dB decrease in noise level for every doubling of the distance from the noise source, cable installation underwater noise should decrease to levels <155 dB in approximately 52–105 feet from the source. As presented in Table 3.4-4, only Dahl's porpoise is expected to occur in the coastal waters offshore Manchester Beach. If present during cable installation activities, the porpoises would need to be closer than 105 feet to the cable lay ship or work vessel to be affected by the generated underwater noise. If traveling or foraging in the area offshore Manchester Beach during cable lay activities, the porpoises can be expected to avoid the immediate area of the generated underwater noise. In addition, **MM BIO-17** requires implementation of a marine mammal monitoring program that includes (1) marine mammal observers onboard vessels during cable installation activities; and (2) procedures for cessation of cable installation activities in the event that any marine mammals come within an established safety zone. This program would prevent exposure of porpoises and other marine mammals and sea turtles to underwater noise levels of sufficient magnitude to result in any effect and therein result in less than significant with mitigation.

MM BIO-17: Prepare and Implement a Marine Wildlife Monitoring and Contingency Plan. The Applicant shall prepare and implement a Marine Wildlife Monitoring and Contingency Plan (MWMCP) that shall apply to cable installation and repair activities and consist of the following elements, procedures, and response actions.

- Awareness training for Project vessel crew that includes identification of common marine wildlife and avoidance procedures included in the MWMCP for Project activities.
- Provision of two qualified shipboard marine mammal observers on board all cable installation vessels during cable installation activities. The MWMCP shall establish the qualifications of and required equipment for the observers.
- In consultation with National Marine Fisheries Service (NMFS), establish a safety work zone around all Project work vessels that defines the distance from each work vessel that marine mammals and sea turtles may approach before all operations must cease until the marine mammal or sea turtle has moved beyond.
- Project-specific control measures for Project vessels (including support boats) and actions to be undertaken when marine wildlife is present, such as reduced vessel speeds or suspended operations.
- Reporting requirements and procedures for wildlife sightings and contact and requirements for post-installation reporting. The MWMCP shall identify the resource agencies that are to be contacted in case of marine wildlife incidents and that will receive reports at the conclusion of Project installation.

- The MWMCP shall be submitted to the CSLC and California Coastal Commission (CCC) for review at least 60 days prior to the start of marine installation activities.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, State Lands Commission, or California Coastal Commission?

3.4.3.3 Terrestrial Components

Less than Significant with Mitigation. Per Mendocino County (1991a), ESHA delineated in the BSA includes streams for anadromous fishes, wetlands, riparian areas, occupied special wildlife habitat, special plant habitat, and sensitive natural communities as defined by CDFW (2018a). Eight sensitive natural communities have been identified in the BSA: coastal dune willow thickets, Sitka willow thickets, shining willow groves, arroyo willow thickets, slough sedge swards, coastal brambles, water parsley marshes, and a Pacific reed grass meadow (CDFW 2018a). The four willow communities are associated with riparian habitat. These ESHAs could be affected by development of temporary staging areas, trenching, installation of the LMH and intermediate manholes, construction of surface access vaults, and establishment of work areas required for directional boring. Additional impacts could result from the introduction of invasive weed species and contamination from fueling, equipment leaks, and chemical spills.

With the exception of the cable landing site, most of the ground-disturbing activities involved with Project construction would entail either trenching or trenchless construction to install the underground conduit system. While Project activities could result in impacts on sensitive habitats, implementation of **MM BIO-18** would ensure that all ESHAs are bored beneath, and direct impacts would be avoided. Because most of the underground conduit system would be installed directly in the shoulder on either side of SR 1, only limited amounts of undisturbed habitat would be subject to Project-related impacts. Moreover, such impacts would be temporary, and site restoration would return these areas to pre-construction conditions.

The cable landing site (100 by 150 feet required for directional boring and the entry and exit pits (4 by 8 feet for trenchless construction of the underground conduit system would be set back a minimum of 50 feet from riparian habitat. However, improper siting of the cable landing site could damage the delineated 0.029 acre of wet meadow present in the northeast quadrant of the CLP. Implementation of **MM BIO-19** would locate work and staging areas for the CLP and associated facilities outside wet meadow habitat.

MM BIO-18: Boring beneath Environmentally Sensitive Habitat Areas. Per methods outlined in **MM BIO-5**, all ESHAs will be bored beneath and avoided.

MM BIO-19: Locate Work and Staging Areas for the Cable Landing Site and Associated Facilities outside Wet Meadow Habitat. The Applicant shall situate work and staging areas for the cable landing site and associated facilities an appropriate distance from the wet meadow habitat to avoid direct and indirect impacts.

Implementation of **MM BIO-1** through **MM BIO-7** and **MM BIO-18** and **MM BIO-19** would reduce potential impacts on sensitive natural communities to a less than significant level.

3.4.3.4 Marine Components

Less than Significant with Mitigation. As discussed in Section 3.4.2, *Marine Biological Resources*, the proposed marine cable route does not transit any areas of special biological importance (e.g., ASBS, SEAs, MPAs, SMRs, SMPs, SMCAs, or ESHAs). The cable route does pass through portions of the MSA generally defined as EFH for groundfish. Other sensitive marine habitats may include kelp forests and communities of deep-sea corals and sponges. No kelp forests are known to exist along the proposed cable route. The nearest kelp forest is approximately 3 miles south of the MSA at Arena Rock, part of the Point Arena SMR. No deep-sea corals are known to occur along the proposed cable route. As mentioned in Section 2, *Project Description*, exposed hard relief habitat appears to occur along an approximately 3.7-mile) segment of the first proposed cable route of the Project in water depths between 377 and 476 feet. The preliminary characterization of the habitat is a mixture of low, moderate, and high relief outcroppings intermixed with soft sediment. Burial of a cable within this segment of the proposed cable route is questionable; surface lay may be required, which could result in some impact on low relief hard substrate habitat and associated marine biological resources.

Soft Substrate Communities

Impacts on soft substrate benthos may include disturbance of mobile organisms and localized displacement or mortality of infauna and epifauna from cable burial and installation, and the seaward completion of the HDD bore holes. Project components with the potential to affect soft substrate communities are the pre-lay grapnel run, cable installation with the cable plow, ROV operation, diver activities associated with exiting the HDD borehole at the seaward terminal point, and repairs (if needed). Cable installation would extend from the marine steel bore pipe exits and continue offshore along the transpacific routes.

The potential scale and duration of seafloor disturbance caused by Project installation and maintenance activities would be limited, resulting in predominantly localized and temporary disturbance to the seafloor. Marine invertebrates, fish, and other wildlife are anticipated to move away from, and thus avoid, all physical disturbances and to recolonize the area after the disturbance has occurred. Consequently, any impact of

Project activities on soft substrate habitat and associated biological communities would be less than significant.

Burial of the cable through soft sediment seafloor areas of the cable route is expected to temporarily increase turbidity in the pelagic zone. Any resuspended sediments are expected to resettle onto the seafloor fairly quickly. In addition, water quality controls on HDD are included in **MM BIO-6**. Consequently, any increased water turbidity is expected to cause a less than significant effect on pelagic marine habitats and associated biological resources.

Hard Substrate Communities

Cable installation along hard bottom substrate, if unavoidable, could directly affect hard substrate habitats and associated marine biological resources, if the cable is installed directly onto these habitats. Biota associated with hard substrate habitat are predominantly slow growing and susceptible to crushing, dislodgement, and other physical disturbances. Preliminary seafloor mapping of the proposed cable routes appears to place the first proposed Project cable through an area of mixed low- and high-relief hard substrate in 377 to 476 feet of water (see Appendix C6). Placement of the cable through this area of high-relief habitat would avoid all moderate- and high-relief features and would concentrate on routing the cable through low-relief and mixed bottom habitat. The potential impact would be restricted to an area proportional to the width (approximately 3 inches) and length of the cable through the hard substrate area and would affect less sensitive hard substrate organisms. Laying the cable on moderate- and high-relief features exposes the cable to unnecessary suspension, increased tension stress, and possible damage.

Installation of a fiber optic cable on low-relief habitat initially results in burial or crushing of any taxa attached to the hard substrate directly under the cable. As observed and documented in visual surveys of cable routes in California coastal waters, low-relief (less than 3.3 feet high), hard substrate habitats often are exposed to cycles of periodic burial by sand as well as increased turbidity (AMS 2015). This typically results in lower species diversity and abundances of the taxa inhabiting these features than occurs in high-relief, hard substrate communities. These harsh physical conditions have been observed to support a more ephemeral community that is dominated by organisms more tolerant of high turbidity and sand scouring, or whose individual growth is sufficient to avoid burial (AMS 2018a). Typical taxa observed in prior habitat and macrobenthic taxa surveys conducted by ROVs for fiber optic cable routes in nearby MPAs include cup corals, puffballs and other similar sponges; gorgonian soft corals; and some species of anemones, such as *Stomphia* spp. and *Urticina* spp. (AMS 2018a [Appendix C5]).

High-relief (more than 3.3 feet high), hard substrate areas typically have higher species diversity than low-relief habitats because their elevation results in lower turbidity, less sand scouring, and less periodic burial. Such areas typically support organisms sensitive to physical disturbances such as erect turf species, hard and soft hydrocorals, branching corals, and branching and erect sponges. High-relief, hard substrate areas are generally considered to be more sensitive to physical impacts than low-relief hard substrate habitat.

The potential for post-lay effects on hard substrate areas depends on the location of the individual cable. Placement of the cable on the seafloor at all water depths always is performed in a way that avoids suspension, which can result in movement of the cable in response to currents and wave surge in shallow depths (i.e., less than 100 feet), causing ongoing abrasion of hard substrate and damage to attached biota, as well as unnecessary cable tension stress and possible damage. As noted above, the Applicant would avoid any hard substrate habitat areas along the nearshore coastal route whenever possible; moreover, the cable is to be buried in soft substrate to a water depth of 5,904 feet.

Past cable route and post-lay surveys conducted in California coastal waters have observed minimal impacts on hard substrate communities. During their survey of the AT&T Asia-America Gateway S-5 cable, which ran parallel to previously laid fiber optic cables in low-relief hard substrate, AMS (2008) reported that no noticeable impacts associated with previously laid cables in the area were detectable. Summaries from other surveys indicated large erect sponges were observed growing on or over exposed cables (AMS 2018a [Appendix C5]).

The routing of the marine segments of the cable is designed to maximize installation along soft substrate, where the cables can be buried, and to avoid areas identified as hard substrate where feasible. Also, despite the substrate near the bore exits being soft, the cable-laying ship does not plan to anchor during cable installation. Anchoring of other support boats and vessels would be kept to a minimum and would result in only minor, temporary disturbances of soft substrate seafloor sediments. Implementation of **MM BIO-20** would reduce cable installation in hard substrate habitat areas, and **MM BIO-21** would provide compensation for the impairment or loss of hard substrate–associated marine taxa and their role in marine ecosystems in the MSA.

MM BIO-20: Minimize Crossing of Hard Bottom Substrate. Prior to start of construction, a survey shall be conducted to identify any hard bottom habitat, eelgrass, kelp, existing utilities including but not limited to pipelines, power cables, etc., and the survey map shall be submitted to CSLC staff for review. The proposed cable routes and anchoring locations shall be set to avoid hard bottom habitat, eelgrass, kelp, existing utilities including but not limited to pipelines, power cables, etc., as identified in the survey.

MM BIO-21: Contribute Compensation to Hard Substrate Mitigation Fund. The following mitigation is proposed for damage to slow-growing, hard substrate organisms.

- California Coastal Commission (CCC) compensation fees (based on past projects) will be required to fund the U.C. Davis Wildlife Health Center's California Lost Fishing Gear Recovery Project or other conservation programs or impacts to high-relief, hard substrate affected by the Project. The amount of the hard bottom mitigation fee shall be calculated by applying a 3:1 mitigation ratio to the total square footage of impacted hard bottom and multiplying that square footage by a compensation rate of $14.30 per square foot.
- A final determination of the amount of high-relief, hard substrate affected (used to calculate the total compensation fee) will be based on a review of the final burial report from the cable installation. The total assessment and methods used to calculate this figure will be provided to the CSLC and the CCC for review and approval. Both CSLC and CCC also will be provided documentation of the total amount of mitigation paid and the activities for which the funds will be used.

Because the impact would be temporary, animals would recolonize the area, and any impacts would be mitigated through compensation, the impact of the Project on hard bottom communities would be less than significant with mitigation.

Introduction of Nonnative and Invasive Species

As discussed in Section 3.4.2.6, *Nonnative and Invasive Species*, many nonnative and invasive species are introduced by vessels and boats—either as encrusting organisms on the hulls or other submerged parts of the vessels, or when ballast water is discharged from the vessels. The use of cable-laying vessels for the Project, which crosses the Pacific Ocean, has the potential to transport foreign species into California waters. The introduction of such species could cause permanent alterations of communities, including changes in species composition or relationships among species that are recognized for their scientific, recreational, ecological, or commercial importance. Ultimately, changes in these communities could prevent reestablishment of native biological populations around Point Arena.

Utility vessels could spread invasive, nonnative marine species through ballast water and biofouling, posing a risk to marine habitats and marine biota, including special-status species, resulting in a significant impact. All marine vessels and ships engaged in Project activities would be required to adhere to state and federal requirements related to ballast water discharge and invasive species management. No introduction of marine invasive species through ballast water exchange is anticipated in the marine study area because Project vessels will not exchange ballast water within the MSA. Implementation of **MM BIO-22** would reduce any potential Project-related contribution to the spread of invasive nonnative species to a less than significant level.

MM BIO-22: Control of Marine Invasive Species. Applicant shall ensure that the underwater surfaces of all project vessels are clear of biofouling organisms prior to arrival in state waters. The determination of underwater surface cleanliness shall be made in consultation with CSLC staff. Additionally, and regardless of vessel size, ballast water for all Project vessels must be managed consistent with CSLC's ballast management regulations, and Biofouling Removal and Hull Husbandry Reporting Forms shall be submitted to CSLC staff as required by regulation. No exchange of ballast water for project vessels shall occur in waters shallower than the 5,904 feet isobath.

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?

3.4.3.5 Terrestrial Components

Less than Significant with Mitigation. Installation of Project facilities could potentially affect 0.556 acre of potential waters of the United States and 0.584 acre of CCC jurisdictional features. Many of the potential wetlands and non-wetland waters identified in the BSA are roadside features. Wetlands could be directly affected by equipment and personnel, the introduction of sedimentation from soil disturbance (e.g., open trenching, excavation of entry/exit pits), and contamination from hazardous chemicals.

To reduce these potential impacts, the final Project design would avoid jurisdictional wetlands and non-wetland waters to the extent practicable. Where temporary disturbance (e.g., trenching) directly affects wetland features, site restoration (**MM BIO-7**) would return the site to pre-construction conditions. In addition, implementation of **MM BIO-1** through **MM BIO-6** would help to avoid and minimize potential impacts on federally protected wetlands through worker training, biological surveying and monitoring, identifying and delineating sensitive resources, avoiding sensitive resources through directional boring and bridge attachments, and implementing BMPs for directional boring activities.

Implementation of these measures would reduce potential impacts on federally protected wetlands to a less than significant level.

3.4.3.6 Marine Components

Less than Significant Impact. Because no federally protected wetlands occur in the ocean, there would be no impact. Moreover, because marine cables would be bored beneath the beach and seafloor, there would be no placement of dredged or fill material. Potential water quality impacts associated with disturbance of ocean sediments are addressed in section 3.10, *Hydrology and Water Quality*.

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?

3.4.3.7 Terrestrial Components

Less than Significant with Mitigation. The BSA is fragmented by county and private roads, SR 1, fencing, and development. These features, along with historical and current land use practices, have altered the movement of terrestrial, freshwater aquatic, and marine wildlife species. Based on current conditions and the proposed Project design (i.e., installation of underground equipment), construction would not further impede the movement of fish and wildlife species, block or interfere with resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

The six waterbodies that either support or have the potential to support special-status fish and wildlife species and that act as travel corridors would be completely avoided. Conduit would be installed beneath each waterbody using directional boring, or by attaching the conduit above the waterbody on existing bridges. Appropriate setbacks (i.e., 50 feet from riparian habitat) would be implemented to avoid alteration of riparian habitat and fish and wildlife movement. Implementation of **MM BIO-1** through **MM BIO-7** would reduce this impact to a less than significant level.

3.4.3.8 Marine Components

Less than Significant with Mitigation. Marine fish, mammals, and sea turtles could be present in the Project area at any time of the year. Movement and noise from Project work vessels during cable installation or repair have the potential to temporarily disturb individuals' movements and activities. Based on previous observations, it is generally expected that any fish, marine mammals, or sea turtles would avoid Project vessels and activities. Ship strikes of large marine mammals have become a growing concern; however, ship strikes during cable installation are unlikely because the speed of the ship during cable-laying activities is very slow (approximately 0.5 to 1.5 nm per hour [0.5 to 1.5 knots] while plowing) compared with the speed of sea lions or migrating whales (AMS 2018a). Work vessel movement and noise often result in the disruption of animal movements or altered behavior. Such disturbances are typically temporary and confined to the immediate vicinity of the vessel. Disruption caused by Project vessels (e.g., noise) would not be substantially different from that resulting from normal ship traffic in the MSA (AMS 2018a). According to the Large Whale Ship Strike Database, the majority of strikes involve vessels traveling between 13 and 15 knots, and no strikes have been reported for vessels traveling slower than 2 knots (Jensen and Silber 2003).

Personnel involved in operating cable-laying vessels and other coastal work vessels potentially used on the Project regularly undergo training and familiarization to avoid marine mammals and sea turtles while transiting between port and the work site.

Implementation of **MM BIO-1**, which includes additional training and familiarization with special-status species present in the work area, also would augment and reinforce other routine marine mammal avoidance training. The likelihood of offshore construction vessels interfering substantially with the movement of any native, resident, or migratory fish—or with established, native, resident, or migratory wildlife—is considered negligible.

Despite the low potential for vessel collisions with marine mammals and turtles, there always remains a small risk of marine mammals and sea turtles encountering Project vessels during their routine movements and foraging activities. Any collisions with or harm to marine mammals and sea turtles would be a significant impact. Implementation of **MM BIO-17** would reduce the potential impact of Project work vessels colliding with marine mammals and turtles to a less than significant level.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (including essential fish habitat)?

3.4.3.9 Terrestrial Components

Less than Significant with Mitigation. Mendocino County goals and objectives described in Section 3.4.1.2, *Regulatory Setting*, were developed to protect sensitive resources on both public and private lands. As previously identified, the Project has the potential to adversely affect sensitive natural communities (e.g., riparian habitat and wetlands); special-status plant, fish, and wildlife species; nesting special-status bird species, and marine resources. Implementation of **MM BIO-1** through **MM BIO-14** would satisfy the intent of the Mendocino County goals and objectives to protect sensitive resources. These measures also would meet the requirements of the coastal elements of the Mendocino County General Plan and Local Coastal Program. These measures would protect the environmentally sensitive areas identified in the BSA as well as the marine resources of Mendocino County; no conflict with local policies or ordinances is anticipated.

3.4.3.10 Marine Components

Less than Significant Impact. Although no local policies or ordinances pertain to the marine components of the Project, installation of the marine cables would entail work in EFH. However, impacts caused by installation and maintenance of the marine segments of the cable would be temporary, and the affected area would be small relative to the extent of EFH. The Project would not introduce permanent structures that would block emigration and immigration, and organisms are expected to recruit into the affected area and repopulate. Consequently, any potential effects on EFH along the cable route would be less than significant.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

3.4.3.11 Terrestrial Components

No Impact. The Project would not conflict with provisions of local, regional, or state habitat conservation plans or natural community conservation plans because no such plans exist for the Project area. There would be no impact.

3.4.3.12 Marine Components

No Impact. No adopted federal, state, regional, or local conservation plan covers the MSA.

3.4.4 Mitigation Summary

Implementation of the following mitigation measures would reduce the potential for Project-related impacts on biological resources to a less than significant level:

- MM BIO-1: Provide Environmental Awareness Training
- MM BIO-2: Conduct Biological Surveying and Monitoring
- MM BIO-3: Delineate Work Limits and Install Temporary Construction Barrier Fencing to Protect Sensitive Biological Resources
- MM BIO-4: Identify and Avoid Sensitive Biological Resources through Use of Directional Boring
- MM BIO-5: Implement Best Management Practices for Horizontal Directional Drilling and Directional Boring Activities
- MM BIO-6: Prepare and Implement an Inadvertent Return Contingency Plan
- MM BIO-7: Prepare and Implement a Site Restoration Plan
- MM BIO-8: Install Escape Ramps in Open Trenches
- MM BIO-9: Conduct Surveys for Point Arena Mountain Beaver
- MM BIO-10: Limit Construction Period to Minimize Impacts on Point Arena Mountain Beaver
- MM BIO-11: Avoid Point Arena Mountain Beaver Populations and Burrows
- MM BIO-12: Survey for and Avoid Behren's Silverspot Butterfly and Lotis Blue Butterfly Habitat
- MM BIO-13: Conduct Pre-Construction Nesting Bird Surveys and Implement Avoidance Measures
- MM BIO-14: Conduct Appropriately Timed Floristic Surveys of Remaining Areas
- MM BIO-15: Inspection and Burial of Cable
- MM BIO-16: Cable Entanglements and Gear Retrieval
- MM BIO-17: Prepare and Implement a Marine Wildlife Monitoring and Contingency Plan

- MM BIO-18: Bore Beneath Environmentally Sensitive Habitat Areas
- MM BIO-19: Locate Work and Staging Areas for the Cable Landing Site and Associated Facilities outside Wet Meadow Habitat
- MM BIO-20: Minimize Crossing of Hard Bottom Substrate
- MM BIO-21: Contribute Compensation to Hard Substrate Mitigation Fund
- MM BIO-22: Control of Marine Invasive Species
- MM HYDRO-1: Prepare and Implement a Stormwater Pollution Prevention Plan
- APM-1: Fishing Agreement

3.5 CULTURAL RESOURCES

CULTURAL RESOURCES - Would the Project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

3.5.1 Environmental Setting

The cultural resources study area (Figure 2-1) is the Project area and encompasses part of SR 1 and the Caltrans ROW through Manchester. The Caltrans ROW in this portion of the Project area is restricted to the pavement and undeveloped shoulder of SR 1; it does not encroach on the community's property parcels.

3.5.1.1 Cultural Resources

Historic Context

Background research conducted for the Project revealed several key themes that frame the historical context for which potentially affected resources of this undertaking are best understood: regional development, water resource management, and crop production. A discussion of these themes follows. The ethnographic and archaeological context related to Native American occupation of the Project vicinity is discussed in Section 3.6, *Cultural Resources – Tribal*.

<u>Early Exploration and Spanish Rule</u>

The first European to explore the coastal region of present Mendocino County was Captain George Vancouver, who was sent by England to report on the extent of Spanish possessions on the Pacific coast. On November 10, 1792, Vancouver spent the night at Point Arena, which he named "Punta Barro de Arena" (sandy clay) (Kyle 2002). The following year, Archibald Menzies, a naturalist traveling with the Vancouver expedition, landed at Bodega Bay in present-day Sonoma County, which had been discovered and named by Spanish explorer Francisco de la Bodega y Cuadra in 1775 (Kyle 2002). Menzies' party conducted limited inland expeditions in search of botanical specimens before returning to the coast.

Beginning in the 1740s, Russian explorers conducted expeditions along the Pacific North Coast and the Bering Strait in search of fur seals. The coming of the Russians undoubtedly influenced Spain's rapid occupation of California and the occupation of Monterey and San Diego. By 1777, Spanish explorers and priests had established a chain of coastal missions, pueblos, and presidios from San Diego to San Francisco. The establishment of Russian-American Fur Company trading posts at Bodega Bay (1811) and Fort Ross (1812) heightened Spanish fears that their claim to California was in danger (Kyle 2002). Nevertheless, peaceful trade between Spaniards and Russians, though illegal under Spanish law, continued until the end of Spanish rule in 1821.

The Mexican Period

In 1821, Mexico achieved independence from Spain, and the following year California was declared a territory of the Mexican republic. Apart from sending in new governors and small numbers of soldiers, Mexican intervention in California was minimal over the next several years (Chapman 1921). However, two factors would have a major impact on the subsequent development of California. The first was the secularization of the missions in 1834, by which the Mexican governor in California downgraded the missions to the status of parish churches and divided their vast holdings into individual land grants (ranchos). Secularization not only brought a massive influx of Mexican settlers to California, it also allowed for the emergence of a powerful new class of wealthy land owners known as rancheros. The second factor was the coming of U.S. settlers to California. Early mountain men and trappers who had ventured into California as early as the 1820s were followed by a steady progression of pioneer settlers, beginning with the Bidwell-Bartleson party in 1841. Growing hostility between U.S. settlers and persons of Spanish or Mexican heritage known as Californios would culminate in a violent struggle for control of California.

United States Acquisition and Settlement

Point Arena/Manchester

The original Arena Township, which consists of the present town of Point Arena and the hamlet of Manchester, is located on a plateau that extends back from a prominent headland off the Pacific coast in southern Mendocino County. The first occupant of the region was a Mexican soldier, Rafael Garcia, who was granted nine leagues of land on which he herded cattle near the river that now bears his name. Shortly after its acquisition of California, the United States opened the land to American settlement. In 1859, Len Wilsey opened a store in what is now the town of Point Arena. Over the next several decades, more businesses were established, including two hotels, four saloons, a blacksmith shop, a post office, a school, a brewery, a barber shop, and a wharf and landing off Point Arena. An abundance of coastal redwoods in the region encouraged the establishment of several mills in the area. Numerous V-shaped flumes were built in the original township to transport lumber to local merchants and to the wharf, where it was shipped to more distant markets. By the 1870s, Point Arena had become the busiest town between San Francisco and Eureka. In addition to the thriving timber operations, the shipping industry was a major commercial activity in the coastal town. Before the construction of a lighthouse in 1870, dozens of vessels were destroyed or lost off the turbulent and foggy Arena coastline. The Point Arena Lighthouse was destroyed in the earthquake of 1906 and subsequently rebuilt a short distance back from its original location. The town of Point Arena was officially incorporated in 1908, and many of its original buildings remain intact. Also located in the original Arena township are the Manchester Indian Rancheria, established in 1909, and the Point Arena Indian Rancheria, established in 1937. Both are currently occupied by members of the Bokeya band of the Central Pomo (Carpenter and Millberry 1914; Eargle 1986; Palmer 1880).

Modern Highways

The impetus for a modem highway system in northern California began during the last decade of the nineteenth century when the development and maintenance of good roads became a popular cause throughout the state. Many county-owned roads were in poor condition and were nearly impassable in winter. By the mid-1890s, public demand for improved roads was so strident that the State of California created the Bureau of Highways in 1895 to develop a plan for a new state highway system (Blow 1920).

During the early decades of the twentieth century, the shift from county to state control of highways was fueled by the growing number of automobiles and motorists' demands for better roads. Motorists formed automobile clubs such as the Good Roads Bureau of the California State Automobile Association to lobby for improved roads and promote their interests (Blow 1920). As a result of these pressures, the state legislature passed the Road Bond Act of 1909. The act provided $18,000,000 for road construction and established the state as a major force in highway development (Blow 1920).

In 1920, only 12 miles of road in all of Mendocino County were paved (Blow 1920). SR 1, the Shoreline Highway, was originally conceived in 1909 as Legislative Route Number 1, from the Golden Gate Bridge to the Oregon border via Crescent City and the Smith River. The segment of highway that travels through the Project area, constructed circa 1933 between Jenner in Sonoma County and West Point in Mendocino County, represents a significant transportation event in the region's transportation history.

Existing Conditions

<u>Terrestrial Archaeological and Built Environment Records Search</u>

On July 6, 2018, ICF conducted a records search at the Northwest Information Center of the California Historical Resources Information System at Sonoma State University in Rohnert Park, California (IC File No. 18-0034). A supplemental records search was conducted on October 16, 2018 (IC File No. 18-0764). The Northwest Information Center maintains the State of California's official records of previous cultural resource studies and recorded cultural resources for Mendocino County. The records search area encompassed the Project area and a 0.5-mile buffer around it.

The records searches indicate that 20 cultural resources studies have been conducted within 0.5 mile of the Project area. Of those studies, 12 have been conducted within the Project area (Table 3.5-1). These studies have collectively covered most of the Project area.

Table 3.5-1. Previously Conducted Studies within the Project Area

NCIC Study No.	Date	Author (s)	Title
00823	1977	Flynn (ARS)	*The Karen Hay Minor Land Division, Hwy 1 above Creamery Lane and below Crispin Lane, Manchester, coastal Mendocino County*
01800	1969	Holman et al.	*Archaeological Survey Report of Selected Beaches and Parks from District 2*
05206	1982	Soule	*Brush Creek Tributary to Pacific Ocean*
13217	1990	Origer	*An Archaeological Survey for the AT&T Fiber Optics Cable, San Francisco to Point Arena*
14313	1992	Origer	*Archaeological Survey of Alternative Fiber Optics Cable Routes, Point Arena*
16422	1994	Origer	*A Cultural Resources Survey of the Fraser Property, Manchester, Mendocino County, California*
22736	2000	Jones and Stokes	*Final Cultural Resources Inventory Report for the Proposed Fiber Optic Cable Routes between Point Arena and Robbins and Point Arena and Sacramento, California*
23451	2000	Neri	*The Archaeological Inspection of a 1-Acre Property in Manchester; Mendocino County, California*
23484	2000	Flaherty	*Cultural Resource Reconnaissance of Sprint Regen Project Near Manchester, Mendocino County, California*
34677	2008	Newland and Much	*A Century After Barrett: A Village and Trail Network Model for the PDA'HAU Subdivision of the Central Pomo, Mendocino County, California (Overview, no field survey conducted)*
36294	2009	Haney (Caltrans)	*Historic Property Survey Report 01-Men-1, 20, 128, 162, 175, 253, 271/Archaeological Survey Report for a Proposed Metal Beam Guardrail Repair/Upgrade Project Along State Routes 1, 20, 128, 162, 175, 253, and 271 in Mendocino County, California*
38865	2011	Leach-Palm et al.	*Cultural Resources Inventory of Caltrans District 1 Rural Conventional Highways in Del Norte, Humboldt, Mendocino, and Lake Counties*

Source: CHRIS-NWIC

As provided in Table 3.5-2, one prehistoric archaeological resource, two historic archaeological resources, and one previously recorded historic-era built environment resource were identified within 0.5 mile of the Project area.

Table 3.5-2. Previously Recorded Cultural Resources in and within 0.5 Mile of the Project Area

Primary/ Trinomial	Age/Type	In Project Area?	Description	CHRS Code
P-23-4529/ CA-MEN-3384	Historic/archaeological	No	Swift & Company Creamery	7R/Unevaluated
P-23-4613/ CA-MEN-3551	Historic/built environment	Yes	Abandoned State Route 1 segments	7R/Unevaluated
P-23-5547/ CA-MEN-3664	Prehistoric/archaeological	No	Lithic scatter	7R/Unevaluated
P-23-5581	Historic/archaeological	No	Pole 46/6 refuse scatter	7R/Unevaluated

Source: NWIC 2018

Additional sources of information, such as historic maps from the U.S. Geological Survey and General Land Office, were selectively reviewed to determine areas with a high potential for the presence of historic and prehistoric sites and to gather historical data. The following sources were reviewed:

- National Park Service's National Register of Historic Places (NRHP) Digital Archive website (NPS 2018)
- Office of Historic Preservation's California Historical Landmarks website (OHP 2018)
- Structure and Maintenance and Investigations, Historical Significance—Local Agency Bridges website (Caltrans 2018a) and Structure and Maintenance and Investigations, Historical Significance—State Agency Bridges website (Caltrans 2018b)
- Bureau of Land Management's General Land Office Records website (BLM 2018a–d)
- *Handbook of North American Indians*, Volume 8 (McLendon and Oswalt 1978; Bean and Theodoratus 1978)
- Historical USGS topographic maps (1:24,000, 1:65,500 scales)
- *Historic Spots in California* (Kyle 2002)
- Mendocino County Assessor Parcels (ParcelQuest 2018)
- California Office of Historic Preservation's (OHP's) Archaeological Determinations of Eligibility for Mendocino County (OHP 2012a)

- California OHP's *Directory of Properties in the Historic Property Data File for Mendocino County* (OHP 2012b)

The *Caltrans State Bridge Inventory* (Caltrans 2018b) listed one bridge in the Project area: Bridge 10-0116, over Alder Creek along SR 1. Per the inventory, Caltrans architectural historians have recommended that the bridge is ineligible for listing in the NRHP. The resource was not evaluated for California Register of Historic Resources (CRHR) eligibility.

The California OHP website (OHP 2018) did not identify any California Historical Landmarks within the Project area. The nearest landmark is the Point Arena Light Station (OHP landmark No. 1035), 3 miles southwest of the Project area. The light station also was listed in the NRHP in 1989 for the role it played in the state's maritime history.

The National Park Service's NRHP Digital Archive (NPS 2018) identified one listed property, the Manchester Schoolhouse, on a parcel adjacent to the southern end of the Project area. The historic property was built in 1907 and continues to convey its significance under Criteria A and C at the local level as the only surviving public building in Manchester representing the era of historical community development associated with the region's timber harvest industry boon following the 1906 San Francisco Earthquake.

The California OHP's Directory of Properties in the Historic Property Data File for Mendocino County (OHP 2012b) listed three properties in the town of Manchester and one in the Manchester vicinity. Two of the properties (156555 and 184308), at 500 Rancheria Road and 1000 Rancheria Road, respectively, were listed with the status code of 6Y: Determined ineligible for listing in the NRHP by consensus through the Section 106 process—Not evaluated for the CRHR or Local Listing. One property (003558), Bridge 10-113, was listed with the status code of 7N: Needs to be reevaluated (formerly status code of 4—appears eligible for the NRHP or CRHR). The one listed property adjacent to the Project is the Manchester Schoolhouse (003559), listed with a status code of 7L: State Historical Landmark and Point of Historical Interest—Needs to be reevaluated using current standards, and a code of 1S: individual property listed in both the NRHP and CRHR.

Land patent records obtained from the Bureau of Land Management's General Land Office Records website (BLM 2018a–d) were reviewed for property ownership information specific to those portions of the Project area where Project landings and tie-ins are proposed beyond the highway. Table 3.5-3 identifies the original property ownership and types of land patents that were issued for those properties.

On August 23, 2018, a letter was sent to the Mendocino County Historical Society. The letter briefly described the proposed Project and requested information about cultural resources near the proposed Project area. To date, no response has been received.

Table 3.5-3. General Land Office Patent Search Results in the Project Area

Patentee	Patent Date	Serial Number	Patent Type/Authority	Location
Danial Lovett, Elizabeth Lovett, John A. Smith	June 10, 1875	CACAAA 024893	March 17, 1842: Scrip or Nature of Scrip (5 Stat. 607)	T13N; R17W; Sec. 1; Lot/Tract 4: S ½ of SE ¼ (northern landing parcel)
Charles W. Reinking	February 1, 1876	CA0090__.136	April 24, 1820: Sale—Cash Entry (3 Stat. 566)	T13N; R17W; Sec. 24; S ½ of NE ¼ (Private CLS)
Sylvanus S. Hoyt	February 1, 1876	CA0090__.155	April 24, 1820: Sale—Cash Entry (3 Stat. 566)	T13N; R17W; Sec. 23: Lot/Tract 1 (AT&T CLS)
Clark Fairbanks	November 1, 1875	CA0090__.068	April 24, 1820: Sale—Cash Entry (3 Stat. 566)	T13N; R17W; Sec. 25; NE ¼ (south end of Project town of Manchester)

<u>Marine Cultural Resources Records Search</u>

Methods and Sources

Research methods to inventory marine cultural resources were limited to an archival and records search (AMS 2018b [Appendix D]). All marine cultural resources cited consisted of shipwrecks. No downed aircraft, prehistoric archaeological sites, or isolated artifacts were listed. The inventory completed for the study area covers the four potential marine cable alignments plus a 10-nm buffer. No remote sensing survey of the seafloor for shipwrecks and other debris, or predictive modeling for prehistoric archaeological resources has yet been completed for the marine portion of the study area. Sources consulted included cultural resource inventories (shipwreck and downed aircraft listings) provided by the CSLC, the Bureau of Ocean Energy Management (BOEM) Pacific Outer Continental Shelf Region (BOEM 2013), and the NOAA Automated Wreck and Obstructions Information System database (1988). The NRHP, California Historical Landmarks, California Inventory of Historical Resources, and local archives also were consulted.

Other sources consulted include the USACE Los Angeles and San Francisco Districts, National Maritime Museum in San Francisco, Los Angeles Maritime Museum, Commerce Department files at the National Archives in Washington, D.C. and San Bruno, Regional Records Centers at Laguna Nigel and San Bruno, The Huntington Library in San Marino, the published volumes of Lloyds of London Ships Registry 1850–1980 and 1885–1950, the U.S. Department of Commerce Merchant Vessels of the United States 1867–1933, and the USCG Merchant Vessels of the United States 1933–1982 and Supplements 1982–1988 at the University of California Library, University of California at Santa Barbara and Long Beach Library, and the State Library and State Archives and Records Office.

Results

SUBMERGED PREHISTORIC RESOURCES (OFFSHORE)

The records search yielded no maritime finds of prehistoric origin within the study area. All known underwater prehistoric resources on file appear to be located in Oregon and Southern California waters. It should be noted, however, that there is a recognized potential for the remains of prehistoric and historic sites, artifacts, and Native American watercraft to be present offshore, although there is a lower potential for their in-situ preservation.

SUBMERGED HISTORIC RESOURCES (OFFSHORE)

Historic submerged cultural resources include historic period shipwrecks. No evidence of downed aircraft was found in the archival search.

The locations of historic period shipwrecks are characterized by inaccuracies in reported location. Many, if not most, vessels reported as lost in the study area have not been accurately located or assessed for eligibility for listing in the CRHR. Therefore, the potential for the Project to affect these shipwrecks cannot be accurately assessed. However, given the large number of shipwrecks reported in or near the study area, it is likely that one or more may be found by site-specific remote sensing surveys undertaken for the final alignments.

Shipwrecks were mapped in relation to the alternate cable routes based on their reported coordinates or other relevant information. Centered on Manchester Beach Cable origin, the study area extends 10 nm north to include waters offshore of Cuffey's Cove and 10 nm south to just north of Gualala. The records search revealed 135 shipwrecks reported lost within the study area. Thirty-nine of these shipwrecks were reported lost south of the Point Arena headland and are therefore considered less likely to occur along the planned cable routes.

None of these shipwrecks has been evaluated for its significance or importance in California history. No degree of accuracy of location has been evaluated previously for any of the shipwrecks reported in the study area. Details of offshore record search results are found in the Marine Cultural Resources Technical Report (AMS 2018b [Appendix D]).

3.5.1.2 Fieldwork

Archaeological and built environment surveys of the Project area were conducted on April 4, 2018, July 31, 2018, and March 4, 2019 (AMS 2018b [Appendix D]).

The archaeological survey consisted of a pedestrian inspection of the Project area, walking a maximum of 49-feet-wide transects. The survey area (i.e., Project area) consisted of both sides of the SR 1 ROW and the CLP at the north end of the Project area. Surface visibility was good to excellent along the SR 1 ROW because of low-lying vegetation and areas of disturbed soil and imported road base. Surface visibility on the CLP was poor (0 percent visibility) to good (70 percent visibility) with an overall visibility of 15 percent because of overgrown grasses and dense vegetation on most of the parcel. No newly identified archaeological resources were observed or recorded within the survey area during identification efforts. Two previously reported built environment resources, P-23-004613 and the Alder Creek Bridge, were revisited during the field survey and their location and conditions documented.

3.5.1.3 Findings

Built Environment Resources

Four built environment resources were identified in records search results and pedestrian surveys: the Alder Creek Bridge, two abandoned segments of highway, the town of Manchester, and the NRHP-listed Manchester Schoolhouse.

Alder Creek Bridge

The Alder Creek Bridge was constructed in 1946 during a reroute of SR 1. The bridge is included in the Caltrans State Highway Bridges Inventory (Bridge 10 0116) and is recommended ineligible for inclusion in the NRHP (Caltrans 2018b). The structure is more than 50 years old and had not been previously evaluated for CRHR eligibility.

An ICF architectural historian evaluated the Alder Creek Bridge for CRHR eligibility and found that the bridge does not meet the registration criteria for inclusion in the CRHR. In accordance with section 15064.5(a) (2) of the State CEQA Guidelines, the bridge is not a historical resource for the purposes of CEQA.

Abandoned Highway Segments (P-23-004613)

The two abandoned road segments were identified during previous surveys (P-23-004613) as potential historical resources (Leach-Palm et al. 2011). Neither segment was previously evaluated for NRHP or CRHR eligibility. Both segments were relocated and their conditions documented during ICF's pedestrian field survey.

The two abandoned road segments are previously paved portions of SR 1 that were in use as part of the coastal highway prior to the 1943–1947 reroute. The segments were part of the coastal highway built in 1933 between Jenner in Sonoma County and Westport in Mendocino County. The coastal highway was designated as SR 1 in 1933–1934, and designated as the Shoreline Highway in 1964. Both abandoned road segments are ubiquitous features that may be characterized as located adjacent to the current highway, lacking much of their pavement, and no longer used for highway travel.

An ICF architectural historian evaluated the two abandoned road segments (P-23-004613) for NRHP and CRHR eligibility. Due to lack of historical significance or integrity, the two road segments were found ineligible for listing in the NRHR or CRHR under any associative criteria. In accordance with section 15064.5(a) (2) of the State CEQA Guidelines, the two road segments are not historical resources for the purposes of CEQA.

Town of Manchester

The cultural resources Project area includes part of SR 1 and the Caltrans right-of-way through the community of Manchester. The Caltrans right-of-way in this portion of the Project area is restricted to the pavement and undeveloped shoulder of SR 1. It does not encroach on any property parcels and their built environment elements (e.g., fences and sidewalks).

Manchester Schoolhouse

One historic property, the Manchester Schoolhouse, is located adjacent to the Project area. As an NRHP-listed property, the Manchester Schoolhouse also is listed in the CRHR and is a historical resource for the purposes of CEQA. As noted on the NRHP nomination (Bowman 1978), the building was relocated from its original site in Manchester to its current location to make room for a new public school building, and the historical property's significance is not conveyed by elements of its current location. The historic property boundary is limited to the historic building and does not include the surrounding parcel or setting.

The Project area includes a Project parcel (APN 133-090-06-00) that is adjacent to the parcel on which the historic property is located (APN 133-090-28-00). The two parcels are separated by an unpaved, one-lane road. This portion of the Project is restricted to the Project parcel and the pavement and undeveloped shoulder of SR 1. It does not encroach on the NRHP historic property boundary.

Archaeological Resources

The records search and pedestrian survey revealed no archaeological resources in the Project area.

Submerged Offshore Prehistoric and Historic Resources

The records search, including the shipwrecks database search, revealed no submerged offshore prehistoric or historic resources in the Project area.

3.5.2 Regulatory Setting

Federal and state laws and regulations pertaining to cultural resources that are relevant to the Project are identified in Appendix A. At the local level, the following policies and programs included in the City General Plan and the City's LCP are applicable to cultural resources in the Project area. In addition, the CDPR (1992) provides for the discovery and protection or investigation of cultural resources as mandated by CEQA and applicable County ordinances.

Mendocino Local Coastal Plan

- **30244:** Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.
- **3.5-10:** The County shall review all development permits to ensure that proposed projects will not adversely affect existing archaeological and paleontological resources. Prior to approval of any proposed development within an area of known or probable archaeological or paleontological significance, a limited field survey by a qualified professional shall be required at the applicant's expense to determine the extent of the resource. Results of the field survey shall be transmitted to the State Historical Preservation Officer and Cultural Resource Facility at Sonoma State University for comment. The County shall review all coastal development permits to ensure that proposed projects incorporate reasonable mitigation measures so the development will not adversely affect existing archaeological/paleontological resources. Development in these areas are subject to any additional requirements of the Mendocino County Archaeological Ordinance.

3.5.3 Impact Analysis

Potential impacts of the proposed Project on cultural resources are discussed in the context of State CEQA Guidelines Appendix G checklist items.

a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?

No Impact. Only a portion of the Project area has been assessed for resource identification, evaluation, and impacts. The following discussion is based on that assessment.

The cultural resources study area encompasses part of SR 1 and the Caltrans ROW through Manchester. The Caltrans ROW in this portion of the Project area is restricted to the pavement and undeveloped shoulder of SR 1; it does not encroach on the community's property parcels.

The cultural resources investigation for the Project did not identify any historical resources in the Project area. Therefore, there would be no impact, and no mitigation is required.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

Less than Significant with Mitigation. The proposed Project would not cause a substantial adverse change in the significance of a unique archaeological resource as defined in section 15064.5 because no archaeological resources were identified in the Project area. However, if previously unknown archaeological resources (terrestrial and submerged) are encountered during construction of the proposed Project, they could be adversely affected. Implementation of **MM CUL-1** would reduce potential impacts on previously unknown terrestrial archaeological resources to a less than significant level. Implementation of **MM CUL-2**, **MM CUL-3**, and **MM CUL-4** would reduce potential impacts on previously unknown offshore archaeological resources to a less than significant level.

MM CUL-1: Discovery of Previously Unknown Cultural Resources. Prior to ground-disturbance, the Applicant shall retain a qualified archaeologist to train construction staff to be able to identify potential cultural resources. In the event that potential resources are uncovered during Project implementation, all ground-disturbing work within 100 feet of the find shall be temporarily suspended or redirected until an archaeologist has evaluated the nature and significance of the discovery. In the event that a potentially significant resource is discovered, the Applicant; the CSLC; and any local, state, or federal agency with approval or permitting authority over the Project that has requested or required such notification shall be notified within 48 hours. The location of any such finds must be kept confidential, and measures shall be taken to secure the area from site disturbance and potential vandalism. Impacts on previously unknown significant archaeological resources shall be avoided through preservation in place, if feasible. A treatment plan, if needed to address a find, shall be developed by the archaeologist submitted to CSLC staff for review and approval prior to implementation of the plan. If the archaeologist determines that damaging effects on the resource would be avoided or minimized, work in the area may resume. Title to all abandoned shipwrecks, archaeological sites, and historic or cultural resources on or in the tide and submerged lands of California is vested in the State and under the jurisdiction of the CSLC. The final disposition of archaeological and historical resources recovered on State lands under the jurisdiction of the CSLC must be approved by the CSLC.

MM CUL-2: Conduct a Pre-Construction Offshore Archaeological Resources Survey. Using the results of an acoustic survey (e.g., a Compressed High-Intensity Radiated Pulse [CHIRP] System survey) for evidence of erosion/incision of natural channels, the nature of internal channel-fill reflectors and the overall geometry of the seabed, paleochannels and surrounding areas shall be analyzed for their potential to contain intact remains of the past landscape that could contain prehistoric archaeological deposits (e.g., Schmidt et al. 2014). The analysis shall include core sampling in various areas, such as paleochannels, to verify the seismic data analysis. Based on the CHIRP and coring data, a Marine Archaeological Resources Assessment Report shall be produced by a qualified maritime archaeologist and reviewed by the California Coastal Commission or the State Historic Preservation Officer to document effects on potentially historic properties. All acoustic surveys will be conducted by operators permitted by CSLC through its Low-Energy Offshore Geophysical Permit Program (https://www.slc.ca.gov/ogpp/).

MM CUL-3: Conduct a Pre-Construction Offshore Historic Shipwreck Survey. A qualified maritime archaeologist, in consultation with CSLC staff, shall conduct an archaeological survey of the proposed cable routes. The archaeological survey and analysis shall be conducted following current CSLC, BOEM, and USACE (San Francisco and Sacramento Districts) standard specifications for underwater/marine remote sensing archaeological surveys (Guidelines for Providing Geological and Geophysical, Hazards, and Archaeological Information Pursuant to 30 CFR Part 585).

The archaeological analysis shall identify and analyze all magnetic and side-scan sonar anomalies that occur in each cable corridor, defined by a lateral distance of 0.3 mile on either side of the proposed cable route. This analysis shall not be limited to sidescan and magnetometer data and may include shallow acoustic (subbottom) data as well as autonomous underwater vehicle and multi-beam data that may have a bearing on identification of anomalies representative of potential historic properties. All magnetic, side-scan sonar, and acoustic surveys will be conducted by operators permitted by CSLC through its Low-Energy Offshore Geophysical Permit Program (https://www.slc.ca.gov/ogpp/).

MM CUL-4: Prepare and Implement an Avoidance Plan. All cultural resources identified in the Marine Archaeological Resources Assessment Report and the Offshore Historic Shipwreck Survey Report shall be avoided by developing and implementing an avoidance plan. If any cultural resources are discovered as a result of the marine remote sensing archaeological survey, the proposed cable route or installation procedures shall be modified to avoid the potentially historic property. The Applicant shall route the cable no closer than 164 feet from the center point of any given find. In the event a resource is discovered during construction that did not show up on the remote sensing survey and was not part of the avoidance plan, construction in that area will stop, CSLC will be notified, and the cable will be rerouted to avoid the discovery.

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

Less than Significant with Mitigation. No human remains are known to be located in or near the Project area. However, the possibility always exists that unmarked burials may be unearthed during subsurface construction activities. Consequently, there is the potential for the Project to disturb human remains, including those interred outside formal cemeteries. This impact is considered potentially significant but would be reduced to a less than significant level by implementing **MM CUL-5.**

MM CUL-5: Unanticipated Discovery of Human Remains. If human remains are encountered, all provisions provided in California Health and Safety Code section 7050.5 and California Public Resources Code section 5097.98 shall be followed. Work shall stop within 100 feet of the discovery, and an archaeologist must be contacted within 24 hours. The archaeologist shall consult with the County Coroner. In addition, CSLC staff shall be notified within 24 hours. If human remains are of Native American origin, the County Coroner shall notify the Native American Heritage Commission within 24 hours of this determination, and a Most Likely Descendent shall be identified. No work is to proceed in the discovery area until consultation is complete and procedures to avoid or recover the remains have been implemented.

3.5.4 Mitigation Summary

Implementation of the following mitigation measures would reduce the potential for Project-related impacts on cultural resources to a less than significant level:

- MM CUL-1: Discovery of Previously Unknown Cultural Resources
- MM CUL-2: Conduct a Pre-Construction Offshore Archaeological Resources Survey
- MM CUL-3: Conduct a Pre-Construction Offshore Historic Shipwreck Survey
- MM CUL-4: Prepare and Implement an Avoidance Plan
- MM CUL-5: Unanticipated Discovery of Human Remains

3.6 CULTURAL RESOURCES – TRIBAL

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

3.6.1 Environmental Setting

3.6.1.1 Ethnographic Context

The Project alignment passes through the ancestral homelands of the Central Pomo. This group is a part of the larger Pomo group, which has inhabited the north-central coast of California for over 2,000 years, from just north of Fort Bragg to just north of Bodega Bay, and east to the eastern shore of Clear Lake (McLendon and Oswalt 1978). The Pomo are composed of several culturally, but not politically, allied groups, speaking seven distinct languages that belong to the Pomoan family of the Hokan stock (Shipley 1978). According to Kroeber (1976), principal pre-contact Pomo villages were typically situated on the north or east sides of streams. The present Manchester/Point Arena Rancheria is near the Project area (Eargle 1986).

The Southern, Central, and Northern Pomo are more similar to one another culturally, socially, and linguistically than to the Southeastern Pomo (Bean and Theodoratus 1978), and are therefore discussed separately.

3.6.1.2 Southern, Northern, and Central Pomo

The Southern Northern and Central Pomo organized themselves into autonomous tribelets that were geographically composed of a large village and several smaller villages (Kroeber 1976), with one or more bilaterally related extended kin groups of from 100 to 2,000 persons comprising the tribelet. Extended kin groups were composed of nuclear family hearth groups, which averaged from five to six persons and were the basic economic and social groups of the Pomo. For much of the year, nuclear family groups occupied multifamily dwellings. They lived in separate temporary dwellings when a village population occupied seasonal fishing and collection areas (Bean and Theodoratus 1978).

The Pomo structured political authority and prestige principally in two fashions. The first involved kin-group chiefs of equal status with no other political figure possessing greater prestige. Alternatively, kin-group chiefs of equal status sometimes elected one of their number as the tribelet chief (Bean and Theodoratus 1978). Kin group chiefs were generally men. A village composed of a single kin group was organized under the leadership of a hereditary kin-group chief. In villages that contained several kin groups, each kin group was led by a hereditary captain who formed a governing body together with the captains of other kin groups. Among the Central Pomo one of these captains was elected by the kin group captains to serve as the head chief of the tribelet, while the office was hereditary among the Northern Pomo (Kroeber 1976). The head chief functioned as an advisor, met with and welcomed visitors, made peace after conflicts, arranged and presided over ceremonies, and counseled with the other captains regarding matters of group concern (Barrett 1908a). Kroeber (1976) followed Barrett's analysis of Pomo political organization, but noted that the head chief was the leader “not only of his own town but the group of little settlements that constituted a political unit [that is, head chiefs led both single- and multi-village tribelets].” Most tribelets had a ceremonial chief, who was master of all or particular ceremonies (Barrett 1908a; Loeb 1926).

The Pomo subsistence strategy was based on gathering and hunting various resources. Acorns were generally a staple, and other important foods included buckeye, berries, seeds, roots, bulbs, seaweed, and kelp. Pomo generally used stone mortars and pestles for vegetable processing, and also employed a basket hopper in conjunction with the mortar and pestle (Bean and Theodoratus 1978).

Hunting was the province of Pomo men and was conducted both individually and communally. Group hunting of deer involved either a single hunter with a deer-head mask assisted by several packers and drivers, or building a brush fence and conducting a regular surround and drive. Pomo exploited deer, elk, antelope, rabbits, squirrels, birds, bears, seals, sea lions, and marine and available lake and stream fish. Grasshoppers, caterpillars, and larvae were also eaten. Pomo fashioned knives from obsidian and chert, and used these materials to construct axes as well. Bone tools were not especially common, but bone was used for awls and fishhooks. Pomo hunted with bow and arrow, heavy spears, clubs, bolas, fences, nets, and basketry traps, depending on the resources exploited (Bean and Theodoratus 1978).

Pomo groups built three basic types of structures: dwelling houses, temporary shelters, and semi-subterranean structures. The dwelling houses of the Central and Northern Pomo living on the coast and in the adjacent redwood belt were primarily single-family conical houses built from redwood bark slabs. The semi-subterranean structure served three purposes. First, every village possessed at least one small circular semi-subterranean structure, 15 to 20 feet in diameter, which served as a house and daily sweat bath for men (Loeb 1926). A similar but larger (70 feet in diameter) structure functioned as an assembly house for ceremonies and dancing (Merriam 1966–1967). An earth-covered lodge 40 to 60 feet in diameter housed the Ghost Dance religious ceremony (Bean and Theodoratus 1978).

3.6.1.3 Pomo and European Contact

The Northern, Central, and Southern Pomo appear to have had their first contact with Europeans indirectly in the 1700s, when European trade goods began circulating throughout southern Pomo territory from the San Francisco mission-presidia. Other forms of contact occurred when the Spanish made occasional forays into Pomo territory for mission converts (Bean and Theodoratus 1978; McLendon and Lowy 1978). In the early 1800s, Russian cultural influences may have also indirectly affected the Pomo through Russian and Kashaya Pomo marriages. Mexican land grants from 1822 to 1848 displaced some Pomo groups from their traditional lands, mission convert raids intensified in 1823, and the Pomo population was drastically reduced during the smallpox epidemic of 1838 to 1839 (Bean and Theodoratus 1978).

Euro-Americans most heavily disrupted the Northern Pomo near present-day Fort Bragg beginning in the 1850s. Expansion of the timber industry prompted the U.S. government to establish the Mendocino Indian Reservation at Fort Bragg in order to contain the Pomo and open more land to nonnative use and settlement. The Mendocino Indian Reservation, in operation from 1856 to 1866, was home for as many as 3,500 people at one time (Theodoratus 1974). The reservation comprised 25,000 acres, a fort, and 15 other buildings. Lieutenant H. G. Gibson of the U.S. Army was the head of the fort, which he named after the famed Mexican War soldier Captain Braxton Bragg (Carpenter and Millberry 1914). When the reservation was discontinued in 1867, the Pomo were left to find their own living arrangements (Bean and Theodoratus 1978).

Many non-reservation Pomo adjusted to their new life by establishing rancherias on land owned by Euro-Americans and working in orchards and grain fields for wages. The Pomo worked the fields until fall, when they returned to their rancherias to participate in traditional and semi-traditional subsistence and social activities.

3.6.1.4 Pomo near the Project Area

One of the first and most extensive ethnographic studies of the Pomo was conducted by Samuel Barrett and detailed in his 1908 *Ethno-Geography of the Pomo and Neighboring Indians* text (Barrett 1908a). According to Barrett's account, he visited more than 100 Pomo villages and campsites, obtaining information from at least two tribal consultants per village. As identified in Barrett's 1908 map and currently mapped by Newland and Much (2008), one village, *kasi'ltcimada*, is believed to be located on the north bank of Alder Creek, east of where SR 1 crosses the creek. This location puts the village just east of the Project area's central portion. Other nearby villages identified by Barrett include *ko'dalau* in the hills above and east of Manchester, approximately 1.5 miles east of SR 1, and *pda'hau*, along the north bank and mouth of the Garcia River in the Stornetta Ranch, with an inland location 1.5 miles east of the coastal location.

In 1909, some tribal lands were repatriated to the Manchester Band of Pomo Indians. Currently, the Manchester Band owns two parcels of land: one north of the Garcia River along Mountain View Road, and the other along Windy Hollow Road north of Point Arena. These lands were granted either in 1937 or 1942 shortly after the Pomo became federally recognized in 1936.

3.6.1.5 Tribal Coordination

Pursuant to Executive Order B-10-11 concerning coordination with Tribal governments in public decision making (see Appendix A), the CSLC adopted a Tribal Consultation Policy in August 2016 to provide guidance and consistency in its interactions with California Native American Tribes (CSLC 2016). The Tribal Consultation Policy, which was developed in collaboration with Tribes, other State agencies and departments, and the Governor's Tribal Advisor, recognizes that Tribes have a connection to areas that may be affected by CSLC actions and "that these Tribes and their members have unique and valuable knowledge and practices for conserving and using these resources sustainably" (CSLC 2016).

Prior to preparation of the MND, the CSLC did not receive any requests for consultation pursuant to AB 52 from Tribes in the Project area. Under AB 52, lead agencies must avoid damaging effects on Tribal cultural resources, when feasible, regardless of whether consultation occurred or is required. The CSLC proceeded with outreach to the Native American Heritage Commission (NAHC) is "charged with the duty of preserving and ensuring accessibility of sacred sites and burials, the disposition of Native American human remains and burial items, maintain an inventory of Native American sacred sites located on public lands, and review current administrative and statutory protections related to these sacred sites" (NAHC 2018). The NAHC maintains two databases to assist specialists in identifying cultural resources of concern to California Native Americans (Sacred Lands File and Native American Contacts). On May 10, 2018, a request was sent to the NAHC for a sacred lands file search of the Project area and a list of Native American representatives who may be able to provide information about resources of concern located within or adjacent to the Project area.

On May 23, 2018, the NAHC responded to CSLC with a list of 12 Tribes (13 Tribal contacts since there were two contacts from the Cahto Tribe) listed in alphabetical order below:

- Sonny Elliot, EPA Director, Cahto Tribe
- Aimie R. Lucas, Chairperson, Cahto Tribe
- Michael Hunter, Chairperson, Coyote Valley Band of Pomo Indians
- Merlene Sanchez, Chairperson, Guidiville Rancheria of California
- Iyesha Miller, Chairperson, Hopland Band of Pomo Indians
- Dino Franklin Jr., Chairperson, Kashia Band of Pomo Indians of the Stewarts Point Ranch
- Jaime Cobarrubia, Chairperson, Manchester Band of Pomo Indians
- Noyo River Indian Community
- Leona Willams, Chairperson, Pinoleville Pomo Nation
- Salvador Rosales, Chairperson, Potter Valley Tribe
- Debra Ramirez, Chairperson, Redwood Valley or Little River Band of Pomo
- James Russ, President, Round Valley Indian Tribes of the Round Valley Reservation
- Michael Knight, Chairperson, Sherwood Valley Band of Pomo Indians

The NAHC’s reply from May 23, 2018, also stated that Native American cultural sites were present within the area of the Project and recommended the CSLC contact the Manchester Band of Pomo Indians as well as all other Tribes on the list provided by the NAHC.

On September 5, 2018, CSLC staff provided a notice of the Project to all Tribes on the list provided by the NAHC. In response to the NAHC Sacred Lands File search recommendation, CSLC reached out to the Chair of the Manchester Band of Pomo Indians via a formal outreach letter as well as their cultural resources department via a telephone call followed by email containing additional Project details and maps. CSLC staff has not received any additional information subsequent to its initial letter and emails containing Project information.

CSLC staff did not receive any responses from the Tribal representatives identified in the NAHC’s May 23, 2018, letter. At the time of publication of the MND, CSLC staff had not received any comments from the Tribes or was informed of any sensitive Tribal cultural resources within or adjacent to the Project area.

3.6.2 Regulatory Setting

State laws and regulations pertaining to Tribal cultural resources and relevant to the Project are identified in Appendix A. Assembly Bill (AB) 52 made changes to CEQA regarding tribal cultural resources and consultation with California Native American Tribes who have previously requested to be notified of projects in the geographic area traditionally and culturally affiliated with that tribe. Tribal cultural resources include sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a Tribe that is eligible under the California Register of Historic Resources or local register of historical resources. A tribal cultural resource can also be a resource that a lead agency determines, in its discretion and considering the significance of the resource to a Tribe, to be significant pursuant to criteria set forth in Public Resources Code section 5024.1. Under AB 52, lead agencies must avoid damaging effects to tribal cultural resources, when feasible, regardless of whether consultation occurred or is required.

At the local government level, there are no goals, policies, or regulations applicable to this issue area for the Project, because of its location and the nature of the activity.

3.6.3 Impact Analysis

Would the project cause a substantial adverse change in the significance of a Tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

(i) Listed or eligible for listing in the California Register of Historical Resources (CRHR), or in a local register of historical resources as defined in Public Resources Code section 5020.1, subdivision (k), or

(ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Less than Significant with Mitigation. The results from a records search of the NAHC's Sacred Lands Files stated that Native American cultural sites were present within the area of the Project. As provided above, CSLC staff conducted outreach efforts to the 12 Tribes listed by the NAHC to provide any further information about known Tribal cultural resource sites or any other Tribal cultural resources in or near the Project area. Although CSLC did not receive any input from the Tribes with the outreach efforts, Tribal cultural resources could be encountered during Project activities. To avoid potential impacts on Tribal cultural resources or mitigate them to a less than significant level, the following mitigation measures would be implemented.

MM TCR-1: Discovery of Previously Unknown Tribal Cultural Resources. Prior to Project related ground-disturbing activities, the Applicant shall prepare a Tribal Cultural Resources Monitoring Plan subject to CSLC approval. The Plan shall be prepared in coordination with CSLC and a California Native American Tribe that is culturally affiliated with the Project site. The Plan shall include, but not be limited to, the following measures:

- The Applicant shall retain a monitor from a California Native American Tribe that is culturally affiliated with the Project site during all ground-disturbing activities
- The Applicant shall provide a minimum 5-day notice to the tribal monitor prior to all scheduled ground-disturbing activities
- The Applicant shall provide the tribal monitor safe and reasonable access to the Project site
- Procedures for tribal monitoring including availability of resources and information to monitor excavation activities
- Guidance on identification of potential tribal resources that may be encountered
- The tribal monitor will orient construction personnel on the requirements of the Plan, including the probability of exposing tribal resources, guidance on recognizing such resources, and direction on procedures if a find is encountered
- Preparation of a Treatment Plan (see **MM TCR-2** below) if tribal resources are discovered during excavation activities

MM TCR-2: Tribal Cultural Resources Treatment Plan. Should intact Tribal cultural deposits be uncovered during Project implementation, CSLC staff and the tribal monitor shall be contacted immediately within 24 hours. The Applicant shall develop a Treatment Plan developed in consultation with the tribal monitor and shall submit the plan to CSLC staff for review and approval. CSLC staff, in consultation with the tribal monitor, shall have the authority to temporarily halt all work within 100 feet of the find. The location of any such finds must be kept confidential, and measures shall be taken to ensure that the area is secured to minimize site disturbance and potential vandalism. Additional measures to meet these requirements include assessment of the nature and extent of the deposit, and subsequent recordation and notification of relevant parties based on the results of the assessment. Impacts on previously unknown significant Tribal cultural resources shall be avoided through preservation in place, if feasible, or through a mitigation and data recovery plan established between the CSLC, designated Tribes, and qualified archaeologists to offset the effects of the impact.

3.6.4 Mitigation Summary

Implementation of the following mitigation measures would reduce the potential for Project-related impacts on Tribal cultural resources to a less than significant level:

- MM TCR-1: Discovery of Previously Unknown Tribal Cultural Resources
- MM TCR-2: Tribal Cultural Resources Treatment Plan

3.7 ENERGY

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

3.7.1 Environmental Setting

Most energy users in Mendocino County rely on Pacific Gas and Electric Company (PG&E) to provide imported electricity and natural gas to meet their demand (Mendocino County 2009). PG&E maintains transmission and distribution lines throughout Mendocino County. The company operates the Potter Valley Hydroelectric Facilities on the Eel River. In September 2018, PG&E started soliciting offers to buy the facility (PG&E 2018). Some homes are powered by solar or other systems and might feed electricity into the grid (Mendocino County 2009). Untapped alternative energy sources in Mendocino County consist of solar, wind, wood and agricultural wastes, and ocean waves (Mendocino County 2009).

3.7.2 Regulatory Setting

Federal and state laws and regulations pertaining to utilities and service systems that are relevant to the Project are identified in Appendix A. At the local level, the following policies regarding utilities and service systems are applicable to the Project.

- **Policy RM-69:** The County supports maintaining the Outer Continental Shelf as a petroleum reserve for use only in time of national emergency.
- **Policy DE-68:** Require that new applications for discretionary projects state their energy, water, and waste stream requirements at the time of application. As part of the review of the development application, distribute this information to the service providers and compare the capacity of existing and planned systems with the demand created by the proposed project.
- **Policy DE-206:** The County will encourage appropriate utility infrastructure necessary to support social and economic needs including wired, wireless and satellite communications.
- **Policy DE-207:** The County will facilitate investment in telecommunications infrastructure by providing clear guidelines for utility systems.

3.7.3 Impact Analysis

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less than Significant Impact. During construction, the Project would use a variety of terrestrial equipment and marine vessels, including heavy equipment, trucks, cars, and cable-laying and support ships. The Project encompasses four phases. Most of the energy would be consumed during the first phase from installing the marine steel bore and underground conduit system onshore. Installation of all the bore pipes and the entire underground conduit system together in Phase 1 is an efficient way to do construction because there is no need to remobilize all the construction equipment associated with the bore pipes and installing the underground conduit system. In Phases 2 through 4, most of the energy would be expended laying cable across the seafloor and with pulling cable on shore.

During operations, the Project is assumed to use 292 megawatt-hours of electricity each year, sufficient to power approximately 29 homes for a year, to power the cables. Most users in Mendocino County obtain their power from PG&E through the grid, which is sufficiently robust to accommodate the Project's power demand (as noted, the equivalent of 29 additional homes). In 2025, California is expected to generate between approximately 71,000 and 76,700 MW, while demand is expected to range from nearly 61,000 to 68,000 MW (CEC 2019).

The Project's use of energy during construction and operations is necessary to provide for improved telecommunications services and is not wasteful or inefficient.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact. The Project does not obstruct state or local plans for renewable energy or energy efficiency.

3.7.4 Mitigation Summary

The Project would not result in significant impacts on energy; therefore, no mitigation is required.

3.8 GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

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

3.8.1 Environmental Setting

3.8.1.1 Regional Setting

The Project area is in the Coast Ranges geomorphic province, which is characterized by northwest-trending mountain ranges formed by active uplift related to complex tectonics of the San Andreas fault/plate boundary system. These mountain ranges are made up of thick Mesozoic and Cenozoic sedimentary strata, and the northern ranges are dominated by the irregular landslide topography of the Franciscan Complex (CGS 2002).

This region is one of the most seismically active in California. This activity is caused by the interaction of the Gorda, North America, and Pacific plates, which converge off the coast of northern California (just west of Ferndale) to form the Mendocino Triple Junction. At this triple junction, the Gorda plate is subducting under the North America plate and converging obliquely along the Pacific plate. The San Andreas fault marks the boundary of the Pacific and North America plates and terminates at the Triple Junction. The complex interaction of these plates has generated major earthquakes and also generates numerous low intensity earthquakes each year (Oppenheimer 2018). Manchester and the Project vicinity are located in the San Andreas fault zone (Figure 3.8-1).

3.8.1.2 Site-Specific Setting

Topography

The Project area is located between SR 1 and the coastline, with elevations ranging from sea level to approximately 190 feet above mean sea level. The topography is mainly rolling hills. Along the coastline, the rolling hills end abruptly in actively eroding coastal bluffs, which are more than 100 feet high at the north end of the Project area. The private beach extends from the base of the bluffs some 200 to 450 feet to the coastline.

Geology

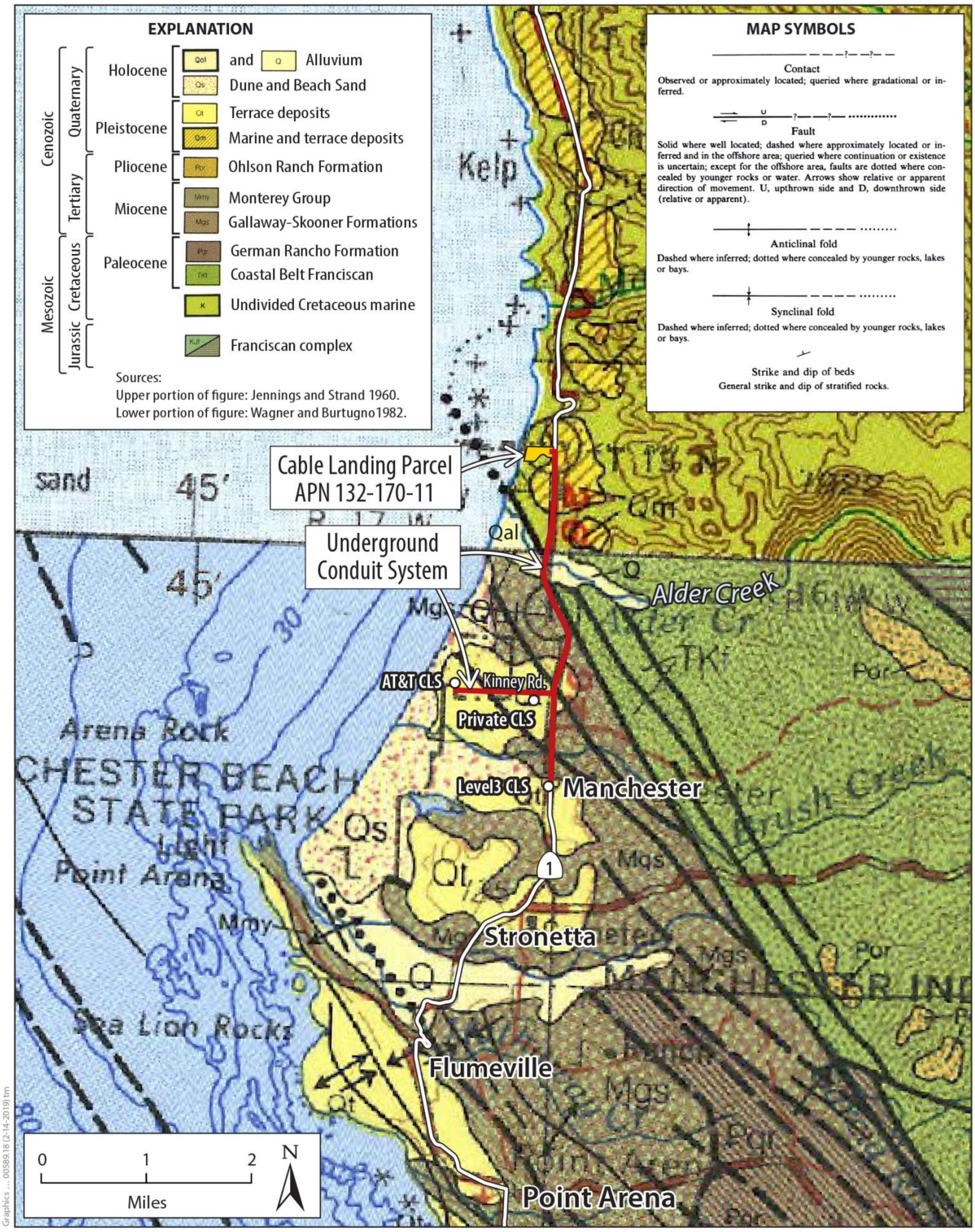
In the Project area, surficial geologic units (Figure 3.8-1) include the Jurassic Franciscan Formation Complex, the Cretaceous Coastal Belt Franciscan, the Miocene Gallaway-Skooner Gulch Formations, and Pleistocene and Holocene terrace and alluvial deposits (Wagner and Bortugno 1982; Jennings and Strand 1960).

Seismicity

<u>Surface Fault Rupture and Strong Ground Shaking</u>

The Project area is in a highly tectonically active region of California, and both surface fault rupture and strong ground shaking pose a hazard. Strands of the San Andreas fault occur in the Project area (CGS 2010) (Figure 3.8-1), which could cause surface fault rupture and the potential for some of the highest intensity ground shaking in California (Branum et al. 2008). As a result, the California Geological Survey has delineated two zones of required investigation, as defined by the Alquist-Priolo Earthquake Fault Zoning Act and the Seismic Hazards Mapping Act, in the Project area (Division of Mines and Geology 1974a, 1974b).

Figure 3.8-1. Geologic Map



PAGE INTENTIONALLY LEFT BLANK

<u>Liquefaction and Lateral Spread</u>

Liquefaction is the process by which soils and sediments lose shear strength and fail during seismic ground shaking. The vibration caused by an earthquake can increase pore pressure in saturated materials. If the pore pressure is raised to be equivalent to the load pressure, this causes a temporary loss of shear strength, allowing the material to flow as a fluid. This temporary condition can result in severe settlement of foundations and slope failure. The susceptibility of an area to liquefaction is determined largely by the depth to groundwater and the properties (e.g., texture and density) of the soil and sediment within and above the groundwater. The sediments most susceptible to liquefaction are saturated, unconsolidated sand and silt soils with low plasticity within 50 feet of the ground surface (CGS 2008).

The unconsolidated sand and silt soils that make up the Holocene terrace and alluvial deposits in the Project area are likely liquefiable sediments. Because of the presence of liquefiable sediments and the potential for strong ground shaking, liquefaction is a hazard in the Project area (County of Mendocino 2008).

Lateral spreading is a failure of soil and sediment within a nearly horizontal zone that causes the soil to move toward a free face (such as a streambank or canal) or down a gentle slope. Lateral spreading can occur on slopes as gentle as 0.5 percent. Even a relatively thin seam of liquefiable sediment can create planes of weakness that could result in continuous lateral spreading over large areas (CGS 2008).

<u>Landslides</u>

The Project area is in a region prone to landslides, and landslides are designated in the County's General Plan as one of the main hazards in the coastal zone (Mendocino County 1991a). In response to the region's landslide hazards, California Geological Survey (formerly the Division of Mines and Geology) has mapped landslides in the region as part of its California Landslide Inventory Program. No landslides have been delineated in the terrestrial portion of the Project area (Davenport 1984), but the landslide potential along the coast is high (Mendocino County 1991a). Landslides are also documented in the steeper slopes of the Franciscan Formation and units underlain by the Franciscan Formation (Liao et al. 2015).

Soils

Potential soil concerns in the Project area include expansive soils and soil erosion as discussed below.

Expansive, or plastic, soils expand and contract with changes in moisture content and can damage buried features, as well as structures. Soil plasticity in the Project area ranges widely, even in small areas, from low to high (NRCS 2018).

The susceptibility of soils to erode in the Project area is mainly related to slope. Overall, the primary area of concern is the coastal bluffs, where slopes are steepest and subject to wave action (NRCS 2018; Mendocino County 2009). The Applicant prepared a Draft Geotechnical Engineering Report (Appendix E) for the manhole location which indicates that materials range from sandy to fractured, unweathered greywacke rock to the boring depth of approximately 225 feet.

Paleontological Resources

The primary source of information used to collect information on existing paleontological resources in the Project area was the paleontological database at the University of California, Berkeley. Effects on paleontological resources were analyzed qualitatively, based on professional judgment and the Society of Vertebrate Paleontology's *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources* (SVP 2010). These guidelines reflect the accepted standard of care for paleontological resources and identify two key phases in the process for protecting paleontological resources from project effects.

- Assess the likelihood that the area contains significant nonrenewable paleontological resources that could be directly or indirectly affected, damaged, or destroyed as a result of the project.
- Formulate and implement measures to mitigate potential adverse effects.

Paleontological sensitivity is an assessment based on the paleontological potential of the stratigraphic units present, the local geology and geomorphology, and other factors relevant to fossil preservation and potential yield. The Society's guidelines criteria for determining sensitivity are (1) the potential for a geological unit to yield abundant or significant vertebrate fossils or to yield a few significant fossils, large or small, vertebrate, invertebrate, or paleobotanical remains; and (2) the importance of recovered evidence for new and significant taxonomic, phylogenetic, paleoecological, or stratigraphic data (Table 3.8-1).

Table 3.8-1. Paleontological Sensitivity Ratings

Potential	Definition
High	Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources…Paleontological potential consists of both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, plant, or trace fossils and (b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, paleoecologic, taphonomic, biochronologic, or stratigraphic data.
Undetermined	Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have undetermined potential. Further study is necessary to determine if these rock units have high or low potential to contain significant paleontological resources.
Low	Reports in the paleontological literature or field surveys by a qualified professional paleontologist may allow determination that some rock units have low potential for yielding significant fossils. Such rock units will be poorly represented by fossil specimens in institutional collections, or based on general scientific consensus, will only preserve fossils in rare circumstances and the presence of fossils is the exception not the rule.
No	Some rock units, such as high-grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites), have no potential to contain significant paleontological resources. Rock units with no potential require neither protection nor impact mitigation measures relative to paleontological resources.

Source: SVP 2010

In evaluating a proposed project's potential to disturb or damage significant paleontological resources, the following factors are considered: first, most vertebrate fossils are rare and are therefore considered important paleontological resources. Second, unlike archaeological sites, which are narrowly defined, paleontological sites are defined by the entire extent (both areal and stratigraphic) of a unit or formation. In other words, once a unit is identified as containing vertebrate fossils, or other rare fossils, the entire unit is a paleontological site (SVP 2010).

The paleontological sensitivity of the geologic units in the Project area is described in Table 3.8-2 and depicted in Figure 3.8-1. Of particular note is the Gallaway-Skooner Gulch Formation. Of the 91 records of vertebrate fossils recorded in Mendocino County, 88 are from this formation, including mammals and a wide variety of sharks and other cartilaginous fish. This number also is notable because the Gallaway-Skooner Gulch Formation outcrops in Mendocino County in only a limited area in the Point Arena vicinity.

Although the records of fossils in the Franciscan Formation are sparse, the unit is known for the discovery of an ichthyosaur and a plesiosaur fossil, though much farther south in San Joaquin and San Luis Obispo Counties (UCMP 2018a, 2018b).

Table 3.8-2. Paleontological Resources by Geologic Unit

Geologic Unit	Age	Fossils in Unit	Sensitivity for Paleontological Resources
Dune and beach sand deposits	Holocene	None matching age and depositional environment	Low because likely too young to contain fossils
Terrace deposits (marine)	Pleistocene	None matching age and depositional environment in region	Undetermined
Gallaway-Skooner Gulch Formations	Miocene	Numerous cartilaginous fish species, including several species of shark, and mammals such as extinct seal species and an extinct aquatic herbivore	High
Coastal Belt Franciscan	Cretaceous	Uncertain	Undetermined
Franciscan Formation Complex	Jurassic	Plesiosaur, ichthyosaur	High

Sources: UCMP 2018a, 2018b, 2018c

3.8.2 Regulatory Setting

Federal and state laws and regulations pertaining to geology and soils and relevant to the Project are identified in Appendix A. At the local level, the County addresses the potential for ground-shaking, liquefaction, landslides, and erosion in the Coastal Element of its General Plan, including Section 3.4, Hazards Management and Appendix 3, Geotechnical Evaluation Requirements (Mendocino County 1991b). The following policies and programs are applicable to the Project.

3.8.2.1 Mendocino County General Plan

The Coastal Element of the Mendocino County General Plan contains the following policies related to geologic and seismic hazards.

Coastal Element Policies: Hazards

- **3.4-1:** The County shall review all applications for Coastal Development permits to determine threats from and impacts on geologic hazards arising from seismic events, tsunami runup, landslides, beach erosion, expansive soils and subsidence and shall require appropriate mitigation measures to minimize such threats. In areas of known or potential geologic hazards, such as shoreline and bluff top lots and areas delineated on the hazards maps the County shall require a geologic investigation and report, prior to development, to be prepared by a licensed engineering geologist or registered civil engineer with expertise in soils analysis to determine if mitigation measures could stabilize the site. Where mitigation measures are determined to be necessary, by the geologist, or registered civil engineer the County shall require that the foundation construction and earthwork be supervised and certified by a licensed engineering geologist, or a registered civil engineer with soil analysis expertise to ensure that the mitigation measures are properly incorporated into the development.

- **3.4-2:** The County shall specify the content of the geologic site investigation report required above in Coastal Element Policy 3.4-1. The specific requirements will be based upon the land use and building type as well as by the type and intensity of potential hazards. These site investigation requirements are detailed in Appendix 3, Geotechnical Evaluation Requirements (Mendocino County 1991b).
- **3.4-3:** The County shall review development proposals for compliance with the Alquist-Priolo Special Studies Zone Act (as amended May 4, 1975).
- **3.4-4:** The County shall require that water, sewer, electrical, and other transmission and distribution lines which cross fault lines be subject to additional safety standards beyond those required for normal installations, including emergency shutoff where applicable.
- **3.4-5:** The County shall require that residential, commercial and industrial structures be sited a minimum of 50 feet from a potentially, currently, or historically active fault. Greater setbacks may be required if warranted by local geologic conditions.
- **3.4-6:** In tsunami-prone areas as illustrated on resource maps or land use maps the County shall permit only harbor development and related uses and these shall be allowed only if a tsunami warning plan has been developed. The County shall supply an early warning system.
- **3.4-7** The County shall require that new structures be set back a sufficient distance from the edges of bluffs to ensure their safety from bluff erosion and cliff retreat during their economic life spans (75 years). Setbacks shall be of sufficient distance to eliminate the need for shoreline protective works. Adequate setback distances will be determined from information derived from the required geologic investigation and from the following setback formula:

  Setback (meters) = Structure life (years) x Retreat rate (meters/year)

  The retreat rate shall be determined from historical observation (e.g., aerial photographs) or from a complete geotechnical investigation.

  All grading specifications and techniques will follow the recommendations cited in the International Building Code or the engineering geologists report.

- **3.4-8:** Property owners should maintain drought-tolerant vegetation within the required blufftop setback. The County shall permit grading necessary to establish proper drainage or to install landscaping and minor improvements in the blufftop setback.
- **3.4-9:** Any development landward of the blufftop setback shall be constructed so as to ensure that surface and subsurface drainage does not contribute to the erosion of the bluff face or to the instability of the bluff itself.
- **3.4-10:** No development shall be permitted on the bluff face because of the fragility of this environment and the potential for resultant increase in bluff and beach erosion due to poorly-sited development. However, where they would substantially further the public welfare, developments such as staircase accessways to beaches or pipelines to serve coastal-dependent industry may be allowed as conditional uses, following a full environmental, geologic and engineering review and upon the determinations that no feasible less environmentally damaging alternative is available and that feasible mitigation measures have been provided to minimize all adverse environmental effects.
- **3.4-11:** No development, except flood control projects, to protect existing structures, nonstructural agricultural uses, and seasonal uses shall be permitted in the 100-year floodway unless mitigation measures in accordance with FEMA regulations are provided.
- **3.4-12:** Seawalls, breakwaters, revetments, groins, harbor channels and other structures altering natural shoreline processes or retaining walls shall not be permitted unless judged necessary for the protection of existing development or public beaches or coastal dependent uses. Allowed developments shall be processed as conditional uses, following full environmental geologic and engineering review. This review shall include site-specific information pertaining to seasonal storms, tidal surges, tsunami runups, littoral drift, sand accretion and beach and bluff face erosion. In each case, a determination shall be made that no feasible less environmentally damaging alternative is available and that the structure has been designed to eliminate or mitigate adverse impacts upon local shoreline sand supply and to minimize other adverse environmental effects. The design and construction of allowed protective structures shall respect natural landforms, shall provide for lateral beach access, and shall minimize visual impacts through all available means.

It is the policy of Mendocino County to provide for the discovery and protection of paleontological resources as mandated by CEQA and applicable County ordinances. This is mandated in the Mendocino County General Plan Coastal Element (1991a), part of the LCP, and is largely based on the California Coastal Act. See Section 3.5.4 for additional LCP policies (30244 and 3.5-10) pertaining to paleontological resources.

Policy DE-116: Paleontological resources studies shall be conducted at the County's discretion for all project applications. The studies should identify paleontological resources in a project area and provide mitigation measures for any resources in a project area that cannot be avoided.

- If, during the course of implementing County-approved projects any paleontological resources (fossils) are discovered, all work shall be halted immediately within 50 feet of the discovery, the County Planning and Building Services Department shall be immediately notified, and a qualified paleontologist shall be retained to determine the significance of the discovery.
- The County and project applicant shall consider the mitigation recommendations of the qualified paleontologist for any unanticipated discoveries. The County and project applicant shall consult and agree upon implementation of a measure or measures that they deem feasible and appropriate. Such measures may include avoidance, preservation in place, excavation, documentation, curation, data recovery, or other appropriate measures. The project applicant will implement the agreed upon mitigation measures necessary for the protection of paleontological resources.

3.8.3 Impact Analysis

Evaluation of the geology, seismicity, soils, and paleontological impacts in this section is based on information from published maps, reports, and other documents that describe the geologic, seismic, soil, and paleontological conditions of the Project area and vicinity, and on professional judgment. The analysis assumes that the Project would conform to the latest California Building Standards, the seismic safety standards of the County General Plan and Coastal Act, and National Pollutant Discharge Elimination System (NPDES) requirements.

Project components that could cause impacts related to geology, seismicity, soils, and paleontology are above ground and below ground terrestrial construction, such as grading for landing sites, trenching for cables, directional boring, and presence of Project features that could be damaged.

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

> ***(i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.***
>
> ***(ii) Strong seismic ground shaking?***
>
> ***(iii) Seismic-related ground failure, including liquefaction?***
>
> ***(iv) Landslides?***

Less than Significant Impact. The Project area is in a designated Alquist-Priolo Fault Zone because of the presence of the San Andreas fault, and surface fault rupture could occur; however, the Project would not be under the purview of the Alquist-Priolo Act because it does not involve habitable buildings; instead the project would be regulated by the requirements of the Coastal Act.

A Coastal Development Permit would be necessary for Project approval. The requirements of a Coastal Development Permit would comply with, and possibly add to, the requirements of the California Building Standards Code (CBSC). Should a surface fault rupture occur, damage to the cables and associated facilities would be temporary and localized, and would not result secondarily in harm to humans. The Project would not erect new structures but would install equipment in existing ones. It also would install below-ground facilities, such as the underground conduit system. HDD activities are not sufficiently strong to trigger earthquakes, liquefaction, or landslides. HDD would occur under the ocean bed from the bluff where an LMH will be installed. Because HDD would not affect the face of the steep coastal bluff, it would not trigger erosion or landslides. Adherence to standard engineering practices and design criteria relative to seismic and geologic hazards in accordance with the Coastal Development Permit and the CBSC would reduce this impact to a level that is less than significant. No mitigation is required.

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

Less than Significant with Mitigation. Construction activities could cause substantial soil erosion or loss of topsoil are grading for the CLP (e.g., excavation for bore entry and exit pits, bore push pits and manholes), two staging areas within the CLP and another somewhere in Manchester (not identified at this point), and underground conduit system (Figure 2-3). Because the impacted areas would be relatively limited and temporary, they would be restored to pre-Project or better conditions after construction (Section 2.3.4.8). Trenches would be backfilled and compacted immediately after conduit installation, and topsoil would be managed as described in Section 2.3.4.8. In addition, standard erosion and sediment control measures and other housekeeping BMPs would be identified in the

SWPPP (see **MM HYDRO-1** in Section 3.11, *Hydrology and Water Quality*). Restoration would include grading to restore original contours; installing erosion-control devices at locations susceptible to erosion; and seeding, mulching, and fertilizing to return the site to pre-construction conditions. Preparation and implementation of an approved SWPPP and applicable BMPs and subsequent restoration as required in **MM HYDRO-1** would reduce impacts to less than significant.

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?

Less than Significant Impact. As described earlier in the other seismic hazards, land sliding, lateral spread, and liquefaction discussions, these are possible in the Project area. Because the scale and type of HDD for steel marine bores and trenchless boring that would be used for underground conduit system, the standard construction practice of backfilling and compacting open trenches immediately after conduit installation would lessen the potential risks associated with lateral spread and subsidence. Therefore, the impact is less than significant. No mitigation is required.

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?

Less than Significant Impact. Expansive soils could be present in the Project area. If present, these soils could cause lateral movement or upheaval of the conduits and cables, which could damage or break them. However, the conduits used for the Project would be designed to withstand local soil conditions. In addition, the County reviews all applications for coastal development for issues related to expansive soils and requires appropriate treatment to minimize such issues. In addition, the CSLC's engineers review the Project design. Therefore, this impact would be less than significant. No mitigation is required.

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?

No Impact. The Project would not include the use of septic tanks or alternative wastewater disposal systems, such as leach fields. There would be no impact.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less than Significant Impact. Excavation during Project construction could damage paleontological resources by physically disturbing or damaging (e.g., crushing) them or removing them from their stratigraphic context. The factors that determine the potential to damage paleontological resources are the paleontological sensitivity of the unit and the depth and extent of excavation. The geologic units (Figure 3.8-1) in the Project area sensitive for paleontological resources include the following:

- Gallaway-Skooner Gulch Formation (high sensitivity)
- Franciscan Formation (high sensitivity)
- Coastal Belt Franciscan (undetermined sensitivity)
- Pleistocene terrace deposits (undetermined sensitivity)

In particular, a large number of fish fossils are known from the Gallaway-Skooner Gulch Formation in Mendocino County. The construction activities requiring moderate to deep excavation (i.e., excavation deeper than 3 feet are provided in Table 3.8-3. Depending on the location, these activities could damage paleontological resources. The Applicant would implement Mendocino County General Plan Policy DE-116 to avoid damage of paleontological resources. Implementing Policy DE-116 would reduce this impact by making construction personnel aware of the potential for paleontological resources to be present and requiring work to stop if unexpected paleontological resources are encountered. This impact would be less than significant, and no mitigation is required.

Table 3.8-3. Project Activities Requiring Moderate to Deep Excavation

Activity	Excavation
Entry pits for directional bores	4 feet deep by 10 feet wide by 12 feet long
Push pits for conventional bores	6 feet wide by 25 feet long, excavated to bore depth
Entry and exit pits for trenchless construction	4 feet wide by 8 feet long by 5 feet deep
Trenches	12 to 18 inches wide and 36 to 48 inches deep
Manholes	8 feet by 10 feet
Intermediate manholes	4 feet square and 6 feet deep
Landing manhole	8 feet wide by 12 feet long by 9 feet deep

3.8.4 Mitigation Summary

Implementation of the following mitigation measures would reduce the potential for Project-related impacts from potential erosion to less than significant:

- MM HYDRO-1: Prepare and Implement a Stormwater Pollution Prevention Plan

3.9 GREENHOUSE GAS EMISSIONS

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

3.9.1 Environmental Setting

A *greenhouse gas* is defined as any gas that absorbs infrared radiation in the atmosphere. GHGs include, but are not limited to, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3). These GHGs lead to the trapping and buildup of heat in the atmosphere near the earth's surface, commonly known as the greenhouse effect. There is overwhelming scientific consensus that human-related emissions of GHGs above natural levels have contributed significantly to global climate change by increasing the concentrations of the gases responsible for the greenhouse effect, which causes atmospheric warming above natural conditions.

According to NOAA, the atmospheric concentration of CO_2 measured at Mauna Loa, Hawaii in May 2016 was 407.70 parts per million (ppm) (NOAA 2018) compared to the pre-industrial levels of 280 ppm +/- 20 ppm (IPCC 2007). NOAA's Mauna Loa data also show that the mean annual CO_2 concentration growth rate is accelerating. In the 1960s, it was about 0.9 ppm per year; in the first decade of the 2000s, it was almost 2 ppm per year; and from May 2015 to May 2016, it was nearly 4 ppm. Because GHG emissions are known to increase atmospheric concentrations of GHGs, and increased GHG concentrations in the atmosphere exacerbate global warming, a project that adds to the atmospheric load of GHGs adds to the problem. To avoid disruptive and potentially catastrophic climate change, annual GHG emissions must not only stabilize but also must be substantially reduced. The impact on climate change from the increase in ambient concentrations of GHGs differs from criteria pollutants (see Section 3.3, *Air Quality*), in that GHG emissions from a specific project do not cause direct, adverse localized human health effects. Rather, the direct environmental effect of GHG emissions is the cumulative effect of an overall increase in global temperatures, which in turn has numerous indirect effects on the environment and humans.

The Intergovernmental Panel on Climate Change completed a Fifth Assessment Report in 2014 which contains information on the state of scientific, technical, and socioeconomic knowledge about climate change. The Fifth Assessment Report includes working group reports on basics of the science, potential impacts and vulnerability, and mitigation strategies.[21] Global climate change has caused physical, social, and economic impacts in California (e.g., land surface and ocean warming; decreasing snow and ice; rising sea levels; increased frequency and intensity of droughts, storms, and floods; and increased rates of coastal erosion). In its Climate Change 2014 Synthesis Report (IPCC 2014), which is part of the Fifth Assessment Report, the Panel notes:

> *Human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases are the highest in history. Recent climate changes have had widespread impacts on human and natural systems…warming of the climate system is unequivocal, and, since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen.*

Although modeling indicates that climate change will occur globally and regionally, there remains uncertainty about characterizing the precise local climate characteristics and predicting precisely how various ecological and social systems will react to any changes in the existing climate at the local level. Regardless of this uncertainty, it is widely understood that some degree of climate change is expected because of past and future GHG emissions.

The potential of a gas or aerosol to trap heat in the atmosphere is called global warming potential (GWP). The GWP of different GHGs varies because they absorb different amounts of heat. Carbon dioxide, the most ubiquitous GHG, is used to relate the amount of heat absorbed to the amount of the gas emissions; this is referred to as *CO_2 equivalent* (CO_2e). The CO_2e is the amount of GHG emitted multiplied by the GWP. The GWP of CO_2, as the reference GHG, is 1. Methane has a GWP of 25; therefore, 1 pound of methane equates to 25 pounds of CO_2e. Table 3.9-1 provides a range of gases with GWP over a 100-year timeframe and their estimated lifetime in the atmosphere.

Table 3.9-1. Lifetimes and Global Warming Potentials of Key Greenhouse Gases

Greenhouse Gas	100-Year Global Warming Potential (Average)	Life in Atmosphere (Years)
Carbon dioxide (CO_2)	1	50–200
Methane (CH_4)	25	12
Nitrous oxide (N_2O)	298	114
HFCs	124 to 14,800	1 to 270
PFCs	7,390 to 12,200	3,200 to 50,000
Sulfur hexafluoride	22,800	3,200

Source: CARB 2018b

[21] For additional information on the Fifth Assessment Report, see https://www.ipcc.ch/report/ar5/.

3.9.1.1 Emission Inventories and Projections

A GHG inventory is a quantification of all GHG emissions and sinks[22] within a selected physical or economic boundary. Table 3.9-2 outlines the most recent global, national, and statewide GHG inventories to help contextualize the magnitude of Project emissions.

Table 3.9-2. Global, National, and State Greenhouse Gas Emissions Inventories

Emissions Inventory	CO_2e (metric tons)
2010 IPCC global GHG emissions inventory	52,000,000,000
2016 EPA national GHG emissions inventory	6,511,300,000
2016 CARB state GHG emissions inventory	429,400,000

Terms:
CO_2e = carbon dioxide equivalent
GHG = greenhouse gas
Sources: IPCC 2014; EPA 2018b; CARB 2018b

3.9.1.2 National Inventory

The primary source of GHG in the United States is energy-use related activities, which include fuel combustion and energy production, transmission, storage, and distribution. The electricity and transportation sectors generated 56 percent of the total U.S. emissions in 2016 (each sector represented 28 percent of total emissions), with CO_2 being the primary GHG (81 percent of total emissions). The United States, which has about 4.3 percent of the global population, emits roughly 13 percent of all global GHG emissions (see Table 3.9-2).

3.9.1.3 State Inventory

California has approximately 0.53 percent of the global population and emits less than 0.85 percent of the total global GHG emissions, which is approximately 40 percent lower per capita than the overall U.S. average. Despite growing population and gross domestic product (GDP), gross GHG emissions continue to decrease, as do emissions per capita (per capita emissions have dropped from 13.5 metric tons in 2005 to 10.9 metric tons in 2016), exhibiting a major decline in the “carbon intensity” of California’s overall economy (CARB 2018b). The transportation sector remains responsible for the largest share of GHG emissions in the 2016 state inventory, accounting for approximately 36 percent of the total. While GHG emissions generated by most sectors have been flat or decreasing, emissions within the transportation sector have been increasing since 2013. However, since its peak in 2004, California, as a whole, has reduced its total annual emissions by 13 percent; transportation sector emissions are 10 percent lower (CARB 2018b).

[22] A GHG sink is a process, activity, or mechanism that removes a GHG from the atmosphere.

Even though California is aggressively moving to reduce its annual GHG emissions, it is already experiencing the effects of GHG-related climate change, which is a relevant aspect of the environmental setting. A 2018 report entitled *Indicators of Climate Change in California* (OEHHA 2018) concludes that the changes occurring in California are largely consistent with those observed globally. These climate change indicators show the following.

- Annual average temperatures in California are on the rise, including increases in daily minimum and maximum temperatures.
- Extreme events, including wildfire and heat waves, are more frequent.
- Spring runoff volumes are declining as a result of a diminished snowpack.
- The number of “winter chill hours” crucial for the production of high-value fruit and nut crops, are declining.
- Species are on the move, showing up at different times and locations than previously recorded, including both flora and fauna at higher elevations.

For the purposes of this assessment, the Project site is located within the jurisdiction of the Mendocino County Air Quality Management District (District or MCAQMD). There are no local GHG inventories for the District.

3.9.2 Regulatory Setting

There is currently no overarching federal law specifically related to climate change or the reduction of GHG emissions. During the Obama administration, the EPA developed regulations under the CAA and adopted the Clean Power Plan. However, on February 9, 2016, the Supreme Court issued a stay of prior regulations, pending litigation. In addition, former EPA Administrator Scott Pruitt signed a measure to repeal the Clean Power Plan. The fate of federal GHG regulations is uncertain, given the current federal administration and the pending deliberations in federal courts.

California has adopted statewide legislation to address various aspects of climate change and mitigation for GHG emissions. Much of this legislation establishes a broad framework for the state’s long-term GHG emissions reduction and climate change adaptation program. Of importance are AB 32 and SB 32, which outline the state’s GHG emissions reduction goals (i.e., 1990 emissions levels by 2020 and 40 percent below 1990 emissions levels by 2030).

CARB adopted the initial AB 32 Scoping Plan describing its approach to meeting the AB 32 goal in 2008. The First Update to the Climate Change Scoping Plan was approved in 2014 and builds upon the initial Scoping Plan with new strategies and recommendations (CARB 2014).

With enactment of SB 32, CARB prepared a 2017 Climate Change Scoping Plan Update (CARB 2017). In addition to the Scoping Plan, CARB maintains an online inventory of GHG emissions in California. The most recent inventory, released June 6, 2017, includes emissions from 2000 to 2015. This inventory is an important companion to the Scoping Plan because it documents the historical emission trends and progress toward meeting the 2020 and 2030 targets, which are 431 $MMTCO_2e$ and 260 $MMTCO_2e$, respectively.

To monitor progress in emissions reduction, the Scoping Plan includes a modeled reference scenario, or "business as usual" (BAU) projection that estimates future emissions based on current emissions; expected regulatory implementation; and other technological, social, economic, and behavioral patterns. Prior BAU emissions estimates assisted CARB in demonstrating progress toward meeting the 2020 goal of 431 $MMTCO_2e$. The 2030 BAU reference scenario was modeled for the 2017 Scoping Plan Update, representing forecasted state GHG emissions with existing policies and programs but without additional action beyond that to reduce GHGs. This modeling provides that California is expected to achieve the 2020 target but that a significant increase in the rate of GHG reductions is needed to meet the 2030 and 2050 targets (CARB 2017).

At the regional and local level, the District has not adopted a formal GHG reduction plan or strategy.

3.9.3 Impact Analysis

The impact analysis includes emissions generated by all terrestrial activity and marine vessels operating within 24 nm offshore. While this distance goes beyond the area typically analyzed in CEQA documents (3 nm as seen in Figure 1-1), CSLC staff has conservatively elected to analyze emissions to 24 nm for consistency with the state's GHG inventory and reduction planning framework (CARB 2018b).

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

3.9.3.1 Construction

Less than Significant with Mitigation. As discussed in Section 3.3, *Air Quality*, construction of the proposed Project would require both terrestrial (e.g., conduit installation) and marine activities. Off-road equipment, on-road vehicles, and marine vessels would emit CO_2, CH_4, and N_2O. Emissions were estimated using the methods described in Appendix B and are summarized in Table 3.9-3.[23]

Table 3.9-3. Estimated Construction Greenhouse Gas Emissions (metric tons)

Phase	Carbon Dioxide (CO_2)	Methane (CH_4)	Nitrous Oxide (N_2O)	Carbon Dioxide Equivalent (CO_2e)
Phase 1	961	<1	<1	981
Phase 2	563	<1	<1	572
Phase 3	561	<1	<1	570
Phase 4	560	<1	<1	569
Total	**2,645**	**<1**	**<1**	**2,691**

The District (MCAQMD 2010, 2013) recommends project-level analyses following the GHG analysis guidance contained in the BAAQMD's air quality guidelines. BAAQMD does not have an adopted threshold of significance for construction-related GHG emissions. However, they recommend that emissions be quantified and disclosed (BAAQMD 2017). The District has not established a numeric construction threshold. The CSLC has conservatively determined that, for the purposes of this analysis, any substantial increase in construction-related GHG emissions above net zero would result in a significant impact.

Table 3.9-3 provides that construction of the Project would generate 2,691 metric tons of CO_2e. These emissions would only occur during the brief construction period. However, they would result in a net increase in GHG emissions. This is a potentially significant impact. The CSLC would require the Applicant to implement **MM GHG-1** to offset GHG emissions during construction to net zero (2,691 metric tons CO_2e). Because GHG emissions would be completely offset, the impact would be less than significant with implementation of **MM GHG-1**.

MM GHG-1: Purchase GHG Carbon Offsets for Construction Emissions. The Applicant shall purchase carbon offsets equivalent to the Project's projected GHG emissions (2,691 metric tons CO_2e) to achieve a net zero increase in GHG emissions during the construction phase for emissions within 24 nm of the California coast. A carbon offset is a credit derived from the reduction of GHG emissions through a separate reduction project, often in a different location from the emission source. To be acceptable for an emissions reduction credit, the carbon offset must be permanent, quantifiable, verifiable, and enforceable. Several existing voluntary offset exchanges have been validated by the CARB, including

[23] Construction is likely to begin in 2020, however the emissions analysis assumed a 2019 start date. Emission factors for offroad equipment and onroad vehicles decline over time due to implementation of increasingly stringent emissions standards and retirement of older, more emissions intensive engines. Accordingly, the emissions presented in Table 3.3-2, which assume a 2019 construction start are conservative for the proposed project.

the California Action Reserve Voluntary Offset Registry, American Carbon Registry, and Verified Carbon Standard. The Applicant shall purchase all offsets prior to ground breaking and provide copies of the offset retirement verification to the CSLC.

3.9.3.2 Operations

Less than Significant Impact. The Project's normal operation consists of monthly inspections, requiring a vehicle trip, and testing of two standby diesel-fueled emergency generators.[24] Electricity would also be consumed at one of three potential CLS facilities. Annual GHG emissions from these sources were quantified using the methods described in Appendix B. Consistent with District guidance (MCAQMD 2010), operational emissions generated by roundtrip vehicle trip and electricity consumption of more than 1,100 metric tons CO_2e per year would result in a significant impact. Emissions from the stationary generators of more than 10,000 metric tons of CO_2e per year would be significant.

Table 3.9-4 summarizes the results of the analysis and compares operational emissions to the District's operational thresholds.

Table 3.9-4. Estimated Operational Greenhouse Gas Emissions (metric tons per year)

Source[1]	Carbon Dioxide (CO_2)	Methane (CH_4)	Nitrous Oxide (N_2O)	Carbon Dioxide Equivalent (CO_2e)
Project vehicle round trip and electricity	28	<1	<1	28
District threshold	–	–	–	*1,100*
Project generator	1	<1	<1	1
District threshold	–	–	–	*10,000*

Note:
[1] The Mendocino County Air Quality Management District (MCAQMD 2010) recommends different allowable emissions thresholds for non-stationary (e.g., mobile vehicle trips and electricity) and stationary (e.g., generators) sources. Therefore, emissions from the vehicle trip and electricity consumption are presented separately from emissions emitted by the generator for comparison to the applicable District thresholds.

As provided in Table 3.9-4, operational emissions would be well below District thresholds. This impact would be less than significant.

[24] If a marine cable requires repair, marine vessels may be used within State waters. Such an event is not expected and relates to an emergency condition. For this reason, it is not considered a part of normal operations and emissions were not compared to the District's thresholds.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant Impact. AB 32 and SB 32 are the State's plans for reducing GHG emissions. The Project's consistency with AB 32 and SB 32 was assessed to determine the significance of this impact.

AB 32 codifies the State's GHG emissions reduction targets for 2020. CARB adopted the 2008 Scoping Plan and 2014 first update as a framework for achieving AB 32. The 2008 scoping plan and 2014 first update outlined a series of technologically feasible and cost-effective measures to reduce statewide GHG emissions. CARB adopted the 2017 Climate Change Scoping Plan in November 2017 as a framework for achieving the 2030 GHG emissions reduction goal described in SB 32.

The 2008 and 2014 Scoping Plans indicate that some reductions would need to happen from the following sources of GHG emissions:

- Vehicle emissions
- Mileage standards
- Sources of electricity
- Increased energy efficiency at existing facilities
- State and local plans, policies, or regulations to lower carbon emissions, relative to BAU conditions

The 2017 Climate Change Scoping Plan carries forward GHG emissions reduction measures from the 2014 first update as well as new measures to help achieve the State's 2030 target across all sectors of the California economy.

Policies in the 2017 Climate Change Scoping Plan are State programs (e.g., SB 350) that require no action at the local or project level. The Project does not entail any features or elements that would obstruct implementation of these State programs. Moreover, as provided in Table 3.9-4, the Project's long-term operational emissions within the area of the California inventory would be minimal (29 metric tons CO_2e per year) and below the District's recommended thresholds of 1,100 metric tons CO_2e per year and 10,000 metric tons CO_2e per year, which are based on State reduction goals. The majority (27.5 metric tons) of these emissions are associated with electricity consumption and would be reduced to zero through the State's renewables portfolio standard, which requires 100 percent fossil-free electricity by 2045. Short-term construction emissions would also be offset to net zero through implementation of **MM GHG-1**. Therefore, the Project would not conflict with achieving State's adopted GHG reduction goals under AB 32 and SB 32, or its long-term emissions reduction trajectory (as articulated under Executive Order B-55-18[25]). This impact would be less than significant.

3.9.4 Mitigation Summary

Implementation of the following mitigation measure would reduce the potential for Project-related GHG impacts to less than significant by offsetting construction-generated GHG emissions to net zero:

- MM GHG-1: Purchase GHG Carbon Offsets for Construction Emissions

[25] Executive Order B-55-18 identifies a statewide reduction target of carbon neutrality by 2045.

3.10 HAZARDS AND HAZARDOUS MATERIALS

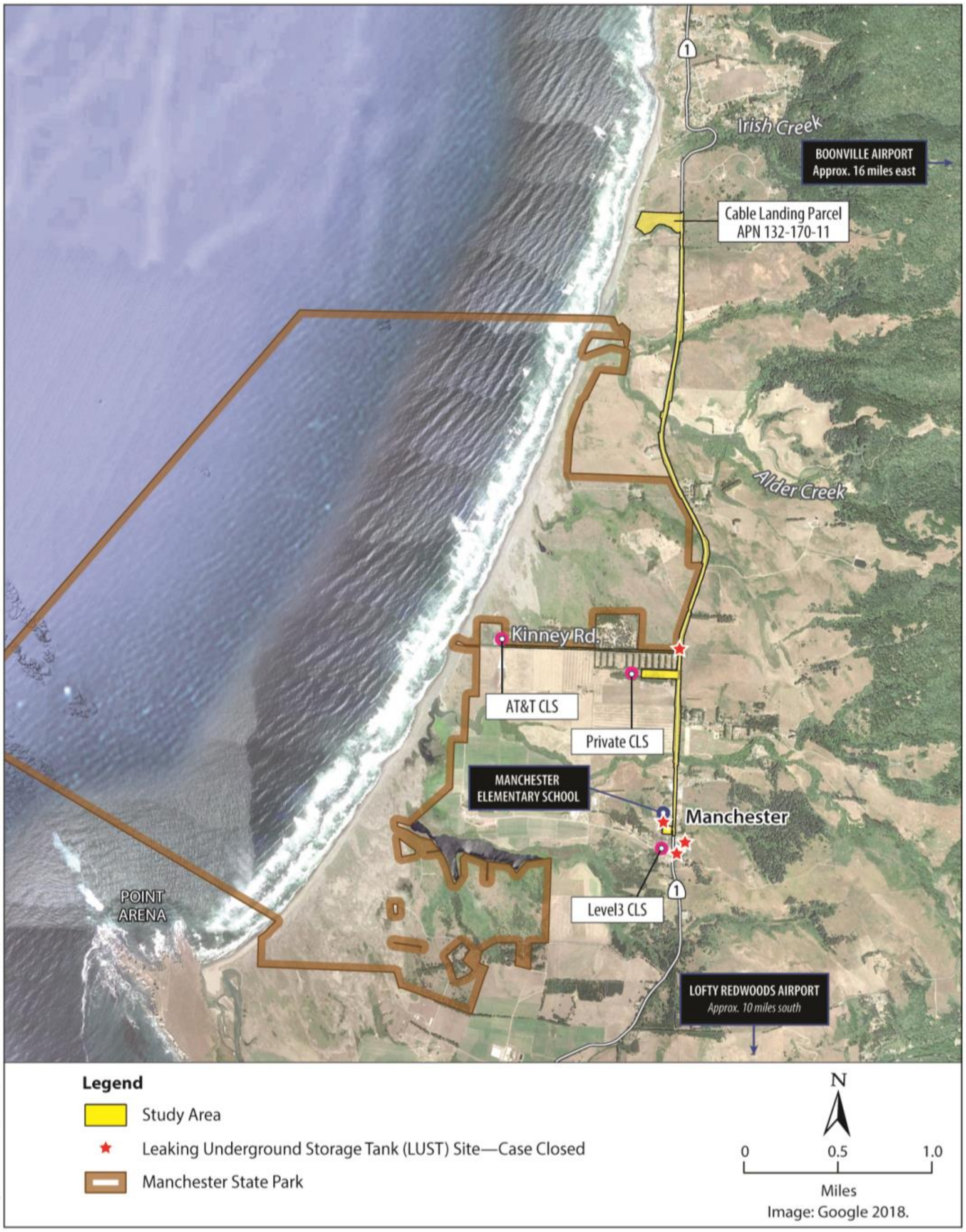
HAZARDS AND HAZARDOUS MATERIALS - Would the Project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	☐	☒	☐	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☒	☐

3.10.1 Environmental Setting

3.10.1.1 Project Location and Surroundings

The Project area is on a coastal plain north of Point Arena, along California's northern coast. Manchester Elementary School is the nearest school, approximately 0.25 mile north of the intersection of Biaggi Road and SR 1. The closest airport is the private Lofty Redwoods Airport, approximately 10 miles south. The closest public airport is the Boonville Airport, approximately 16 miles east. The Project area is in the Redwood Coast Fire Department's service area. See Figure 3.10-1 for the Project's proximity to these locations.

Figure 3.10-1. Known Hazardous Sites



3.10.1.2 Online Review

The California Environmental Protection Agency's Cortese List Data Resources website was searched on September 25, 2018. No listings pertaining to the Project area were found during the online review of the California Department of Toxic Substances Control (DTSC) Envirostor database (DTSC 2018). The SWRCB Geotracker Site identified four leaking underground storage tank sites in the Project area along SR 1 that have a "Completed-Case Closed" status (SWRCB 2015). No sites in Mendocino County were identified on the SWRCB's *Sites Identified with Waste Constituents Above Hazardous Waste Levels Outside the Waste Management Unit* (SWRCB 2018a). One site in Manchester is on an SWRCB list with a Cleanup and Abatement Order for the effects of earthen materials that threaten to be discharged into tributaries of Alder Creek (SWRCB 2018b). Additionally, no sites in Mendocino County are on the California Environmental Protection Agency's list of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code, identified by DTSC (SWRCB 2018b). See Figure 3.10-1 for locations of hazardous materials sites.

3.10.2 Regulatory Setting

Federal and state laws and regulations pertaining to hazards and hazardous materials and relevant to the Project are identified in Appendix A. At the local level, the following policy from the Development Element is most applicable to the Project (Mendocino County 2009).

- **Policy DE-203:** All development projects shall include plans and facilities to store and manage solid waste and hazardous materials and wastes in a safe and environmentally sound manner.

3.10.3 Impact Analysis

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?

Less than Significant with Mitigation. The Project is not expected to create a health hazard, as stated in a) and b) above. Safe handling of materials would be considered during all phases of the Project (terrestrial and marine) to protect the public, Project personnel, and the environment. At the end of the Project period, all disturbed areas would be returned to their natural state, leaving no potential health hazard.

The Project would involve the routine transport, storage, use, and disposal of small quantities of hazardous materials during construction such as gasoline, diesel, lubricants, and solvents. The use, handling, transportation, storage, and disposal of these hazardous materials (needed to do Project-related work) are regulated by laws and regulations. The emergency generators and associated diesel tanks would be installed in accordance with the CBSC. Significant impacts on the surrounding environment could occur if routine operations or unanticipated accidents release hazardous materials into the environment. Implementation of **MM HAZ-1** would avoid potential impacts associated with the accidental release of hazardous substances or would reduce them to a less than significant level.

Construction and decommissioning activities include the use of offshore vessels and offshore and onshore equipment that may result in the accidental release of hazardous materials, and subsequent environmental and human exposure, due to accidental spills of petroleum (including diesel fuel) from Project vessels or equipment. Implementation of **MM HAZ-1** would avoid potential impacts associated with the accidental release of hazardous substances or would reduce them to a less than significant level.

In addition, the potential impacts stemming from an inadvertent return of drilling fluid (consisting of bentonite and water) and associated mitigation measures are discussed in Section 3.4, *Biological Resources* (**MM BIO-5** and **MM BIO-6**) and Section 3.11, *Hydrology and Water Quality* (**MM HYDRO-1**).

MM HAZ-1 Hazardous Materials Management and Contingency Plan. The Applicant shall develop and implement Hazardous Materials Management and Contingency Plan (Plan) measures for onshore and offshore operations. Measures shall include, but not be limited to, identification of appropriate fueling and maintenance areas for equipment, daily equipment inspection schedule, a spill response plan, spill response supplies to be maintained on-site and on marine vessels, and a complete list of the agencies to be notified (with their telephone number), including but not limited to California State Lands Commission's 24-hour emergency notification number (562) 590-5201, California Governor’s Office of Emergency Services (Cal OES) contact number (800) 852-7550, etc. For any offshore activities involving work vessels, the primary work vessel will be required to carry on board a minimum 400 feet of sorbent boom, 5 bales of sorbent pads at least 18-inch by 18-inch square and small powered boat for rapid deployment to contain and clean up any small spill or sheen on the water surface. The Plan shall provide for the immediate call out of additional spill containment and cleanup resources in the event of an incident that exceeds the rapid clean up capability of the on-site work force.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

Less than Significant with Mitigation. Manchester Elementary School is on the west side of SR 1 north of Biaggi Road in Manchester (Figure 3.10-1). If the southernmost CLS site (Level3 CLS seen in Figure 3.10-1) is chosen, then the underground conduit system would be installed along the west side of SR 1 within the public road ROW along the school's frontage. Even though it is anticipated that it would take 12 weeks to complete Project-related work for the underground conduit system, the school's frontage would be affected for only up to 1 week as construction progresses along SR 1. The Project is not anticipated to emit any hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste. As discussed under a) and b) above, **MM HAZ-1** would be implemented to minimize the potential for improper handling or accidental releases of hazardous materials. Therefore, the impact would be less than significant with mitigation.

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?

Less than Significant with Mitigation. As noted in Section 3.10.1, *Environmental Setting,* the California Environmental Protection Agency's Cortese List Data Resources website was searched on September 25, 2018, for potential hazardous materials and leaking underground storage tank sites in the Project area. No active hazardous materials sites were identified within the Project area during the online review for each of the databases.

In case potentially hazardous materials are encountered, the Applicant will prepare and implement **MM HAZ-2**. Implementation of **MM HAZ-2** would reduce the potential impact to a less than significant level.

MM HAZ-2: Contaminated Materials Management Plan. Prior to Project construction, a plan shall be prepared that identifies the actions and notifications to occur if evidence of soil contamination is encountered during onshore excavation. The Applicant shall notify the County of Mendocino Health and Human Services Agency Environmental Health Department within 24 hours of discovery of contaminated materials encountered during the course of Project construction or decommissioning activities. Work in the area suspected of contamination shall stop until the notified agencies, together with the Applicant, have determined next steps.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 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?

No Impact. There would be no impact because the closest airport is the private Lofty Redwoods Airport (approximately 10 miles to the south), and the closest public airport is the Boonville Airport (approximately 16 miles to the east) of the proposed Project site.

This question does not apply to the offshore Project components. Lastly, the Project is not located within an airport land use plan or within 2 miles of a public or private airstrip.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact. The Project would occur within the public road ROW along SR 1 and other local roads and on private lands. The proposed construction activities would not impair implementation of or physically interfere with the Mendocino County Operational Area Emergency Operations Plan (2016) in the Project area because the built Project would not alter existing conditions for emergency response. Therefore, no impact would result.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

Less than Significant Impact. Public Resources Code 4201–4204 directs California Department of Forestry and Fire Protection (CAL FIRE) to map fire hazard within State Responsibility Areas (SRAs), based on relevant factors such as fuels, terrain, and weather. The Project area is in a moderate fire hazard severity zone (CAL FIRE 2007) (Fire Hazards Severity Zone Map, Appendix F). Much of the terrestrial Project activity would take place within the SR 1 road ROW and on private land for the CLS. These areas have a moderate fire hazard severity rating; experience regular traffic by the public; and are near emergency response services, such as fire protection. The Project would not require construction crews to traverse wildlands. Because the Project would not require the use of ignition sources, except for operation of the construction vehicles, and because it is located in a moderate fire hazard severity zone, the impact would be less than significant.

3.10.4 Mitigation Summary

Implementation of the following mitigation measures would reduce the potential for Project-related impacts from potential hazardous materials to less than significant:

- MM HAZ-1: Hazardous Materials Management and Contingency Plan
- MM HAZ-2: Contaminated Materials Management Plan
- MM BIO-5: Implement Best Management Practices for Horizontal Directional Drilling and Directional Boring Activities
- MM BIO-6: Prepare and Implement an Inadvertent Return Contingency Plan
- MM HYDRO-1: Prepare and Implement a Stormwater Pollution Prevention Plan

3.11 HYDROLOGY AND WATER QUALITY

HYDROLOGY AND WATER QUALITY - Would the Project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater 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 that 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 that would result in flooding on or off site;	☐	☒	☐	☐
iii) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☐	☒
iv) Impede or redirect flood flows?	☐	☐	☐	☒
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

3.11.1 Environmental Setting

3.11.1.1 Surface Waters

Surface waters encompass oceans, lakes, rivers, and wetland areas. The proposed Project is located in both terrestrial and marine areas. The terrestrial Project components would be the CLP, underground conduit system, and one of three potential CLS sites (Figure 2-1). The marine Project components would be offshore in an open-water area along the Pacific coast (Figure 3.4-2). The surface water resources near the terrestrial Project components include coastal marshes (CLP) and Alder Creek and Brush Creek (underground conduit system) (Figures 3.10-1 and 2-1). The northern Project boundary is less than 0.5 mile south of Irish Creek (measured from the northernmost point of the underground conduit system); the southern boundary is less than 0.5 mile north of Lagoon

Creek (measured from the Level3 CLS). Surface drainage is conveyed by ditches and culverts. The entire Project area is within the Alder Creek–Frontal Pacific Ocean watershed.

The confluence of Alder Creek is with the Pacific Ocean and extends upstream 16.8 miles (Figures 3.1-2 and 3.10-1). Elevations range from about 0 feet at the mouth of the Creek to 2,598 feet in the headwater areas (CDFG 2003). The confluence of Brush Creek is also with the Pacific Ocean and extends upstream 13.3 miles (Figures 3.1-2 and 3.10-1). Elevations range from sea level at the mouth of the Creek to 2,290 feet in the headwater areas (CDFG 2005). The Lake Davis Wetlands and Coastal Dunes Natural Preserve are located immediately north of the AT&T CLS and Private CLS sites within Manchester State Park (Figure 3.1-2). The Brush Creek Lagoon Lake Wetlands and Coastal Dunes Natural Preserve are south of the Project area.

Offshore, water transport along the northern and central portions of the California coast is primarily driven by the California Current. The California Current is generally characterized as a broad, shallow, slow-moving southward current. During winter, the California Current is occasionally displaced by the northward-moving Davidson Current. The nearshore manifestations of the California Current can vary in both speed and direction as winds, tides, and surf conditions can dramatically alter local conditions.

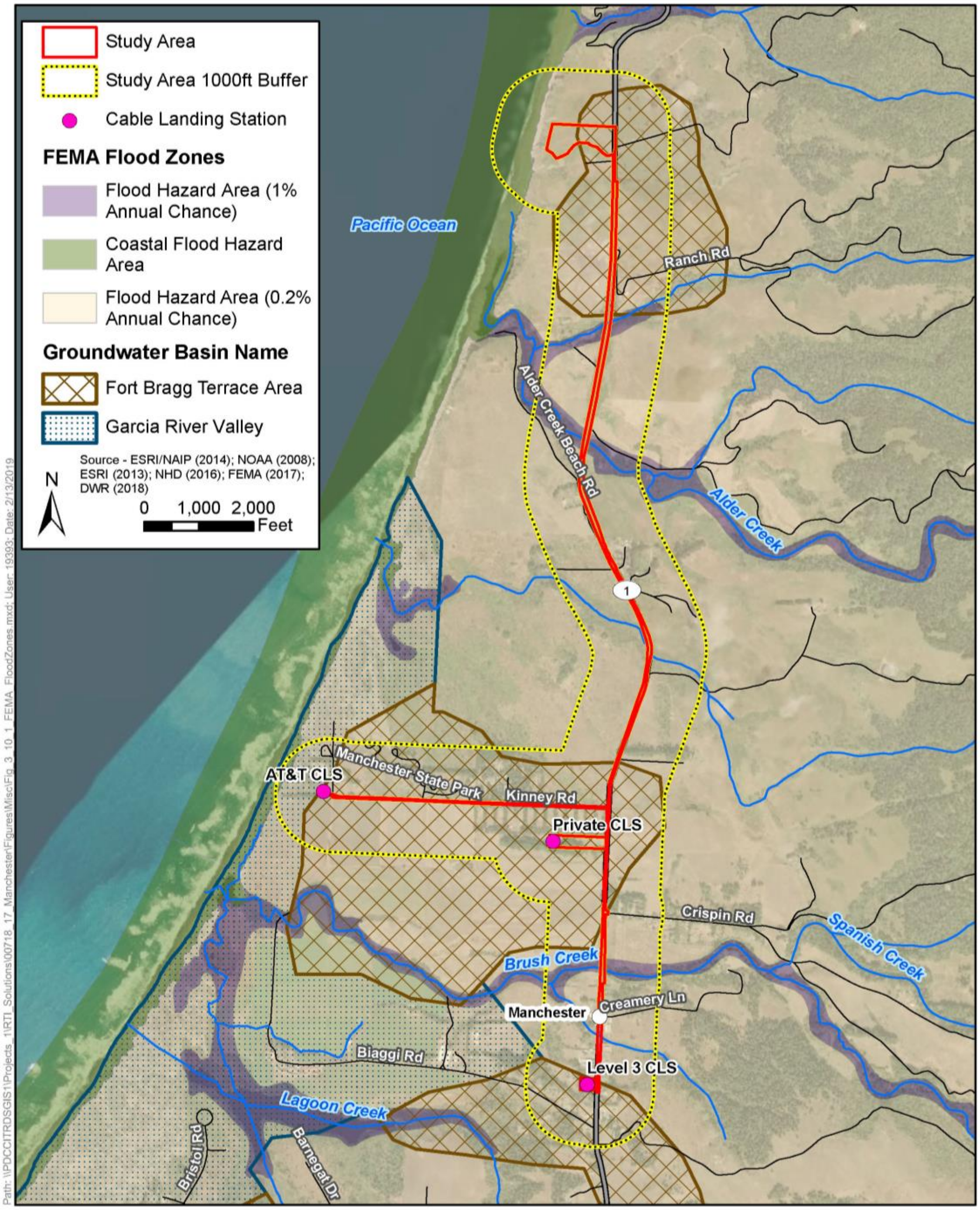
Along the central coast, northwest winds may blow briefly at any time of year. These winds push the surface waters offshore, allowing cold, nutrient-rich water to rise up from the depths, a process called *upwelling*. Upwelling is most intense near points of land that jut out from the coast, such as Point Arena. The AT&T CLS connection site is approximately 2 miles north of Point Arena; the Level3 CLS connection site is approximately 2 miles northeast of Point Arena (Figure 2-1).

Currently, no waters in the Project area are listed as impaired on the Section 303(d) list. However, the confluence of Alder Creek and the Pacific Ocean at Manchester State Park is being considered for placement on the Section 303(d) list for fecal indicator bacteria (which includes enterococcus, fecal coliform, and total coliform).

3.11.1.2 Groundwater

Groundwater is contained in aquifers below the ground surface. The CLP, all three CLSs, and portions of the underground conduit system lie within the Fort Bragg Terrace Area groundwater sub-basin (Figure 3.11-1). The Fort Bragg Terrace Area consists of a series of discontinuous, uplifted marine terrace deposits that lie along the northern California coastline within Mendocino County. The area of terrace deposits extends for approximately 50 miles along the coast from about Rockport on the north end to Point Arena on the south end. Because the terrace deposits cap the bedrock, the aquifer is generally unconfined (DWR 2004).

Figure 3.11-1. FEMA Flood Zones and Groundwater Basins



Some portions of the underground conduit system are not within a recognized groundwater basin (DWR ND). In these areas, groundwater could occur in pockets.

3.11.1.3 Flooding

The majority of the Project area is within Federal Emergency Management Agency (FEMA) Zone X (unshaded), which is outside the 500-year floodplain and not within the FEMA special flood hazard area. These areas are of minimal flood hazard, outside the 0.2 percent annual chance floodplain. However, where the underground conduit system crosses Alder Creek and Brush Creek, areas are within FEMA Zone A (Figure 3.11-1). FEMA Zone A is within the 100-year floodplain zone and is a FEMA special flood hazard area. In addition, immediately adjacent to the coast is FEMA Zone VE, a 100-year floodplain zone that applies to coastal areas (FEMA 2017).

3.11.2 Regulatory Setting

Federal and state laws and regulations pertaining to hydrology and water quality and relevant to the Project are identified in Appendix A. At the local level, the County's General Plan—Hydrology and Water Quality and Geology, Soils, and Mineral Resources Elements—discusses the potential for concerns related to water quality, flooding, and erosion and includes policies to reduce impairments and safety issues.

3.11.2.1 Mendocino County Storm Water Management Program

The Mendocino County Storm Water Management Program develops, implements, and enforces a series of stormwater management practices, referred to as BMPs. These BMPs are designed to reduce the discharge of pollutants from urban runoff or municipal separate storm sewer systems to the "maximum extent practicable," to protect water quality, and to satisfy the appropriate water quality requirements of the CWA.

Mendocino County also requires construction BMPs to reduce water quality impacts. Mendocino County Ordinance No. 4313 Storm Water Runoff Pollution Prevention Procedure (Mendocino County Code Chapter 16.30 et seq.) requires implementation of appropriate BMPs to prevent the discharge of construction waste, debris, or contaminants from construction materials, tools, and equipment from entering the storm drainage system.

3.11.3 Impact Analysis

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Less than Significant with Mitigation. Construction activities associated with the proposed Project include ground-disturbing activities such as directional boring, trenching, backfilling, and grading. Ground-disturbing activities and runoff from work areas could cause soil erosion and sedimentation, reducing water quality in Alder or Brush Creeks (Figure 3.11-1). The potential impacts on water quality are related to sediment and sediment-bound pollutants that may be mobilized into drainages structures or other waterbodies. Additionally, hazardous materials (e.g., gasoline, oils, grease, and lubricants) from construction equipment could be accidently released during construction. Accidental discharge of hazardous materials to surface waters during construction could temporarily adversely affect water quality or result in a violation of water quality standards. Contaminants from construction vehicles and equipment and sediment from soil erosion could increase the pollutant load in runoff being transported to receiving waters. Implementing mitigation measures **MM HYDRO-1**, **MM BIO-5**, and **MM BIO-6** would reduce impacts to a less than significant level. **MM BIO-5** requires implementing BMPs during directional boring activities to avoid impacts on water quality. Implementation of **MM BIO-6** would minimize the potential of an inadvertent release of HDD fluid entering a waterbody. As outlined in **MM HYDRO-1**, the Project would include preparation and implementation of a SWPPP that would be consistent with the Statewide Construction General Permit (Order No. 2012-0006-DWQ). The SWPPP would detail the construction-phase erosion and sediment control BMPs and the housekeeping measures for control of contaminants other than sediment. Erosion control BMPs would include source control measures, such as wetting of dry and dusty surfaces to prevent fugitive dust emissions, preservation of existing vegetation, and effective soil cover (e.g., geotextiles, straw mulch, and hydroseeding), for inactive areas and finished slopes to prevent sediments from being dislodged by wind, rain, or flowing water. Sediment control BMPs would include measures such as installation of fiber rolls and sediment basins to capture and remove particles that have already been dislodged.

The SWPPP would establish good housekeeping measures such as construction vehicle storage and maintenance, handling procedures for hazardous materials, and waste management BMPs, which would include procedural and structural measures to prevent the release of wastes and materials used at the site. The SWPPP also would detail spill prevention and control measures to identify the proper storage and handling techniques of fuels and lubricants, and the procedures to follow in the event of a spill.

MM HYDRO-1: Prepare and Implement a Stormwater Pollution Prevention Plan. A SWPPP consistent with the Statewide National Pollution Discharge Elimination System Construction General Permit (Order No. 2012-0006-DWQ) shall be developed and implemented. The SWPPP shall detail the construction-phase erosion and sediment control BMPs and the housekeeping measures for control of contaminants other than sediment. Erosion control BMPs shall include source control measures, such as wetting of dry and dusty surfaces to prevent fugitive dust emissions, preservation of existing vegetation, and effective soil cover (e.g., geotextiles, straw mulch, and hydroseeding), for inactive areas and finished slopes to prevent sediments from being dislodged by wind, rain, or flowing water. Sediment control BMPs shall include measures such as installation of fiber rolls and sediment basins to capture and remove particles that have already been dislodged. The SWPPP shall establish good housekeeping measures such as construction vehicle storage and maintenance, handling procedures for hazardous materials, and waste management BMPs, which shall include procedural and structural measures to prevent the release of wastes and materials used at the site. The SWPPP also shall detail spill prevention and control measures to identify the proper storage and handling techniques of fuels and lubricants, and the procedures to follow in the event of a spill.

As noted above, Mendocino County Ordinance No. 4313 Storm Water Runoff Pollution Prevention Procedure requires implementation of appropriate BMPs to prevent the discharge of construction waste or contaminants during construction and grading work from entering the storm drainage system. The SWPPP would direct the construction contractor to store all waste materials outside the riparian area and dispose of excess drilling mud, cuttings, and other waste materials at an adequately sized disposal facility located away from the water to prevent waste from entering the waterbody.

Measures for hazardous materials management, such as identification of appropriate fueling and maintenance areas for equipment, are provided in the Hazardous Materials Management and Contingency Plan (**MM HAZ-1**). If contaminated material is encountered during the course of the Project, the Contaminated Materials Management Plan (**MM HAZ-2**) would be implemented. The plan identifies the actions and notifications to occur if evidence of soil contamination is encountered during onshore excavation.

Excavation for the steel bore pipes below the beach would be 35 feet (minimum). Shallow groundwater is likely to occur in the subsurface of the underground conduit system where trenching would be conducted. Construction dewatering in areas of shallow groundwater may be required during excavation activities, which could result in the exposure of pollutants from spills or other activities and may contaminate groundwater. For water to be discharged to surface waters, the contractor would need to notify the North Coast Regional Water Quality Board and comply with the Board's requirements related to the quality of water and discharges. The Construction General Permit includes dewatering activities as authorized non-stormwater discharges, provided that dischargers prove the quality of water to be adequate and not likely to affect beneficial uses. The permit also includes discharge sampling, monitoring, and reporting requirements. In addition to the requirements outlined in the Construction General Permit, the Project would be in compliance with the Waste Discharge Requirements for Low Threat Discharges to Surface Waters in the North Coast Region (Order NO. R1-2015-0003, General NPDES NO. CAG0024902). If it is found that the groundwater does not meet water quality standards, it must (1) be treated as necessary prior to discharge so that all applicable water quality objectives (as designated in the Water Quality Control Plan for the North Coast Region [North Coast RWQCB 2018]) are met; or (2) hauled offsite for treatment and disposal at an appropriate waste treatment facility that is permitted to receive such water.

During drilling of the bore hole, a drilling fluid (a non-toxic, inert material, typically a solution of bentonite clay and water) would be circulated. The drilling fluid minimizes fluid losses to permeable rock and soil types. To minimize the potential for release of material into the marine environment, the last section of the bore hole would be drilled using potable water as a drilling fluid. Spent (used for drilling from under the CLP to offshore) drilling fluids (except for those lost to the surrounding subsurface material) and cuttings (natural material that is drilled through as the HDD moves forward) would be collected and disposed of at a permitted landfill. The potential for significant releases of drilling fluids into the terrestrial environment would be minimized through implementation of **MM BIO-5** and **MM BIO-6**.

As discussed in Section 3.4, *Biological Resources*, some drilling fluids might inadvertently be released into the sea water. Any drilling fluids released to the marine environment through subsurface fractures would likely be dispersed rapidly by currents and wave-induced turbulence. The potential for significant releases of drilling fluids into the marine environment would be minimized through implementation of **MM BIO-5** and **MM BIO-6**.

All Project activities would be subject to existing regulatory requirements. During Project operation, the proposed Project would be required to meet all applicable water quality objectives for surface waters and groundwater contained in the Water Quality Control Plan for the North Coast Region (North Coast RWQCB 2018), would act in accordance with related regulatory agencies guidelines, and meet the goals and objectives of the County's General Plan. Further, discharge of pollutants from urban runoff would be minimized with implementation of practices required by the Mendocino County Storm Water Management Program, and other CEQA, federal, and state requirements. Therefore, construction and operation activities would not violate water quality standards or waste discharge requirements. Impacts on water quality would be less than significant with mitigation.

b) 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 majority of the Project area (Figure 3.11-1) is not within a recognized groundwater basin. There would be minimal areas of additional impervious surface added (e.g., the LMH at the cable landing site). Recharge in the area would continue to occur through infiltration of precipitation. There is no intention to use surface water or groundwater for construction activities or Project operation, and no groundwater pumping is required. The Project's minimal use of water would not deplete or interfere with groundwater supply or recharge or impede sustainable groundwater management of the basin. Therefore, there would be no impact on groundwater supplies or recharge.

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 that 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 that would result in flooding on or off site;

Less than Significant with Mitigation. During construction, existing drainage patterns could temporarily be altered through minor grading, potentially resulting in temporary erosion. BMPs would be implemented to manage runoff and potential erosion, as described in the SWPPP prepared under **MM HYDRO-1** in compliance with the Construction General Permit and required by the County of Mendocino BMPs. Good housekeeping practices identified in the SWPPP would prevent runoff and contain associated sediment.

Minimal additional impervious surface would be added as part of the Project. The Project site would remain similar to its existing configuration. The proposed Project would not substantially alter the existing drainage pattern. Implementation of **MM BIO-7**, would reduce impacts on existing vegetation and plant communities. As a result, excess soil disturbance would be minimized, and associated soil erosion and siltation impacts would also be reduced. In unpaved areas, restoration includes installing erosion-control devices at locations susceptible to erosion, seeding, mulching, and fertilizing to return the site to pre-construction conditions. Implementation of **MM HYDRO-1** and **MM BIO-7** would reduce surface runoff impacts to less than significant.

iii) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

iv) Impede or redirect flood flows?

No Impact. During construction, the drainage pattern of the site or area may be temporarily altered. Construction equipment would be relocated to minimize flood risks. The Project would install communication cables below ground. The Project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems, or provide substantial additional sources of polluted runoff. The Project would not impede or redirect flood flows. There would be no impact.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact. The Project site is not located in a tsunami or seiche zone. The Project site is partially located within a 100-year floodplain (flood Zones A and VE) and a special flood hazard area, as mapped by FEMA (2017). The underground conduit system would cross the 100-year flood hazard area where the system bisects Alder Creek and Brush Creek. A manhole may be placed within the 100-year floodplain. The underground conduit system and manhole would not store pollutants. The Project would not release pollutants if the conduit system or manholes became inundated; therefore, there would be no impact.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact. The proposed Project would comply with the appropriate water quality objectives for the region. Commonly practiced BMPs would be implemented to control construction site runoff and to reduce the discharge of pollutants to storm drain systems from stormwater and other nonpoint-source runoff. As part of compliance with permit requirements during ground disturbing or construction activities, implementation of water quality control measures and BMPs would ensure that water quality standards would be achieved, including the water quality objectives that protect designated beneficial uses of surface and groundwater, as defined in the Water Quality Control Plan. The NPDES Construction General Permit also requires stormwater discharges not to contain pollutants that cause or contribute to an exceedance of any applicable water quality objectives or water quality standards, including designated beneficial uses. In addition, implementing of the appropriate General Plan policies would require the protection of groundwater recharge areas and groundwater resources, as required by a sustainable groundwater management plan. There would be no impact.

3.11.4 Mitigation Summary

Implementation of the following mitigation measures would reduce the potential for Project-related impacts on hydrology and water quality to less than significant:

- MM HYDRO-1: Prepare and Implement a Stormwater Pollution Prevention Plan
- MM BIO-5: Implement Best Management Practices for Horizontal Directional Drilling and Directional Boring Activities
- MM BIO-6: Prepare and Implement an Inadvertent Return Contingency Plan
- MM BIO-7: Prepare and Implement a Site Restoration Plan
- MM HAZ-1: Hazardous Materials Management and Contingency Plan
- MM HAZ-2: Contaminated Materials Management Plan

3.12 LAND USE AND PLANNING

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

3.12.1 Environmental Setting

The Project area is north of and within the unincorporated community of Manchester in Mendocino County. The terrestrial components of the Project are entirely in the Coastal Zone according to the Land Use Policy Map of the Mendocino County General Plan (Figure 3-14 in the General Plan). The Project's terrestrial facilities include the CLP, three potential CLS sites, and two approximately 5-mile-long parallel conduit/cable alignments—one on each side of SR 1. The Project alignment is within the previously disturbed ROWs of the SR 1 transportation corridor and Kinney Road. Other utilities already exist within the proposed Project alignment, and the proposed telecommunication facilities would be built entirely underground within the existing ROWs, as described in Section 2, *Project Description*.

The CLP is an undeveloped site north of Manchester. The CLP and lands adjacent to it are in agricultural (grazing) and open space use.

The approximately 5-mile-long Project alignment traverses a primarily rural area of coastal Mendocino County from the CLP south through the unincorporated community of Manchester to Biaggi Road. From the CLP southward along SR 1 to Manchester, existing development is rural and sparse, and primarily limited to buildings and residences associated with agricultural, rural residential, and recreational or open space uses.

Manchester State Park surrounds the AT&T CLS site on the west, north, and east. Kinney Road provides vehicle access to the AT&T CLS site and the central portion of the State park. Manchester State Park occupies 1,500 terrestrial acres and has an underwater lease with the CSLC of approximately 4,157 offshore acres (Franzoia pers. comm. 2019). The park stretches approximately 2 miles north and approximately 1.5 miles south of the AT&T CLS site along the coastline. The Manchester Beach/Mendocino Coast KOA campground is on the north side of Kinney Road, east of the AT&T CLS site and the State park.

The Private CLS site is located in the southwest quadrant formed by Kinney Road and SR 1. Access to the site is via a private road off SR 1. Manchester State Park surrounds the site on the west, north, and east. The Manchester Beach/Mendocino Coast KOA campground is on the north side of Kinney Road, approximately opposite the Private CLS site.

If the Level3 CLS site is selected, the Project alignment would continue south from Kinney Road along SR 1. It would pass primarily agricultural and rural residential uses and cross Brush Creek. The Project alignment terminates in Manchester at the intersection of SR 1 and Biaggi Road, where it would connect to the Level3 CLS facility.

Development within Manchester is denser, with smaller parcels. The area is characterized by commercial development and public facilities in addition to residential uses. The nearest residential properties are approximately 50 feet from the Project alignment along SR 1, both north of Kinney Road and within Manchester. Some commercial facilities are within 20 feet of the Project alignment in Manchester.

The Project alignment and facilities would be within the following County zoning districts: Rangeland (RL), Agricultural (AG), Open Space (OS), Public Facilities (PF), Rural Residential 5 Acre Minimum (RR5), and Rural Village (RV) (Mendocino County 2013).

The Greater Farallones National Marine Sanctuary is located in the Pacific Ocean, southwest of the Project area. The northernmost border of the sanctuary is approximately 0.75 mile south of the CLP (Figure 2-1). Proposed Project facilities are not within Sanctuary boundaries.

3.12.2 Regulatory Setting

Federal and state land use and planning laws and regulations relevant to the Project are identified in Appendix A. At the local level, the Project area is under the jurisdiction of the County's General Plan and LCP. No general plan or LCP policies are specifically applicable to the Project area with respect to land use and planning.

3.12.3 Impact Analysis

a) Physically divide an established community?

No Impact. As described in Section 2, *Project Description*, cables would be installed underground and the CLS would be housed in existing facilities. Therefore, the project would not divide an established community. There would be no impact.

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?

No Impact. The Project would install communication cables below ground. The aboveground land uses would not change. The LMH would slightly reduce the area available for grazing at the CLP, which is zoned for rangeland use. Project facilities at the CLS sites would be installed within existing structures that are either used for similar purposes (AT&T CLS) or were built to house them (Private CLS, Level3 CLS). The Project alignment would be co-located within existing utility ROWs and would not change the land use in the ROWs.

Because there would be no change in land use along the Project alignment, there would be no conflict with local land use policies in those locations. There would be no impact.

The Project facilities sites and Project alignment are not within any habitat conservation plan or natural community conservation plan area. There would be no impact.

3.12.4 Mitigation Summary

The Project would not result in significant impacts on land use and planning; therefore, no mitigation is required.

3.13 MINERAL RESOURCES

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

3.13.1 Environmental Setting

The Project site consists of the CLP and underground conduit system. No mineral resource areas of value to the region, residents of the state, or of local importance occur in or near the Project area (CGS 2018; Division of Mine Reclamation 2018; County of Mendocino 2009).

3.13.2 Regulatory Setting

Federal and state laws and regulations governing mineral resources and relevant to the Project are identified in Appendix A.

3.13.3 Impact Analysis

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?

No Impact. There are no known mineral resources in or near the Project area, and neither construction nor operation of the Project would hinder access to a mineral resource zone. Therefore, the Project would not result in the loss of any known mineral resource areas of value to the region or residents of the state, or of local importance; or the loss of availability of any designated mineral resource recovery site. There would be no impact.

3.13.4 Mitigation Summary

The Project would not result in impacts on mineral resource areas of regional, state, or local importance; therefore, no mitigation is required.

3.14 NOISE

NOISE - Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b) Generate excessive ground-borne vibration or ground-borne noise levels?	☐	☒	☐	☐
c) Be 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 and expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

3.14.1 Environmental Setting

The proposed Project area is located in a rural, largely undeveloped area of Mendocino County and runs along SR 1 for several miles. Consequently, the existing ambient noise levels in the Project vicinity are largely dictated by traffic noise on SR 1. Other noise sources, such as landscaping and farming equipment, ocean wave-break noise, and animal noise, may be present. Residences and businesses line SR 1 in the town of Manchester. Figure 3.1-2 provides the location of sensitive receptors, including residences, an elementary school, a commercial campground, and a State park. Section 3.4, *Biological Resources* addresses noise associated with offshore work.

3.14.2 Regulatory Setting

Federal and state noise laws and regulations relevant to the Project are presented in Appendix A. At the local level, Mendocino County has adopted noise level standards in the County zoning code and compatibility standards and noise policies in the Development Element of the County's General Plan. These noise standards from the County ordinance are generally intended for zoning purposes and development of new land uses. Neither the County ordinance noise standards nor the Development Element of the General Plan discuss noise limits for the temporary use of construction equipment.

3.14.3 Impact Analysis

a) Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

3.14.3.1 Construction

Less than Significant with Mitigation. The proposed Project would involve the use of marine equipment that would result in an increase in the level of noise above existing conditions. The marine-based activities and equipment for laying cable (24 hours per day) would be used in the ocean and not near any human noise-sensitive land uses that could be affected; thus, the marine-based activities would be considered to have no noise impacts on human noise-sensitive land uses. The noise impacts of marine-based activities on aquatic species are discussed in Section 3.4, *Biological Resources* and would be reduced through implementing a mitigation measure for a marine mammal monitoring program (**MM BIO-17**).

Terrestrial construction activities would occur during day-time hours and involve noise-generating equipment such as trucks, concrete rollers, vibratory compactors, cranes, excavators, backhoes, boring machines, and asphalt saws, which are the loudest pieces of operating equipment. The equipment used at the CLP (LMH installation, marine directional bores, OGB system installation, and marine cable pulling) would be used in a rural, isolated section of the coast where there is no development. Any equipment used at the CLP would be more than 1,000 feet from the nearest residence. Consequently, noise from equipment at this location would not be substantially noticeable to any noise-sensitive land uses in the Project vicinity.

Construction equipment associated with the underground conduit system, LMH installation, and CLS, depending on the final CLS location, would be much closer to noise-sensitive land uses, specifically residences in the vicinity of SR 1 and the campground on Kinney Road. Along SR 1, there are both isolated residences and clusters of residences (i.e., town of Manchester and Pacific View Drive neighborhood) that are within 1,000 feet of the roadway. Some sensitive receptors are directly adjacent to the roadway—as close as 50 feet or less from where Project construction work would occur (Figure 3.1-2). Activities involving subterranean work, such as horizontal directional drilling, would be attenuated by the ground.

Installation of the CLS facilities would, depending on the final location, result in noise from construction equipment that could be audible to nearby sensitive receptors. Construction noise associated with the CLS would be temporary and would only occur during daytime hours. Construction of the underground conduit system—trench construction, trenchless conduit installation, cable pulling, and conventional boring—would result in the loudest levels of noise. Conduit installation that would be conducted with a boring machine would result in noise only at the entry and exit pits.

Although noticeable noise that would affect sensitive receptors would be generated during the terrestrial activities (e.g., conduit installation), the construction activities would be of short duration. Particularly, noise during construction of the trenches for conduit installation would progress along SR 1 on a daily basis, and each sensitive receptor along SR 1 would be exposed to noise for a relatively brief period of time, likely less than 1 week. The greatest noise associated with asphalt cutting would occur for only a few hours. Further activities associated with the conduit installation, such as cable pulling, backfilling, and surface restoration, would also involve construction work that would progress directionally, affecting any given sensitive receptor for a relatively short period. Sensitive receptors near the CLS facilities would be exposed to noise levels for a longer duration—approximately 5 months—but noise from work at the CLS facilities would be intermittent during those 5 months. Noise attenuates with distance and is blocked by objects within the line of sight. This means that buildings, fences, and dense vegetation can block noise from sensitive receptors if they are between the noise source and the receptor. While the noise source would move along the construction alignment and existing features could block noise, construction noise is expected to exceed ambient noise levels. To reduce substantial temporary noise over ambient conditions, the Applicant would implement **MM N-1**. Implementation of this measure would reduce this impact to a less than significant level.

MM N-1: Restrict Terrestrial Construction Work on Sundays. On Sundays, the Applicant shall not conduct any activities that exceed ambient noise levels within 300 feet of sensitive receptors.

3.14.3.2 Operations

Less than Significant Impact. After the construction period of the proposed Project is completed, limited permanent, operational noise would be associated with Project facilities. The backup generators would be used only during power loss, which is not expected to be a common occurrence, and during occasional testing. Therefore, the operational noise impacts would be less than significant.

b) Generate excessive ground-borne vibration or ground-borne noise levels?

Less than Significant with Mitigation. Project construction would occur only during day-time hours. While the Project would require the temporary use of heavy construction equipment, none of it is considered impact equipment (such as pile drivers), as defined by the Federal Highway Administration (FHWA 2006). Nevertheless, non-impact equipment, which does not make forceful contact with the ground surface, can also generate noticeable ground-borne vibration. At a distance of 50 feet, which would likely be the closest that construction activities would be to residences, the vibration levels generated by construction equipment would be negligible. Vibration levels from a vibratory roller, which could be used during roadway re-paving, could be perceptible at a distance of 50 feet but they would be temporary. Implementation of **MM N-1** would protect residences from ground-borne vibration on Sundays. Thus, although construction vibration could be perceptible to nearby sensitive receptors, the short-term nature of vibration and restricting work on Sundays would not result in ground-borne vibration that is considered excessive.

Permanent ground-borne vibration would not occur. Occasional use of emergency backup generators could generate some ground-borne vibration at the CLS facilities, but use of the generators is expected to be limited to infrequent testing and times of power loss. Distances between residences and the potential CLS sites are listed in Section 3.3.1.4. Of the three potential CLS sites, the Level3 CLS is the closest to any residence. The impact would be less than significant with implementation of **MM N-1**.

c) Be 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 and expose people residing or working in the project area to excessive noise levels?

No impact. The Project is not within 2 miles of a public airport or private airstrip; therefore, there would be no impact.

3.14.4 Mitigation Summary

Implementation of the following mitigation measure would reduce the potential for Project-related impacts related to noise to a less than significant level:

- MM N-1: Restrict Terrestrial Construction Work on Sundays

3.15 POPULATION AND HOUSING

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

3.15.1 Environmental Setting

The Project would be constructed in rural Mendocino County, including the unincorporated community of Manchester. Residences are incidental along SR 1. The community of Manchester has nearly 180 residents (U.S. Census Bureau 2018).

3.15.2 Regulatory Setting

No federal or state laws relevant to this issue area apply to the Project. Implementation of the Project would not involve the acquisition of any property or the relocation of any existing residents, businesses, or other uses. The 2014 Mendocino County General Plan Housing Element and the LCP include goals and policies for the County to meet its defined housing needs. No housing goals or policies are applicable to the Project area or Project activities.

3.15.3 Impact Analysis

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No Impact. The Project would not directly or indirectly induce population growth. Its purpose is to install underground cable and associated facilities that would provide faster Internet connections to meet increasing demand between northern California and Asia. Construction activities would last only a few months and would not generate new permanent jobs in the region. A maximum of 10 people would be working on Project construction at any one time. The presence of construction personnel during the approximately 6-month construction period may contribute to a slight increase in demand for temporary (rental) housing or hotel amenities. However, the small number of construction personnel employed would not create a significant demand for housing.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. The Project consists of directional boring and trenching, as well as the installation of CLS facilities within existing structures. Most of the installation of conduit and cable would take place within existing ROWs on Kinney Road and on either side of SR 1, and no housing is present within the properties proposed for the landing sites or the CLS facilities. Because no housing is present within the Project area, this action would not displace existing housing or people. Therefore, relocation or construction of replacement housing would not be necessary.

3.15.4 Mitigation Summary

The Project would not result in any impacts on population and housing, and no mitigation is required.

3.16 PUBLIC SERVICES

PUBLIC SERVICES	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☒	☐
Police Protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

3.16.1 Environmental Setting

The terrestrial components of the Project would be located in a rural portion of Mendocino County; therefore, the County provides most of the services. Fire suppression services in the Project vicinity are provided by Redwood Coast Fire Protection District. The Project area is also within an SRA of CAL FIRE. CAL FIRE provides fire protection for California's privately owned wildlands as well as various emergency services.

Law enforcement in the county is provided by the Mendocino County Sheriff's Office. The sheriff is the chief law enforcement officer and is the coordinator for law enforcement and mutual aid, as well as search and rescue services. The sheriff's jurisdiction extends throughout the entire county, including incorporated cities and State-owned property (County of Mendocino 2009).

The Manchester Union Elementary School District encompasses the Project area and operates one school that accommodates grades kindergarten through 8 (California Department of Education 2018). The school is located at 19550 South Highway 1, just north of the intersection of SR 1 and Biaggi Road on the west side of the highway.

Manchester State Park abuts the western edge of the Project area along two segments of SR 1 and along the north side of Kinney Road. The park encompasses 1,500 acres onshore, with an adjacent 3,782-acre underwater lease. The park lies south, west, and north of the town of Manchester. The beach entrance is 0.5 mile north of town on SR 1 (CDPR 2018).

3.16.2 Regulatory Setting

Federal and state laws and regulations pertaining to public services and relevant to the Project are identified in Appendix A. At the local level, the County's 2009 General Plan includes goals and policies regarding fire protection, law enforcement, school, and public facility needs (Mendocino County 2009). No public services goals or policies are applicable to the Project.

3.16.3 Impact Analysis

a) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any public services including Fire protection, police protection, schools, parks, or other facilities:

Fire Protection?

Less than Significant Impact. In the event of an emergency at any of the terrestrial sites, the Redwood Coast Fire Protection District would be required to provide fire protection or other emergency services. As the Redwood Coast Fire Protection District is in the Project vicinity on SR 1 just north of Biaggi Road, the response time to Project work sites would be minimal. The marine cables would terminate at a CLS near Manchester. The CLS would contain fire suppression equipment in an enclosed structure (Figure 2-5); therefore, the potential for the Project to result in substantial adverse impacts related to performance objectives for public services would be less than significant.

Police Protection?

No Impact. As the Project does not include any full-time employees and equipment would be contained within an enclosed building, the Project is not anticipated to create a significant security hazard nor generate a need for additional law enforcement personnel. Therefore, there would be no impact.

Schools?

No Impact. The Project would not involve construction of residences that would generate demand for schools. Therefore, there would be no impact.

Parks and Other Public Facilities?

No Impact. The Project would not involve construction of residences that would generate demand for parks or other public facilities. Therefore, there would be no impact.

3.16.4 Mitigation Summary

The Project does not have potential for significant impacts on public services; therefore, no mitigation is required.

3.17 RECREATION

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

3.17.1 Environmental Setting

There are no recreational facilities or opportunities within the Project area; however, there are recreational opportunities in the Project vicinity. Onshore activities include hiking, surfing, fishing, walking, jogging, and other beach-going activities. Nearshore and offshore activities include surfing, windsurfing, scuba diving, kayaking, boat fishing, pleasure boating, and sailing. A commercial campground is situated along Kinney Road. Manchester State Park provides beach and coastal access and includes camping, parking, restrooms, and potable water.

3.17.2 Regulatory Setting

Federal and state laws and regulations pertaining to recreation and relevant to the Project are identified in Appendix A. At the local level, there are no goals, policies, or regulations applicable to recreation for the Project because of its location and the nature of the proposed activity.

3.17.3 Impact Analysis

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact. The Project entails installation and operation of up to four transpacific submarine cable systems at a landing site just north of the town of Manchester. The Project does not include any recreational facilities or residential uses that would increase the use of recreational facilities. The Project would not impede or hinder access to any terrestrial recreational sites. Construction workers staying in the area during non-working days could make occasional use of the area's recreational opportunities. Because the Project would not directly affect recreational facilities, no physical deterioration of any recreational facilities would occur, and no increase in demand for recreational facilities is expected. There would be no impact.

However, since offshore recreational activities (pleasure boating, recreational fishing, kayaking) may be precluded for a short period of time, **MM T-1**, Publication of U. S. Coast Guard Local Notice to Mariners will provide notification to those recreational users, reducing any potential impact.

3.17.4 Mitigation Summary

Although there would be no impact to recreational facilities, implementation of the following mitigation measure would reduce any potential for Project-related impacts on offshore recreation:

- MM T-1: Publication of U.S. Coast Guard Local Notice to Mariners

3.18 TRANSPORTATION

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

3.18.1 Environmental Setting

3.18.1.1 Onshore Transportation

The Project is located in an unincorporated area of Mendocino County along SR 1. The CLP, AT&T CLS, Private CLS, and Level3 CLS are all west of SR 1, as provided in Figure 2-1.

Mendocino County is generally served by a multimodal transportation system composed of a highway system, county roads, local roads, bicycle and pedestrian facilities, rail system, and airport facilities. SR 1 is the key north-south highway through the county and serves the coastal area. There are no other highways in the Project vicinity. Mountain View Road, just south of Manchester, runs east to west and connects SR 1 to SR 128.

Level of Service (LOS) is a ranking used for traffic flow. LOS ranges from A to F, with A indicating very good free-flowing traffic operations and F indicating stop-and-go conditions. The County's General Plan does not have a policy that sets an acceptable LOS standard. Caltrans' Traffic Volumes on California State Highways (2016) identifies an LOS of C for SR 1 for both the base year and the horizon year.

There are no sidewalks or other pedestrian facilities in the Project vicinity. SR 1 is legislatively designated as the Pacific Coast Bike Route; however, the shoulders along SR 1 are limited. There are no rail facilities in the Project vicinity, and the closest airport is the private Lofty Redwoods Airport approximately 10 miles to the south. Transit service is provided by the Mendocino Transit Authority. Bus Route 75 travels along SR 1 and serves the Project vicinity.

3.18.1.2 Offshore Transportation

There are no bays or marinas in the Project vicinity, and there are no ports in Mendocino County. The closest cove offering boat launching facilities and a pier is at the Point Arena Cove, approximately 5 miles south of the Project area.

Shipping lanes along the California coast are generally 4 to 20 nm offshore. Members of the Western States Petroleum Association voluntarily keep laden vessels a minimum of 50 nm from the shoreline (Oil & Gas Journal 1992).

3.18.2 Regulatory Setting

Federal and state laws and regulations pertaining to transportation and relevant to the Project are identified in Appendix A. The County does not include any policies or action items within the Circulation Element associated with short-term construction projects.

3.18.3 Impact Analysis

a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

No Impact. The Project would not result in changes to the traffic volume on SR 1 and therefore would not conflict with established measures of effectiveness stated in a plan, ordinance, or policy.

b) Conflict or be inconsistent with State CEQA Guidelines section 15064.3, subdivision (b)?

Less than Significant with Mitigation

3.18.3.1 Onshore Activities

Transportation of workers, materials, and equipment to and from the Project area would generate vehicle trips. Most traffic related to terrestrial activities would travel along SR 1.

Approximately 30 tractor-trailer loads of construction equipment and materials would be delivered directly to the staging areas at the commencement of construction. In addition, one fuel truck would make a delivery to the staging area daily, and there would be about three deliveries of materials and supplies weekly. The Applicant would coordinate traffic control during construction with Caltrans and Mendocino County, and would obtain encroachment permits from both, as needed. Standard traffic, pedestrian, and bicycle control measures, such as installing signage and flaggers, would be noted in a Traffic Management Plan and implemented to minimize disturbance to traffic flow.

Terrestrial and nearshore construction would occur during daylight hours except on Sundays **MM N-1**. However, conduit installation and cable pulling would require up to 48 hours of continuous effort, at the CLP and at areas on the beach.

Based on conservative worker estimates, the Project would create an estimated total of 10 trips per day from local residences or hotels where construction workers would stay, 5 tractor-trailer trips per day, and 1 fuel and miscellaneous delivery trip per day. This would total 16 trips per day during construction, primarily on SR 1. This increase in vehicles on local roadways, primarily SR 1, would not reduce the existing LOS designation.

Considering the capacity of SR 1 and local roads, the estimated numbers of Project trips, and coordination with Caltrans and Mendocino County as needed for traffic control, the Project is not expected to have a significant impact on local traffic congestion.

3.18.3.2 Offshore Activities

For cable pulling support, the cable ship would position itself approximately 328 feet seaward of the end of the bore pipe into which the cable is to be pulled. Marine vessel traffic would not be affected this close to the shoreline and along this remote section of the California coastline. Offshore construction activities are proposed to take place on a continuous, 24-hour basis.

Cable laying and plowing, as described in detail in Section 2, *Project Description*, could interfere with local marine vessel traffic, including commercial and recreational fishing operations (see Section 5.2, *Commercial and Recreational Fishing*). To minimize interference and conduct safe marine construction, the work would be conducted in accordance with the applicant proposed Marine Anchor Plan (see Table 4-1 in Chapter 4), which would be included with the Contractor Work Plan. The USCG is responsible for maintaining aids to navigation and safe waterways. The Applicant would file a notice with the USCG to inform local mariners of Project activities. The notice would include information such as type, duration, and location of operations and a phone number for a point of contact for the Project. Implementing the Marine Anchor Plan and USCG issuance of a Local Notice to Mariners **MM T-1** would minimize impacts on marine vessel traffic to less than significant with mitigation.

MM T-1: Publication of U.S. Coast Guard Local Notice to Mariners. The Applicant shall ensure that its contractor submits to the USCG District 11 (https://www.navcen.uscg.gov/?pageName=lnmDistrict&region=11), 14 days prior to operation, a request to publish a Local Notice to Mariners that includes the following information.

- Type of operation (i.e., dredging, diving operations, construction).

- Location of operation, including latitude and longitude and geographical position, if applicable.
- Duration of operation, including start and completion dates (if these dates change, the USCG needs to be notified).
- Vessels involved in the operation.
- VHF-FM radio frequencies monitored by vessels on the scene.
- Point of contact and 24-hour phone number.
- Chart Number for the area of operation.

c) 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 Project does not include any design features or introduce incompatible uses that would increase hazards on local roadways.

d) Result in inadequate emergency access?

No Impact. Primary access to the terrestrial facilities and locations would be accomplished from SR 1, as provided in Figure 2-1. Because the terrestrial alignment would be mainly within public road ROWs (SR 1 and Kinney Road), traffic would be controlled and coordinated with Caltrans and Mendocino County. Traffic control would conform to the specifications of these jurisdictions and noted in the Traffic Management Plan described under b) above. Emergency access along SR 1 would be maintained during Project construction, staging, and access activities. No impact on emergency access to the Project area or adjoining properties is anticipated.

3.18.4 Mitigation Summary

Implementation of the following mitigation measure would reduce the potential for Project-related impacts on transportation to a less than significant level:

- MM N-1: Restrict Terrestrial Construction Work on Sundays
- MM T-1: Publication of U.S. Coast Guard Local Notice to Mariners

3.19 UTILITIES AND SERVICE SYSTEMS

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

3.19.1 Environmental Setting

Sewage disposal in the Project area is handled by private onsite facilities, primarily septic tank and leach field systems, although alternative engineered wastewater systems may be used. Water supply in the Project area is generally supplied by onsite methods such as wells or springs that are recharged annually by winter rains. The yield from these sources may vary from year to year, and deficiencies may occur, especially during years of low rainfall.

Currently, there are no operating landfills in Mendocino County. Solid waste generated in the county is exported for disposal to the Potrero Hills Landfill in Solano County. Electricity for the county is generally provided by PG&E (Mendocino County 2009).

3.19.2 Regulatory Setting

Federal and state laws and regulations pertaining to utilities and service systems and relevant to the Project are identified in Appendix A. At the local level, the following policies regarding utilities and service systems are applicable to the Project.

- **Policy DE-68:** Require that new applications for discretionary projects state their energy, water, and waste stream requirements at the time of application. As part of the review of the development application, distribute this information to the service providers and compare the capacity of existing and planned systems with the demand created by the proposed project.
- **Policy DE-203:** All development projects shall include plans and facilities to store and manage solid waste and hazardous materials and wastes in a safe and environmentally sound manner.
- **Policy DE-205:** The County will seek to reduce the impacts of above-ground utilities. Standards and policies to reduce impacts include:
    - Promoting the underground installation of utilities to reduce visual impacts to significant scenic resources.
    - Locating utility systems in established corridors where possible.
    - Ensuring that above-ground utilities are located and designed to minimize visual impact and clutter.
    - Avoiding vegetation removal, new road construction, and silhouettes against the sky.
    - Pursuing the undergrounding of utility lines in new development, and in the downtown core of community areas.
- **Policy DE-206:** The County will encourage appropriate utility infrastructure necessary to support social and economic needs including wired, wireless and satellite communications.

3.19.3 Impact Analysis

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

No Impact. The Project does not involve construction of new water or wastewater treatment facilities. The Project would not create any new stormwater sources or require construction of new stormwater drainage, electric power, telecommunication, or natural gas facilities. Therefore, there would be no impact.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

No Impact. Water would be used during construction for the boring machine, dust suppression, and drinking water. Project activities would occur at onshore staging or work areas as well as onboard Project vessels. Water required for personal consumption and sanitary purposes would be minimal. Supplies would be portable and brought onsite for the duration of the Project activities. Following Project completion, no additional water usage would be necessary. Local water supplies would not be affected. Therefore, there would be no impact.

c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No Impact. The Project would not generate wastewater that would require treatment at a wastewater service provider. Therefore, there would be no impact.

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?

Less than Significant Impact. Waste generated by the Project would include general construction waste, seafloor debris (e.g., discarded fishing gear), spent drilling fluids and cuttings, and trash from workers. All such materials would be taken to a local transfer station that receives waste for export to an approved landfill. According to the County's General Plan, solid waste in the county is exported for disposal to the Potrero Hills Landfill in Solano County (Mendocino County 2009). The Potrero Hills Landfill has a remaining capacity of 13.8 million cubic yards and a cease operations date of February 2048 (California Department of Resources Recycling and Recovery 2018). The impact would be less than significant.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less than Significant Impact. All debris associated with construction, operation, and decommissioning would be recycled to the extent feasible. Solid waste would be disposed of in accordance with local, state, and federal laws and regulations as required by the Project plans and specifications. Solid waste would be transported to the nearest transfer station that receives waste for export to an approved landfill or diversion to recycling facilities. The impact would be less than significant.

3.19.4 Mitigation Summary

The Project does not have potential for significant impacts on utilities and service systems; therefore, no mitigation is required.

3.20 WILDFIRE

WILDFIRE - If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks of, 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 on the environment?	☐	☐	☐	☒
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

3.20.1 Environmental Setting

As stated in Section 3.16, *Public Services*, the terrestrial components of the Project would be located in a rural portion of Mendocino County. Mendocino County implements an Emergency Operations Plan (Mendocino County 2016) with the goal to integrate emergency response services provided by federal, state, and local responders under the initial lead of the Mendocino County Sheriff's Office as the emergency operations center.

The Project area is located in a moderate fire zone (Appendix F). Fire suppression services in the Project vicinity are provided by Redwood Coast Fire Protection District (Mendocino County 2009). The Project area is located within a State Responsibility Area (SRA) of CAL FIRE. CAL FIRE provides fire protection for California's privately owned wildlands as well as various emergency services.

3.20.2 Regulatory Setting

Federal and state laws and regulations pertaining to public services and relevant to the Project are identified in Appendix A. At the local level, the County's 2009 General Plan includes goals and policies regarding fire protection (Mendocino County 2009).

- **Goal DE-24 (Safety):** To reduce, to the extent possible, the risk and exposure of life, property and the environment to hazardous conditions and events such as earthquakes, landslides, wildfires, floods, inundation, energy emergencies, and toxic releases.

- **Policy DE-214:** The County shall deny development proposals that present substantial fire hazard risk to residents and safety providers responding to a wildland fire.
- **Policy DE-215:** Development shall be located, designed and managed to reduce fire risk to life, property and natural resources, and incorporate adequate fire protection consistent with the General Plan and adopted regulations.
- **Policy RM-82:** Promote the conservation and use of native species or drought-tolerant, fire resistive and noninvasive vegetation.
- **Policy RM-83:** In rural areas, promote vegetation and landscape management programs that protect wildlife and livestock habitat, discourage pest species and non-native species, reduce wildfire risk, and conserve water resources.

3.20.3 Impact Analysis

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks of, 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 on the environment?

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact. The Project is located in an area of moderate wildfire risk, not in areas classified as high or very high fire hazard severity zones. Construction would be a temporary activity; an active working crew would control any potential combustible materials though standard OSHA worker protection requirements. The Project includes buried cable infrastructure and equipment located inside an existing building that would not exacerbate wildfire risks; routine operations would not increase the amount of available fuel or create potential ignition sources (such as overhead power lines) in proximity to wildland forested areas. The backup generators would be located on concrete pads and operated only during testing; thus, the generators would not cause fire risks. The communication cables would be installed underground and grounded, which would prevent the potential for electrical shorts or arcing. Project operations would not hinder any potential emergency response. Therefore, the Project would not exacerbate existing risks of wildfire, and there would be no impact.

3.20.4 Mitigation Summary

The Project does not have the potential to exacerbate wildfire risks; therefore, no mitigation is required.

3.21 MANDATORY FINDINGS OF SIGNIFICANCE

3.21.1 Introduction

The lead agency shall find that a project may have a significant effect on the environment and thereby require an EIR to be prepared for the project where there is substantial evidence, in light of the whole record, that any of the following conditions may occur. Where prior to commencement of the environmental analysis a project proponent agrees to mitigation measures or project modifications that would avoid any significant effect on the environment or would mitigate the significant environmental effect, a lead agency need not prepare an EIR solely because without mitigation the environmental effects would have been significant (per State CEQA Guidelines section 15065).

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

3.21.2 Impact Analysis

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

Less than Significant with Mitigation. As described in Section 3.4, *Biological Resources*, the Project would not significantly adversely affect fish or wildlife habitat, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of an endangered, rare, or threatened species. With implementation of mitigation measures **MM BIO-1** through **MM BIO-22**, **MM HYDRO-1**, and **MM HAZ-1**, as well as construction BMPs, the minor, brief, and localized impacts on special-status species and their habitats would be less than significant.

The Project's potential effects on historic and archaeological resources are described in Section 3.5, *Cultural Resources*, and Section 3.6, *Cultural Resources – Tribal*. Based on cultural resources records review of the Project area, no cultural resources are known to be present within the Project footprint. Implementation of mitigation measures **MM CUL-1** through **MM CUL-5** and **MM TCR-1** and **MM TCR-2** would reduce the potential for Project-related impacts on previously undiscovered cultural, paleontological, and Tribal cultural resources to a less than significant level.

b) Does the project have impacts that would be individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)?

Less than Significant Impact. Past, current, and reasonably foreseeable projects identified by Mendocino County in the Project vicinity (within approximately 20 miles are limited to the Eureka Hill Road at Garcia River Bridge Seismic Retrofit Project.

3.21.2.1 AT&T Japan-U.S. Cable Network – Existing

- Existing fiber optic cables in the Project vicinity include two cables that extend from Manchester to Japan. The CLS is located near Kinney Road in Manchester. This existing cable system has been operating since 2000. Original cable installation methods and potential impacts on the marine environment were similar to those for the proposed Project (e.g., cable plowing). Onshore, cables are underground. Offshore, the majority of cable is buried; however, where burying was not possible, the cables were installed in a similar method as described for the proposed Project (i.e., laid directly on the ocean bottom). Where not buried in the ocean, cables may have limited effects on marine biota, but effects would not substantially disrupt benthic habitats or result in substantial risks of marine mammal entanglement. In addition, potential impacts to the fishing community have been addressed by an existing Fishing Agreement, which would be amended to include the proposed RTI cables (**APM-1**) Therefore, the Project would not result in a cumulative impact related to similar existing projects.

3.21.2.2 Eureka Hill Road at Garcia River Bridge Seismic Retrofit

- The Eureka Hill Road at Garcia River Bridge Seismic Retrofit Project proposes to improve the overall safety of the bridge by providing the existing bridge with seismic retrofits that meet current Caltrans design standards. Potential impacts on all environmental resources evaluated were found to be less than significant or less than significant with mitigation. The Eureka Hill Road Project is within the range of the Point Arena mountain beaver; however, the construction period for the project would not overlap with construction of the proposed Project, and no potential cumulative effects are anticipated for bridge operations. Furthermore, implementation of **MM BIO-10** and **MM BIO-11** would reduce any potential impact from the proposed Project on the Point Arena mountain beaver to a less than significant level, and the Eureka Hill Road Project does not identify any impacts on the Point Arena mountain beaver. Therefore, there would not be a cumulative impact on this species. The Eureka Hill Road Project would be located approximately 10 miles from the Project, and no cumulative impacts are anticipated.

As provided in this MND, the Project has the potential to significantly affect the following environmental disciplines: Biological Resources, Cultural Resources, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, Transportation, and Cultural Resources – Tribal. However, measures have been identified that would reduce these impacts to a level of less than significant. For any Project-related impact to contribute cumulatively to the impacts of past, present, or reasonably foreseeable projects, the other projects would need to result in an impact on the same resource area, occur at the same time, or occur within an area overlapping the proposed Project. No such project was identified that would result in a cumulative impact; therefore, this impact would be less than significant.

c) Does the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?

Less than Significant with Mitigation. The Project's potential to adversely affect human beings is addressed throughout this document. As discussed in sections on aesthetics (Section 3.1), public services (Section 3.16), and recreation (Section 3.17), the Project would not affect resources used or enjoyed by the public, residents, or others in the

Project area. The Project would not affect agriculture or forestry resources (Section 3.2); energy (Section 3.7); land use and planning (Section 3.12); mineral resources (Section 3.13); population and housing (Section 3.15); or utilities and service systems (Section 3.20).

Potential Project-related effects on public safety and well-being are discussed in sections on air quality (Section 3.3); cultural resources (Section 3.5, **MM CUL-1** through **MM CUL-5**); cultural resources – tribal (Section 3.6, **MM TCR-1** and **MM TCR-2**); geology, soils, and paleontology (Section 3.8, **MM HYDRO-1**); greenhouse gas emissions (Section 3.9, **MM GHG-1**); hazards and hazardous materials (Section 3.10, **MM HAZ-1** and **MM HAZ-2**); hydrology and water quality (Section 3.11, **MM HYDRO-1**, **MM HAZ-1** and **MM HAZ-2**, **MM BIO-5** through **MM BIO-7**); recreation (Section 3.17 **MM T-1**); transportation (Section 3.18, **MM N-1** and **MM T-1**); noise (Section 3.14, **MM N-1**); and wildfire (Section 3.21). None of these analyses identified a potential adverse effect on human beings that could not be avoided or minimized through implementation of identified mitigation measures or compliance with standard regulatory requirements. With mitigation in place, all Project impacts on human beings would be less than significant.

4.0 MITIGATION MONITORING PROGRAM

The California State Lands Commission (Commission or CSLC) is the lead agency under the California Environmental Quality Act (CEQA) for the RTI Infrastructure Inc. Manchester Subsea Cables Project (Project). In conjunction with approval of this Project, the CSLC adopts this Mitigation Monitoring Program (MMP) for implementation of mitigation measures (MMs) for the Project to comply with Public Resources Code section 21081.6, subdivision (a) and State CEQA Guidelines sections 15091, subdivision (d), and 15097.

The Project authorizes RTI Infrastructure, Inc. (Applicant or RTI) to build infrastructure in terrestrial and marine areas just north of Manchester in Mendocino County in order to connect up to four fiber optic cables coming from Asia and Australia.

4.1 PURPOSE

It is important that significant impacts from the Project are mitigated to the maximum extent feasible. The purpose of a MMP is to confirm compliance and implementation of MMs; this MMP shall be used as a working guide for implementation, monitoring, and reporting for the Project's MMs.

4.2 ENFORCEMENT AND COMPLIANCE

The CSLC is responsible for enforcing this MMP. The Project Applicant is responsible for successful implementation of and compliance *with the* MMs identified in this MMP. The term Applicant, in this context, includes all field personnel and contractors working for the Applicant.

4.3 MONITORING

CSLC staff may delegate duties and responsibilities for monitoring to other environmental monitors or consultants as necessary. Some monitoring responsibilities may be assumed by other agencies, such as the County of Mendocino. The CSLC or its designee shall ensure that qualified environmental monitors are assigned to the Project.

Environmental Monitors. To confirm implementation and success of the MMs, an environmental monitor must be on-site during all Project activities with the potential to create significant environmental impacts or impacts for which mitigation is required. Along with CSLC staff, the environmental monitor(s) are responsible for:

- Confirming that the Applicant has obtained all applicable agency reviews and approvals

- Coordinating with the Applicant to integrate the mitigation monitoring procedures during Project implementation (for this Project, many of the monitoring procedures would be conducted during the deconstruction phase)
- Confirming that the MMP is followed

The environmental monitor shall immediately report any deviation from the procedures identified in this MMP to CSLC staff or its designee. CSLC staff or its designee shall approve any deviation and its correction.

Workforce Personnel. Implementation of the MMP requires the full cooperation of Project personnel and supervisors. Many of the MMs require action from site supervisors and their crews. The following action shall be taken to facilitate successful implementation:

- Relevant mitigation procedures shall be written into contracts between the Applicant and any contractors.

General Reporting Procedures. A monitoring record form shall be submitted to the Applicant, and once the Project is complete, a compilation of all the logs shall be submitted to CSLC staff. CSLC staff or its designated environmental monitor shall develop a checklist to track all procedures required for each MM and shall confirm that the timing specified for the procedures is followed. The environmental monitor shall note any issues that may occur and take appropriate action to resolve them.

Public Access to Records. Records and reports are open to the public and are to be provided upon request.

4.4 MITIGATION MONITORING TABLE

This section presents the mitigation monitoring table (Table 4-1) for Biological Resources; Cultural Resources; Cultural Resources – Tribal; Greenhouse Gas Emissions; Hazards and Hazardous Materials; Hydrology and Water Quality; Noise; Recreation; and Transportation. All other environmental disciplines were found to have less than significant or no impacts; therefore, they are not included in the table. The table lists the following information by column:

- Potential Impact
- Mitigation Measure (full text of the measure)
- Location (where impact occurs and where MM should be applied)
- Monitoring/Reporting Action (action to be taken by monitor or Lead Agency)
- Timing (before, during, or after construction; during operation, etc.)
- Responsible Party (entity responsible to ensure MM compliance)
- Effectiveness Criteria (how the agency can know if the measure is effective)

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
Biological Resources						
Impacts on Special-Status Species and Habitats	**MM BIO-1: Provide Environmental Awareness Training.** The Applicant shall provide environmental awareness training for construction personnel working on the terrestrial and marine components of the Project. The biological monitor(s), approved by CSLC staff prior to the start of construction activities, shall be responsible for conducting an environmental awareness training for all Project personnel and for new personnel as they are added to the Project, to familiarize workers with surrounding common and special-status species and their habitats, applicable regulatory requirements, and mitigation measures that must be implemented to avoid or minimize potential impacts on biological resources. The training materials shall be developed and submitted to CSLC staff for approval at least 4 weeks prior to the start of Project activities. The Applicant shall identify a representative to serve as the main contact for reporting any special-status species that is observed in or near the Project area by any employee or contractor, and shall provide the contact information for both this representative and the qualified biologist to onsite construction workers, USFWS,	Terrestrial Project area	Onsite monitor to verify	Implementing MM will educate construction workers regarding special-status species and habitat	Applicant and CSLC	Prior to and throughout construction

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
	CDFW, and CSLC staff before construction commences. The qualified biologist shall maintain a list of contractors who have received training and shall submit a summary of the awareness training to CSLC staff within 30 days after construction begins and after construction is completed.					
Impacts on Special-Status Species and Habitats	**MM BIO-2: Conduct Biological Surveying and Monitoring.** A qualified biological monitor, approved by CSLC staff, shall be present on-site to survey the work area for Point Arena mountain beaver burrows, nesting birds, and plants prior to the commencement of Project activities to minimize the potential for impacts on any sensitive species or other wildlife that may be present during Project implementation. Qualifications for biological monitors typically include a college degree in a field of biology or environmental science and experience with pre-construction and construction monitoring. In addition, the biological monitor shall be on-site at all times during Project construction. If at any time during Project construction special-status species are observed in the Project area or within a pre-determined radius surrounding the	Terrestrial Project area	Onsite monitor to verify	Implementing MM will reduce the potential for impacts on special-status species and habitat	Applicant and CSLC	Throughout construction

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
	terrestrial Project components (as determined by the on-site biologist), the biologist shall have the authority to stop all work and the Applicant shall contact the appropriate agency, (i.e., CDFW or USFWS and CSLC staff) to discuss ways to proceed with the Project. Monitoring results shall be summarized in a monthly report and provided to CSLC staff during construction.					
Impacts on Special-Status Species and Habitats	**MM BIO-3: Delineate Work Limits and Install Temporary Construction Barrier Fencing to Protect Sensitive Biological Resources.** Prior to the start of Project construction, the limits of the onshore construction area at the CLP shall be clearly flagged and limited to the minimum area necessary to complete the work. Natural areas outside the construction zone shall not be disturbed. Designated equipment staging and fueling areas shall also be delineated at this time and shall be sited at least 100 feet from wetlands. Before construction begins, the contractor shall work with a qualified biologist, approved by CSLC staff in consultation with CDFW or USFWS, to identify environmentally sensitive locations to avoid during construction and locations that require barrier fencing. Staging	Terrestrial Project area	Onsite monitor to verify	Implementing MM will reduce the potential for impacts on special-status species and habitat	Applicant and CSLC	Prior to and throughout construction

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
	areas and access routes shall be sited to avoid any special-status plants and seasonal wetland habitat present in the Project area. Prior to ground-disturbing activities, the contractor shall install stakes and flagging to identify environmentally sensitive areas that require avoidance. The environmentally sensitive areas shall be clearly identified on the construction specifications. The staking and flagging shall be installed before construction activities are initiated and shall be maintained for the duration of construction. Throughout the course of construction, the biological monitor (**MM BIO-2**) shall inspect the staking and flagging to ensure that it is visible for construction personnel. If fencing is installed, the biological monitor shall inspect it regularly to ensure that it is functioning properly and not inadvertently trapping or snaring wildlife.					

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
Direct Impacts on Sensitive Biological Resources	**MM BIO-4: Identify and Avoid Sensitive Biological Resources through Use of Directional Boring.** To avoid substantial adverse effects on sensitive biological resources (e.g., sensitive natural communities, habitat for special-status species, and populations of special-status plants), the Applicant shall use directional boring techniques to avoid direct impacts on such resources (or bridge attachments at creeks).	Terrestrial Project area	Onsite monitor to verify	Implementing MM will reduce the potential for impacts on special-status species and habitat	Applicant and CSLC	Throughout construction
Impacts from Horizontal Directional Drilling and Directional Boring Activities	**MM BIO-5: Implement Best Management Practices for Horizontal Directional Drilling and Directional Boring Activities.** The Applicant shall implement the following BMPs related to Horizontal Directional Drilling and directional boring. • For the large marine Horizontal Directional Drilling (HDD), at least 60 days prior to start of construction, the following shall be submitted to CSLC staff for review: o Engineering design drawings as issued for construction certified by a California registered Civil/Structural Engineer. o A site-specific geotechnical report certified by a California registered Geotechnical Engineer to confirm fitness of	Terrestrial Project area	Onsite monitor to verify	Implementing MM will reduce the potential for impacts on special-status species and habitat	Applicant and CSLC	Throughout construction

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
	purpose of the proposed drilling program and also include any geotechnical recommendations for safe HDD installation. o A set of detailed calculations certified by a California registered Civil/Structural Engineer to ensure safe HDD installation to avoid hydrofracture risk and overstress to the bore pipes. • In cases where the Horizontal Directional Drilling is under CSLC jurisdiction, a minimum depth of cover of 35 feet is required unless a shallower depth is recommended by a California registered Geotechnical Engineer. • Design the bore path to an appropriate depth below the waterbody or other biological resource to minimize the risk of an inadvertent release of drilling fluids. • In cases where the bore is under a stream, prevent the conduit from becoming exposed by natural scour of the streambed by boring a minimum of 5 feet below the streambed. • Locate drill entry and exit points far enough from the banks of streams or waterbodies to minimize impact on those areas.					

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
	• Avoid removal of riparian vegetation between bore entry and exit points in preparation of trenchless stream crossing operations.					
Accidental Release of Drilling Fluid (Special-Status Species, Habitats, and Water Quality)	**MM BIO-6: Prepare and Implement an Inadvertent Return Contingency Plan.** At least 30 days prior to start of construction, a Final Inadvertent Return Contingency Plan for Horizontal Directional Drilling (HDD) and directional boring shall be submitted to CSLC staff for review. The plan shall include measures to stop work, maintain appropriate control materials on-site, contain drilling mud, prevent further migration into the stream or waterbody, and notify all applicable authorities. Control measures shall include constructing a dugout/ settling basin at the bore exit site to contain drilling mud to prevent sediment and other deleterious substances from entering waterbodies. In addition, workers shall monitor the onshore and offshore to identify signs of an inadvertent release of drilling fluids. The plan shall include a complete list of the agencies (with telephone number) to be notified, including but not limited to California State Lands Commission's 24-hour emergency notification number (562) 590-5201, California Governor's Office of	Terrestrial Project area	Onsite monitor to verify	Implementing MM will reduce the potential for impacts on special-status species and habitat	Applicant and CSLC	Throughout construction

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
	Emergency Services (Cal OES) contact number (800) 852-7550, etc.					
	Implement **MM HYDRO-1: Prepare and Implement a Stormwater Pollution Prevention Plan** (see below)					
Impacts on Vegetation and Special-Status Plant Species	**MM BIO-7: Prepare and Implement a Site Restoration Plan.** Prior to construction, the Applicant shall prepare a Site Restoration Plan to reduce impacts on vegetation and plant communities at the cable landing site and in other areas of the Project as appropriate. The Applicant shall submit the plan to CSLC staff for approval. The plan shall include details for site preparation and revegetation methods, monitoring, performance criteria, and reporting. As detailed in the Site Restoration Plan, the impact area shall be restored to pre-existing contours. The topsoil shall be stored on-site and evenly distributed over the site's restored contours. Species native to the region shall be seeded in the impact area. If impacts on special-status plant species are anticipated, a qualified biologist shall collect seeds of the species and store them in a cool, dry location. The qualified biologist, approved by the CSLC and other appropriate agencies, shall disperse the seeds upon completion of site restoration. It is anticipated that natural resource agencies will review and approve	Terrestrial Project area	Onsite monitor to verify	Implementing MM will reduce the potential for impacts on vegetation and special-status species (Point Area mountain beaver)	Applicant and CSLC	Throughout construction and post-construction

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
	the Site Restoration Plan as part of the permitting process. The Applicant shall be responsible for avoiding and minimizing the introduction of new invasive plants and the spread of invasive plants previously documented in the BSA. The following BMPs shall be written into the construction specifications and implemented during Project construction. • Retain all excavated soil material on-site or dispose of excess soil in a permitted off-site location to prevent the spread of invasive plants to uninfested areas adjacent to the Project footprint. • Use a weed-free source for Project materials (e.g., straw wattles for erosion control that are weed-free or contain less than 1 percent weed seed). • Prevent invasive plant contamination of Project materials during transport and when stockpiling (e.g., by covering soil stockpiles with a heavy-duty, contractor-grade tarpaulin). • Use sterile grass seed and native plant stock during revegetation. • Revegetate or mulch disturbed soils within 30 days of completing ground-disturbing activities to reduce the likelihood of invasive plant establishment.					

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
	Detailed information about implementing these BMPs can be found in *Preventing the Spread of Invasive Plants: Best Management Practices for Transportation and Utility Corridors* (Cal-IPC 2012).					
Entrapment of Wildlife	**MM BIO-8: Install Escape Ramps in Open Trenches.** To prevent accidental entrapment of wildlife species during construction, all excavated holes and trenches shall have a soil ramp installed, allowing wildlife an opportunity to exit. If a soil ramp cannot be installed, then the hole or excavation shall be covered with plywood or a similar material while unattended. Prior to construction activities each day, a biological monitor or the Project foreman shall inspect excavations to confirm the absence of or remove special-status species under the monitor's collection permit issued by CDFW.	Terrestrial Project area	Onsite monitor to verify	Implementing MM will reduce the potential for impacts on vegetation and special-status species (Point Area mountain beaver)	Applicant and CSLC	Throughout construction
Impacts on Point Arena Mountain Beaver if Present in Construction Areas	**MM BIO-9: Conduct Surveys for Point Arena Mountain Beaver.** A qualified biologist approved by the CSLC shall conduct pre-construction surveys for Point Arena mountain beaver consistent with the *Draft Guidelines for Project-Related Habitat Assessments and Presence-Absence Surveys for the Point Arena Mountain Beaver* (USFWS 2017), or using a modified or alternative survey methodology	Terrestrial Project area	Qualified biologist to provide documentation	Implementing MM will reduce the potential for impacts on vegetation and special-status species (Point Area mountain beaver)	Applicant and CSLC	Prior to construction (No more than 8 weeks prior)

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
	approved by USFWS. The surveys generally require visual inspection for the presence of mountain beaver burrow openings or other signs of activity. Surveys shall be conducted no more than 8 weeks prior to proposed work activities.					
Impacts on Point Arena Mountain Beaver during Sensitive Periods	**MM BIO-10: Limit Construction Period to Minimize Impacts on Point Arena Mountain Beaver.** To the extent practicable, construction activities shall not be conducted in occupied Point Arena mountain beaver habitat during the breeding season (December 1 to June 30). Furthermore, nighttime work requiring illumination shall not be undertaken at any time; construction shall occur only during daylight hours.	Terrestrial Project area	Onsite monitor to verify	Implementing MM will reduce the potential for impacts on vegetation and special-status species (Point Area mountain beaver)	Applicant and CSLC	No Project construction between December 1 and June 30 or at night.
Impacts on Point Arena Mountain Beaver Populations and Burrows	**MM BIO-11: Avoid Point Arena Mountain Beaver Populations and Burrows.** The Applicant shall use the results of the Point Arena mountain beaver surveys conducted under **MM BIO-9** to carefully site work areas at the CLP. Avoidance of populations and suitable burrows shall be the priority. The Applicant shall also use the results of the surveys to determine where trenching and boring should occur along the terrestrial underground conduit system routes. Boring shall be used to avoid areas with suitable burrows or adjacent populations.	Terrestrial Project area	Onsite monitor to verify	Implementing MM will reduce the potential for impacts on vegetation and special-status species (Point Area mountain beaver)	Applicant and CSLC	Throughout construction

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
	Bore pits shall be sited in areas with zero or the fewest suitable burrows. Manholes shall also be constructed in areas with the fewest suitable burrows. Construction activities shall be stopped immediately and the USFWS notified if Point Arena mountain beavers are injured or killed during construction.					
Impacts on Behren's Silverspot Butterfly Habitat	**MM BIO-12: Survey for and Avoid Behren's Silverspot Butterfly and Lotis Blue Butterfly Habitat.** Prior to construction, a qualified biologist or botanist, approved by CSLC staff in consultation with USFWS or CDFW, shall conduct a survey of the areas of the BSA that will be permanently or temporarily disturbed for Behren's silverspot butterfly and lotis blue butterfly larval host plants (western dog violet plants and other species of violet; *Hosackia gracilis*, *Lotus* spp., *Lupinus* spp., *Astragalus* spp., and *Lathyrus* spp.). The survey will be conducted during the appropriate blooming period (spring/summer). The numbers and locations of individual larval host plants identified in the BSA shall be mapped and, to the extent feasible, the Applicant shall site Project activities and facilities to avoid the removal of larval host plants.	Terrestrial Project area	Qualified biologist to provide documentation	Implementing MM will reduce the potential for impacts on vegetation and special-status species (Behren's silverspot butterfly and lotis blue butterfly)	Applicant and CSLC	Prior to construction

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
Impacts on Nesting Birds	**MM BIO-13: Conduct Pre-Construction Nesting Bird Surveys and Implement Avoidance Measures**. In the event that construction would occur during the nesting season, the following conditions designed to protect both special-status and non–special-status birds shall be implemented. No more than 1 week prior to the start of Project construction, a qualified biologist approved by USFWS or CDFW shall conduct a survey of the Project area to determine the presence of nesting activity (the typical nesting season is from February 1 to September 1). If active nests are found, an appropriate avoidance buffer shall be established by the biologist. If federal and state special-status species are observed nesting, coordination may be warranted with USFWS or CDFW to determine the appropriate avoidance buffer distances. No disturbances shall occur within the protective buffer(s) until all young birds have fledged, as confirmed by the biologist. In accordance with **MM BIO-2**, a qualified biological monitor shall be retained by the Applicant and shall be on-site at all times during Project operations. If at any time during	Terrestrial Project area	Onsite monitor to verify; coordination with USFWS/ CDFW	Implementing MM will reduce the potential for impacts on nesting birds	Applicant; CSLC; USFWS and CDFW, if necessary	Prior to construction (no more than 1 week before) and throughout construction

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
	Project operations special-status species (including but not limited to western snowy plovers) are observed within the Project area, all work shall be stopped or redirected to an area within the Project site that would not affect special-status birds.					
Impacts on Unsurveyed Special-Status Plant Species and Habitat	**MM BIO-14: Conduct Appropriately Timed Floristic Surveys of Remaining Areas.** The remaining portions of the BSA that were not surveyed at the appropriate time to account for early- and mid-blooming plant species will be surveyed. The final 2018 botanical survey covered the entire BSA and coincided with the identifiable period of late-blooming species. A qualified biologist, approved by CSLC staff in consultation with CDFW or USFWS, shall conduct early- and mid-season botanical surveys of the natural and naturalized communities in the BSA—excluding developed areas and disturbed vegetation on the property containing the Private CLS—in spring and summer 2019. Botanical surveys shall follow methods described in *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (CDFW 2018e).	Terrestrial Project area	Onsite monitor to verify	Implementing MM will reduce the potential for impacts on special-status plants.	Applicant and CSLC	Prior to construction

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
	Should special-status plants be documented in the BSA, directional boring would avoid impacts on the special-status species and the occupied habitat.					
Unburied Sections of Marine Cable	**MM BIO-15: Inspection and Burial of Cable.** The marine fiber-optic cable shall be buried to the extent feasible in accordance with the following: • Bury the cable to the extent practicable in areas with soft bottom substrate and water depths of 5,904 feet or less. • The burial report submitted by the Applicant after each phase shall include a detailed description of all buried and unburied sections and justification for any unburied sections.	Marine Project area	Reporting forms (burial report) submitted to CSLC	Implementing MM will reduce the potential for entanglement of marine species with cable and fishing gear	Applicant and CSLC	Throughout marine Project activities while installing cable
Entanglement of Marine Species and Fishing Gear	**MM BIO-16: Cable Entanglements and Gear Retrieval.** In the event that fishers snag a cable and lose or cut gear, the Applicant shall use all feasible measures to retrieve the fishing gear or inanimate object. Retrieval shall occur no later than 6 weeks after discovering or receiving notice of the incident. If full removal of gear is not feasible, the Applicant shall remove as much gear as practicable to minimize harm to wildlife (e.g. fishes, birds, and marine mammals). Within 2 weeks	Marine Project area	Reporting forms (burial report) submitted to CSLC	Implementing MM will reduce the potential for loss of revenue for fishers	Applicant and CSLC	Throughout marine Project activities

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
	of completing the recovery operation, the Applicant shall submit to the CSLC a report describing (a) the nature and location of the entanglement (with a map); and (b) the method used for removing the entangled gear or object, or the method used for minimizing harm to wildlife if gear retrieval proves infeasible.					
Impacts on Wildlife from Marine Vessels	**MM BIO-17: Prepare and Implement a Marine Wildlife Monitoring and Contingency Plan.** The Applicant shall prepare and implement a Marine Wildlife Monitoring and Contingency Plan (MWMCP) that shall apply to cable installation and repair activities and consist of the following elements, procedures, and response actions. • Awareness training for Project vessel crew that includes identification of common marine wildlife and avoidance procedures included in the MWMCP for Project activities. • Provision of two qualified shipboard marine mammal observers on board all cable installation vessels to conduct observations during all active cable installation activities. The MWMCP shall establish the qualifications of and required equipment for the observers.	Marine Project area	Retain copy of MWMCP and marine wildlife monitor notes	Implementing MM will reduce vessel movement and noise-related impacts on marine wildlife	Applicant and CSLC	Sixty days prior to and throughout marine Project activities

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
	• In consultation with NMFS, establish a safety work zone around all Project work vessels that defines the distance from each work vessel that marine mammals and sea turtles may approach before all operations must cease until the marine mammal or sea turtle has moved beyond. • Project-specific control measures for Project vessels (including support boats) and actions to be undertaken when marine wildlife is present, such as reduced vessel speeds or suspended operations. • Reporting requirements and procedures for wildlife sightings and contact and requirements for post-installation reporting. The MWMCP shall identify the resource agencies that are to be contacted in case of marine wildlife incidents and that will receive reports at the conclusion of Project installation. • The MWMCP shall be submitted to the CSLC and CCC for review at least 60 days prior to the start of marine installation activities.					
Impacts on Environmentally Sensitive Habitat Areas	**MM BIO-18: Boring beneath Environmentally Sensitive Habitat Areas.** Per methods outlined in **MM BIO-5**, all ESHAs will be bored beneath and avoided.	Terrestrial Project area	Onsite monitor to verify	Implementing MM will reduce the potential for impacts on ESHAs	Applicant and CSLC	During terrestrial construction

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
Impacts on Wet Meadow Habitat	**MM BIO-19: Locate Work and Staging Areas for the Cable Landing Site and Associated Facilities outside Wet Meadow Habitat.** The Applicant shall situate work and staging areas for the cable landing site and associated facilities an appropriate distance from the wet meadow habitat to avoid direct and indirect impacts.	Terrestrial Project area	Onsite monitor to verify	Implementing MM will reduce the potential for impacts on wet meadow habitat	Applicant and CSLC	Prior to construction
Impacts on Hard Substrate Habitat (Sensitive Species)	**MM BIO-20: Minimize Crossing of Hard Bottom Substrate.** Prior to start of construction, a survey shall be conducted to identify any hard bottom habitat, eelgrass, kelp, existing utilities including but not limited to pipelines, power cables, etc., and the survey map shall be submitted to CSLC staff for review. The proposed cable routes and anchoring locations shall be set to avoid hard bottom habitat, eelgrass, kelp, existing utilities including but not limited to pipelines, power cables, etc., as identified in the survey.	Marine Project area	Reporting forms (burial report) submitted to CSLC	Implementing MM will ensure that avoidance of sensitive species and hard bottom habitat areas is achieved and will determine presence or absence of *Caulerpa taxifolia* and seagrasses	Applicant and CSLC	Prior to and throughout marine cable installation
Damage to Hard Substrate during Cable Installation	**MM BIO-21: Contribute Compensation to Hard Substrate Mitigation Fund.** The following mitigation is proposed for damage to slow-growing, hard-substrate organisms. • CCC compensation fees (based on past projects) will be required to fund the U.C. Davis Wildlife Health Center's California Lost	Marine Project area	Applicant will provide retirement verification to the CSLC	Compensation fees will help reduce impacts on hard substrate	Applicant	Immediately after Project construction and after determination based on final burial report

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
	Fishing Gear Recovery Project or other conservation programs or impacts to high-relief, hard substrate affected by the Project. The amount of the hard bottom mitigation fee shall be calculated by applying a 3:1 mitigation ratio to the total square footage of impacted hard bottom and multiplying that square footage by a compensation rate of $14.30 per square foot. • A final determination of the amount of high-relief, hard substrate affected (used to calculate the total compensation fee) will be based on a review of the final burial report from the cable installation. The total assessment and methods used to calculate this figure will be provided to the CSLC and the CCC for review and approval. Both CSLC and CCC also will be provided documentation of the total amount of mitigation paid, and the activities for which the funds will be used.					

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
Spread of Nonnative Aquatic Species	**MM BIO-22: Control of Marine Invasive Species.** Applicant shall ensure that the underwater surfaces of all project vessels are clear of biofouling organisms prior to arrival in state waters. The determination of underwater surface cleanliness shall be made in consultation with CSLC staff. Additionally, and regardless of vessel size, ballast water for all Project vessels must be managed consistent with the CSLC's ballast management regulations, and Biofouling Removal and Hull Husbandry Reporting Forms shall be submitted to CSLC staff as required by regulation. No exchange of ballast water for project vessels shall occur in waters shallower than the 5,904 feet isobath.	Hull cleaning/ biofouling removal to be conducted at vessel origination site At Project kick-off meeting site	Reporting forms submitted to CSLC Project kick-off meeting sign-in sheet	Implementing MM will reduce the introduction of nonnative aquatic species and ensure that vessel operators are aware of nonnative aquatic species regulations	Applicant and CSLC	Biofouling removal prior to Project vessels transitioning to Project site Submit Biofouling Removal and Hull Husbandry Reporting Forms prior to Project operations During Project kick-off meeting
Cultural Resources						
Disturbance of Terrestrial Archaeological Resources	**MM CUL-1: Discovery of Previously Unknown Cultural Resources.** The Applicant shall retain a qualified archaeologist to train construction staff to be able to identify potential cultural resources. In the event that potential resources are uncovered during Project implementation, all ground-disturbing work within 100 feet of the find shall be temporarily suspended or redirected until an archaeologist has evaluated the	Terrestrial Project area	Qualified archaeologist, treatment plan if needed	Implementing MM will reduce potential impacts on archaeological resources	Applicant and CSLC	Prior to and throughout construction

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
	nature and significance of the discovery. In the event that a potentially significant resource is discovered, the Applicant, the CSLC, and any local, state, or federal agency with approval or permitting authority over the Project that has requested or required such notification shall be notified within 48 hours. The location of any such finds must be kept confidential and measures shall be taken to secure the area from site disturbance and potential vandalism. Impacts on previously unknown significant archaeological resources shall be avoided through preservation in place if feasible. A treatment plan developed by the archaeologist shall be submitted to CSLC staff for review and approval. If the archaeologist determines that damaging effects on the resource would be avoided or minimized, work in the area may resume. Title to all abandoned shipwrecks, archaeological sites, and historic or cultural resources on or in the tide and submerged lands of California is vested in the State and under the jurisdiction of the CSLC. The final disposition of archaeological, historical, and paleontological resources recovered on State lands under the jurisdiction of the CSLC must be approved by the CSLC.					

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
Disturbance of Marine Archaeological Resources	**MM CUL-2: Conduct a Pre-Construction Offshore Archaeological Resources Survey.** Using the results of an acoustic survey (e.g., a Compressed High-Intensity Radiated Pulse [CHIRP] System survey) for evidence of erosion/incision of natural channels, the nature of internal channel-fill reflectors, and the overall geometry of the seabed, paleochannels and surrounding areas shall be analyzed for their potential to contain intact remains of the past landscape that could contain prehistoric archaeological deposits (e.g., Schmidt et al. 2014). The analysis shall include core sampling in various areas, such as paleochannels, to verify the seismic data analysis. Based on the CHIRP and coring data, a Marine Archaeological Resources Assessment Report shall be produced by a qualified maritime archaeologist and reviewed by the CSLC or the State Historic Preservation Officer to document effects on potentially historic properties. All acoustic surveys will be conducted by operators permitted by CSLC through its Low-Energy Offshore Geophysical Permit Program (https://www.slc.ca.gov/ogpp/).	Marine Project area	Qualified archaeologist, Marine Archaeological Resources Assessment Report, if needed	Implementing MM will reduce potential impacts on marine archaeological resources	Applicant and CSLC	Prior to and throughout construction

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
Disturbance of Archaeological Resources (Offshore Historic Shipwrecks)	**MM CUL-3: Conduct a Pre-Construction Offshore Historic Shipwreck Survey.** A qualified maritime archaeologist, in consultation with CSLC staff, shall conduct an archaeological survey of the proposed cable routes. The archaeological survey and analysis shall be conducted following current CSLC, BOEM, and USACE (San Francisco and Sacramento Districts) standard specifications for underwater/marine remote sensing archaeological surveys (Guidelines for Providing Geological and Geophysical, Hazards, and Archaeological Information Pursuant to 30 CFR Part 585). The archaeological analysis shall identify and analyze all magnetic and side-scan sonar anomalies that occur in each cable corridor, defined by a lateral distance of0.31 mile on either side of the proposed cable route. This analysis shall not be limited to side scan and magnetometer data and may include shallow acoustic (subbottom) data as well as AUV and multi-beam data that may have a bearing on identification of anomalies representative of potential historic properties. All magnetic, side-scan sonar, and acoustic surveys will be conducted by operators permitted by CSLC through its Low-Energy	Marine Project area	Qualified maritime archaeologist	Implementing MM will reduce potential impacts on marine archaeological resources	Applicant and CSLC	Prior to and throughout construction

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
	Offshore Geophysical Permit Program (https://www.slc.ca.gov/ogpp/).					
Disturbance of Marine Archaeological Resources	**MM CUL-4: Prepare and Implement an Avoidance Plan.** All cultural resources identified in the Marine Archaeological Resources Assessment Report and the Offshore Historic Shipwreck Survey Report shall be avoided by developing and implementing an avoidance plan. If any cultural resources are discovered as a result of the marine remote sensing archaeological survey, the proposed cable route or installation procedures shall be modified to avoid the potentially historic property. The Applicant shall route the cable no closer than 164 feet from the center point of any given find. In the event a resource is discovered during construction that did not show up on the remote sensing survey and was not part of the avoidance plan, construction in that area will stop, CSLC will be notified, and the cable will be rerouted to avoid the discovery.	Marine Project area	Qualified maritime archaeologist	Implementing MM will reduce potential impacts on marine archaeological resources	Applicant and CSLC	Prior to and throughout construction
Disturbance of Human Remains	**MM CUL-5: Unanticipated Discovery of Human Remains.** If human remains are encountered, all provisions provided in California Health and Safety Code section 7050.5 and California Public Resources Code section 5097.98	Terrestrial Project area	Qualified archaeologist; County Coroner	Implementing MM will reduce potential impacts on human remains	Applicant and CSLC	Throughout construction

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
	shall be followed. Work shall stop within 100 feet of the discovery and an archaeologist must be contacted within 24 hours. The archaeologist shall consult with the County Coroner. In addition, CSLC staff shall be notified within 24 hours. If human remains are of Native American origin, the County Coroner shall notify the Native American Heritage CSLC within 24 hours of this determination and a Most Likely Descendent shall be identified. No work is to proceed in the discovery area until consultation is complete and procedures to avoid or recover the remains have been implemented.					
Cultural Resources — Tribal						
Discovery of Tribal Cultural Resources	**MM TCR-1: Discovery of Previously Unknown Tribal Cultural Resources.** Prior to Project related ground-disturbing activities, the Applicant shall prepare a Tribal Cultural Resources Monitoring Plan subject to CSLC approval. The Plan shall be prepared in coordination with the CSLC and a California Native American Tribe that is culturally affiliated with the Project site. The Plan shall include, but not be limited to, the following measures. • The Applicant shall retain a monitor from a California Native American Tribe that is culturally	Terrestrial Project area	Native American monitor, if needed	Implementing MM will reduce potential impacts on tribal resources	Applicant and CSLC	Prior to and throughout construction

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
	affiliated with the Project site during all ground-disturbing activities. • The Applicant shall provide a minimum 5-day notice to the tribal monitor prior to all scheduled ground-disturbing activities. • The Applicant shall provide the tribal monitor safe and reasonable access to the Project site. • Procedures for tribal monitoring including availability of resources and information to monitor excavation activities. • Guidance on identification of potential tribal resources that may be encountered • The tribal monitor will provide orient construction personnel with an orientation on the requirements of the Plan, including the probability of exposing tribal resources, guidance on recognizing such resources, and direction on procedures if a find is encountered. • Preparation of a Treatment Plan (see **MM TCR-2**) if tribal resources are discovered during excavation activities. The Applicant will train construction staff to be able to identify potential Tribal cultural resources					

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
	and identify a tribal point of contact prior to construction. In the event that potential resources are uncovered during Project implementation, all ground-disturbing work within 100 feet of the find shall be temporarily suspended or redirected until the tribal point of contact or his designee has evaluated the nature and significance of the discovery. Should Tribal cultural deposits be uncovered during Project implementation, CSLC staff and the tribal point of contact shall be contacted within 24 hours. A Treatment Plan developed in consultation with the tribal contact or his designee shall be submitted to CSLC staff for review and approval. The location of any such finds must be kept confidential. Measures should be taken to secure the area from minimize site disturbance and potential vandalism. Additional measures to meet these requirements include assessment of the nature and extent of the deposit, subsequent recordation, and notification of relevant parties based on the results of the assessment. Impacts on previously unknown significant Tribal cultural resources shall be					

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
	avoided through preservation in place if feasible.					
Treatment of Uncovered Tribal Cultural Resources	**MM TCR-2: Tribal Cultural Resources Treatment Plan.** Should intact tribal cultural deposits be uncovered during Project implementation, CSLC staff and the tribal monitor shall be contacted immediately within 24 hours. A Treatment Plan developed in consultation with the tribal monitor shall be submitted to CSLC staff for review and approval. CSLC staff, in consultation with the tribal monitor, shall have the authority to temporarily halt all work within 100 feet (metric) of the find. The location of any such finds must be kept confidential, and measures shall be taken to ensure that the area is secured to minimize site disturbance and potential vandalism. Additional measures to meet these requirements include assessment of the nature and extent of the deposit, and subsequent recordation and notification of relevant parties based on the results of the assessment. Impacts on previously unknown significant Tribal cultural resources shall be avoided through preservation in place, if feasible, or through a mitigation and data recovery plan established between the CSLC, designated Tribes, and	Terrestrial Project area	Develop a treatment plan	Implementing MM will reduce potential impacts on tribal resources	Applicant and CSLC	Throughout construction

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
	qualified archaeologists to offset the effects of the impact.					
Geology, Soils, and Paleontological Resources						
Erosion and/or Loss of Topsoil	Implement **MM HYDRO-1: Prepare and Implement a Stormwater Pollution Prevention Plan** (see below)					
Greenhouse Gas Emissions						
GHG Emissions during Construction	**MM GHG-1: Purchase GHG Carbon Offsets for Construction Emissions.** The Applicant shall purchase carbon offsets equivalent to the Project's projected GHG emissions (2,691 metric tons CO_2e) to achieve a net zero increase in GHG emissions during the construction phase for emissions within 24 nm off the California coast. A carbon offset is a credit derived from the reduction of GHG emissions through a separate reduction project, often in a different location from the emission source. To be acceptable for emissions reduction credit, the carbon offset must be permanent, quantifiable, verifiable, and enforceable. Several existing voluntary offset exchanges have been validated by the California Air Resources Board, including the California Action Reserve Voluntary Offset Registry, American Carbon Registry, and Verified Carbon Standard. The Applicant shall purchase all offsets prior to ground breaking and provide copies of the offset retirement verification to the CSLC.	Up to 24 nm off the California coast	Applicant will provide retirement verification to the CSLC	Purchase of carbon offsets will reduce GHG emissions impacts	Applicant	Prior to Project construction

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
Hazards and Hazardous Materials						
Accidental Release of Hazardous Materials	**MM HAZ-1: Hazardous Materials Management and Contingency Plan.** The Applicant shall develop and implement Hazardous Materials Management and Contingency Plan (Plan) measures for onshore and offshore operations. Measures shall include, but not be limited to, identification of appropriate fueling and maintenance areas for equipment, daily equipment inspection schedule, a spill response plan, spill response supplies to be maintained on-site and on marine vessels, and a complete list of the agencies to be notified (with their telephone number), including but not limited to California State Lands Commission's 24-hour emergency notification number (562) 590-5201, California Governor's Office of Emergency Services (Cal OES) contact number (800) 852-7550, etc. For any offshore activities involving work vessels, the primary work vessel will be required to carry on board a minimum 400 feet of sorbent boom, 5 bales of sorbent pads at least 18-inch by 18-inch square and small powered boat for rapid deployment to contain and clean up any small spill or sheen on the water surface. The Plan shall provide for the immediate call out of	Terrestrial and marine Project area	Submit Plan to CSLC	Implementing MM will reduce potential for release of hazardous materials into the environment	Applicant	Prior to and throughout construction

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
	additional spill containment and cleanup resources in the event of an incident that exceeds the rapid clean up capability of the on-site work force.					
Accidental Release of Hazardous Materials (Soil Contamination)	**MM HAZ-2: Contaminated Materials Management Plan.** Prior to Project construction, a plan shall be prepared that identifies the actions and notifications to occur if evidence of soil contamination is encountered during onshore excavation. The Applicant shall notify the County of Mendocino Health and Human Services Agency Environmental Health Department within 24 hours of discovery of contaminated materials encountered during the course of Project construction or decommissioning activities. Work in the area suspected of contamination shall stop until the notified agencies, together with the Applicant, have determined next steps.	Terrestrial Project area	Submittal of the Contaminated Materials Management Plan to County of Mendocino Health and Human Services Agency Environ-mental Health Department, if needed	Implementing MM will reduce potential impacts on human health from exposure to contaminated soils	Applicant; Mendocino Health and Human Services Agency Environmental Health	Prior to and throughout construction
	Implement **MM BIO-5: Implement Best Management Practices for Horizontal Directional Drilling and Directional Boring Activities** (see above) Implement **MM BIO-6: Prepare and Implement an Inadvertent Return Contingency Plan** (see above) Implement **MM HYDRO-1: Prepare and Implement a Stormwater Pollution Prevention Plan** (see below)					

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
Hydrology and Water Quality						
Violation of Water Quality Standards	**MM HYDRO-1: Prepare and Implement a Stormwater Pollution Prevention Plan.** A SWPPP consistent with the Statewide National Pollution Discharge Elimination System Construction General Permit (Order No. 2012-0006-DWQ) shall be developed and implemented. The SWPPP shall detail the construction-phase erosion and sediment control BMPs and the housekeeping measures for control of contaminants other than sediment. Erosion control BMPs shall include source control measures, such as wetting of dry and dusty surfaces to prevent fugitive dust emissions, preservation of existing vegetation, and effective soil cover (e.g., geotextiles, straw mulch, and hydroseeding), for inactive areas and finished slopes to prevent sediments from being dislodged by wind, rain, or flowing water. Sediment control BMPs shall include measures such as installation of fiber rolls and sediment basins to capture and remove particles that have already been dislodged.	Terrestrial Project area	Onsite monitor to verify	Implementing the MM will reduce the potential for impacts on water quality from release of contaminants and sediment into water-bodies and ensure prompt response in the event of a spill	Applicant and CSLC	Prior to and throughout construction

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
	The SWPPP shall establish good housekeeping measures such as construction vehicle storage and maintenance, handling procedures for hazardous materials, and waste management BMPs, which shall include procedural and structural measures to prevent the release of wastes and materials used at the site. The SWPPP also shall detail spill prevention and control measures to identify the proper storage and handling techniques of fuels and lubricants, and the procedures to follow in the event of a spill.					
	Implement **MM HAZ-1: Hazardous Materials Management and Contingency Plan** (see above) Implement **MM HAZ-2: Contaminated Materials Management Plan** (see above) Implement **MM BIO-5: Implement Best Management Practices for Horizontal Directional Drilling and Directional Boring Activities** (see above) Implement **MM BIO-6: Prepare and Implement an Inadvertent Return Contingency Plan** (see above) Implement **MM BIO-7: Prepare and Implement a Site Restoration Plan** (see above)					
Noise						
Construction Noise	**MM N-1 Restrict Terrestrial Construction Work on Sundays.** On Sundays, the Applicant shall not conduct any activities that exceed ambient noise levels work within 300 feet of sensitive receptors.	Terrestrial Project area	Contract specifications	Implementing MM will reduce construction noise impacts on sensitive receptors	Applicant; Applicant's contractor	Throughout Project construction

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
Recreation						
Offshore recreation	Implement **MM T-1: Publication of U.S. Coast Guard Local Notice to Mariners** (see below)					
Transportation						
Onshore traffic	Implement **MM N-1 Restrict Terrestrial Construction Work on Sundays** (see above)					
Marine vessel traffic	**MM T-1: Publication of U.S. Coast Guard Local Notice to Mariners.** The Applicant shall ensure that its contractor submits to the USCG District 11 (https://www.navcen.uscg.gov/?pageName=lnmDistrict&region=11), 14 days prior to operation, a request to publish a Local Notice to Mariners that includes the following information: • Type of operation (i.e., dredging, diving operations, and construction). • Location of operation, including latitude and longitude and geographical position, if applicable. • Duration of operation, including start and completion dates (if these dates change, the USCG needs to be notified). • Vessels involved in the operation. • VHF-FM radio frequencies monitored by vessels on the scene. • Point of contact and 24-hour phone number. • Chart number for the area of operation.	Marine Project area	Contract specifications	Implementing MM will reduce construction noise impacts on sensitive receptors	Applicant; Applicant's contractor	Throughout Project construction

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
Commercial Fishing						
Disruption of Commercial Fishing	**APM-1: Fishing Agreement.** The Applicant will enact a fishing agreement that will serve to minimize potential impacts on the viability of the commercial fishing industry. This agreement would, in part, establish the following: • A cable/fishing liaison committee that would manage the interactions between the fishers and the cable companies. • Policies for how the fishers will work around the cables and what to do if they think their fishing gear is hung up on a cable or similar issue. • Methods of gear replacement and costs claims in the unlikely event that fishing gear is entangled in cable owned by the Applicant. • Design and installation procedures to minimize impacts on fishing activities, such as: - Burying cable where possible - Allowing fishing representatives to review marine survey data and participate in cable alignment selection - Communication and notification procedures - Contributions to fishing improvement funds	Marine Project area	Provide Agreement to the CSLC prior to construction	Implementing this APM will reduce the potential for gear entangle-ment, cable unburial, and uncompensated loss of gear	Applicant; Applicant's contractor	Throughout Project construction and operation

Table 4-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Party	Timing
Marine Anchoring	**APM-2: Marine Anchor Plan.** At least 30 days prior to start of construction, a vessel anchoring plan shall be submitted to CSLC staff for review. The plan is to provide a map (as identified in **MM BIO-20**) of the proposed anchor spread and anchor locations or offshore temporary mooring location for each work vessel, and a narrative description of the anchor setting and retrieval procedures to be employed that will result in minimal impacts on the ocean bottom. Please note that anchor dragging along sea bottom is not allowed.	Marine anchoring areas only	Provide Plan to the CSLC prior to construction	Implementing this APM will ensure safety for anchoring operations	Applicant; Applicant's contractor	Throughout Project construction

Terms:

APM = Applicant Proposed Measure
Applicant = RTI Infrastructure, Inc.
AUV = autonomous underwater vehicle
BMP = best management practice
BOEM = Bureau of Ocean Energy Management
BSA = biological study area
CCC = California Coastal Commission
CDFW = California Department of Fish and Wildlife
CFR = Code of Federal Regulations
CLP = cable landing parcel
CO_2e = CO_2 equivalent
CSLC = California State Lands Commission
ESHA = environmentally sensitive habitat area
GHG = greenhouse gas
HDD = horizontal directional drilling
nm = nautical miles
NMFS = National Marine Fisheries Service
USACE = U.S. Army Corps of Engineers
USCG = U.S. Coast Guard
USFWS = U.S. Fish and Wildlife Service

5.0 OTHER COMMISSION CONSIDERATIONS

In addition to the environmental review required pursuant to the California Environmental Quality Act (CEQA), a public agency may consider other information and policies in its decision-making process. This section presents information relevant to the California State Lands Commission's (Commission's) consideration of the Project. The considerations addressed below are:

- Climate change and sea-level rise
- Commercial and recreational fishing
- Environmental justice
- State tide lands and submerged land possessing significant environmental values

Other considerations may be addressed in the staff report presented at the time of the Commission's consideration of the Project.

5.1 CLIMATE CHANGE AND SEA-LEVEL RISE

Sea-level rise as a function of global climate change is not expected to have any effect on the Project because none of the permanent infrastructure is proposed in areas subject to flooding or increased erosion with anticipated sea-level rise. The marine component of the Project would be buried approximately 3.3 feet beneath the seafloor in State waters starting 3,280 feet offshore, where they are not subject to additional flooding or associated erosion due to sea-level rise. The CLS would be on a coastal terrace well above an elevation of potential sea-level rise and inland from the edge of the coastal bluff, which could become more susceptible to increased erosion over time. The cable between the CLS and the offshore bore pipe daylight point would be drilled deep (approximately 35 to 50 feet below the beach and thus would not be subject to increased erosion over time. The terrestrial cable would not be in areas subject to increased inland flooding as it would be installed under coastal streams or would be installed well above them on existing bridges that are at elevations above potential sea-level rise.

However, because climate change and sea-level rise accelerate and exacerbate natural coastal processes, such as the intensity and frequency of storms, erosion and sediment transport, currents, wave action, and ocean chemistry, a brief discussion of climate change and sea-level rise is useful to understanding the Project objectives.

Sea-level rise is driven by the melting of polar ice caps and land ice, as well as thermal expansion of sea water. Accelerating rates of sea-level rise are attributed to increasing global temperatures associated with climate change. Estimates of projected sea-level rise vary regionally and are a function of different greenhouse gas emissions scenarios, rates of ice melt, and local vertical land movement. The California Ocean Protection Council updated the State of California Sea-Level Rise Guidance in 2018 to provide a synthesis of the best available science on sea-level rise projections and rates. CSLC staff evaluated the “high emissions,” “medium-high risk aversion” scenario to apply a conservative approach based on both current emission trajectories and the lease location. The Arena Cove tide gauge was used for the projected sea-level rise scenario and the Project area could see 0.7-foot sea-level rise by 2030, 1.8 feet by 2050, and 6.7 feet by 2100 (Ocean Protection Council 2018). The range in potential sea-level rise indicates the complexity and uncertainty of projecting these future changes—which depend on the rate and extent of ice melt—particularly in the second half of the century.

Along with higher sea levels, winter storms of greater intensity and frequency resulting from climate change will further affect coastal areas. The combination of these conditions will likely result in increased wave run up, storm surge, and flooding in coastal and near-coastal areas. In rivers and tidally influenced waterways, more frequent and powerful storms can result in increased flooding conditions and damage from storm-generated debris. Climate change and sea-level rise also will affect coastal and riverine areas by changing erosion and sedimentation rates. Beaches, coastal landscapes, and near-coastal riverine areas exposed to increased wave force, run up, and total water levels could potentially erode more quickly than before. However, rivers and creeks also are predicted to experience flashier sedimentation pulse events from strong winter storms, punctuated by periods of drought. Therefore, depending on precipitation patterns, sediment deposition and accretion may accelerate along some shorelines and coasts.

Weather systems and extreme storms also can cause uncover dangerous coastal hazards on shorelines. The Commission, when funding is available, implements a program to remove coastal hazards along the California coast (California State Lands Commission 2017). Examples of hazards are remnants of coastal structures, piers, oil wells and pilings, and deteriorated electric cables and old pipelines. Many coastal hazards are located on Public Trust lands set aside for commerce, navigation, fishing, and recreation; these hazards can impede coastal uses as well as threaten public health and safety. Governor Brown’s Executive Order B-30-15 instructed all state agencies to take climate change into account in their planning and investment decisions, and to give priority to actions that build climate preparedness. The preceding discussion of climate change and sea-level rise is intended to provide the local/regional overview and context that the Commission staff considered pursuant to this Executive Order; additionally, it will facilitate the Commission’s consideration of the Project.

5.2 COMMERCIAL AND RECREATIONAL FISHING

The coastal waters of north central California are used extensively for both commercial and recreational fishing. Commercial fish caught by trolling, trawling, diving, and trapping in north central California are mostly landed at Fort Bragg. Of the more than 100 fish species landed between 2013 and 2017, 20 species or groups of species have accounted for 99 percent of the landings based on tonnage (AMS 2018a: Table 6 [Appendix C5]). The most dominant taxa landed by commercial fishers are red sea urchins

(*Mesocentrotus franciscanus*), Dover sole (*Microstomus pacificus*), sablefish (*Anoplopoma fimbria*), Dungeness crab (*Metacarcinus magister*), Chinook salmon (*Oncorhynchus tshawytscha*), longspine thornyhead (*Sebastolobus altivelis*), shortspine thornyhead (*Sebastolobus alascanus*), Petrale sole (*Eopsetta jordani*), assorted rockfish (*Sebastes* spp.), longnose skate (*Rajidae rhina*), hagfish (Class Myxini), market squid (*Doryteuthis opalescens*), and lingcod (*Ophiodon elongates*). The locations, depths, and time of year fished by each gear type vary due to limitations in the gear, distribution of target species, and regulations (open seasons and quotas).

Recreational fishing, conducted from docks, private boats, commercial party boats, rocky shores, and sandy beaches, landed approximately 134 fish taxa between 2013 and 2017 (AMS 2018a: Table 7). However, 30 of these taxa accounted for more than 90 percent of the landings in tonnage or in individual numbers of fish landed. The dominant fish taxa caught by recreational fishers include lingcod, assorted rays (*Rajidae* spp.), assorted rockfish, Barred surfperch (*Amphistichus argenteus*), Dungeness crab, striped bass (*Morone saxatilis*), California halibut (*Paralichthys californicus)*, jacksmelt (*Atherinopsis californiensis*), cabezon (*Scorpaenichthys marmoratus*), Pacific mackerel (*Trachurus symmetricus*), Pacific sanddab (*Citharichthys sordidus*), rock crabs (*Cancer productus*), red abalone (*Haliotis rufescens*), night smelt (*Spirinchus starksi*), American shad (*Alosa sapidissima*), and striped kelpfish (*Gibbonsia metzi*) (AMS 2018a: Table 7 [Appendix C5]).

5.2.1 Construction

Installation and maintenance of the marine segments of the Project have the potential to cause short-term restrictions to commercial and recreational fishing activities in a very limited area of the Project (at the end of the bore pipes) for several days and along the cable route at any one location for a matter of a few hours. Although offshore support and cable-laying vessels would be present within the Project area for a short period of time, some potential remains for temporary displacement of commercial or recreational fishers from a very limited area for fishing during Project construction. However, due to the availability of comparable and immediately adjacent coastal locations for fishing, and the very limited time during which Project work vessels would be present in any one specific location, the Project is not anticipated to result in any substantive reductions in fish landings.

In addition, RTI is actively involved with regional commercial fishing associations to enhance communication concerning Project construction, maintenance schedules, and work locations in order to avoid conflicts. RTI intends to update the existing Fishing Agreement (**APM-1**) for the installed AT&T cables, which has managed construction and operational matters between the prior cables and local fishers to avoid adverse effects on commercial fishing. Therefore, the Project is not anticipated to substantially affect commercial or recreational fishing during Project construction.

5.2.2 Operations

After Project completion, trawlers would be able to fish over the buried cable. To the extent that commercial and recreational fishing continue to occur over the cable where buried, it is not anticipated that the new cable would affect fishing in those areas. Due to the depths of installation, gear entanglement with buried cables is uncommon and not anticipated. Nevertheless, a loss of gear and fishing time, including any fish catch that might be contained in the lost gear, could affect the profitability of individual fishers, with the potential for longer-term repercussions. To minimize this potential affect, RTI would enact a Fishing Agreement per **APM-1** that will serve to minimize any potential impacts on the viability of the commercial fishing industry. This agreement would, in part, establish the following.

- A cable/fishing liaison committee that would manage the interactions between the fishers and the cable companies.
- Policies for how the fishers will work around the cables and what to do if they think their fishing gear is hung up on a cable or similar issue.
- Methods of gear replacement and costs claims in the unlikely event that fishing gear is entangled in cable owned by RTI.
- Design and installation procedures to minimize impacts on fishing activities, such as:
  - Burying cable where possible.
  - Allowing fishing representatives to review marine survey data and participate in cable alignment selection.
- Communication and notification procedures.
- Contributions to fishing improvement funds.

The Fishing Agreement (**APM-1**), as described above is included in the Mitigation Monitoring Table (Table 4-1).

Also, as discussed above, the method of cable installation and cable routes are designed to result in limited effects on soft and hard substrate habitats and associated marine communities, including fish. Substantial impacts are not anticipated on commercial and recreational fishing during Project operation.

5.3 ENVIRONMENTAL JUSTICE

In keeping with its commitment to environmental sustainability and access to all, California was one of the first states to codify the concept of environmental justice in statute. Beyond the fair treatment principles described in statute, the Commission staff and other environmental justice leaders would like to include individuals who are disproportionately affected by a proposed project's effects in the decision-making process. The goal is that, through equal access to the decision-making process, everyone has equal protection from environmental and health hazards and can live, learn, play, and work in a healthy environment.

In 2016, legislation was enacted to require local governments with disadvantaged communities, as defined in statute, to incorporate environmental justice into their general plans when two or more general plan elements (sections) are updated. The Governor's Office of Planning and Research (the lead state agency on planning issues) is working with state agencies, local governments, and many partners to update the General Plan Guidelines in 2019 to include guidance for communities on environmental justice (Office of Planning and Research 2016).

Environmental justice is defined by California law as "the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies" (Gov. Code, § 65040.12, subd. (c)). This definition is consistent with the Public Trust Doctrine principle that the management of trust lands is for the benefit of all people. The Commission adopted an Environmental Justice Policy in December 2018 (Item 75, December 2018) to ensure that environmental justice is an essential consideration in the Commission's processes, decisions, and programs.[26] Through its policy, the Commission reaffirms its commitment to an informed and open process in which all people are treated equitably and with dignity, and in which its decisions are tempered by environmental justice considerations. Among other goals, the policy commits the Commission to, "Strive to minimize additional burdens on and increase benefits to marginalized and disadvantaged communities resulting from a proposed project or lease."[27]

The U.S. Council on Environmental Quality's (CEQ's) Environmental Justice Guidance under the National Environmental Protection Act (CEQ Guidance) defines "minorities" as individuals who are members of the following population groups (CEQ 1997): American Indian or Alaskan Native, Asian or Pacific Islander, Black not of Hispanic origin, and Hispanic.

A total minority population is calculated by subtracting the population that is not considered a minority under the CEQ Guidance definition from the total population. According to the CEQ Guidance, minority populations should be identified in this analysis where:

- A minority population exceeds 50 percent of the population of the affected area; or
- The minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other

[26] See https://www.slc.ca.gov/envirojustice/.
[27] Id.

appropriate unit of geographic analysis (for example, a governing body's jurisdiction, neighborhood census tract, or other similar unit).

The CEQ Guidance explains that a minority population would also exist if there is more than one minority group present and the minority percentage, as calculated by aggregating all minority persons (total minority population), meets one of the above-stated thresholds (CEQ 1997).

In addition, the CEQ Guidance defines *low-income populations* as populations with mean annual incomes below the annual statistical poverty level (CEQ 1997). The CEQ Guidance does not provide a discrete threshold for determining when a low-income population should be identified for environmental justice; however, for this analysis, an environmental justice population is identified if the low-income percentage with the local study area is equal to or greater than that of Mendocino County.

Table 5-1 presents income, employment, and race data of the regional and local study area in the Project vicinity, based on the most recently available information from U.S. Census 2012–2017 American Community Survey data.[28] The local study area is "Manchester CDP, California," meaning that Manchester, CA is a CDP (census-designated place), or unincorporated town.

Table 5-1. Environmental Justice Statistics

Subject	California	Mendocino County	Manchester
Income and Population			
Total population	38,982847	87,497	168
Median household income	$67,179	$46,528	$44,231
Percent below the poverty level[1]	15.1	19.1	4.2
Employment by Industry (by percentage)			
Agriculture, forestry, fishing and hunting, mining	2.3	6.4	9.3
Construction	6.1	8.0	12.0
Manufacturing	9.5	6.6	5.3
Wholesale trade	3.0	2.4	0
Retail trade	10.8	12.9	0
Transportation and warehousing, and utilities	5.0	2.7	5.3
Information	2.9	1.8	0

[28] U.S. Census 2012–2017 American Community Survey estimates come from a sample population but are more current statistics than the most recent full census of 2010. Because they are based on a sample of population, a certain level of variability is associated with the estimates. Supporting documentation on American Community Survey data accuracy and statistical testing can be found on the American Community Survey website in the Data and Documentation section available here: www.census.gov/acs/www/data_documentation/documentation_main/.

Table 5-1. Environmental Justice Statistics

Subject		California	Mendocino County	Manchester
Finance and insurance, and real estate and rental and leasing		6.2	3.9	17.3
Professional, scientific, and management, and administrative and waste management services		13.2	8.0	0
Educational services and health care and social assistance		20.9	23.1	24
Arts, entertainment, and recreation, and accommodation and food services		10.4	11.9	14.7
Other services, except public administration		5.3	5.6	12
Public administration		4.4	6.6	0
Race (by percentage)				
Not Hispanic or Latino	White	37.9	65.9	77.4
	Black	5.5	0.6	0
	American Indian	0.4	3.3	0
	Asian	13.9	1.7	0
	Other	3.1	4.0	0
Hispanic or Latino		38.8	24.5	22.6

Note:
[1] Poverty threshold as defined in the ACS is not a singular threshold but varies by family size. Census data provides the total number of persons for whom the poverty status is determined and the number of people below the threshold. The percentage is derived from this data.
Source: U.S. Census Bureau 2018.

From a regional standpoint, the Project study area contains below-average income levels compared to Mendocino County and California as a whole (Table 5-1). The median household income in Manchester is lower than that of Mendocino County and the State, but the percentage of residents living below the poverty level in Manchester is lower than that of Mendocino County and the State.

By income, 4.2 percent of the 168 residents in Manchester (about 7 people out of 168) are living below the poverty levels. Only 19.1 percent of the people living in Mendocino County are living below the poverty level. Only 15.1 percent of people living in California are living below the poverty level (Table 5-1). Therefore, the population of Manchester does not appear to be disproportionately burdened by poverty.

According to the U.S. Census data, the 168 residents of Manchester identify as either “Hispanic or Latino” or as “White”. People who identified as “Hispanic or Latino” make up about 22.6 percent of the population (about 38 people out of 168). About 24.5 percent of the County’s population make up and about 38.8 percent of California’s population make up are Hispanic or Latino (Table 5-1). People who identified as “white only” make up

77.4 percent of Manchester's population (about 130 people out of 168). Therefore, the minority population in Manchester does not meet the CEQ Guidance for required analysis.

Turning to the other criteria under the CEQ Guidance of comparing the percentage of minority populations to the larger regional scheme is difficult here because Manchester only has a population of 168. For California as a whole, 62.1 percent (100 percent minus 37.9 percent whites = 62.1 percent) of residents are minorities as defined by the CEQ's Guidance (CEQ 1997). For Mendocino County 34.1 percent of residents are minorities as defined by the CEQ's Guidance (100 percent minus 65.9 percent whites = 34.1 percent). Manchester has approximately 22.6 percent minority residents, which is less than both California's and Mendocino County's percentage minority residents. Because the study area does not have a greater percentage of minority residents than the surrounding County and State, the minority population in Manchester does not meet the CEQ Guidance for required analysis.

Because the percentage of individuals designated as living below the poverty line in the affected community is not disproportionately higher than in the surrounding area and the minority population in the affected community does not reach the threshold, it does not appear that an environmental justice community would be disproportionately impacted by a Project at this location. Further, because the construction-related work is temporary and for short periods of time, any potential impacts from the Project on nearby residential communities would be temporary and minor, regardless of their socioeconomic makeup.

5.4 SIGNIFICANT LANDS INVENTORY

The Project involves lands south of the proposed offshore Project component identified as possessing significant environmental values: Arena Rock (near Point Arena) within the Commission's Significant Lands Inventory, pursuant to Public Resources Code section 6370 et seq. The Project area is in the Significant Lands Inventory as parcel number 23-062-500, which includes the tide lands and submerged land in the Pacific Ocean immediately adjacent to Arena Rock near Point Arena lying 1,000 feet waterward of the ordinary high-water mark. The subject lands are classified in use category Class B, which authorizes limited use. Environmental values identified for these lands are mostly biological, including rockfishes not normally seen in shallow water (60 to 100 feet) like the turnkey-red rockfishes and China rockfish.

Based on Commission staff's review of the Significant Lands Inventory and the CEQA analysis provided in this MND, the Project, as proposed, would not significantly affect those lands and is consistent with the use classification.

6.0 MND PREPARATION SOURCES AND REFERENCES

This Mitigated Negative Declaration (MND) was prepared by the staff of the California State Lands Commission's Division of Environmental Planning and Management (DEPM), Land Management Division (LMD), and Mineral Resources Management Division (MRMD) with the assistance of ICF. The analysis in the MND is based on information identified, acquired, reviewed, and synthesized based on DEPM guidance and recommendations.

6.1 CALIFORNIA STATE LANDS COMMISSION STAFF

Afifa Awan, Project Senior Environmental Scientist (DEPM)
Eric Gillies, Acting Chief, DEPM
Mary Griggs, Retired Annuitant, DEPM
Jennifer Mattox, Science Advisor/Tribal Liaison, Executive Office
Jamie Garrett, Staff Attorney, Legal Division
Marlene Schroeder, Public Land Management Specialist, LMD
Al Franzoia, Public Land Management Specialist, LMD
Joo Chai Wong, Associate Engineer, MRMD

6.2 SECTION AUTHORS AND REVIEWERS

Name and Title	MND Sections
ICF	
Karin Lilienbecker, Project Manager	1.0, Project and Agency Information; 2.0, Project Description; 3.20, Mandatory Findings of Significance Impact Analysis; 4.0, Mitigation Monitoring Program; 3.7, Energy; 3.21, Wildfire
Rich Walter, Senior Technical Specialist-CEQA	1.0, Project and Agency Information; 2.0, Project Description; 5.0, Other Commission Considerations; 5.1, Climate Change
James Alcorn, Environmental Planner	3.1, Aesthetics; 3.2, Agriculture; 3.10, Hazards and Hazardous Materials; 3.16, Public Services; 3.17, Recreation; 3.18, Transportation; 3.19, Utilities and Service Systems
Laura Yoon, Technical Specialist-Air Quality	3.3, Air Quality; 3.8, Greenhouse Gas Emissions
Devin Jokerst, Biologist (Botany)	3.4, Biological Resources –Terrestrial
Steve Yonge, Biologist (Wildlife)	3.4, Biological Resources –Terrestrial
Brad Schaffer, Senior Biologist	Review: 3.4, Biological Resources –Terrestrial
Pat Crain, Biologist (Fish)	3.4, Biological Resources – Fish
Steve Pappas, Archaeologist	3.5, Cultural Resources; 3.6, Cultural Resources – Tribal
Jenifer Rogers, Architectural Historian	3.5, Cultural Resources

Name and Title	MND Sections
Ellen Unsworth (Paleontology)	3.8, Geology, Soils, Paleontology, and Mineral Resources
Tait Elder, Archaeologist	Review: 3.5, Cultural Resources; 3.6, Cultural Resources – Tribal
Katrina Sukola, Hydrology/Water Quality Specialist	3.11, Hydrology and Water Quality
Susan Swift, Environmental Planner	3.12, Land Use and Planning; 3.15, Population and Housing
Cory Matsui, Technical Specialist – Noise	3.14, Noise
Dave Buehler, Senior Technical Specialist – Noise	Review: 3.14, Noise
Tina Sorvari, Environmental Planner	5.2, Commercial Fishing; 4.4, Mitigation Monitoring Table
Erin Gustafson, Environmental Planner	5.3, Environmental Justice
Shilpa Trisal, Environmental Planner	Review: 5.3, Environmental Justice
Applied Marine Sciences	
Sara Driscoll, Biologist	3.4, Biological Resources – Marine
Jay Johnson, Biologist	3.4, Biological Resources – Marine

6.3 REFERENCES CITED

Applied Marine Sciences (AMS). 2008. Survey Report: Remotely Operated Vehicle (ROV) Biological Characterization Survey of the Asia America Gateway (AAG) S5 Project Fiber Optic Cable Route Offshore Morro Bay, California. Prepared for AT&T Corporation. Livermore, CA.

___. 2015. Subtidal Habitats and Associated Macrobenthic and Fish Communities Observed Offshore Coastal California Along Fiber Optic Cable Routes. Prepared for ICF International, Pp 13. Livermore, CA.

___. 2016. Survey Report: Seafloor Habitat & Biological Characterization Assessment of the SEA-US Fiber Optic Cable Route Offshore Hermosa Beach, California by Remotely Operated Vehicle (ROV). Prepared for ICF International, Pp 46. Livermore, CA.

___. 2018a. Marine Habitats and Associated Biological Communities and Resources near Manchester Beach, California. April. Prepared for RTI, Infrastructure, Inc. and ICF. Livermore, CA.

___. 2018b. Marine Cultural Resources Technical Report for RTI Manchester Subsea Project. October. Prepared for RTI, Infrastructure, Inc. and ICF. Ventura, CA

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken (eds.). 2012. The Jepson Manual: Vascular Plants of California. Second edition. Berkeley, CA: University of California Press.

Barrett, S.A. 1908a. The Ethnogeography of Pomo and Neighboring Indians. University of California Publications in American Archaeology and Ethnology 6(1):1–332. Berkeley, CA.

____. 1908b. Pomo Indian Basketry. University of California Publications in American Archaeology and Ethnology 7(3): 134–308. Berkeley, CA.

Bay Area Air Quality Management District (BAAQMD). 2017. *Air Quality Guidelines*. Last Revised: May 2017. Available: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed: September 18, 2018.

Bean, L.J. and D. Theodoratus. 1978. Western Pomo and Northeastern Pomo. Pages 289–305 in R. F. Heizer (vol. ed.) and W.C. Sturtevant (gen. ed.), Handbook of North American Indians, Volume 8: California. Smithsonian Institution. Washington, D.C.

BioConsultants, LLC. 2011a. Biotic Resource Assessment and Rare Plant Survey – Curt Christian Project. Prepared for Mendocino County. August.

____. 2011b. Point Arena Mountain Beaver Survey Curt Christian Project. Prepared for Mendocino County. August.

Blow, B. 1920. California Highways: A Descriptive Record of Road Development by the State and by Such Counties as Have Paved Highways. H. S. Crocker Co., Inc. San Francisco, CA.

Bowman, Helena. 1978. National Register of Historic Place Inventory – Nomination Form for the Manchester Schoolhouse. Accessed: September 27, 2018, at https://npgallery.nps.gov/AssetDetail/NRIS/79000499.

Branum, D., S. Harmsen, E. Kalkan, M. Petersen, and C. Wills. 2008. *Earthquake Shaking Potential for California.* Last revised: unknown. Available: http://www.conservation.ca.gov/cgs/Documents/library-publications/MS48_revised.pdf. Accessed: September 20, 2018.

Bureau of Land Management (BLM). 2018a. Bureau of Land Management, General Land Office Records. Electronic document, https://glorecords.blm.gov/details/patent/default.aspx?accession=CACAAA%20024893&docClass=SER&sid=f31bbgxh.me2. Accessed: July 30, 2018.

____. 2018b. Bureau of Land Management, General Land Office Records. Electronic document, https://glorecords.blm.gov/details/patent/default.aspx?accession=CA0090__.136&docClass=STA&sid=y5zicn11.htr. Accessed: July 30, 2018.

____. 2018c. Bureau of Land Management, General Land Office Records. Electronic document, https://glorecords.blm.gov/details/patent/default.aspx?accession=CA0090__.155&docClass=STA&sid=on20twah.ru0. Accessed: July 30, 2018.

____. 2018d. Bureau of Land Management, General Land Office Records. Electronic document, https://glorecords.blm.gov/details/patent/default_pf.aspx?accession=CA0090__.068&docClass=STA. Accessed: July 30, 2018.

Bureau of Ocean Energy Management (BOEM). 2013. Inventory and Analysis of Coastal and Submerged Archaeological Site Occurrence on the Pacific Outer Continental Shelf. November.San Diego, CA.

California Air Resources Board (CARB). 2005. Air Quality and Land Use Handbook: A Community Health Perspective. April.

____. 2014. First Update to the Climate Change Scoping Plan, Building on the Framework Pursuant to AB 32. May.

____. 2017. Area Designation Maps/State and National. Last Revised: October 16, 2017. Available: https://www.arb.ca.gov/desig/adm/adm.htm. Accessed: September 17, 2018.

____. 2018a. iADAM: Air Quality Data Statistics. Available: https://arb.ca.gov/adam. Accessed: September 17, 2018.

____. 2018b. *California Greenhouse Gas Emissions for 2000 to 2016*. Available: https://www.arb.ca.gov/cc/inventory/pubs/reports/2000_2016/ghg_inventory_trends_00-16.pdf. Accessed: September 18, 2018.

____. 2019. iADAM: Air Quality Data Statistics. Available: <https://www.arb.ca.gov/adam/>. Accessed: January 2019.

California Coastal Commission (CCC). 2011. Definition and Delineation of Wetlands in the Coastal Zone. Available: https://documents.coastal.ca.gov/reports/2011/10/w4-10-2011.pdf. Accessed: April 2018.

California Department of Conservation. 1997. California Agricultural Land Evaluation and Site Assessment Model. Office of Land Conservation. Sacramento, CA.

California Department of Education. 2018. District Profile: Manchester Union Elementary. https://www.cde.ca.gov/sdprofile/details.aspx?cds=23655730000000. Accessed: September 24, 2018.

California Department of Fish and Game (CDFG). 2003. Stream Inventory Report Alder Creek. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=6429 Accessed: September 4, 2018.

____. 2005. Stream Inventory Report Brush Creek. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=65488 Accessed: October 4, 2018.

____. 2008. Office of Spill Prevention and Response. Introduced Aquatic Species in the Marine and Estuarine Waters of California. Submitted to the California State Legislature as Required by the Coastal Ecosystems Protection Act of 2006.

California Department of Fish and Wildlife (CDFW). 2018a. California Natural Community List. 2018. Available at: https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities. Accessed: August 2018.

____. 2018b. Natural Diversity Database. August 2018. Special Animals List. Periodic publication. 66 pp. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline. Accessed: August 2018.

____. 2018c. Natural Diversity Database. November 2018. Special Vascular Plants, Bryophytes, and Lichens List. Periodic publication. 140 pp. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109383&inline. Accessed: April 2018.

____. 2018d. California Natural Diversity Database, RareFind 5, Version 5.2.14. Accessed March through July 2018. Available: https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data (Subscription required).

____. 2018e. Protocols Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. March 20, 2018.

____. 2018f. Marine Invasive Species Program. Available: https://www.wildlife.ca.gov/OSPR/Science/Marine-Invasive-Species-Program/Definition. Accessed: September 6, 2018.

California Department of Forestry and Fire Protection (CAL FIRE). 2007. Mendocino County Fire Hazard Severity Zones in SRA. http://frap.fire.ca.gov/webdata/maps/mendocino/fhszs_map.23.pdf. Accessed: September 26, 2018.

California Department of Parks and Recreation (CDPR). 1992. Manchester State Park Preliminary General Plan. State of California. Sacramento, CA.

____. 2005. Point Arena Mountain Beaver Habitat Protection Project, IS/MND, Manchester State Park. August. State of California, Sacramento, CA.

____. 2010. *Manchester State Park*. Available: https://www.parks.ca.gov/pages/437/files/ManchesterSPFinalWebLayout2015.pdf. Accessed: October 14, 2018.

____. 2018. Manchester State Park. Available: https://www.parks.ca.gov/?page_id=437. Accessed: September 24, 2018.

California Department of Resources Recycling and Recovery. 2018. SWIS Facility Detail Potrero Hills Landfill (48-AA-0075). https://www2.calrecycle.ca.gov/swfacilities/Directory/48-AA-0075/. Accessed: September 25, 2018.

California Department of Toxic Substances Control (DTSC). 2018. EnviroStor. https://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm. Accessed: September 25, 2018.

California Department of Transportation (Caltrans). 2011. California Scenic Highway Mapping System. Available: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm. Accessed: October 15, 2018.

____. 2015. Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish. Division of Environmental Analysis. Sacramento, CA. November.

____. 2016. *2016 Traffic Volumes on California State Highways*. Available: http://www.dot.ca.gov/trafficops/census/docs/2016_aadt_volumes.pdf. Accessed: October 3, 2018.

____. 2018a. Structure and Maintenance and Investigations, Historical Significance – Local Agency Bridges website. June. Available: http://www.dot.ca.gov/hq/structur/strmaint/hs_local.pdf. Accessed: July 30, 2018.

____. 2018b. Structure and Maintenance and Investigations, Historical Significance – State Agency Bridges website. June. Available: http://www.dot.ca.gov/hq/structur/strmaint/hs_state.pdf. Accessed: July 30, 2018.

California Department of Water Resources (DWR). 2004. Fort Bragg Terrace Area Groundwater Basin. (Bulletin 118.) February 27. Available: https://water.ca.gov/LegacyFiles/pubs/groundwater/bulletin_118/basindescriptions/1-21.pdf. Accessed: September 24, 2018.

____. No Date. Groundwater Information Center Interactive Map Application. Available: https://gis.water.ca.gov/app/gicima/. Accessed: September 24, 2018.

California Energy Commission (CEC). 2019. Energy Demand Update Forecast. California Energy Demand 2018–2030 Revised Baseline Forecast – High Demand Case.

California Geological Survey (CGS). 2002. *California Geomorphic Provinces.* Available: http://www.conservation.ca.gov/cgs/Documents/cgs-notes/Note_36.pdf. Accessed: September 20, 2018.

____. 2008. *Guidelines for Evaluating and Mitigating Seismic Hazards in California*. CDMG Special Publication 117a: Sacramento, CA. Available: http://www.conservation.ca.gov/cgs/Documents/shz/SP117.pdf. Accessed: September 25, 2018.

____. 2010. *Fault Activity Map of California.* Last revised: unknown. Available: http://maps.conservation.ca.gov/cgs/fam/. Accessed: September 20, 2018.

____. 2018. *CGS Information Warehouse: Mineral Land Classification.* Last revised: unknown. Available: http://maps.conservation.ca.gov/cgs/informationwarehouse/. Accessed: September 20, 2018.

California Invasive Plant Council (Cal-IPC). 2012. Preventing the Spread of Invasive Plants: Best Management Practices for Transportation and Utility Corridors. (Cal-IPC Publication 2012-1.) California Invasive Plant Council, Berkeley, CA. Available: www.cal-ipc.org.

California Native Plant Society (CNPS). 2019. A Manual of California Vegetation, Online Edition. http://www.cnps.org/cnps/vegetation/; searched on January 8, 2019. Sacramento, CA.

California State Lands Commission. 2017. *Coastal Hazards and Legacy Wells.* Accessed at: https://slc.ca.gov/coastal-hazards-legacy-wells/. Accessed: February 22, 2019.

Carpenter, Aurelius O. and Percy H. Millberry. 1914. History of Mendocino and Lake Counties, California with Biographical Sketches of the Leading Men and Women of the County Who Have Been Identified with Their Growth and Development from the Early Days to the Present. (Pages 41–49). Historic Records Company. Los Angeles, CA.

Chapman, C.E. 1921. A History of California: The Spanish Period. The Macmillan Company. New York, NY.

Consortium of California Herbaria. 2019. *Lasthenia conjugens search results.* Available: http://ucjeps.berkeley.edu/cgi-bin/get_consort.pl?taxon_name=Lasthenia%20conjugens. Accessed: February 14, 2019.

Council on Environmental Quality (CEQ). 1997. *Environmental Justice Guidance Under the National Environmental Policy Act*. December. Washington D.C.,

Davenport, C.W. 1984. (DMG Open-File Report 84-46.) Geology and Geomorphic Features Related to Landsliding, Point Arena 7.5' Quadrangle, Mendocino County, California, Scale 1:24,000. Last revised: unknown. Available: ftp://ftp.consrv.ca.gov/pub/dmg/pubs/ofr/ws/geomrfmp/cbgm_poa.pdf. Accessed: September 24, 2018.

Division of Mine Reclamation. 2018. *Mines Online.* Last revised: unknown. Available: https://maps.conservation.ca.gov/mol/index.html. Accessed: September 20, 2018.

Division of Mines and Geology. 1974a. *State of California Special Studies Zone, Mallo Pass Creek Quadrangle.* Last revised: Effective July 1, 1974. Available: http://gmw.conservation.ca.gov/SHP/EZRIM/Maps/MALLOPASS_CRK.PDF. Accessed: September 20, 2018.

___. 1974b. *State of California Special Studies Zone, Point Arena Quadrangle.* Last revised: Effective July 1, 1974. Available: http://gmw.conservation.ca.gov/SHP/EZRIM/Maps/PTARENA.PDF. Accessed: September 20, 2018.

Du X, Peterson W., J. Fisher, M. Hunter, J. Peterson. 2016. Initiation and Development of a Toxic and Persistent Pseudo-nitzschia Bloom off the Oregon Coast in Spring/ Summer 2015. PLoS ONE 11(10): e0163977. doi:10.1371/journal. pone.0163977.

Du X, Peterson W., L. O'Higgins. 2015. Interannual Variations in Phytoplankton Community Structure in the Northern California Current during the Upwelling Seasons of 2001–2010. *Mar Ecol Prog Ser* 519: 75–87. doi:10.3354/meps11097.

Dugan, J.E., D.M. Hubbard, K.J. Nielsen, J. Altstat, and J. Bursek. 2015. 2015 Final Report: Baseline Characterization of Sandy Beach Ecosystems along the South Coast of California. 134 pp.

Eargle, Dolan. 1986. The Earth is Our Mother: A Guide to the Indians of California, Their Locales and Historic Sites. Trees Company Press.

eBird. 2018. eBird: An Online Database of Bird Distribution and Abundance [web application]. eBird, Ithaca, New York. Available at: http://www.ebird.org. Accessed: November 2018.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. (Technical Report Y-87-1.) U.S. Army Waterways Experiment Station. Vicksburg, MS.

Fabre and Wilson. 1997. Noise Source Level Density Due to Surf – Part II: Duck, NC. IEEE Journal of Oceanic Engineering, 22(3), 425–433**.**

Federal Emergency Management Agency (FEMA). 2017. *National Flood Hazard Layer (Official).* Panels 1600 and 1750 of 2100, Maps #06045C1600G and 06045C1750G, dated July 18, 2017. Available: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd. Accessed: September 26, 2018.

Federal Highway Administration (FHWA). 2006. *Roadway Construction Noise Model User's Guide.* Available: https://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf. Accessed: October 3, 2018.

Fischer A.M., J.P. Ryan, C. Levesque, N. Welschmeyer. 2014. Characterizing Estuarine Plume Discharge into the Coastal Ocean Using Fatty Acid Biomarkers and Pigment Analysis. *Marine Environmental Research* 99: 106–116.

Hale. 2018. Sounds from Submarine Cable & Pipeline Operations. EGS Survey Group representing the International Cable Protection Committee. June 18.

Hezeen, B.C. 1957. Whales Entangled in Deep Sea Cables. *Deep Sea Research* 4: 105–115.

Horizon Water and Environment. 2012. Marine Life Protection Act—North Coast Study Region Draft Environmental Impact Report; Biological Resources. March.

ICF Jones & Stokes (ICF). 2009. Environmental Impact Report: California Marine Life Protection Act Initiative North Central Coast Marine Protected Areas Project. March. State Clearinghouse #2008062028. (ICF J&S 00447.08.) Oakland, CA. Prepared for California Department of Fish and Game, Sacramento, CA.

Intergovernmental Panel on Climate Change (IPCC). 2007. Climate Change 2007: *The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.* S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K. B. Averyt, M. Tignor, and H. L. Miller (eds.). Available: https://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-frontmatter.pdf. Accessed: August 13, 2018.

____. 2014. *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland. Available: http://www.ipcc.ch/report/ar5/syr/. Accessed: August 13, 2018.

Jennings, C. and R. Strand. 1960. *Geologic Map of California, Ukiah Sheet.* Last revised: Third printing 1992. Available: ftp://ftp.consrv.ca.gov/pub/dmg/pubs/gam/GAM_024_Ukiah/GAM_024_Map_1960.pdf. Accessed: September 20, 2018.

Jensen A.S. and G.K. Silber. 2003. Large Whale Ship Strike Database. US Department of Commerce, NOAA Technical Memorandum (NMFS-OPR.) 37 pp.

Jepson Flora Project. 2018. Jepson eFlora. University of Berkeley, Berkeley, California. Available: http://ucjeps.berkeley.edu/IJM.html. Accessed: 2018 field season.

Kroeber, A. L. (1976). *Handbook of the Indians of California*. Dover Publications. New York, NY.

Kyle, Douglas E. 2002. Historic Spots in California, Fifth Edition. Stanford University Press. Stanford, CA.

Laist, D.W. 1997. Impacts of Marine Debris: Entanglement of Marine Life in Marine Debris Including a Comprehensive List of Species with Entanglement and Ingestion Records. In: J.M. Coe and D.B. Rogers (Eds.) Marine Debris – Sources, Impacts and Solutions. Springer-Verlag. New York, NY. Pp. 99–139.

Leach-Palm, Laura, Paul Brandy, Pat Mikkelsen, Libby Seil, Darla Rice, Bryan Larson, Joseph Freeman, and Julia Costello. 2011. Cultural Resources Inventory of Caltrans District 1 Rural Conventional Highways in Del Norte, Humboldt, Mendocino and Lake Counties. Report No. 38865 on file at the Northwest Information Center; Rohnert Park, California.

Liao, Y., S. Derrega, C. Hall. 2015. A Case History Study on Causation of the Landslide in Santa Clara, California, USA. *Journal of Rock Mechanics and Geotechnical Engineering* 7(2015):185–192. Available: https://ac.els-cdn.com/S1674775515000232/1-s2.0-S1674775515000232-main.pdf?_tid=5f342c48-cda3-4111-ac99-5f2bdab3e3c5&acdnat=1537989390_7d0a74b3c3418b100d028957de540d1d. Accessed: September 26, 2018.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 Wetland Ratings. Phytoneuron 2016-30:1–17. Published 28 April 2016. ISSN 2153 733X. Available: http://www.phytoneuron.net. Accessed: July 5, 2018.

Loeb, E.M. 1926. Pomo Folkways. University of California Publications in America Archaeology and Ethnology 19(2):149–405. Berkeley, CA.

Mayer, K., E. and W.F. Laudenslayer, Jr. 1988. A Guide to Wildlife Habitats of California. K.E. Mayer and W. F. Laudenslayer Jr. (eds.). State of California, Resource Agency, Department of Fish and Game. Sacramento, CA.

McKenna et al. 2012. Underwater Radiated Noise from Modern Commercial Ships. Published in: Journal of the Acoustical Society of America. 131(1) 92:103. January.

McLendon, S., and M.J. Lowy. 1978. Eastern Pomo and Southeastern Pomo. Pp. 306–323 in R.F. Heizer (vol. ed.) and W.C. Sturtevant (gen. ed.), Handbook of North American Indians, Volume 8: California Smithsonian Institution. Washington, D.C.

McLendon, S. and R.L. Oswalt. 1978. Pomo: Introduction. Pages 274–288 in R. F. Heizer (vol. ed.) and W. C. Sturtevant (gen. ed.), Handbook of North American Indians, Volume 8: California. Smithsonian Institution. Washington, D.C.

Mendocino County. 1991a. Coastal Element of the Mendocino County General Plan. Revised March 1991.

____. 1991b. Appendix 3—*Geotechnical Evaluation Requirements.* Last revised: March 11, 1991. Available: https://www.mendocinocounty.org/home/showdocument?id=5252. Accessed: September 20, 2018.

____. 2006. Mendocino County Planning & Building Services. Wetland Exception – Ditches Memorandum. August 7.

____. 2008. *General Plan Update Environmental Impact Report, Chapter 4.6: Geology, Soils, and Mineral Resources.* Prepared by PMC, Davis, CA. (SCH: 2008062074.) Last revised: September. Available: https://www.mendocinocounty.org/home/showdocument?id=6412. Accessed: September 25, 2018.

____. 2009. *The County of Mendocino General Plan.* Last revised: August 2009. Available: https://www.mendocinocounty.org/home/showdocument?id=5234. Accessed: September 24, 2018.

____. 2013*. Mendocino County Zoning Display Map, Coastal Zone Central-South*. Available: https://www.mendocinocounty.org/home/showdocument?id=7084. Accessed: September 18, 2018.

Mendocino County Air Quality Management District (MCAQMD). 2005. Particulate Matter Attainment Plan. Available: http://www.co.mendocino.ca.us/aqmd/pdf_files/Attainment%20Plan_DRAFT.pdf. Accessed: February 26, 2019.

____. 2010. *Adopted Air Quality CEQA Thresholds of Significance*. Last Revised: June 2, 2010. Available: http://www.co.mendocino.ca.us/aqmd/pdf_files/MCAQMDCEQARecomendations.pdf. Accessed: September 17, 2018.

____. 2013. *Advisory District Interim CEQA Criteria and GHG Pollutant Thresholds.* Last Revised: December 2013. Available: http://www.co.mendocino.ca.us/aqmd/pdf_files/ceqa-criteria-and-ghg.pdf. Accessed: September 18, 2018.

Mendocino County Assessor's Office. 2014. Lands in Williamson Act and TPZ, 2014. Available: https://www.mendocinocounty.org/home/showdocument?id=7002. Accessed: October 16, 2018.

Mendocino County Operational Area Emergency Operations Plan. 2016. Mendocino County, CA. Approved by Resolution No. 16-119. September 13.

Merriam, C.H. 1966. Ethnographic Notes on California Indian Tribes. Three parts, R. F. Heizer (ed.). University of California Archaeological Survey Reports 68. Berkeley, CA.

Mersel, M.K. and R.W. Lichvar. 2014. *A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States*. Available: http://acwc.sdp.sirsi.net/client/search/asset/1036027.

National Marine Fisheries Service (NMFS). 2000. California Coastal Salmon and Steelhead Current Stream Habitat Distribution Table. Prepared by Weldon Jones. January. Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=10458. Accessed: November 13, 2018.

National Oceanic and Atmospheric Administration (NOAA). 1988. Wrecks and Obstructions Database. Office of Coast Survey. Online at: https://nauticalcharts.noaa.gov/data/wrecks-and-obstructions.html. Accessed: April 4, 2019.

____. 2018. NOAA. 2018. User Manual for Optional Spreadsheet Tool – 2018 Acoustic Technical Guidance. Accessed at: https://www.fisheries.noaa.gov/action/user-manual-optional-spreadsheet-tool-2018-acoustic-technical-guidance. Accessed: December 20, 2018.

National Park Service (NPS). 2018. National Register of Historic Places, Digital Archive on NPGallery. Electronic document. Available: https://npgallery.nps.gov/NRHP/AssetDetail?assetID=da1e17e0-ba70-449b-aaa4-91e723181dd5. Accessed: July 30, 2018.

Natural Resources Conservation Service (NRCS). 2018. *Web Soil Survey: Custom Soil Resource Report for Mendocino County, Western Part, California.* Last revised: August 21, 2017. Available: https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed: September 24, 2018.

Nedwell et al. 2003. Assessment of sub-sea acoustic noise and vibration from offshore wind turbines and its impact on marine wildlife; initial measurements of underwater noise during construction of offshore windfarms, and comparison with background noise Report. Subacoustech Report No. 544R0424 to COWRIE Ltd.

Newland and Much. 2008. A Century after Barret: a Village and Trail Network Model for the PDA'HAU Subdivision of the Central Pomo, Mendocino County, California. Sonoma State University, Rohnert Park, CA.

Nielsen, K.J., J.E. Dugan, T. Mulligan, D.M. Hubbard, S.F. Craig, R. Laucci, M.E. Wood, D.R. Barrett, H.L. Mulligan, N. Schooler, and M.L. Succow. 2017. Final Report: Baseline Characterization of Sandy Beach Ecosystems along the North Coast of California. Sandy Beach Ecosystems: Baseline Characterization of MPAs along the North Coast of California. May 31.

Nielsen, K.J., S.G. Morgan, and J.E. Dugan. 2013. Baseline characterization of sandy beach ecosystems in California's North-Central Coast region. Final Report for California Sea Grant. https://caseagrant.ucsd.edu/sites/default/files/RMPA-14_Nielsen_Morgan_Dugan_FinalReport.pdf.

North Coast Regional Water Quality Control Board (RWQCB). 2018. Water Quality Control Plan for the North Coast Region. June. Santa Rosa, California. Available at: https://www.waterboards.ca.gov/northcoast/water_issues/programs/basin_plan/basin_plan_documents/. Accessed: February 27, 2019.

Northwest Information Center (NWIC) of the California Historical Resources. 2018. Confidential Records Search for the Manchester Fiber Optic Project. Sonoma State University. November.

Ocean Protection Council. 2018. State of California Sea-Level Rise Guidance. 23 pp. Sacramento, CA.

Office of Environmental Health Hazard Assessment. 2018. California Environmental Protection Agency. Indicators of Climate Change in California. May. Sacramento, CA.

Office of Historic Preservation (OHP). 2012a. Archaeological Determinations of Eligibility for Mendocino County. Report on file at Northwest Information Center, Rohnert Park, CA.

____. 2012b. Historic Properties Data File for Mendocino County. Report on file at Northwest Information Center, Rohnert Park, CA.

____. 2018. Office of Historic Preservation, California Historical Landmarks, Mendocino County. Available: http://ohp.parks.ca.gov/?page_id=21431. Accessed: July 30, 2018.

Office of Planning and Research. 2019. General Plan Guidelines. Accessed at: http://www.opr.ca.gov/news/2018/11-20.html. Accessed: April 4, 2019. Sacramento, CA.

Oil & Gas Journal. 1992. Alaska-California Tanker Route to be at Least 50 Miles Offshore. Available: https://www.ogj.com/articles/print/volume-90/issue-23/in-this-issue/transportation/alaska-california-tanker-route-to-be-at-least-50-miles-offshore.html. Accessed: November 20, 2018.

Oppenheimer, D. 2018. *Mendocino Triple Junction Offshore Northern California.* Last revised: unknown. Available: https://woodshole.er.usgs.gov/operations/obs/rmobs_pub/html/mendocino.html. Accessed: September 24, 2018.

Pacific Fishery Management Council (PFMC). 2016. Pacific Coast Groundfish Fishery Management Plan for the California, Oregon, and Washington Groundfish Fishery. (National Oceanic and Atmospheric Administration Award Number NA05NMF441008.)

____. 2018a. Coastal Pelagic Species Fishery Management Plan as Amended through Amendment 16. (National Oceanic and Atmospheric Administration Award Number NA10NMF4410014.)

____. 2018b. Fishery Management Plan for U.S. West Coast Fisheries for Highly Migratory Species as Amended through Amendment 5. (National Oceanic and Atmospheric Administration Award Number NA05NMF441008.)

Pacific Gas and Electric Company (PG&E). 2018. PG&E Seeks Offers to Purchase Potter Valley Hydroelectric Facilities, Found in: PG&E Currents Newsletter. Available: https://www.pgecurrents.com/2018/09/06/pge-seeks-offers-to-purchase-potter-valley-hydroelectric-facilities/. Accessed: February 20, 2019.

Pacific Rocky Intertidal Monitoring: Trends and Synthesis, Marine Invasives Observation Map. 2018. Available: http://gordon.science.oregonstate.edu/marineinvasive/map.html. Updated may 5, 2018. Accessed: September 6, 2018.

Palmer, L.L. 1880. History of Mendocino County, California. Alley, Bowen & Co. San Francisco, CA.

ParcelQuest. 2018. PQ GIS & Data, Standardized, Statewide search for Manchester. Accessed at: https://www.parcelquest.com/gis-data/. Accessed: February 27, 2019.

Reşitoğlu, Ibrahim. 2018. NOx Pollutants from Diesel Vehicles and Trends in the Control Technologies. Available: <https://www.intechopen.com/online-first/nox-pollutants-from-diesel-vehicles-and-trends-in-the-control-technologies>. Accessed: March 18, 2019.

Robertson-Bryan. 2006. Suspended Solids and Turbidity Requirements of Freshwater Aquatic Life and Example Relationship Between TSS (MG/L) and Turbidity (NTUs) for a Treated Municipal Effluent. Technical Memorandum. Elk Grove, CA. Prepared March.

Schmidt et al. 2014. Using paleo-climate comparisons to constrain future projections in CMIP5. Climate of the Past Open Access. Published by Copernicus Publications on behalf of the European Geosciences Union. February 5.

Science Applications International Corporation (SAIC). 2000. Draft Mitigated Negative Declaration: AT&T Japan – U.S. Cable Network, Segments S8 and S9. Mendocino County and San Luis Obispo County, California. (SCH No. 2000031062, MND No. 702.) Prepared by Science Applications International Corporation. March

Shipley, W.F. 1978. Native Languages in California. Pp. 80-90 in R.F. Heizer (vol. ed.) and W.C. Sturtevant (gen. ed.), Handbook of North American Indians, Volume 8: California. Smithsonian Institution. Washington, D.C.

Society of Vertebrate Paleontology Impact Mitigation Guidelines Revision Committee (SVP). 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. Available: http://vertpaleo.org/Membership/Member-Ethics/SVP_Impact_Mitigation_Guidelines.aspx. Accessed: September 26, 2018.

State Water Resources Control Board (SWRCB). 2015. GeoTracker. Available: https://geotracker.waterboards.ca.gov/. Accessed: September 25, 2018.

____. 2018a. Available: https://calepa.ca.gov/wp-content/uploads/sites/6/2016/10/SiteCleanup-CorteseList-CurrentList.pdf. Accessed: September 25, 2018.

____. 2018b. List of “active” CDO and CAO from Water Board. Available: https://calepa.ca.gov/sitecleanup/corteselist/. Accessed: September 25, 2018.

Theodoratus, D.J. 1974. Cultural and Social Change among the Coast Central Pomo. Journal of California Anthropology 1(2):206–219.

Thompson, B., J. Dixon, S. Schroeter, and D.J. Reish. 1993. Benthic Invertebrates. Chapter 8 in: Dailey, M. D., D. J. Reish, and J. W. Anderson (eds.). 1993. Ecology of the Southern California Bight: A Synthesis and Interpretation. Univ. Ca. Press, Los Angeles, CA. 926 pp.

U.S. Army Corps of Engineers (USACE). 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0), ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. (ERDC/EL TR-10-3.)

U.S. Census Bureau. 2018. *American FactFinder—Community Facts*. Available: https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml#. Accessed: November 19, 2018

U.S. Environmental Protection Agency (EPA). 1977. Guidance for Evaluating the Adverse Impact of Cooling Water Intake Structures on the Aquatic Environment. Section 316(b) P.L. 92-500.

____.2015. Criteria Air Pollutants. America’s Children and the Environment. Third Edition, Updated October.

____. 2018a. Nonattainment Areas for Criteria Pollutants. Last Revised: August 31, 2018. Available: https://www.epa.gov/green-book. Accessed: September 17, 2018.

___. 2018b. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2016*. Available: https://www.epa.gov/sites/production/files/2018-01/documents/2018_complete_report.pdf. Accessed: August 10, 2018.

U.S. Fish and Wildlife Service (USFWS). 1985. Recovery Plan for the Lotis Blue Butterfly. Region 1, Portland Oregon.

___. 1998. Point Arena Mountain Beaver (*Aplodontia rufa nigra* [Rafinesque]) Recovery Plan. Region 1, Portland Oregon.

___. 2017. Draft Point Arena Mountain Beaver Standard Protection Measures for "No Take" Determinations. Arcata Fish and Wildlife Office. Arcata, CA.

___. 2018. Information for Planning and Consultation. Arcata Fish and Wildlife Office. Arcata, CA. Available at: http://ecos.fws.gov/ipac. Accessed: September 13, 2018.

University of California at Davis Bodega Marine Laboratory (UCD BML). 2018. Research Programs; Ecology, Evolution and Conservation. Available: http://bml.ucdavis.edu/research/research-programs/ecology-evolution-conservation/. Accessed: September 6, 2018.

University of California Museum of Paleontology (UCMP). 2018a. UCMP Advanced Specimen Search: Vertebrates and Franciscan, Gallaway, and Skooner Gulch Formations. Available: http://ucmpdb.berkeley.edu/advanced.html. Accessed: September 27, 2018.

___. 2018b. UCMP Specimen Search: Mendocino County. Available: http://ucmpdb.berkeley.edu/. Accessed: September 27, 2018.

___. 2018c. UCMP Advanced Specimen Search: Vertebrates and Pleistocene marine vertebrates. Available: http://ucmpdb.berkeley.edu/advanced.html. Accessed: September 27, 2018.

Wagner, D.L. and E.J. Bortugno. 1982. *Geologic Map of the Santa Rosa Quadrangle.* Available: ftp://ftp.consrv.ca.gov/pub/dmg/pubs/rgm/RGM_002A/RGM_002A_SantaRosa_1982_Sheet1of5.pdf. Accessed: September 20, 2018.

Watters, D.L., M.M. Yoklavich, M.S. Love, and D.M. Schroeder. 2010. Assessing Marine Debris in Deep Seafloor Habitats off California. *Marine Pollution Bulletin*, 60: 131-138.

Wood, M.P. and L. Carter. 2009. Whale Entanglements with Submarine Telecommunication Cables. *IEEE Journal of Oceanic Engineering*, 33(4): 445–450.

Zabin, C.J., M. Marraffini, S.I. Lonhart, L. McCann, L. Ceballos, C. King, J. Watanabe, J.S. Pearse, and G.M. Ruiz. 2018. Non-Native Species Colonization of Highly Diverse, Wave Swept Outer Coast Habitats in Central California. *Marine Biology* 165:31.

6.3.1 Personal Communications

Franzoia. 2019. Pers. Comm. Email dated February 12, 2019 to Karin Lilienbecker from Al Franzoia, California State Lands Commission, Land Management Division. Sacramento, CA.

PAGE INTENTIONALLY LEFT BLANK